

Name of Municipality: TOWN OF ORANGETOWN Date Submitted: \_\_\_\_\_

**2021 LAND USE BOARD APPLICATION**

*Please check all that apply:*

<input type="checkbox"/> Planning Board	<input checked="" type="checkbox"/> Commercial	<input type="checkbox"/> Residential
<input checked="" type="checkbox"/> Zoning Board of Appeals		<input type="checkbox"/> Historical Board
		<input type="checkbox"/> Architectural Board
<input type="checkbox"/> Subdivision		<input type="checkbox"/> Consultation
<input type="checkbox"/> Number of Lots		<input type="checkbox"/> Pre-Preliminary/Sketch
<input type="checkbox"/> Site Plan		<input type="checkbox"/> Preliminary
<input type="checkbox"/> Conditional Use		<input type="checkbox"/> Final
		<input type="checkbox"/> Interpretation
<input type="checkbox"/> Special Permit		
<input type="checkbox"/> Variance		
<input checked="" type="checkbox"/> Performance Standards Review		
<input type="checkbox"/> Use Variance		
<input type="checkbox"/> Other (specify): _____		

**PERMIT#:** \_\_\_\_\_

**ASSIGNED**

**INSPECTOR:** \_\_\_\_\_

Referred from Planning Board: YES / NO  
If yes provide date of Planning Board meeting: \_\_\_\_\_

**Project Name:** 100 Corporate Drive - Existing Garage Activation Project

**Street Address:** 100 Corporate Drive, Blauvelt NY, 10913

**Tax Map Designation:**  
Section: 65.18 Block: 1 Lot(s): 16  
Section: \_\_\_\_\_ Block: \_\_\_\_\_ Lot(s): \_\_\_\_\_

**Directional Location:**  
On the West side of Route 303, approximately 0 feet Southwest of the intersection of Corporate Drive, in the Town of ORANGETOWN in the hamlet/village of Blauvelt.

<b>Acreage of Parcel</b> <u>6.92</u>	<b>Zoning District</b> <u>LI/LIO</u>
<b>School District</b> _____	<b>Postal District</b> _____
<b>Ambulance District</b> _____	<b>Fire District</b> _____
<b>Water District</b> _____	<b>Sewer District</b> _____

**Project Description:** *(If additional space required, please attach a narrative summary.)*  
Installation of Town required oil-water separator, storm drains, exhaust ventilation appurtenances, and access controls.

The undersigned agrees to an extension of the statutory time limit for scheduling a public hearing.  
Date: 5/12/2021 Applicant's Signature: [Signature]

# APPLICATION REVIEW FORM

**Applicant:** Onyx Management Group LLC Phone # 732-850-5689

**Address:** 900 Route 9 North, Suite 400 Woodbridge NJ 07095  
Street Name & Number (Post Office) City State Zip Code

**Property Owner:** PG-OE 100 Corporate Drive Owner LLC Phone # 732-850-5689

**Address:** 900 Route 9 North, Suite 400 Woodbridge NJ 07095  
Street Name & Number (Post Office) City State Zip Code

**Engineer/Architect/Surveyor:** Walker Consultants Phone # 212-288-2501

**Address:** 49 West 38th Street New York NY 10018  
Street Name & Number (Post Office) City State Zip Code

**Attorney:** Seth M. Mandelbaum Phone # 914-949-6400

**Address:** 1311 Mamaroneck Ave., Suite 340 White Plains NY 10605  
Street Name & Number (Post Office) City State Zip Code

**Contact Person:** Nicole Vasquez Phone # 732-850-5689

**Address:** 900 Route 9 North, Suite 400 Woodbridge NJ 07095  
Street Name & Number (Post Office) City State Zip Code

## GENERAL MUNICIPAL LAW REVIEW:

This property is within 500 feet of:  
(Check all that apply)

**IF ANY ITEM IS CHECKED, A REVIEW MUST BE DONE BY THE ROCKLAND COUNTY COMMISSIONER OF PLANNING UNDER THE STATE GENERAL MUNICIPAL LAW, SECTIONS 239 L, M, N, AND NN.**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> State or County Road | <input type="checkbox"/> State or County Park |
| <input type="checkbox"/> Long Path                       | <input type="checkbox"/> County Stream        |
| <input type="checkbox"/> Municipal Boundary              | <input type="checkbox"/> County Facility      |

List name(s) of facility checked above:  
State Route 303

### Referral Agencies:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> RC Highway Department       | <input type="checkbox"/> RC Division of Environmental Resources  |
| <input type="checkbox"/> RC Drainage Agency                     | <input type="checkbox"/> RC Dept. of Health                      |
| <input checked="" type="checkbox"/> NYS Dept. of Transportation | <input type="checkbox"/> NYS Dept. of Environmental Conservation |
| <input type="checkbox"/> NYS Thruway Authority                  | <input type="checkbox"/> Palisades Interstate Park Commission    |
| <input type="checkbox"/> Adjacent Municipality _____            |  |
| <input type="checkbox"/> Other _____                            |  |

# APPLICATION REVIEW FORM

## FILL IN WHERE APPLICABLE.

( IF THE FOLLOWING DOES NOT APPLY PLEASE MOVE ON TO THE NEXT PAGE )

### If subdivision:

- 1) Is any variance from the subdivision regulations required? \_\_\_\_\_
- 2) Is any open space being offered? \_\_\_\_ If so, what amount? \_\_\_\_\_
- 3) Is this a standard or average density subdivision? \_\_\_\_\_

### If site plan:

- 1) Existing square footage \_\_\_\_\_
- 2) Total square footage \_\_\_\_\_
- 3) Number of dwelling units \_\_\_\_\_

If special permit, list special permit use and what the property will be used for.

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### Environmental Constraints:

Are there slopes greater than 25%? If yes, please indicate the amount and show the gross and net area \_\_\_\_\_

Are there streams on the site? If yes, please provide the names. \_\_\_\_\_

Are there wetlands on the site? If yes, please provide the names and type:

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### Project History:

Has this project ever been reviewed before? \_\_\_\_\_

If so, provide a narrative, including the list case number, name, date, and the board(s) you appeared before, and the status of any previous approvals.

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List tax map section, block & lot numbers for all other abutting properties in the same ownership as this project.

65.18-1-6, 65.18-1-27, 65.18-1-17

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OFFICE OF BUILDING, ZONING, PLANNING,  
ADMINISTRATION AND ENFORCEMENT  
TOWN OF ORANGETOWN  
20 Greenbush Road  
Orangeburg, N.Y. 10962

Jane Slavin, R.A.  
Director

(845)359-8410

Fax: (845) 359-8526

**DENIAL TO THE ZONING BOARD OF APPEALS**

Date: February 23, 2021

Applicant: AG-OE 100 Corporate Dr LLC

Address: 100 Corporate Dr, Blauvelt, NY, 10913

RE: Application Made at: same

Chapter 43, §4.12 Performance Standards Procedure: Uses specified in Use Table 3.11, Columns 2, 3, & 4, are subject to Performance Standards Procedure requiring Zoning Board Approval as specified in §10.334.

Section: 65.18 Block: 1 Lot: 16

Dear AG-OE 100 Corporate LLC

Please be advised that the Building Permit Application, which you submitted on

February 17, 2021, has been denied. I have enclosed a Xerox copy of your application, where you will find at the bottom the reason for denial.


**In Accordance with Zoning, Chapter 43 Section 10.322 the time to appeal a determination of a Building Inspector or Similar administrative office is thirty (30) days from the filing of such a determination with the Town Clerk.**

The Clerk to the Zoning Board of Appeals, Debbie Arbolino, will assist you in the preparation necessary to appear before the board.

Sincerely,

  
Richard Oliver  
Deputy Building Inspector

Signature of Director  
NOTE: PLEASE KEEP FOR YOUR RECORDS  
12-31-18-CCC

  
Date  
CC: Rosanna Sfraga  
Liz Decort  
Debbie Arbolino



**PERMIT EXPIRES TWO (2) YEARS FROM DATE OF ISSUANCE.  
TWO SIX (6) MONTH EXTENSIONS MAY BE GRANTED PRIOR TO EXPIRATION DATE.  
APPLICATION FOR BUILDING / DEMOLITION PERMIT**

**TOWN OF ORANGETOWN**

20 Greenbush Road, Orangeburg, NY 10962 Phone: (845) 359-8410 Fax: (845) 359-8526

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ZONE: <u>L1</u>	OFFICIAL USE ONLY	ACREAGE: <u>6.92</u>
Inspector: <u>MM</u>	Date App Received: <u>2-17-2021</u>	Received By: <u>[Signature]</u>
Permit No. <u>51115</u>	Date Issued: _____	
CO No. _____	Date Issued: _____	
Permit Fee: <u>\$3480</u>	Ck# <u>56278</u>	Paid By <u>Hauser Bros, Inc</u>
GIS Fee: <u>\$190</u>	Ck# <u>56279</u>	Paid By <u>" "</u>
Stream Maintenance Fee <u>30'</u>	Ck # <u>56280</u>	Paid By <u>" "</u>
Additional Fee: _____	Ck# _____	Date Paid _____ Paid By _____
1 <sup>st</sup> 6 mo. Ext.: _____	Ck # _____	Exp. Date: _____ Paid By _____
2 <sup>nd</sup> 6 mo. Ext.: _____	Ck # _____	Exp. Date: _____ Paid By _____

**APPLICANT COMPLETES:**

**Note: See inside for instructions for completing this application,  
PAGES 2, 3 and PAGE 4 must be reviewed and PAGES 3 & 4 must signed by the applicant.**

Property Location: 100 Corporate Drive Blauvelt, NY 10913

Section: 65.18 Block: 1 Lot: 16

Property Owner: AG-OE 100 Corporate Drive Owner, L.L.C.

Mailing Address: 900 Route 9 North Woodbridge, NJ 07095

Email: shanley@onyxequities.com Phone #: 201-913-3861

Lessee (Business Name): N/A

Mailing Address: \_\_\_\_\_

Email: \_\_\_\_\_ Phone #: \_\_\_\_\_

Type of Business /Use: Parking Garage

Contact Person: Stewart Hanley Relation to Project: Property manager

Email: shanley@onyxequities.com Phone#: 201-913-3861

Architect/Engineer: DJM Engineering NYS Lic # 24GA28223400

Address: 606 Union Avenue, #3 Brielle, NJ 08730 Phone#: 732-223-2332

Builder/General Contractor: N/A RC Lic # \_\_\_\_\_

Address: \_\_\_\_\_ Phone#: \_\_\_\_\_

Plumber: Hauser Bros. Inc. RC Lic # 1010

Address: 17 Old Schoolhouse Lane Blauvelt, NY 10962 Phone#: 845-359-2957

Electrician: N/A RC Lic #: \_\_\_\_\_

Address: \_\_\_\_\_ Phone#: \_\_\_\_\_

Heat/Cooling: N/A RC Lic#: \_\_\_\_\_

Address: \_\_\_\_\_ Phone#: \_\_\_\_\_

Existing use of structure or land: Commercial use

Proposed Project Description: Conversion of vacant space into parking level. necessary parking for other businesses in building

Proposed Square Footage: 60,000 Estimated Construction Value (\$): 186,000

**BUILDING DEPARTMENT COMPLETES BELOW**

PLANS REVIEWED: \_\_\_\_\_

PERMIT REFERRED / DENIED FOR: Chapter 43, Section 4.12 Performance Standards Procedure: Use specified in the table 3.11, Columns 2, 3, & 4 are subject to Performance Standards Procedure requiring zoning board approval as specified in section 10-334

[Signature] Deputy 2/23/2021

FOR OFFICE USE ONLY SECTION \_\_\_\_\_ BLOCK \_\_\_\_\_ LOT \_\_\_\_\_ NAME \_\_\_\_\_ PERMIT# \_\_\_\_\_

<u>SWIS</u>	<u>PRINT KEY</u>	<u>NAME</u>	<u>ADDRESS</u>
392489	65.18-1-6	AG OE 200 Corporate Drive Onyx Management Group	900 Route 9 North Ste 400,Woodbridge, NJ 07095
392489	65.18-1-7	LIA Realty LLC	1258 Central Ave,Albany, NY 12205
392489	65.18-1-9	Advanced Manofa LLC	614 Route 303,Blauvelt, NJ 10913
392489	65.18-1-13	Steven Finn	25 Whittier Rd,Blauvelt, NY 10913
392489	65.18-1-14	Deanna Lamhut	29 Whittier Rd,Blauvelt, NY 10913
392489	65.18-1-15	Raffe Balabanian	579 Rte 303,Blauvelt, NY 10913
392489	65.18-1-16	AG OE 100 Corporate Drive Onyx Management Group	900 Route 9 North Ste 400,Woodbridge, NJ 07095
392489	65.18-1-17	Bradley Pkwy Holding LLC	26 West 17th St,New York, NY 10011
392489	65.18-1-27	AG OE 400 Corporate Drive Onyx Management Group	900 Route 9 North Ste 400,Woodbridge, NJ 07095

**65.18-1-6**  
**AG OE 200 Corporate Drive / Onyx Mngmt. Grp.**  
**900 Route 9 North Ste 400**  
**Woodbridge NJ 07095**

**65.18-1-7**  
**LIA Realty LLC**  
**1258 Central Ave.**  
**Albany NY 12205**

**65.18-1-9**  
**Advanced Manolta LLC**  
**614 Route 303**  
**Blauvelt NJ 10913**

**65.18;1-13**  
**Steven Finn**  
**25 Whittier Rd.**  
**Blauvelt NJ 10913**

**65.18-1-14**  
**Deanna Lamhut**  
**29 Whittier Rd.**  
**Blauvelt NJ 10913**

**65.18-1-15**  
**Raffe Balabanian**  
**579 Rte 303**  
**Blauvelt NJ 10913**

**65.18-1-16**  
**AG OE 100 Corporate Drive**  
**900 Route 9 North Ste 400**  
**Woodbridge NJ 07095**

**65.18-1-17**  
**Onyx Management Group**  
**Bradley Pkwy Holding LLC**  
**26 West 17th St.**  
**New York NY 10011**

**65.18-1-27**  
**AG OE 400 Corporate Drive/Onyx Mngmt. Grp.**  
**900 Route 9 North Ste 400**  
**Woodbridge NJ 07095**

McCULLOUGH, GOLDBERGER & STAUDT, LLP

ATTORNEYS AT LAW

1311 MAMARONECK AVENUE, SUITE 340

WHITE PLAINS, NEW YORK

10605

(914) 940-6400

FAX (914) 940-2510

WWW.MCCULLOUGHGOLDBERGER.COM

FRANK S. McCULLOUGH (1905-1988)  
EVANS V. BREWSTER (1920-2005)

FRANK S. McCULLOUGH, JR.  
JAMES STAUDT  
LINDA B. WHITEHEAD  
SETH M. MANDELBAUM

AMANDA L. BROSY  
EDMUND C. GRAINGER, III  
PATRICIA W. GURAHIAN  
MEREDITH A. LEFF  
MORGAN H. STANLEY  
KEVIN E. STAUDT  
STEVEN M. WRABEL

CHARLES A. GOLDBERGER  
COUNSEL

May 14, 2021

Honorable Chairman Dan Sullivan  
and Members of the Zoning Board of Appeals  
Town of Orangetown  
26 W. Orangeburg Rd.,  
Orangeburg, NY 10962

Re: Application for Performance Standards Review  
Existing Garage Activation  
100 Corporate Drive

Dear Hon. Chairman Sullivan and Members of the Zoning Board of Appeals:

This firm represents Onyx Management Group, LLC<sup>1</sup> (the "Applicant"), the manager of the properties identified as Section 65.18, Block 1, Lot 16 (owned by PG-OE 100 Corporate Drive Owner, LLC) on the Town of Orangetown Tax Map and commonly known as 100 Corporate Drive (the "Property"). The Property is located within the LI and LIO Zoning Districts and is improved by a three-story commercial building. *See* enclosed Survey.

The existing three-story commercial building features tenant spaces on the first and third levels, with an existing indoor-parking area occupying the second level. With this application, the Applicant is proposing a series of improvements to the second level parking area to prepare it for use in service of existing and future tenants at the Property. Specifically, the Applicant is proposing residual rainwater and ventilation measures for the existing parking area, as well as new garage door control equipment.

New rainwater controls proposed for the parking area include the installation of a new oil-water separator and additional drains to ensure proper water management within the garage. Additionally, airflow and ventilation improvements in the form of new exhaust vents and airflow louvers are proposed to provide proper ventilation for the enclosed parking area. Finally, because the parking level will be used for the first time since the building was first constructed, the

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<sup>1</sup> Onyx Management Group, LLC has been authorized by the owners of the property, to manage the properties, including leasing the properties and applying for any necessary permits and land use approvals. Therefore, Onyx Management Group, LLC is the Applicant for this application.

Applicant is proposing to install new access and control equipment to regulate access to the garage level and operate the garage door automatically. With the new access controls, the garage doors will be kept open during general business hours and will only be closed and operated by authorized tenants after business hours.

We are pleased to provide the following documents in support of this application, enclosed with checks for the required fees:

1. Signed, completed Part I and Part II of the Zoning Board of Appeals Application, dated May 12, 2021;
2. Building Permit Denial Application for 100 Corporate Drive, signed by the Director of the Building Department, dated February 23, 2021;<sup>2</sup>
3. Completed and signed Performance Standards Resume of Equipment, dated May 12, 2021;
4. Signed Short Environmental Assessment Form, dated May 12, 2021;<sup>3</sup>
5. Deed to the Property;
6. Organizational chart;
7. Two (2) copies of the interior improvement plans, prepared by DJM Consulting Engineering, dated October 5, 2020;
8. Two (2) copies of the Site Survey, prepared by Control Point Associates, Inc. PC dated January 21, 2021, revised March 15, 2021; and,
9. Noticing list and envelopes.

The requisite 15 additional copies of the Interior Improvement Plans and Site Survey will be submitted to the ZBA upon Town Staff's determination that the application is complete. We respectfully request that this matter be placed on the next available Zoning Board of Appeals agenda for review and consideration of granting Performance Standards Approval. If you have any questions or require additional information, please do not hesitate to contact our office.

Very truly yours,



Seth M. Mandelbaum

SMM:mhs

Enc.

cc: Onyx Equities, LLC

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<sup>2</sup> The Assistant Building Inspector has confirmed that because there were multiple building permit applications filed for the work proposed in this application, the Applicant should file a single ZBA application for Performance Standards Approval for comprehensive review of the proposed improvements.

<sup>3</sup> As an application to upgrade existing facilities to meet current air quality and stormwater treatment standards for the enclosed parking area, we believe this is a Type II action exempt from SEQRA pursuant to 6 NYCRR 617.5(C)(2)-(3). However, a Short EAF has been enclosed for the Board's convenience.



# Town of Orangetown

## Resume of Operations and Equipment

### Application Instructions

This application is to define equipment and operations for a new or existing facility or process to determine applicability to Town of Orangetown Performance Standards. The information herein is required for the Town Zoning Board to make such determination regarding the Applicant's proposed use of the land.

Do not start work before obtaining necessary permits to avoid subjecting the Applicant and contractors engaged in The Project to enforcement action, which could include: 1) civil or criminal court action, or both; 2) fines; 3) an order to remove structures or materials or perform other remedial action; or 4) both a fine and an order.

If the facility has existing and applicable local, county, state or federal permits, licenses or certifications, copies of such are to be listed below and included in this application.

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

Type of Permit <small>e.g., air, water, waste, etc.</small>	Agency <small>local, county, state, federal</small>	Submitted Paper Copy? Y or N	URL or Website Information
N/A			

**The Applicant must provide information and background showing the derivation of anticipated air emissions, water discharges and waste disposal, appropriate to the Projects' applicability to Town Performance Standards.**

This PDF document is based on Microsoft's Excel format converted to PDF. Data can be entered directly into the areas designated, or the application may be printed and filled in by hand. To fill in electronically, open this document in Adobe Acrobat, click on "Typewriter" under "Tools", and begin typing. Font size is restricted. Additional pages can be included in the application.

Town of Orangetown  
Resume of Operations and Equipment

This Application is required for the Town to make a determination regarding the applicant's proposed use of the land and buildings. Attach Additional Sheets as Needed.

### Certification and Identification Information

**Type of Action/Application:** Place an "X" to the left of the appropriate categories.

<input checked="" type="checkbox"/>	New	<input type="checkbox"/>	Significant Modification	Other:
<input type="checkbox"/>	Renewal	<input type="checkbox"/>	Administrative Amendment	
<input type="checkbox"/>	Minor Action	<input type="checkbox"/>	Major Action	

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein in this application, and information in support of it, and that based on my inquiry of those individuals responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

<b>Responsible Official:</b> Nicole Vasquez <small>Print</small>	<b>Title:</b> Representative of Owner
<b>Signature:</b>	<b>Date:</b> 5/12/2021
<b>Phone:</b> 732-850-5689	<b>Email:</b> Nvasquez@onyxequities.com

### Facility / Owner Information

<b>Facility Name:</b> 100 Corporate Drive at Hudson Crossing	
<b>Facility Address:</b> 100 Corporate Drive, Blauvelt NY, 10913	
<b>Owner Name:</b> PG-OE 100 Corporate Drive Owner LLC	<b>Business EIN:</b>
<b>Street:</b> 100 Corporate Drive	<b>ZIP:</b> 10913
<b>City/Town:</b> Blauvelt	<b>State/Province:</b> NY

<b>Ownership:</b>	<input type="checkbox"/>	Corporation	<input type="checkbox"/>	Individual
Place "X" to left of box	<input type="checkbox"/>	Partnership	<input checked="" type="checkbox"/>	Other: Limited Liability Company

### Owner/Firm/Facility Contact

<b>Name:</b> Nicole Vasquez	<b>Phone:</b> 973-735-2274
<b>Street Address:</b> 900 Route 9 North, Suite 400	<b>Fax:</b>
<b>City/Town:</b> Woodbridge	<b>ZIP:</b> 07095
<b>State/Province:</b> New Jersey	<b>Country:</b> US
<b>Affiliation:</b> Representative of Owner	<b>Title:</b>
<b>Email:</b> nvasquez@onyxequities.com	

Town of Orangetown  
Resume of Operations and Equipment

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

**BUILDING & PROPERTY**

Property Footprint, total sq. ft./acres	6.92 acres
Footprint, Largest structure, sq. ft.	~180,000 sf
Highest 'Story' on Site	3
Total No. Structures	1

Parking sq. ft.	~60,000
No. Parking Spots	376
Full Time Employees	N/A
Part Time Employees	N/A

**STATE ENVIRONMENTAL QUALITY REVIEW**

This application requires completing and submitting to the Town only, the New York State Department of Environmental Conservation's Short Environmental Assessment Form, Appendix B to 6NYCRR 617.20. Some of this information may be duplicated herein. This form can be accessed at:

[http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/seafpartone.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/seafpartone.pdf)

**The applicant must provide floor plans showing location of equipment, work stations, vents, exhausts, chimneys or stacks, and associated industrial processes.**

**OPERATIONS**

<b>Primary Line(s) of Business:</b>	<b>NAICS:</b>	<b>SIC:</b>
1. Parking area	1.	1.
2.	2.	2.
3.	3.	3.
Week Days Operating 7		
No. Shifts per Day 0		
Hours per Day Operating		

**Principal Products of Manufacture/Assembly/Business**

1. N/A
2.
3.
4.
5.



Town of Orangetown  
Resume of Operations and Equipment

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

**NOISE**

Based on descriptive decibel levels of Table A (following page), decibel corrections shown below as appropriate, and in accordance with the Town's Noise Performance Standard 4.181, evaluate the noise level for the processes you list below.

When appropriate, "frequency band cycles" as described in the Town's Noise Performance Standard will be evaluated by the facility in the event of non-compliance with levels proposed for this project. The Town may request this evaluation during the application process if more complex noise patterns are expected.

Type of Operation of Character of Noise	Decibel Correction
Daytime operation only	Plus 5
Noise source operates less than 20% of any one hour period	Plus 5
Noise source operates less than 5% of any one-hour period	Plus 10
Noise source operates less than 1% of any one-hour period	Plus 15
Noise of impulsive character (hammering, etc.)	Minus 5
Noise of periodic character (hum, screech, etc.)	Minus 5

Use dB categories in Table A <small>following page</small>	Noise Level/Range Anticipated Outdoor:			
'Loudest' Producers of Noise <small>Include construction and process operations.</small>	During Time of Busiest Activity	During Time of Slowest Activity	Frequency per day or Specific Time Ranges	Duration, denote hours or minutes
1. Automobile traffic			6am - 8pm*	
2. Garage door operation			8pm - 6am*	
3.				
4.				
5.				

\*The garage door will be kept open during business hours, and only closed after-hours. Accordingly, the garage door will only be operated sparingly by authorized tenants after general business hours.

**VIBRATION**

It is understood that the applicant is familiar with, and anticipates compliance with, the Town's Vibration Performance Standard, 4.171, during project construction and ultimate project operations. Any anticipated aberrations from this expectation should be detailed below.

Town of Orangetown  
Resume of Operations and Equipment

**TABLE A**  
**Decibel Levels**

0	healthy hearing threshold
10	a pin dropping
20	rustling leaves; quiet rural area, nighttime
30	whisper, faint; quiet suburban area, nighttime
40	babbling brook, bird calls; quiet urban area, nighttime; computer
50	light traffic; quiet urban area, daytime; refrigerator; residential air conditioner @ 50'
60	conversational speech @ 3'; air conditioner; heavy traffic @ 300'
70	shower; living room music; dishwasher
75	toilet flushing; vacuum cleaner; gas lawnmower @ 100', commercial area
80	alarm clock; garbage disposal; noisy urban area, daytime
85	passing diesel truck; snow blower
90	squeeze toy; lawn mower, food blender, motorcycle @ 25'; arc welder; diesel truck @ 50' @ 50 mph.
95	inside subway car; food processor; belt sander
100	motorcycle (riding); loud auto horn @ 10'; lawn mower @ 3'; handheld drill
105	sporting event; table saw

110	rock band; jackhammer, jet flyover @ 1000 ft.
115	emergency vehicle siren; riveter
120	thunderclap; oxygen torch
125	balloon popping
130	peak stadium crowd
135	air raid siren, near jet engine
140	jet engine at takeoff
145	firecracker
150	fighter jet launch
155	cap gun
160	shotgun
165	.357 magnum revolver
170	safety airbag
175	howitzer cannon
180	rocket launch
194	sound waves become shock waves

Most noise levels are given in dBA, which are decibels adjusted to reflect the ear's response to different frequencies of sound. Sudden, brief impulse sounds, like many of those shown at 120 dB or greater, are often given in dB (no adjustment).

30 faint

50 moderate

70 loud

90 very loud

120 deafening

130 threshold of pain

Town of Orangetown  
Resume of Operations Equipment

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

**Permits and Applicable Local, County, State & Federal Regulations**

Does the new or modified facility, process(es) or equipment require ANY additional permits, licenses, certifications or other authorizations under local, county, state or federal jurisdiction, or adherence to the regulations below? If so, list the main applicable regulatory parts for each category.

For example, NYSDEC Air State Facility Permit: Part 201-5; industrial wastewater discharge, State Pollutant Discharge Elimination System (SPDES), Part 750; large gas burning engines, NSPS Subpart JJJJ.

Answers in the positive may cause the Town to only conditionally approve this project until these other requirements are met. Additional information and specificity of regulations may be required. It is the applicant's responsibility to provide proof of evidence of meeting all requirements.

**AIR\***

- EPA New Source Performance Standards
- NYSDEC:
  - Registration
  - Air State Facility Permit
  - Federal Title V Major Facility Permit

**PRIMARY APPLICABLE REGULATIONS**


**WASTE\*\***

- Pesticide Control
- Solid & Hazardous Waste
- Radiation
- Mineral Resources & Mined Land Reclamation
- Noise from Heavy Motor Vehicles


**RESOURCE MANAGEMENT\*\*\***

- Land Use
- Mineral Resources
- Invasive Species
- Real Property and Land Acquisitions
- Water Regulation


**WATER\*\*\*\***

- All other water applicable matters

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**GENERAL**

- State Environmental Quality Review
- New York State Department of Health
- Uniform Procedures per 6NYCRR 621.1
- NYS Department of State
- Additional


\* <http://www.dec.ny.gov/regs/2492.html>  
 \*\* <http://www.dec.ny.gov/regs/2491.html>  
 \*\*\* <http://www.dec.ny.gov/regs/2490.html>  
 \*\*\*\* <http://www.dec.ny.gov/regs/2485.html>

Town of Orangetown  
Resume of Operations and Equipment

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

**Combustion Sources**

Combustion Source (engine, turbine, boiler, etc.)	No. of Units	Equipment Rating List HP, KW, MMBtu/hr, CFM with units	Fuels (e.g., natural gas, fuel oil, distillate or residual oil, waste oil, wood)
N/A			

**Processes**

Will any process, including combustion, use or storage, disposal, discharge, emission, or release to the environment, be applicable and/or reportable to:	*
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EPA Greenhouse Gas Reporting	
EPA Toxic Release Inventory	
National Emission Standards for Hazardous Air Pollutants	
High Toxicity Air Contaminants per NYSDEC Part 212-2.2 Table 2	
Emergency Planning and Community Right-to-Know Act (EPCRA)	
Tier II NYS Emergency Response Commission	
Solid Waste	
Hazardous Waste	
FHWA or NYSDOT	
SPDES or NPDES	

\* Mark with an 'X' those that are applicable.

## Chemical Characterization Codes

**Table B**

Use these codes to characterize chemicals and chemical products.

**Does any operation involve the use of any of the following:**

**Y or N**

B	explosive and blasting agents	N
C	poison: gas,g; liquid,l; solid,s	N
D	irritant	N
E	flammable liquid	N
F	flammable solid	N
H	flammable gas: specify propane and/or butane	N
H-a	flammables, NOS	N
I	oxidizer	N
J	organic peroxide	N
K	combustible liquid	N
L	radioactive material	N
M	corrosive material	N
N	"dangerous when wet" material	N
O	etiologial material	N
P	combustible fibers	N

**Does any operation consist of the following:**

Q	produces dust subject to explosion or spontaneous combustion	N
R	product poisonous fumes or gases	N
T	spray operations	N
U	fuel dispensing	N
V	propane gas forklifts	N
W	any other operation which may present a fire, explosive, radiological or other hazard	N

**If none of the above, identify substances as:**

- A aerosol
- G gas
- L liquid
- S/P solid/powder
- S/L slurry



## Chemical Bulk Inventory

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

<b>SINGLE, NON-MIXTURE CHEMICALS</b> Top 5 by Amounts Used/Stored	<b>CAS Identification*</b>	<b>Table B Characterization Code</b> List all that apply	<b>Yearly Use/Stored</b> (list gallons or pounds)
1. N/A			
2.			
3.			
4.			
5.			

Is there any mixing on-site of any combination of single, bulk substances and/or purchased mixtures? <small>Indicate YES or NO</small>		
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<b>Identify <u>any</u> on-site, single non-mixture chemical that is:</b>		
Known Human Carcinogen - KHC Probable Human Carcinogen - PrHC Possible Human Carcinogen - PHC Other - Indicate	Carcinogen Characteristic <sup>#</sup>	Yearly Consumption (gallons or pounds)
1. N/A		
2.		
3.		

CAS Identification\*

[https://ofmpub.epa.gov/sor\\_internet/registry/substreg/searchandretrieve/substancesearch/search.do?search=&substanceName=ethyl%20ketone&substanceNameScope=contains&substanceType=-1&hasComponents=both](https://ofmpub.epa.gov/sor_internet/registry/substreg/searchandretrieve/substancesearch/search.do?search=&substanceName=ethyl%20ketone&substanceNameScope=contains&substanceType=-1&hasComponents=both)

<sup>#</sup> As would be expected to be found in agreement among bodies such as the National Academy of Sciences, the U.S. Department of Health and Human Services' *Agency for Toxic Substance and Disease Registry*, the World Health Organization's *International Agency for Research on Cancer*.

**Chemical Mixtures Inventory**

PROJECT NAME: 100 Corporate Drive - Existing Garage Activation Project

<b>PURCHASED CHEMICAL MIXTURES</b> List Top Three By Amount Used or Stored, and % of top three components of each mixture, excluding water.	<b>CAS Identification* &amp; Percentage</b>	<b>Table B Characterization Code</b> List all that apply	<b>Yearly Used/Stored</b> (include units: gallons, g, or pounds, p)
M1. N/A	---		
a.			---
b.			---
c.			---
M2.	---		
a.			---
b.			---
c.			---
M3.	---		
a.			---
b.			---
c.			---

<b>Identify <u>any</u> on-site chemicals in any mixtures that are:</b> Know Human Carcinogen - KHC Probable Human Carcinogen - PrHC Possible Human Carcinogen - PHC Other - Indicate	<b>Carcinogen Characteristic</b>	<b>Yearly Used/Stored,</b> gallons or pounds
1. N/A		
2.		
3.		

### Chemical Discharges

PROJECT NAME: 100 Corporate Drive - Existing Garage Activation Project

List raw material, or products, that emit to the atmosphere or discharge to land or water.	Does this material - or products they form - emit or discharge to a pollution control device? If so, list device(s).
<b>SINGLE, NON-MIXTURE CHEMICALS</b>	
1. N/A	
2.	
3.	
4.	
5.	
6.	
7.	

<b>CHEMICAL MIXTURES</b>	
1. N/A	
2.	
3.	
4.	
5.	
6.	
7.	



### Primary Process Descriptions

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

#### Describe Primary Processes:

Provide a facility blueprint, drawing or schematic showing locations of the processes described below.

#### Characterization Codes from Table B

List all that apply

<b>PP1</b>	N/A
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<b>PP2</b>	
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<b>PP3</b>	
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<b>PP4</b>	
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<b>PP5</b>	
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<b>PP6</b>	
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<b>PP7</b>	
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<b>PP8</b>	
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<b>PP9</b>	
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<b>PP10</b>	
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## Control Systems

**PROJECT NAME:** 100 Corporate Drive - Existing Garage Activation Project

**Describe control methods such as pollution and odor controls, fire alarm systems, automatic fire suppression devices such as sprinklers, portable fire extinguishers, and any other safety devices.**

<b>C1</b>	Oil-water separator
<b>C2</b>	Storm drains
<b>C3</b>	Exhaust vents
<b>C4</b>	Ventilation louvers
<b>C5</b>	Remote garage access and control equipment
<b>C6</b>	Fire alarm system
<b>C7</b>	Fire suppression devices
<b>C8</b>	
<b>C9</b>	
<b>C10</b>	

Town of Orangetown  
Resume of Operations and Equipment

## DEFINITIONS

**Responsible official.** A president, vice president, secretary, treasurer, general partner, proprietor, principal executive officer, ranking elected official, or any other person who performs policy or decision making functions and is authorized to legally bind a corporation, partnership, sole proprietorship, or government entity which operates a facility that is subject to the provisions of this Application. Whenever the term responsible official is used in this document or in any other Town regulations, it shall be deemed to refer to the “designated representative” with regard to all matters under this application.

**Major action/project** - actions for which permit applications are to be sent to the NYSDEC under 6NYCRR621.1.

Refer to: [https://govt.westlaw.com/nycrr/Document/I4ec443aacd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Document/I4ec443aacd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

**Minor Project** - Projects as described under NYSDEC's Uniform Procedures, 6 CRR-NY 621.4

Refer to: [https://govt.westlaw.com/nycrr/Document/I4ec46aa7cd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Document/I4ec46aa7cd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

**Modification** means any change or amendment whatsoever to a permit that is currently in force, including permit transfer.

**Research and Development** activities. The primary purpose of such activities is to conduct research and development into processes and products, where such activities are conducted under the close supervision of technically trained personnel. Research and development activities do not include activities whose primary purpose is to produce commercial quantities of materials.

# RESERVED

## Additional Information or Explanations

PROJECT NAME: 100 Corporate Drive - Existing Garage Activation Project

## Short Environmental Assessment Form

### Part 1 - Project Information

#### Instructions for Completing

**Part 1 – Project Information.** The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

<b>Part 1 – Project and Sponsor Information</b>				
Name of Action or Project: 100 Corporate Drive - Existing Garage Activation Project				
Project Location (describe, and attach a location map): 100 Corporate Drive, Blauvelt NY				
Brief Description of Proposed Action: Installation of Town required oil-water separator, storm drains, exhaust ventilation appurtenances, and access controls within the existing parking area inside the second level of existing building.				
Name of Applicant or Sponsor: Onyx Management Group LLC		Telephone: 732-850-5689 E-Mail: nvasquez@onyxequities.com		
Address: 900 Route 9 North, Suite 400				
City/PO: Woodbridge		State: NJ	Zip Code: 07095	
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: Town of Orangetown OBZPAE - Building Permits - Plumbing, HVAC permits			NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>
3. a. Total acreage of the site of the proposed action?		6.92 acres		
b. Total acreage to be physically disturbed?		0 acres		
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		8.32 acres		
4. Check all land uses that occur on, are adjoining or near the proposed action:				
<input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input checked="" type="checkbox"/> Industrial <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Residential (suburban)				
<input type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input type="checkbox"/> Other(Specify):				
<input type="checkbox"/> Parkland				

5. Is the proposed action,	NO	YES	N/A
a. A permitted use under the zoning regulations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Consistent with the adopted comprehensive plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES	
If Yes, identify: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Are public transportation services available at or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES	
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Will the proposed action connect to an existing public/private water supply?	NO	YES	
If No, describe method for providing potable water: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Will the proposed action connect to existing wastewater utilities?	NO	YES	
If No, describe method for providing wastewater treatment: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____			







**1 P001 PROJECT GENERAL NOTES**

- DO NOT SCALE FROM THESE DRAWINGS.
- DO NOT MAKE ANY CHANGES OR SUBSTITUTIONS WITHOUT SPECIFIC WRITTEN APPROVAL FROM THE ARCHITECT OR ENGINEER.
- ALL INDICATED WORK SHALL BE PERFORMED BY THE PLUMBING CONTRACTOR UNLESS OTHERWISE NOTED.
- PROPER FIRE PROTECTION MEASURES, SATISFACTORY TO THE LOCAL FIRE DEPARTMENT SHALL BE TAKEN WHEN WELDING OR CUTTING WITH TORCHES OR ELECTRIC ARC.
- REFER TO THE WRITTEN SPECIFICATIONS IN CONJUNCTION WITH THE PLANS FOR FULL PROJECT SCOPE.
- IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO REVIEW THESE PLANS AND SPECIFICATIONS, AS WELL AS THE RELATED HVAC, FIRE PROTECTION, ELECTRICAL, STRUCTURAL, ARCHITECTURAL, INTERIOR DECOR AND SITE ENGINEERING DRAWING TO BECOME FAMILIAR WITH THE FULL PROJECT SCOPE. IN ADDITION, THIS CONTRACTOR MUST COORDINATE WITH OWNER/TENANT REPRESENTATIVE TO FULLY UNDERSTAND ALL REQUIREMENTS WHICH MAY NOT BE SPECIFIED HEREIN AND WHICH THE OWNER/TENANT MAY CONSIDER PART OF THIS CONTRACT. DURING THE COURSE OF CONSTRUCTION COORDINATION AND ACTUAL CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO WORK CLOSELY WITH ALL ACCOMPANYING CONTRACTORS AND TRADESMEN IN ORDER TO ENSURE A SMOOTH RUNNING AND CAREFULLY COORDINATED INSTALLATION.
- ANY DISCREPANCIES OR INADEQUACIES WITHIN THESE BID DOCUMENTS OR BETWEEN THESE BID DOCUMENTS AND THE RELATED HVAC, FIRE PROTECTION, ELECTRICAL, STRUCTURAL, ARCHITECTURAL, INTERIOR DECOR AND SITE ENGINEERING DRAWINGS, OR BETWEEN THESE BID DOCUMENTS AND FIELD CONDITIONS MUST BE BROUGHT TO THE ATTENTION OF THE OWNER/TENANT, ARCHITECT AND ENGINEER PRIOR TO BID SUBMISSION.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS INCLUDING BUT NOT LIMITED TO NATIONAL, CITY, STATE, LOCAL CODES AND ORDINANCES WHICH MAY BE IN EFFECT. ALL PLUMBING MATERIALS, INSTALLATION PROCEDURES AND SYSTEM LAYOUTS SHALL BE APPROVED BY ALL APPLICABLE CODE ENFORCEMENT AUTHORITIES HAVING JURISDICTION, AND IT SHALL BE THE PLUMBING CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FOR THIS INSTALLATION.
- THE PLUMBING CONTRACTOR MUST VISIT THE SITE AND NOTE ALL EXISTING CONDITIONS AS WELL AS ALL CONDITIONS TO BE MET, PRIOR TO BID SUBMISSION. LACK OF A THOROUGH UNDERSTANDING OF THE PROJECT SCOPE AND CONDITIONS SHALL NOT CONSTITUTE AN EXCUSE FOR ERRORS OR OMISSIONS, NOR FOR A REQUEST FOR EXTRA COMPENSATION. IN ADDITION, THIS CONTRACTOR MUST COORDINATE AND UNDERSTAND ANY OWNER/TENANT REQUIREMENTS NOT SPECIFIED HEREIN.
- ALL WORK SCHEDULING MUST BE COORDINATED WITH AN OWNER/TENANT REPRESENTATIVE PRIOR TO SUBMITTING HIS BID SO AS TO INCLUDE ALL ANOMALY REQUIREMENTS OR PREMIUM TIME WORK.
- PLUMBING CONTRACTOR SHALL THOROUGHLY EXAMINE THESE PLANS AS WELL AS FIELD VERIFY THE CONDITIONS, LOCATIONS AND ELEVATIONS AT THE JOB SITE. WHERE EXISTING CONDITIONS FACILITATE A MORE DIRECT AND/OR LESS EXPENSIVE JOB PERFORMANCE, THEN THE APPLICABLE CONTRACTOR SHALL ISSUE A CREDIT TO THE OWNER/TENANT. SUBMIT A LIST OF ALL CREDITS TO DEVIATIONS TO THESE PLANS TO AN APPROVED OWNER/TENANT REPRESENTATIVE PRIOR TO JOB COMMENCEMENT.
- THESE PLUMBING PLANS ARE SCHEMATIC REPRESENTATION OF WHAT IS INTENT OF THE PLUMBING SYSTEMS ONLY. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LOCAL PLUMBING CODE AND IN GOOD WORKMANLIKE MANNER. THE PLUMBING CONTRACTOR IS RESPONSIBLE TO MAKE SURE HE IS COMPLETELY AWARE OF THE LOCAL CODE, THE REQUIREMENTS ON THESE PLANS AND THE OWNER/TENANT'S RECOMMENDATIONS PRIOR TO SUBMITTING BIDS. THERE WILL BE NO ADDITIONAL COMPENSATION MADE FOR LACK OF KNOWLEDGE OR ANY REQUIREMENTS AFTER THE CONTRACTS HAVE BEEN AWARDED.
- ALL TRENCHING AND BACKFILL FOR PLUMBING WORK SHALL BE PERFORMED BY THE PLUMBING CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITIES, PIPING CONDUIT, EQUIPMENT, ETC. WHILE EXCAVATING. CONTRACTOR SHALL RETURN ALL AREAS TO EXISTING CONDITION SUCH AS LANDSCAPING, PAVING, SIDEWALKS, LAWNS, ETC.
- PRIOR TO INSTALLING SYSTEMS, THE PLUMBING CONTRACTOR SHALL MEET WITH AN OWNER/TENANT'S REPRESENTATIVE TO FIELD VERIFY THE EXACT LOCATION OF ALL PROPOSED EQUIPMENT.
- RELATED TRADE CONTRACTORS SHALL BE RESPONSIBLE FOR ANY INCORRECTLY INSTALLED ITEMS. ANY RESULTING, SAW CUTTING OF CONCRETE FLOORS, REMOVAL OF CEILINGS, ETC. AFTER ITEMS ARE INSTALLED SHALL BE REDONE BY THE RESPECTIVE CONTRACTOR AND AT THEIR EXPENSE.
- ALL WASTE AND VENT PIPING TO BE SERVICE WEIGHT CAST IRON.
- RUN PIPING PARALLEL AND PERPENDICULAR TO CONSTRUCTION. RUN ALL DOMESTIC, WASTE AND VENT PIPING AS HIGH AS POSSIBLE THROUGHOUT THE ENTIRE BUILDING. INSTALL LONG RUNS OF PIPING WITHIN JOIST SPACE AND OTHER PIPING TIGHT TO BOTTOM OF STEEL OR OTHERWISE CONCEALED IN ALL OCCUPIED SPACES. COORDINATE AND VERIFY WITH OTHER CONTRACTORS AS NOT TO INTERFERE WITH DUCTWORK AND FIRE PROTECTION PIPING, LIGHTING SYSTEMS, ETC.
- ALL EXPOSED HORIZONTAL AND VERTICAL PIPING SHALL BE INSTALLED IN A NEAT ARRANGEMENT IN LOCATIONS WHICH ARE THE MOST INCONSPICUOUS. VERTICAL DROPS SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND THEIR FINAL LOCATIONS SHALL BE COORDINATED AND RUN WITHIN CHASES, WALLS, SOFFITS WITH OTHER MECHANICAL / ELECTRICAL FEEDS. ALL SUCH LOCATIONS ARE TO BE REVIEWED WITH A OWNER/TENANT REPRESENTATIVE AND ARCHITECT PRIOR TO INSTALLATION.
- PITCH HORIZONTAL SANITARY AND WASTE DRAINAGE PIPING 2" DIAMETER AND LESS AT 1/4" PER FOOT MINIMUM. PITCH HORIZONTAL SANITARY AND WASTE DRAINAGE PIPING 3" DIAMETER AND LARGER AT 1/8" PER FOOT MINIMUM.
- PROVIDE CLEANOUTS AT BASE OF ALL STACKS, END OF RUNS, CHANGES OF DIRECTION AND AT INTERMEDIATE POINTS. REQUIRED SYSTEMS SHALL INCLUDE SOIL, WASTE AND VENT LINES. PROVIDE EXTRA HEAVY BRASS SCREW CAPS AND APPROVED FLUSH CAST BRASS DECK PLATES FOR LOCATIONS WITH FINISHED FLOORS. CLEANOUTS IN HORIZONTAL DRAINAGE LINES SHALL BE SPACED AT INTERVALS NOT TO EXCEED 100 FEET.
- THE PLUMBING CONTRACTOR SHALL RUN OUT ALL BUILDING DRAINAGE AND WASTE LINES AND MAKE ALL CONNECTIONS TO SITE LEVEL SYSTEMS AS INDICATED ON BID DOCUMENTS.
- PLUMBING CONTRACTOR TO PROVIDE CHROME PLATED BRASS FITTINGS, VALVES AND PIPING WHEREVER PIPING IS EXPOSED.
- PLUMBING CONTRACTOR TO PROVIDE LEAD FLASHING FOR ALL PLUMBING VENTS THROUGH ROOF. USE 4 LB. LEAD EXTENDING 1'-0" AROUND EACH SIDE AND TERMINATE 2'-0" ABOVE ROOF WITH FLASHING FITTING TYPICAL TO J.R. SMITH FIGURE 1750.
- THE PLUMBING CONTRACTOR SHALL PROVIDE A COMPLETE SET OF RECORD "AS BUILT" DRAWINGS INDICATING THE PRECISE LOCATION OF ALL SYSTEMS, EQUIPMENT CONCEALED OR EMBEDDED PIPING, PIPING CONNECTIONS AND ACCESS DOORS. THESE DRAWINGS SHALL INCLUDE ALL CHANGES AND DEVIATIONS FROM BID DOCUMENTS.

**2 P001 PLUMBING SCHEDULES**

PLUMBING MATERIALS SCHEDULE					
SERVICE	SIZE	PIPE	FITTINGS	UNIONS & FLANGES	JOINTS
STORM AND VENT (BELOW GRADE)	ALL	SERVICE WEIGHT CAST IRON HUB AND SPIGOT (ASTM A74)	SERVICE WEIGHT DRAINAGE PATTERN	-	GASKET ASTM C564
STORM AND VENT (ABOVE GRADE)	ALL	SERVICE WEIGHT CAST IRON (CISPI 301)	SERVICE WEIGHT DRAINAGE PATTERN	-	NO HUB GASKET ASTM C564, HEAVY DUTY STAINLESS STEEL BANDS PER ASTM C1540
STORM AND VENT (EXPOSED PIPING)	ALL	SERVICE WEIGHT CAST IRON (CISPI 301)	SERVICE WEIGHT DRAINAGE PATTERN	-	NO HUB GASKET ASTM C564, HEAVY DUTY STAINLESS STEEL BANDS PER ASTM C1540

NOTES:  
 1. PVC WILL NOT BE PERMITTED IN PLENUM CEILING SPACES.  
 2. ALL EXPOSED SOIL AND WASTE PIPING SHALL BE SERVICE WEIGHT CAST IRON, NO HUB, CISP #301, NO HUB CISP #310 WHERE REQUIRED BY LOCAL AUTHORITIES.

PLUMBING FIXTURE SCHEDULE						
SYMBOL	DESCRIPTION	PIPE SIZES (INCHES)				REMARKS
		CW	HW	W	V	
TO-1	TRENCH DRAIN	-	-	-	-	ACO DRAIN H100K-8 MEMBRANE DRAIN WITH CONSTANT DEPTH CHANNEL. PROVIDE WITH ADA, CLASS E, HEEL PROOF AND BICYCLE PROOF, TYPE 4760 LONGITUDINAL DUCTILE IRON GRATE, WITH "QUICKLOK" BOLTLESS LOCKING SYSTEM.
SOI-1	SAND-OIL INTERCEPTOR	-	-	-	-	WADE 540 GALLON SAND/OIL INTERCEPTOR #5810-18-24-271-183-XT WITH A.R.C STEEL WITH HEAVY DUTY SOLID COVER. TANKS AND MANHOLES SHALL MEET OR EXCEED H20 (SHA) LOADING DESIGN AND MAN-HOLE COVERS SHALL HAVE THE WORD "INTERCEPTOR" CAST IN. INLET AND OUTLET SIZED TO MATCH EXISTING PIPING. COORDINATE EXACT INLET AND OUTLET SIZE AND EXACT LOCATION WITH EXISTING CONDITIONS AND REVISE STORM AND VENT PIPING AS REQUIRED TO SUIT.

NOTES:  
 1. INSTALL FIXTURES IN ACCORDANCE WITH STATE AND LOCAL BARRIER FREE REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT TYPE, COUNT, AND LOCATION OF HANDICAP FIXTURES.

SOI-1 SAND/OIL INTERCEPTOR SIZING				
STEP 1: FACILITY SIZE				
	64000	SQ. FT.		
STEP 2: FACILITY SIZE * FACILITY FACTOR TO DETERMINE CUBIC FEET OF WATER				
FACILITY FACTOR	0.0003	FACILITY SIZE SQ. FT.	64000	CU. FT. OF WATER
				19.20
STEP 3: DETERMINE CAPACITY IN GALLONS				
CU. FT. OF WATER	19.2000	7.48 GAL LQD / CU. FT.	7.48	TOTAL GAL.
				143.62
STEP 4: DETERMINE STORAGE REQUIREMENT (STORAGE FACTOR)				
TOTAL GALLONS	143.62	STORAGE FACTOR	2.00	REQUIRED LIQUID VOLUME CAPACITY
				287
				PROVIDED LIQUID VOLUME CAPACITY
				540

**3 P001 PLUMBING SYMBOL LEGEND**

AD AREA DRAIN	IW INDIRECT WASTE
AFF ABOVE FINISHED FLOOR	L LEADER
AFG ABOVE FINISHED GRADE	LP PROPANE GAS
ASSY ASSEMBLY	LAV LAVATORY
BFF BELOW FINISHED FLOOR	MS MOP SINK
BFG BELOW FINISHED GRADE	MV MIXING VALVE
C CONDENSATE	NC NORMALLY CLOSED
CL CENTER LINE	NO NOT IN CONTRACT
COOP CLEAN OUT DECK PLATE	NO NORMALLY OPEN
CLG CEILING	OC ON CENTER
CO CLEAN OUT	OF OVER FLOW DRAIN
COMP COMPARTMENT	OW OIL WASTE
CW COLD WATER	PC PLUMBING CONTRACTOR
CWV COMBINATION WASTE AND VENT	PWRS PRESSURE WASH REMOTE STATION
DF DRINKING FOUNTAIN	QTY QUANTITY
DFU DRAINAGE FIXTURE UNIT	RIC ROUGH IN AND CONNECT
DI DRAINAGE INLET	S, SAN SANITARY
DN DOWN	SPR SPRINKLER
DOM DOMESTIC WATER	SD STORM DRAIN
DW DISHWASHER	SF SQUARE FEET
DWH DOMESTIC WATER HEATER	SK SINK
EEW EMERGENCY EYE WASH	SOV SHUT OFF VALVE
EMC ELECTRIC WATER COOLER	SP STAND PIPE
EWB ELECTRIC WATER HEATER	SS STAINLESS STEEL
(E) EXISTING	ST STORM
FAI FRESH AIR INTAKE	TE TOP ELEVATION
FCO FLOOR CLEAN OUT	TD TRENCH DRAIN
FD FLOOR DRAIN	TP TRAP PRIMER
FFD FUNNEL FLOOR DRAIN	TWV THREE WAY VALVE
FP FROST PROOF	TV TEMPERED WATER
FPWH FROST PROOF WALL HYDRANT	TYP TYPICAL
FS FLOOR SINK	UC UNDER COUNTER
FW FILTERED WATER	UR URINAL
G NATURAL GAS	V VENT
GE GRADE ELEVATION	VB VACUUM BREAKER
GI GREASE INTERCEPTOR	VIF VERIFY IN FIELD
GPM GALLONS PER MINUTE	VTR VENT THRU ROOF
GW GREASE WASTE	W WASTE
HB HOSE BIBB	WC WATER COOLER
HR HOSE REEL	WF WATER FILTER
HS HAND SINK	WP WEATHERPROOF
HW HOT WATER	WCO WALL CLEAN OUT
HCO HORIZONTAL CLEANOUT	WDF WASH DOWN FAUCET
HWR HOT WATER RECIRCULATION	WHA WATER HAMMER ARRESTER
IE INVERT ELEVATION	

**5 P001 PLUMBING ABBREVIATIONS**

DESCRIPTION	SYMBOL
SANITARY PIPING BELOW FINISHED FLOOR	_____
SANITARY PIPING ABOVE FINISHED FLOOR	_____
VENT PIPING	_____
STORM PIPING	_____
COLD WATER	_____
HOT WATER	_____
HOT WATER RECIRC.	_____
COLD WATER FILTERED	_____ FW _____
NATURAL GAS	_____ G _____
CONDENSATE	_____
BALL VALVE	⊗
CHECK VALVE	N
GAS VALVE	⊕
GAS PRESSURE REGULATOR	⊕
TRAP PRIMER	⊕
WATER HAMMER ARRESTER	⊕
FLOOR DRAIN	⊕
FLOOR SINK	⊕
HUB DRAIN	⊕
DECK PLATE CLEAN OUT	⊕
WALL CLEAN OUT	⊕
CEILING CLEAN OUT	⊕
TRAP	⊕
PIPE DOWN, DROP AND RISE	⊕
TEE UP	⊕
TEE DOWN	⊕
PIPE UP	⊕
HOSE BIBB	⊕
WALL HYDRANT	⊕
FLOW ARROW	⊕
QUICK CONNECT	⊕
VENT THRU ROOF	⊕
WATER METER	⊕
GAS METER	⊕
PUMP	⊕
WATER FILTER	⊕
REDUCED PRESSURE ZONE ASSEMBLY	⊕
CONNECT TO EXISTING	⊕

SYMBOL LIST NOTE:  
 SYMBOL LIST SHOWN IS FOR GENERAL REFERENCE ONLY. THE PRESENCE OF A SYMBOL DOES NOT IMPLY ITS USE ON THIS PROJECT. REFER TO DRAWINGS FOR SPECIFIC SYMBOLS USED.

**4 P001 CODES AND REGULATION INFORMATION**

THE WORK SHALL BE EXECUTED IN STRICT CONFORMITY WITH BASE BUILDING SPECIFICATIONS AND WITH THE LATEST EDITION OF THE STATE AND LOCAL BUILDING CODES AND ALL LOCAL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY. REGULATIONS INCLUDING BUT NOT LIMITED TO:

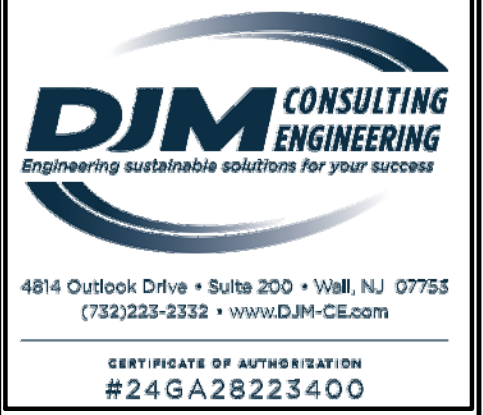
THE BUILDING SHALL BE CONSTRUCTED TO BE IN COMPLIANCE WITH THE NEW YORK STATE ADOPTED 2018 INTERNATIONAL BUILDING CODE.

OTHER APPLICABLE CODES ARE:

- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2017 NATIONAL ELECTRICAL CODE
- 2016 ASHRAE 90.1 ENERGY CONSERVATION CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL FIRE CODE

**6 P001 PLUMBING DRAWING LIST**

DWG. #	DRAWING TITLE
P-001	PLUMBING GENERAL INFORMATION
P-002	PLUMBING SPECIFICATIONS SHEET 1
P-003	PLUMBING SPECIFICATIONS SHEET 2
P-100	PLUMBING FIRST FLOOR PLAN
P-101	PLUMBING SECOND FLOOR PLAN
P-200	PLUMBING DETAILS AND RISER DIAGRAM



**100 CORPORATE DRIVE**  
**PARKING STRUCTURE**  
**NEW YORK**  
**BLAUVELT**

MARK	DATE	DESCRIPTION	ISSUE
	01/28/2021	PERMIT	
	10/06/2020	CLIENT REVIEW	

PROJECT NO: 18-1615.01  
 DRAWN BY: JD  
 CHECKED BY: LBS  
 SHEET TITLE:  
**PLUMBING GENERAL INFORMATION**  
**P-001**



BASIC PLUMBING REQUIREMENTS

PART 1 - GENERAL
1.1 RELATED DOCUMENTS

ALL APPLICABLE REQUIREMENTS OF OTHER PORTIONS OF THE CONTRACT DOCUMENTS APPLY TO THE WORK OF THIS SECTION INCLUDING, BUT NOT LIMITED TO, ALL DRAWINGS, ALL SPECIFICATIONS, GENERAL CONDITIONS, AND GENERAL REQUIREMENTS INCLUDING SUBMITTALS.

1.2 APPLICABLE CODES AND STANDARDS

APPLICABLE CODES: ALL LOCAL AND STATE BUILDING CODES, APPLICABILITY OF STANDARDS: EXCEPT WHERE THE CONTRACT DOCUMENTS INCLUDE MORE STRINGENT REQUIREMENTS, APPLICABLE CONSTRUCTION INDUSTRY STANDARDS HAVE THE SAME FORCE AND EFFECT AS IF BOUND OR COPIED DIRECTLY INTO THE CONTRACT DOCUMENTS...

CONFLICTING REQUIREMENTS: WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES TO THE ARCHITECT FOR A DECISION BEFORE PROCEEDING.

PUBLICATION DATES: WHERE THE DATE OF ISSUE OF A REFERENCED STANDARD IS NOT SPECIFIED, COMPLY WITH THE STANDARD IN EFFECT AS OF DATE OF CONTRACT DOCUMENTS.

ABBREVIATIONS AND NAMES: TRADE ASSOCIATION NAMES AND TITLES OF GENERAL STANDARDS ARE FREQUENTLY ABBREVIATED. THE FOLLOWING ACRONYMS OR ABBREVIATIONS AS REFERENCED IN CONTRACT DOCUMENTS ARE DEFINED TO MEAN THE ASSOCIATED NAMES, NAMES AND ADDRESSES ARE SUBJECT TO CHANGE AND ARE BELIEVED TO BE BUT ARE NOT ASSURED TO BE ACCURATE AND UP TO DATE AS OF DATE OF CONTRACT DOCUMENTS.

AGA - AMERICAN GAS ASSOCIATION

- ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ARI - AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSE - AMERICAN SOCIETY OF SANITARY ENGINEERING
ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS - AMERICAN WELDING SOCIETY
AWWA - AMERICAN WATER WORKS ASSOCIATION
CISPI - CAST IRON SOIL PIPE INSTITUTE
NEC - NATIONAL ELECTRIC CODE
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
NSF - NATIONAL SANITATION FOUNDATION
PDI - PLUMBING AND DRAINAGE INSTITUTE
UL - UNDERWRITERS LABORATORIES
DOT - DEPARTMENT OF TRANSPORTATION
EPA - ENVIRONMENTAL PROTECTION AGENCY
OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

1.3 SUBMITTALS

PRIOR TO THE PERFORMANCE OF ANY WORK OR INSTALLATION OF ANY MATERIALS, OBTAIN APPROVAL FROM THE ARCHITECT BY SUBMITTING SHOP DRAWINGS AND DATA SHEETS.

SUBMITTALS OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WILL BE ACCEPTED ONLY WHEN SUBMITTED BY THE GENERAL CONTRACTOR. DATA SUBMITTED FROM SUBCONTRACTORS AND MATERIAL SUPPLIERS DIRECTLY TO THE ARCHITECT WILL NOT BE PROCESSED. CERTIFIED DRAWINGS AND CATALOG DATA SHEETS SHALL SHOW:

- 1. SPECIFICALLY WHICH ITEMS AND FEATURES ARE TO BE PROVIDED.
2. APPLICABLE SPECIFICATION SECTION NUMBER AND EQUIPMENT TAG NUMBER.
3. PRINCIPAL DIMENSIONS AND DETAILS OF CONSTRUCTION.
4. WEIGHTS: INFORMATION REQUIRED FOR THE DESIGN OF SUPPORTS AND FOUNDATIONS.
5. SIZES AND LOCATIONS OF PIPING AND CONNECTIONS.
6. PERFORMANCE DATA CERTIFIED BY THE MANUFACTURER.
7. SUBMIT SCHEDULE OF PROPOSED PIPING, VALVES, SPECIALTIES, ETC.
8. ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE SEPARATELY IDENTIFIED.

PLUMBING SUBMITTALS SHALL BE PROVIDED FOR THE FOLLOWING ITEMS:
1. PIPING AND FITTING MATERIALS.
2. PLUMBING VALVES AND SPECIALTIES.
3. PIPING HANGER AND ATTACHMENT ASSEMBLIES.
4. PIPING INSULATION.
5. ALL SCHEDULED PLUMBING FIXTURES, DRAINS, AND CLEANOUTS.
6. UTILITY CONNECTION DETAILS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

APPROVAL OF SHOP DRAWINGS DOES NOT RELEASE RESPONSIBILITY OF COORDINATING HIS WORK AT JOBSITE AND TAKING FIELD MEASUREMENTS. IN CASES WHERE INTERFERENCES BECOME APPARENT, NOTIFY ARCHITECT SO THAT SUCH INTERFERENCES MAY BE RESOLVED PRIOR TO PROCEEDING WITH SHOP WORK. NO CLAIM WILL BE ALLOWED FOR WORK THAT MIGHT HAVE TO BE MOVED OR REPLACED BASED ON A CLAIM THAT WORK WAS PLACED IN ACCORDANCE WITH DIMENSIONS INDICATED ON AN APPROVED SHOP DRAWING.

1.4 COORDINATION

COORDINATE WITH THE BUILDING TRADES:
1. STRUCTURAL MEMBERS, PADS, AND BUILDING OPENINGS FOR FIXTURES, EQUIPMENT, PIPING, ETC., FOR USE BY THIS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL PLANS ARE THE COORDINATION RESPONSIBILITY OF THIS INSTALLER. PAY FOR ANY CHANGES IN THE ABOVE REQUIREMENTS AFTER LETTING AND ACCEPTING THE CONTRACT.

2. THE DRAWINGS SHOW THE GENERAL ARRANGEMENT, DIRECTIONS AND SIZES OF EQUIPMENT, PIPING, ETC. IT IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING OF EVERY SITE DIFFICULTY THAT MAY BE ENCOUNTERED. PROVIDE ALL MATERIALS AND PERFORM ALL LABOR NECESSARY TO MAKE COMPLETE WORKING SYSTEMS, READY FOR USE, WITHOUT EXTRA CHARGE. ALL MEASUREMENTS MUST BE VERIFIED ON THE JOBSITE.

3. EXAMINE THE SITE AND ALL DRAWINGS BEFORE PROCEEDING WITH THE LAYOUT AND INSTALLATION OF THIS TO SUIT ACTUAL CONDITIONS. CONFER AND COOPERATE WITH OTHER TRADES ON THE JOB SO THAT ALL WORK WILL BE INSTALLED IN PROPER RELATIONSHIP. COORDINATE PRECISE LOCATION OF PARTS WITH OTHER WORK. ALL SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM HEADROOM, EXCEPT WHERE DIMENSIONED OTHERWISE ON THE DRAWINGS.

4. COORDINATE EQUIPMENT INSTALLATION WITH OTHER BUILDING COMPONENTS. INSTALL REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.

1.5 RECORD DOCUMENTS

MAINTAIN A CLEAN, UNDAMAGED SET OF PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS. MARK THE SET TO SHOW THE ACTUAL INSTALLATION WHERE THE INSTALLATION VARIES SUBSTANTIALLY FROM THE WORK AS ORIGINALLY SHOWN. MARK WHICHEVER DRAWING IS MOST CAPABLE OF SHOWING CONDITIONS FULLY AND ACCURATELY. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE CONTRACT DRAWINGS. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD LATER.

- 1. MARK INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.
2. ORGANIZE RECORD DRAWING SHEETS INTO MANAGEABLE SETS, BIND WITH DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND OTHER IDENTIFICATION ON THE COVER OF EACH SET.
3. MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.).
4. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM AT LEAST TWO PROMINENT BUILDING LINES.
5. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
6. INCLUDE ALL "CORRECTED FOR RECORD" SHOP DRAWINGS TO REFLECT APPROVALS RECEIVED.

1.6 MAINTENANCE MANUALS

ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 2-INCH, 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION:

- 1. COPIES OF WARRANTIES.
2. WIRING DIAGRAMS.
3. INSPECTION PROCEDURES.
4. APPROVED SHOP DRAWINGS AND PRODUCT DATA.
5. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.
6. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, AND ROUTINE AND NORMAL OPERATING INSTRUCTIONS; REGULATION, CONTROL, STOPPING, SHUTDOWN, AND EMERGENCY INSTRUCTIONS; AND SUMMER AND WINTER OPERATING INSTRUCTIONS.
7. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING INSTRUCTIONS.
8. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.

1.7 REGULATIONS AND PERMITS

PROVIDE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION. PAY FOR AND OBTAIN ALL REQUIRED PERMITS & SCHEDULE INSPECTIONS IN A TIMELY MANNER AS TO NOT DELAY THE PROJECT. OBTAIN ALL NECESSARY PERMITS INCLUDING BUT NOT LIMITED TO ENTERING MANHOLES, USE OF WATER FROM LOW PRESSURE HYDRANTS, DEMOLITION AND NEW WORK, ETC. PRIOR TO COMMENCEMENT OF WORK.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

ALL EQUIPMENT AND MATERIALS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE NEW, OF CURRENT PRODUCTION, FIRST QUALITY AND OF THE BEST OF EACH CLASS SPECIFIED. MATERIALS, PRODUCTS, AND EQUIPMENT SHALL BE DELIVERED TO JOBSITE WITH FACTORY PACKAGING BEARING MANUFACTURER'S NAME OR LABEL, AND UNION LABEL WHENEVER PRACTICAL. AVAILABLE MANUFACTURERS SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURING OFFERING PRODUCTS SHOULD BE INCORPORATED INTO THE WORK.

PART 3 - EXECUTION

3.1 PLUMBING INSTALLATIONS

GENERAL: SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF PLUMBING SYSTEMS, MATERIALS, AND EQUIPMENT. COMPLY WITH THE FOLLOWING REQUIREMENTS:
1. COORDINATE SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS.
2. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
3. ARRANGE FOR CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR MECHANICAL INSTALLATIONS.
4. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS, AS THEY ARE CONSTRUCTED.
5. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, WHERE INSTALLED EXPOSED IN FINISHED SPACES.
6. INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS, AS MUCH AS PRACTICAL. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM A OF INTERFERENCE WITH OTHER INSTALLATIONS.
7. PROVIDE ACCESS PANELS OR DOORS WHERE UNITS ARE CONCEALED BEHIND FINISHED SURFACES.
8. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, TO THE EXTENT THAT THOSE INSTRUCTIONS AND RECOMMENDATIONS ARE MORE EXPLICIT OR STRINGENT THAN REQUIREMENTS CONTAINED IN CONTRACT DOCUMENTS.
9. INSPECT MATERIALS OR EQUIPMENT IMMEDIATELY UPON DELIVERY AND AGAIN PRIOR TO INSTALLATION. REJECT DAMAGED AND DEFECTIVE ITEMS.
10. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS, AND CONCRETE FLOOR AND ROOF SLABS.

3.2 FINAL INSPECTION
PRIOR TO FINAL ACCEPTANCE, ALL SYSTEMS SHALL BE OPERATED TO TEST PERFORMANCE TO THE SATISFACTION OF THE ARCHITECT.
1. WATER SHALL CIRCULATE THROUGHOUT SYSTEMS WITHOUT NOISE, WATER HAMMER, LEAKS, TRAPPING, OR AIR-BINDING.
2. MOTORS AND OTHER EQUIPMENT SHALL OPERATE WITHOUT EXCESSIVE NOISE OR VIBRATION.
3. DRAINS SHALL FLOW FREELY, WITHOUT EXCESSIVE NOISE, LEAKS OR STOPPAGES.

CORRECT DEFECTS DEMONSTRATED BY INSPECTIONS AND TESTS TO THE SATISFACTION OF THE ARCHITECT.

3.3 CLEANING OF SYSTEMS AND PREMISES

ALL EQUIPMENT AND FIXTURES SHALL BE THOROUGHLY CLEANED OF DIRT AND DEBRIS AT THE COMPLETION OF THE PROJECT AND PRIOR TO ACCEPTANCE BY THE OWNER.

3.4 PROTECTION

GUARDS, BARRICADES, LIGHTS, SERVICES, ETC., NECESSARY FOR THE PROTECTION OF PERSONS AND PROPERTY SHALL BE FURNISHED AND MAINTAINED.

EXISTING WORK SUCH AS PAVEMENTS, LAWNS, SIDEWALKS, FLOORS, CURBS, AND OTHER STRUCTURES AND UTILITIES WHICH ARE DAMAGED OR DISTURBED DUE TO MAKING CONNECTIONS OR ANY PHASE OF OPERATIONS SHALL BE RESTORED TO THE SATISFACTION OF THE OWNER AND THE GOVERNING AUTHORITIES.

BASIC PLUMBING FIXTURES, PIPING MATERIALS AND METHODS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK EXTENT OF PLUMBING PIPING WORK IS INDICATED ON DRAWINGS AND BY THE REQUIREMENTS OF THIS SECTION INCLUDING BUT IS NOT LIMITED TO THE FOLLOWING:

- 1. PIPE
2. FITTINGS
3. PIPING JOINTS
4. SLEEVES FOR PIPES
5. UNIONS
6. CLEANOUTS AND CLEANING SCREW PLUGS
7. ESCUTCHEON PLATES
8. TRAPS

1.2 QUALITY ASSURANCE

WELDER'S QUALIFICATIONS: ALL WELDERS SHALL BE QUALIFIED IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX, WELDING AND BRAZING QUALIFICATIONS.

WELDING PROCEDURES AND TESTING SHALL COMPLY WITH ANSI STANDARD B31.10 - STANDARD CODE FOR PRESSURE PIPING, POWER PIPING, AND THE AMERICAN WELDING SOCIETY, WELDING HANDBOOK.

SOLDERING AND BRAZING PROCEDURES SHALL CONFORM TO ANSI B9.1 STANDARD SAFETY CODE FOR MECHANICAL REFRIGERATION.

1.3 DELIVERY, STORAGE, AND HANDLING

PROVIDE FACTORY-APPLIED PLASTIC END-CAPS ON EACH LENGTH OF PIPE AND TUBE, EXCEPT FOR CONCRETE, CORRUGATED METAL, HUB-AND-SPIGOT, CLAY PIPE. MAINTAIN END-CAPS THROUGH SHIPPING, STORAGE AND HANDLING TO PREVENT PIPE-END DAMAGE AND PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE.

PROTECT STORED PIPES AND TUBES. ELEVATE ABOVE GRADE AND ENCLOSE WITH DURABLE, WATERPROOF WRAPPING WHEN STORED INSIDE. DO NOT EXCEED STRUCTURAL CAPACITY OF THE FLOOR.

PROTECT FLANGES, FITTINGS, AND SPECIALTIES FROM MOISTURE AND DIRT BY INSIDE STORAGE AND ENCLOSURE, OR BY PACKAGING WITH DURABLE, WATERPROOF WRAPPING.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

SEE PLUMBING MATERIALS SCHEDULE FOR INFORMATION.

2.2 PIPING SPECIALTIES

ESCUTCHEONS: CHROME-PLATED, STAMPED STEEL, HINGED, SPLIT-RING ESCUTCHEON, WITH SET SCREW. INSIDE DIAMETER SHALL CLOSELY FIT PIPE OUTSIDE DIAMETER, OR OUTSIDE OF PIPE INSULATION WHERE PIPE IS INSULATED. OUTSIDE DIAMETER SHALL COMPLETELY COVER THE OPENING IN FLOORS, WALLS, OR CEILINGS.

- MANUFACTURERS OF PIPE ESCUTCHEONS:
1. CHICAGO SPECIALTY MFG. CO.
2. SANITARY-DASH MFG. CO.
3. GRINNELL DIELECTRIC

UNIONS: PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS FOR THE PIPE MATERIALS IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED), WHICH EFFECTIVELY ISOLATE DISSIMILAR METALS, PREVENT GALVANIC ACTION, AND STOP CORROSION.

- MANUFACTURERS OF DIELECTRIC UNIONS:
1. ECLIPSE, INC.
2. PERFECTION CORP.
3. WATTS REGULATOR CO.

SLEEVES:

SHEET-METAL SLEEVES: 10 GAGE, GALVANIZED SHEET METAL, ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT. STEEL SLEEVES: SCHEDULE 40 GALVANIZED, WELDED STEEL PIPE, ASTM A53, GRADE.

PART 3 - EXECUTION

3.1 PREPARATION

REAM ENDS OF PIPES AND TUBES, AND REMOVE BURRS, BEVEL PLAIN ENDS OF STEEL PIPE. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FOR BOTH INSIDE AND OUTSIDE OF PIPING AND FITTINGS BEFORE ASSEMBLY.

3.2 INSTALLATIONS

CONCEAL ALL PIPE INSTALLATIONS IN WALLS, PIPE CHASES, UTILITY SPACES, ABOVE CEILINGS, BELOW GRADE OR FLOORS, UNLESS INDICATED OTHERWISE.

INSTALL PIPING FREE OF SAGS OR BENDS AND WITH AMPLE SPACE BETWEEN PIPING TO PERMIT PROPER INSULATION APPLICATIONS. THE TRENCH BOTTOM SHALL BE HAND EXCAVATED AT EACH PIPE JOINT TO PROVIDE RELIEF AT THE PIPE JOINT, WHILE MAINTAINING CONTINUOUS SUPPORT THROUGHOUT THE PIPE LENGTH ON SUITABLE BEARING SOIL OR BACKFILL MATERIAL. WHERE THE TRENCH BOTTOM IS INADVERTENTLY OVER EXCAVATED BELOW THE BOTTOM OF THE PIPE AT LEAST 6", BUT NOT MORE THAN 12", THE TRENCH SHALL BACKFILLED AND 90% DRY PROCTOR TO THE CORRECT GRADE, WHERE COMPACTED TO 90% OVEREXCAVATION EXCEEDS 12", PROVIDE APPROVED CRUSHED STONE BACKFILL TO 90% DRY PROCTOR COMPACTION. THE CORRECT GRADE AND COMPACT TO MINIMUM 90% DO NOT USE BLOCKING TO BRING THE PIPE TO THE CORRECT GRADE. LEDGE ROCK, HARD PAN AND STONES LARGER THAN 1-1/2" SHALL BE REMOVED TO ALLOW MINIMUM 6" CLEARANCE ON EACH SIDE OF AND BELOW. ALL PIPE AND ACCESSORIES, EXCAVATIONS BELOW GRADE IN ROCK OR IN BOLDERS SHALL BE REFINED TO 10" 90% DRY PROCTOR BELOW GRADE WITH CRUSHED STONE, AND COMPACTED TO 90% COMPACTION. WHERE SHEETING OR BRACING FOR THE TRENCH IS REQUIRED, REMOVING THE SHEETING OR BRACING MAY CHANGE THE TRENCH WIDTH AND DEPTH. REMOVE BACKFILL, THEREFORE, WHERE SHEETING IS TO BE RECLAIMED, SUCH SHEETING SHALL NOT EXTEND DOWNWARD PAST THE TOP OF THE PIPE.

INSTALL PIPING TIGHT TO SLABS, BEAMS, JOISTS, COLUMNS, WALLS, AND OTHER PERMANENT ELEMENTS OF THE BUILDING. PROVIDE SPACE TO PERMIT INSULATION APPLICATIONS, WITH 1" CLEARANCE OUTSIDE THE INSULATION, ALLOW SUFFICIENT SPACE ABOVE REMOVABLE CEILING PANELS TO ALLOW FOR PANEL REMOVAL.

LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER, SPACED TO PERMIT APPLYING FULL INSULATION AND SERVICING OF VALVES.

EXTERIOR WALL PENETRATIONS: SEAL PIPE PENETRATIONS THROUGH EXTERIOR WALLS USING SLEEVES AND MECHANICAL SLEEVE SEALS. PIPE SLEEVES SMALLER THAN 6" SHALL BE STEEL; PIPE SLEEVES 6" AND LARGER SHALL BE SHEET METAL.

FIRE OR SMOKE BARRIER PENETRATIONS: WHERE WORK PASSES THROUGH RATED WALLS, PARTITIONS, CEILINGS, OR FLOORS, THE INTEGRITY SHALL BE MAINTAINED, USING NRTL LISTED SYSTEMS TO MAINTAIN FIRE AND/OR RATING FOR TYPE OF PENETRATION AND MATERIALS.

PLACE AND COMPACT FINAL BACKFILL OF SATISFACTORY SOIL MATERIAL TO FINAL SUBGRADE.

3.3 PIPE AND TUBE JOINT CONSTRUCTION

BRAZED AND SOLDERED JOINTS: FOR COPPER TUBE AND FITTING JOINTS, BRAZE JOINTS IN ACCORDANCE WITH ANSI B31.1.0 - STANDARD CODE FOR PRESSURE PIPING, POWER PIPING AND ANSI B9.1 - STANDARD SAFETY CODE FOR MECHANICAL REFRIGERATION.

SOLDERED JOINTS: COMPLY WITH THE PROCEDURES CONTAINED IN THE AWS "SOLDERING MANUAL."

SOLDER FILLER METAL: ASTM B 32, 95-S TIN-ANTIMONY.

BRAZED JOINTS: COMPLY WITH THE PROCEDURES CONTAINED IN THE AWS "BRAZING MANUAL."

BRAZING FILLER METALS: AWS A5.8, BCUP SERIES.

GASKET MATERIAL: THICKNESS, MATERIAL, AND TYPE SUITABLE FOR FLUID TO BE HANDLED AND DESIGN TEMPERATURES AND PRESSURES.

CAUTION: REMOVE STEMS, SEATS, AND PACKING OF VALVES AND ACCESSIBLE INTERNAL PARTS OF PIPING SPECIALTIES BEFORE SOLDERING AND BRAZING. THREADED JOINTS: CONFORM TO ASME B1.20.1, TAPERED PIPE THREADS FOR FIELD-CUT THREADS, JOIN PIPE FITTINGS AND VALVES AS FOLLOWS:

- 1. NOTE THE INTERNAL LENGTH OF THREADS IN FITTINGS OR VALVE ENDS, AND PROXIMITY OF INTERNAL SEAT OR WALL, TO DETERMINE HOW FAR PIPE SHOULD BE THREADED INTO JOINT.
2. ALIGN THREADS AT POINT OF ASSEMBLY.
3. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO THE EXTERNAL PIPE THREADS (EXCEPT WHERE DRY SEAL THREADING IS SPECIFIED).
4. ASSEMBLE JOINT WRENCH TIGHT. WRENCH ON VALVE SHALL BE ON THE VALVE END INTO WHICH THE PIPE IS BEING THREADED.
5. DAMAGED THREADS: DO NOT USE PIPE WITH CORRODED OR DAMAGED THREADS. IF A WELD OPENS DURING CUTTING OR THREADING OPERATIONS, THAT PORTION OF PIPE SHALL NOT BE USED.

3.4 INSTALLATION OF PLUMBING FIXTURES

INSTALL PLUMBING FIXTURES LEVEL AND PLUMB, IN ACCORDANCE WITH FIXTURE MANUFACTURERS' WRITTEN INSTALLATION INSTRUCTIONS, ROUGHING-IN DRAWINGS, AND REFERENCED STANDARDS.

FASTEN FLOOR-MOUNTED FIXTURES AND SPECIAL FIXTURES HAVING HOLES FOR SECURING FIXTURE TO WALL CONSTRUCTION, TO REINFORCEMENT BUILT INTO WALLS.

INSTALL ESCUTCHEONS AT EACH WALL, FLOOR, AND CEILING PENETRATION IN EXPOSED FINISHED LOCATIONS AND WITHIN CABINETS AND MILLWORK. USE DEEP PATTERN ESCUTCHEONS WHERE REQUIRED TO CONCEAL PROTRUDING PIPE FITTINGS.

SEAL FIXTURES TO WALLS, FLOORS, AND COUNTERS USING A SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT, SILICONE SEALANT IN ACCORDANCE WITH SEALING REQUIREMENTS, MATCH SEALANT COLOR TO FIXTURE COLOR.

3.5 PLUMBING FIXTURE ADJUSTING AND CLEANING

CLEAN FIXTURES, FITTINGS, AND SPOUT AND DRAIN STRAINERS WITH MANUFACTURERS' RECOMMENDED CLEANING METHODS AND MATERIALS.

3.6 PLUMBING FIXTURE PROTECTION

PROVIDE PROTECTIVE COVERING FOR INSTALLED FIXTURES AND FITTINGS.

DO NOT ALLOW USE OF FIXTURES FOR TEMPORARY FACILITIES, EXCEPT WHEN APPROVED IN WRITING BY THE OWNER.

3.8 EXCAVATION, TRENCHING, AND BACKFILLING OF UNDERGROUND UTILITIES

TRENCHES SHALL BE EXCAVATED TO THE ALIGNMENT, ELEVATION AND CONFIGURATION AS INDICATED IN THE CONTRACT DOCUMENTS. THE TRENCH SHALL BE SUPPORTED IN ACCORDANCE WITH OSHA APPROVED SAFETY REQUIREMENTS AND STANDARDS THROUGHOUT, AND SHALL BE DRAINED OR DEVATERED WHERE NECESSARY. THE MINIMUM CLEAR WIDTH OF THE UNSHEETED OR UNSHORED TRENCH MEASURED AT THE SPRINGLINE (CENTERLINE) OF THE PIPE SHALL BE MINIMUM 18" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. THE MAXIMUM CLEAR WIDTH OF THE TRENCH AT THE TOP OF THE PIPE SHALL NOT BE GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE, PLUS 2'-0".

THE PIPE SHALL BE LAID ON STABLE SOIL, AND THE TRENCH BOTTOM SHALL BE FREE OF FROZEN MATERIAL, CLODDED DIRT AND STONES. ANY PART OF THE TRENCH OVER EXCAVATED BELOW THE PIPE BOTTOM SHALL BE BACKFILLED TO THE CORRECT GRADE USING APPROVED NATIVE BACKFILL MATERIAL. FREE FROM STONES 90% DRY PROCTOR COMPACTION AND CLODDED DIRT, AND COMPACTED TO MINIMUM 90% WHERE UNSUITABLE SUBGRADE CONDITIONS OR GRANITE ROCK SUBGRADE CONDITIONS ARE ENCOUNTERED. THE TRENCH SHALL BE OVER EXCAVATED A MINIMUM OF 8" AND BACKFILLED WITH APPROVED CRUSHED STONE OR SAND TO SUPPORT THE FULL LENGTH OF THE PIPE CONTINUOUSLY.

THE TRENCH BOTTOM SHALL BE HAND EXCAVATED AT EACH PIPE JOINT TO PROVIDE RELIEF AT THE PIPE JOINT, WHILE MAINTAINING CONTINUOUS SUPPORT THROUGHOUT THE PIPE LENGTH ON SUITABLE BEARING SOIL OR BACKFILL MATERIAL. WHERE THE TRENCH BOTTOM IS INADVERTENTLY OVER EXCAVATED BELOW THE BOTTOM OF THE PIPE AT LEAST 6", BUT NOT MORE THAN 12", THE TRENCH SHALL BACKFILLED AND 90% DRY PROCTOR TO THE CORRECT GRADE, WHERE COMPACTED TO 90% OVEREXCAVATION EXCEEDS 12", PROVIDE APPROVED CRUSHED STONE BACKFILL TO 90% DRY PROCTOR COMPACTION. THE CORRECT GRADE AND COMPACT TO MINIMUM 90% DO NOT USE BLOCKING TO BRING THE PIPE TO THE CORRECT GRADE. LEDGE ROCK, HARD PAN AND STONES LARGER THAN 1-1/2" SHALL BE REMOVED TO ALLOW MINIMUM 6" CLEARANCE ON EACH SIDE OF AND BELOW. ALL PIPE AND ACCESSORIES, EXCAVATIONS BELOW GRADE IN ROCK OR IN BOLDERS SHALL BE REFINED TO 10" 90% DRY PROCTOR BELOW GRADE WITH CRUSHED STONE, AND COMPACTED TO 90% COMPACTION. WHERE SHEETING OR BRACING FOR THE TRENCH IS REQUIRED, REMOVING THE SHEETING OR BRACING MAY CHANGE THE TRENCH WIDTH AND DEPTH. REMOVE BACKFILL, THEREFORE, WHERE SHEETING IS TO BE RECLAIMED, SUCH SHEETING SHALL NOT EXTEND DOWNWARD PAST THE TOP OF THE PIPE.

LOCATE BACKFILLING WITH UTILITIES TESTING.

PLACE AND COMPACT INITIAL BACKFILL OF SUBBASE MATERIAL, FREE OF PARTICLES LARGER THAN 1 INCH, TO A HEIGHT OF 12 INCHES OVER THE UTILITY PIPE OR CONDUIT.

CAREFULLY COMPACT MATERIAL UNDER PIPE HAUNCHES AND BRING BACKFILL EVENLY UP ON BOTH SIDES AND ALONG THE FULL LENGTH OF UTILITY PIPING OR CONDUIT TO AVOID DAMAGE OR DISPLACEMENT OF UTILITY SYSTEM.

FILL VOIDS WITH APPROVED BACKFILL MATERIALS WHILE SHORING AND BRACING, AND AS SHEETING IS REMOVED.

PLACE AND COMPACT FINAL BACKFILL OF SATISFACTORY SOIL MATERIAL TO FINAL SUBGRADE.

PLUMBING SUPPORTS AND ANCHORS

PART 1 - GENERAL
1.1 DESCRIPTION OF WORK

EXTENT OF HANGERS AND SUPPORT WORK IS INDICATED BY THE REQUIREMENTS OF THIS SECTION. THIS SECTION INCLUDES THE FOLLOWING:
1. HORIZONTAL-PIPING HANGERS AND SUPPORTS.
2. HANGER-ROD ATTACHMENTS.
3. BUILDING ATTACHMENTS.
4. SADDLES AND SHIELDS.

1.2 SUBMITTALS

- 1. SUBMIT CATALOG CUTS FOR EACH DIFFERENT TYPE OF HANGER AND ROD, SUPPORT AND ACCESSORY.
2. SUBMIT METHOD OF SUPPORT AND HANGING FOR ENGINEERS APPROVAL PRIOR TO INSTALLATION.
3. SUBMIT MANUFACTURER TECHNICAL DATA OF INSERT AND ROD FOR APPROVAL.

PART 2 - PRODUCTS
2.1 PIPING SYSTEMS

HANGERS AND SUPPORT COMPONENTS SHALL BE FACTORY FABRICATED OF MATERIALS, DESIGN, AND MANUFACTURER COMPLYING WITH MSS SP-86.

- 1. COMPONENTS SHALL HAVE GALVANIZED COATINGS WHERE INSTALLED FOR PIPING AND EQUIPMENT THAT WILL NOT HAVE FIELD-APPLIED FINISH.
2. PIPE ATTACHMENTS SHALL HAVE COPPER PLATED OR NONMETALLIC COATING FOR ELECTROLYTIC PROTECTION WHERE ATTACHMENTS ARE IN DIRECT CONTACT WITH COPPER TUBING.

THERMAL HANGER SADDLE INSERTS: (MSS TYPE 39) % DEFLECTION, WATERPROOF
1. 200-PSI AVERAGE COMPRESSIVE STRENGTH AT 5 CALCIUM SILICATE.

- PIPE HANGERS AND SUPPORTS:
1. M.S.S. TYPE 1 ADJUSTABLE CLEVIS HANGER.
2. PIPE RISER CLAMPS: M.S.S. TYPE 8, OR M.S.S. TYPE 42.

PIPE HANGER ASSEMBLIES SHALL INCLUDE TURNBUCKLES OR OTHER MEANS OF VERTICAL ADJUSTMENT.

TRAPEZE HANGERS MAY BE USED IN LIEU OF INDIVIDUAL HANGERS FOR CLOSELY SPACED LINES. HANGER RODS SHALL BE UPSIZED TO CARRY THE AGGREGATE WEIGHT OF THE MULTIPLE LINES IN ACCORDANCE WITH M.S.S. - SP-58, MOST CURRENT EDITION, LOAD RATINGS SECTION.

HANGER RODS: STEEL HANGER RODS, THREADED BOTH ENDS OR CONTINUOUS THREADED. PROVIDE PRODUCTS COMPLYING WITH ASTM A 36.

PART 3 - EXECUTION
3.1 INSTALLATION OF HANGERS AND SUPPORTS

INSTALL HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS TO SUPPORT PIPING PROPERLY FROM BUILDING STRUCTURE. COMPLY WITH MSS SP-89 AND SP-89. ARRANGE FOR GROUPING OF PARALLEL RUNS OF HORIZONTAL PIPING SUPPORTED TOGETHER ON FIELD-FABRICATED, HEAVY-DUTY TRAPEZE HANGERS WHERE POSSIBLE. INSTALL SUPPORTS WITH MAXIMUM SPACING COMPLYING WITH MSS SP-89. WHERE PIPING OF VARIOUS SIZES IS SUPPORTED TOGETHER BY TRAPEZE HANGERS, SPACE TRAPEZE FOR SMALLEST PIPE SIZE OR INSTALL INTERMEDIATE SUPPORTS FOR SMALLER DIAMETER PIPES.

INSTALL BUILDING ATTACHMENTS WITHIN CONCRETE OR TO STRUCTURAL STEEL. SPACE ATTACHMENTS WITHIN MAXIMUM PIPING SPAN LENGTH INDICATED IN MSS SP-89. INSTALL ADDITIONAL ATTACHMENTS AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES, GUIDES, STRAINERS, EXPANSION JOINTS, AND AT CHANGES IN DIRECTION OF PIPING. INSTALL CONCRETE INSERTS BEFORE CONCRETE IS PLACED; FASTEN INSERT TO FORMS. WHERE CONCRETE WITH COMPRESSIVE STRENGTH LESS THAN 2,500 PSI IS INDICATED, INSTALL REINFORCING BARS THROUGH OPENINGS AT TOP OF INSERTS.

LOAD DISTRIBUTION: INSTALL HANGERS AND SUPPORTS SO THAT PIPING LINE AND DEAD LOADING AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.

NO PIPING SHALL BE SUPPORTED FROM OTHER PIPES, DUCTWORK, ELECTRIC CONDUIT, HUNG CEILING, CINDER CONCRETE OR WORK OF OTHER TRADES.

INSTALL HANGERS WITH THE FOLLOWING MINIMUM ROD SIZES AND MAXIMUM SPACING. SPACING AND HANGER ROD SIZES SHALL BE ADJUSTED FOR INTERMEDIATE LOADS PLACED BETWEEN SUPPORTS, SUCH AS PUMPS, STRAINERS, VALVES, ETC.:

Table with columns: STEEL PIPE, NOMINAL PIPE SIZE (INCHES), MAX SPAN (FEET), MIN ROD SIZE (INCHES). Rows for 3/8 inch and 1/2 inch pipes.

Table with columns: COPPER PIPE, NOMINAL PIPE SIZE (INCHES), MAX SPAN (FEET), MIN ROD SIZE (INCHES). Rows for 1/4 inch, 1/2 inch, and 3/4 inch pipes.

PIPE SUPPORT SPACING FOR DRAINAGE APPLICATIONS:
VERTICAL MAX HORIZONTALS MAX
PIPE MATERIAL SPAN (FEET) SPAN (FEET)

CAST-IRON PIPE 5 15
COPPER TUBING 6 10
1-1/4 INCH AND SMALLER 6 10
COPPER TUBING 10 10
1-1/2 INCH AND LARGER 10 10

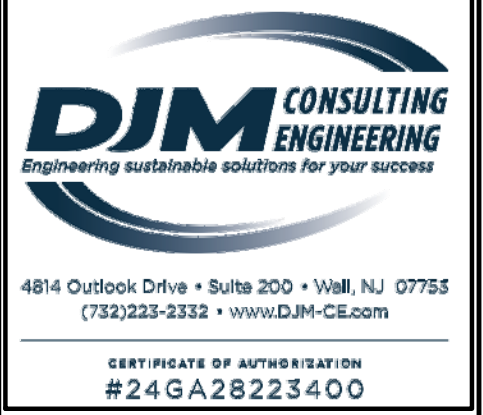
USE INSULATION INSERTS TO SUPPORT PIPING THAT REQUIRES INSULATION.

3.2 ADJUSTING
HANGER ADJUSTMENT: ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO ACHIEVE INDICATED SLOPE OF PIPE.

TOUCH-UP PAINTING: IMMEDIATELY AFTER ERECTION OF ANCHORS AND SUPPORTS, CLEAN FIELD WELDS AND ABRADED AREAS OF SHOP PAINT AND PAINT EXPOSED AREAS WITH SAME MATERIAL AS USED FOR SHOP PAINTING TO COMPLY WITH SSPC-PA-1 REQUIREMENTS FOR TOUCH-UP OF FIELD-PAINTED SURFACES.
1. APPLY BY BRUSH OR SPRAY TO PROVIDE A MINIMUM DRY FILM THICKNESS OF 2.0 MILS.

TOUCH-UP PAINTING: CLEANING AND TOUCH-UP PAINTING OF FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS OF THE SHOP PAINT ON MISCELLANEOUS METAL.

FOR GALVANIZED SURFACES CLEAN WELDS BOLTED CONNECTIONS AND ABRADED AREAS AND APPLY GALVANIZING REPAIR PAINT TO COMPLY WITH ASTM A 780.





**PLUMBING VALVES AND STRAINERS**

**PART 1 - GENERAL**  
**1.1 SUMMARY**  
 THIS SECTION INCLUDES GENERAL DUTY VALVES AND STRAINERS COMMON TO MOST MECHANICAL PIPING SYSTEMS.  
 1. SPECIAL PURPOSE VALVES AND STRAINERS ARE SPECIFIED IN INDIVIDUAL PIPING SYSTEM SPECIFICATIONS.

**PART 2 - PRODUCTS**  
**2.1 MANUFACTURER:** SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS FROM ONE OF THE MANUFACTURERS LISTED IN THIS SPECIFICATION FOR EACH VALVE TYPE OR STRAINER TYPE OR APPROVED EQUAL.

**2.2 VALVE AND STRAINER FEATURES, GENERAL MANUFACTURERS:** SUBJECT TO COMPLIANCE WITH THE TECHNICAL SPECIFICATIONS, SELECT MANUFACTURER FROM THOSE LISTED BELOW:  
 1. CRANE  
 2. GRINNELL  
 3. HAMMOND  
 4. JENKINS  
 5. LUNKENHEIMER  
 6. MILWAUKEE  
 7. NIBCO  
 8. POWELL

**2.4 CHECK VALVES**  
 RATED FOR 150# STEAM, 300# WOG. CONSTRUCTION SHALL BE CAST-BRONZE BODY AND CAP CONFORMING TO ASTM B 62; BRONZE DISC; AND HAVING THREADED OR SOLDER ENDS.

**PART 3 - EXECUTION**  
**3.1 VALVE ENDS SELECTION** SELECT VALVES WITH THE FOLLOWING ENDS OR TYPES OF PIPE/TUBE CONNECTIONS:  
 COPPER TUBE SIZE, 2-INCH AND SMALLER: SOLDER OR THREADED ENDS.  
 STEEL PIPE SIZES, 2-INCH AND SMALLER: THREADED END.  
 STEEL PIPE SIZES 2-1/2 INCH AND LARGER: GROOVED END OR FLANGED.

**3.2 VALVE INSTALLATIONS**  
 LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.  
 INSTALL VALVES AND UNIONS FOR EACH FIXTURE AND ITEM OF EQUIPMENT ARRANGED TO ALLOW EQUIPMENT REMOVAL WITHOUT SYSTEM SHUTDOWN. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES.  
 INSTALL VALVES IN A POSITION TO ALLOW FULL STEM MOVEMENT.

**3.3 FIELD QUALITY CONTROL**  
 TESTS: AFTER PIPING SYSTEMS HAVE BEEN TESTED AND PUT INTO SERVICE, BUT BEFORE FINAL ADJUSTING AND BALANCING, INSPECT VALVES FOR LEAKS. ADJUST OR REPLACE PACKING TO STOP LEAKS; REPLACE VALVES IF LEAK PERSISTS.

**3.4 ADJUSTING AND CLEANING**  
 CLEANING: CLEAN MILL SCALE, GREASE, AND PROTECTIVE COATINGS FROM EXTERIOR OF VALVES AND PREPARE VALVES TO RECEIVE FINISH PAINTING OR INSULATION.

**PLUMBING INSULATION**  
**PART 1 - GENERAL**  
**1.1 QUALITY ASSURANCE**  
 FLAME/SMOKE RATINGS: PROVIDE COMPOSITE MECHANICAL INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS, AS TESTED BY ASTM E 84 (NFPA 255) METHOD.

**PART 2 - PRODUCTS**  
**2.1 ACCEPTABLE MANUFACTURERS**  
 MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS OF ONE OF THE FOLLOWING, OR APPROVED EQUAL:  
 1. ARMSTRONG WORLD INDUSTRIES, INC.  
 2. CERTAINTED CORP.  
 3. JOHNS MANVILLE INSULATIONS  
 4. KNAUF FIBER GLASS  
 5. OWENS-CORNING FIBERGLAS CORP.

**2.2 PIPING INSULATION MATERIALS**  
 FIBERGLASS PIPING INSULATION: ASTM C 547; 'K' VALUE OF 0.24 AT 75 DEGREES F; NONCOMBUSTIBLE.  
 JACKETS FOR PIPING INSULATION: ASTM C 921, TYPE I (VAPOR BARRIER) FOR PIPING WITH TEMPERATURES BELOW AMBIENT, TYPE II FOR PIPING WITH TEMPERATURES ABOVE AMBIENT. TYPE I MAY BE USED FOR ALL PIPING AT INSTALLERS OPTION.  
 1. ENCASE PIPE FITTINGS INSULATION WITH ONE-PIECE PRE MOLDED PVC FITTING COVERS, EXCEPT IN PLENUM RATED AREAS, FASTENED AS PER MANUFACTURER'S RECOMMENDATIONS.  
 STAPLES, BANDS, WIRES, AND CEMENT: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED. USE STAINLESS STEEL STAPLES IF REQUIRED FOR PIPING BELOW AMBIENT TEMPERATURE.  
 ADHESIVES, SEALERS, AND PROTECTIVE FINISHES: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.

**PART 3 - EXECUTION**  
**3.1 INSPECTION**  
 EXAMINE AREAS AND CONDITIONS UNDER WHICH MECHANICAL INSULATION IS TO BE INSTALLED. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER.

**3.2 PLUMBING PIPING SYSTEM INSULATION, GENERAL**  
 INSULATION OMITTED: OMIT INSULATION ON CHROME-PLATED EXPOSED PIPING (EXCEPT FOR HANDICAPPED FIXTURES), AIR CHAMBERS, UNIONS, STRAINERS, CHECK VALVES, BALANCE COCKS, FLOW REGULATORS AND PRE-INSULATED EQUIPMENT.

**3.3 COLD PIPING**  
 APPLICATION REQUIREMENTS: INSULATE THE FOLLOWING COLD PLUMBING PIPING SYSTEMS:  
 1. INTERIOR ABOVE-GROUND ROOF DRAIN HEADS AND PANS, AND ALL ABOVEGROUND STORM WATER PIPING.  
 2. PLUMBING VENTS WITHIN 6 LINEAL FEET OF ROOF OUTLET.  
 INSULATE EACH PIPING SYSTEM SPECIFIED ABOVE WITH ONE OF THE FOLLOWING TYPES AND THICKNESS OF INSULATION:  
 1. FIBERGLASS: 1" THICKNESS.

**3.5 INSTALLATION OF PIPING INSULATION**  
 GENERAL: INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT INSULATION SERVES ITS INTENDED PURPOSE.  
 INSTALL INSULATION ON PIPE SYSTEMS SUBSEQUENT TO TESTING AND ACCEPTANCE OF TESTS.  
 INSTALL INSULATION MATERIALS WITH SMOOTH AND EVEN SURFACES. INSULATE EACH CONTINUOUS RUN OF PIPING WITH FULL-LENGTH UNITS OF INSULATION, WITH SINGLE CUT PIECE TO COMPLETE RUN. DO NOT USE CUT PIECES OR SCRAPS ABUTTING EACH OTHER.  
 CLEAN AND DRY PIPE SURFACES PRIOR TO INSULATING. BUTT INSULATION JOINTS FIRMLY TOGETHER TO ENSURE COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED.  
 COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM APPLIED TO ADJOINING PIPE RUN. INSTALL FACTORY MOLDED, PRECUT OR JOB FABRICATED UNITS (AT INSTALLER'S OPTION) EXCEPT WHERE SPECIFIC FORM OR TYPE IS INDICATED.  
 EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED.

**3.6 PROTECTION AND REPLACEMENT**  
 REPLACE DAMAGED INSULATION THAT CANNOT BE REPAIRED SATISFACTORILY, INCLUDING UNITS WITH VAPOR BARRIER DAMAGE AND MOISTURE SATURATED UNITS.  
 PROTECTION: INSULATION INSTALLER SHALL ADVISE OF REQUIRED PROTECTION FOR INSULATION WORK DURING REMAINDER OF CONSTRUCTION PERIOD, TO AVOID DAMAGE AND DETERIORATION.

**DRAINAGE AND VENT SYSTEMS**  
**PART 1 - GENERAL**  
**1.1 SUMMARY**  
 THIS SECTION INCLUDES BUILDING SANITARY, STORM AND VENT PIPING SYSTEMS.  
**1.2 SEQUENCING AND SCHEDULING**  
 COORDINATE THE INSTALLATION OF FLASHING, AND ROOF PENETRATIONS.  
 COORDINATE FLASHING MATERIALS INSTALLATION OF ROOFING, WATERPROOFING, AND ADJOINING SUBSTRATE WORK.  
 COORDINATE THE INSTALLATION OF DRAINS IN POURED-IN-PLACE CONCRETE SLABS, TO INCLUDE PROPER DRAIN ELEVATIONS, INSTALLATION OF FLASHING, AND SLOPE OF SLAB TO DRAINS.  
 COORDINATE WITH INSTALLATION OF SANITARY SEWER SYSTEMS AS NECESSARY TO INTERFACE BUILDING DRAINS WITH DRAINAGE PIPING SYSTEMS.

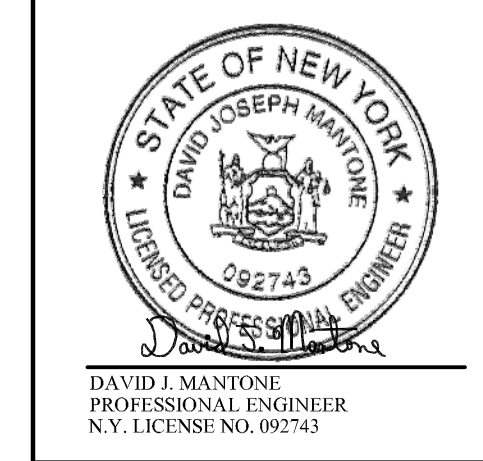
**PART 2 - PRODUCTS**  
**2.1 PIPE AND FITTINGS**  
 SEE PLUMBING MATERIALS SCHEDULE FOR INFORMATION.  
**2.2 DRAINAGE PIPING SPECIALTIES**  
 CLEANOUT PLUGS: CAST-BRONZE OR BRASS, THREADS COMPLYING WITH ANSI B2.1, COUNTERSUNK HEAD.  
 FLOOR, WALL, AND GRADE CLEANOUTS: PROVIDE CLEANOUTS AS SPECIFIED IN THE "PLUMBING FIXTURE SCHEDULE".  
 VENT FLASHING SLEEVES: CAST-IRON CAULKING TYPE ROOF COUPLING FOR CAST-IRON STACKS, CAST-IRON THREADED TYPE ROOF COUPLING FOR STEEL STACKS, AND CAST-BRONZE STACK FLASHING SLEEVE FOR COPPER TUBING.  
 FROST-PROOF VENT CAPS: CONSTRUCT OF GALVANIZED IRON, COPPER, OR LEAD-COATED COPPER, SIZED TO PROVIDE 1 INCH AIR SPACE BETWEEN OUTSIDE OF VENT PIPE AND INSIDE OF FLASHING COLLAR EXTENSION.  
 MANUFACTURERS: FREEZE-PROOF VENT CAPS:  
 1. F. J. MOORE MFG. CO.  
 2. OR APPROVED EQUAL.  
 MANUFACTURERS: DRAINAGE PIPING SPECIALTIES, INCLUDING EXPANSION JOINTS, DRAINS, TRAP PRIMERS, AND VANDAL-PROOF VENT CAPS:  
 1. JOSAM MFG. CO.  
 2. SMITH (JAY R) MFG. CO.  
 3. ZURN INDUSTRIES INC; HYDROMECHANICS DIV.  
 4. WADE  
 5. PRECISION PLUMBING PRODUCTS

**2.3 FLOOR DRAINS**  
 PROVIDE FLOOR DRAINS AS SPECIFIED IN THE "PLUMBING FIXTURE SCHEDULE".  
 MANUFACTURERS: FLOOR DRAINS:  
 1. JOSAM MFG. CO.  
 2. SMITH (JAY R) MFG. CO.  
 3. ZURN INDUSTRIES INC; HYDROMECHANICS DIV.  
 4. WADE  
 5. ACO DRAIN

**PART 3 - EXECUTION**  
**3.1 PIPE AND TUBE JOINT CONSTRUCTION**  
 CAST-IRON SOIL PIPE: MAKE HUBLESS JOINTS IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE CISPI CAST IRON SOIL PIPE AND FITTINGS HANDBOOK, CHAPTER IV.  
**3.2 INSTALLATION**  
 MAKE CHANGES IN DIRECTION FOR DRAINAGE AND VENT PIPING USING APPROPRIATE 45 DEGREE WYES, HALF-WYES, OR LONG SWEEP QUARTER, SIXTH, EIGHTH, OR SIXTEENTH BENDS. SANITARY TEES OR SHORT QUARTER BENDS MAY BE USED ON VERTICAL STACKS OF DRAINAGE LINES WHERE THE CHANGE IN DIRECTION OF FLOW IS FROM HORIZONTAL TO VERTICAL, EXCEPT USE LONG-TURN TEES WHERE TWO FIXTURES ARE INSTALLED BACK TO BACK AND HAVE A COMMON DRAIN. STRAIGHT TEES, ELBOWS, AND CROSSES MAY BE USED ON VENT LINES. NO CHANGE IN DIRECTION OF FLOW GREATER THAN 90 DEGREES SHALL BE MADE, WHERE DIFFERENT SIZES OF DRAINAGE PIPES AND FITTINGS ARE CONNECTED. USE PROPER SIZE, STANDARD INCREASERS AND REDUCERS. REDUCTION OF THE SIZE OF DRAINAGE PIPING IN THE DIRECTION OF FLOW IS PROHIBITED.

INSTALL UNDERGROUND BUILDING DRAINS TO CONFORM WITH THE PLUMBING CODE, AND IN ACCORDANCE WITH THE CAST IRON SOIL PIPE INSTITUTE ENGINEER MANUAL. LAY UNDERGROUND BUILDING DRAINS BEGINNING AT LOW POINT OF SYSTEMS, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL REQUIRED GASKETS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER SPECIAL INSTALLATION REQUIREMENTS. MAINTAIN SWAB OR DRAG IN LINE AND PULL PAST EACH JOINT AS IT IS COMPLETED.  
 INSTALL BUILDING DRAIN PIPING DOWN AT MINIMUM SLOPE OF 1/4 INCH PER FOOT (2 PERCENT) FOR PIPING 2-1/2 INCH AND SMALLER, AND 1/8 INCH PER FOOT (1 PERCENT) FOR PIPING 3 INCH AND LARGER.  
 EXTEND BUILDING DRAIN TO CONNECT TO SEWER PIPING, OF SIZE AND IN LOCATION INDICATED FOR SERVICE ENTRANCE TO BUILDING.  
 INSTALL SLEEVE AND MECHANICAL SLEEVE SEAL THROUGH FOUNDATION WALL FOR WATERTIGHT INSTALLATION.  
**3.3 INSTALLATION OF PIPING SPECIALTIES**  
 INSTALL BACKWATER VALVES IN SANITARY BUILDING DRAIN PIPING AS INDICATED, AND AS REQUIRED BY THE PLUMBING CODE. FOR INTERIOR INSTALLATION, PROVIDE CLEANOUT COVER FLUSH TO FLOOR CENTERED OVER BACKWATER VALVE COVER AND OF ADEQUATE SIZE TO REMOVE VALVE COVER FOR SERVICE.  
 ABOVE GROUND CLEANOUTS: INSTALL IN ABOVE GROUND PIPING AND BUILDING DRAIN PIPING AS INDICATED, AND:  
 A. AS REQUIRED BY PLUMBING CODE;  
 B. AT EACH CHANGE IN DIRECTION OF PIPING GREATER THAN 45 DEGREES;  
 C. AT MINIMUM INTERVALS OF 100'  
 D. AT BASE OF EACH VERTICAL SOIL OR WASTE STACK.  
 VENT FLASHING SLEEVES: INSTALL ON STACKS PASSING THROUGH ROOF, SECURE OVER STACK FLASHING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.  
 FROST-PROOF VENT CAPS: INSTALL FROST-PROOF VENT CAPS ON EACH VENT PIPE PASSING THROUGH ROOF, MAINTAIN 1 INCH CLEARANCE BETWEEN VENT PIPE AND ROOF SUBSTRATE.  
**3.4 INSTALLATION OF FLOOR DRAINS**  
 INSTALL FLOOR DRAINS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN LOCATIONS INDICATED.  
 INSTALL FLOOR DRAINS AT LOW POINTS OF SURFACE AREAS TO BE DRAINED, OR AS INDICATED.  
 SET DRAIN ELEVATION DEPRESSED BELOW FINISHED SLAB ELEVATION AS LISTED BELOW TO PROVIDE PROPER SLOPE TO DRAIN.  
 DEPRESSION IN INCHES - RADIUS OF AREA DRAINED, FEET  
 1/2 5  
 3/4 10  
 TRAP ALL DRAINS CONNECTED TO THE SANITARY SEWER. INSTALL DRAIN FLASHING COLLAR OR FLANGE SO THAT NO LEAKAGE OCCURS BETWEEN DRAIN AND ADJOINING FLOORING. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES, WHERE PENETRATED.  
 POSITION DRAINS SO THAT THEY ARE ACCESSIBLE AND EASY TO MAINTAIN.  
**3.5 FIELD QUALITY CONTROL**  
**INSPECTIONS**  
 1. DO NOT ENCLOSE, COVER, OR PUT INTO OPERATION DRAINAGE AND VENT PIPING SYSTEM UNTIL IT HAS BEEN INSPECTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.  
 2. DURING THE PROGRESS OF THE INSTALLATION, NOTIFY THE PLUMBING OFFICIAL HAVING JURISDICTION, AT LEAST 24 HOURS PRIOR TO THE TIME SUCH INSPECTION MUST BE MADE. PERFORM TESTS SPECIFIED BELOW IN THE PRESENCE OF THE PLUMBING OFFICIAL.  
 A. ROUGH-IN INSPECTION: ARRANGE FOR INSPECTION OF THE PIPING SYSTEM BEFORE CONCEALED OR CLOSED-IN AFTER SYSTEM IS ROUGHED-IN, AND PRIOR TO SETTING FIXTURES.  
 B. FINAL INSPECTION: ARRANGE FOR A FINAL INSPECTION BY THE PLUMBING OFFICIAL TO OBSERVE THE TESTS SPECIFIED BELOW AND TO INSURE COMPLIANCE WITH THE REQUIREMENTS OF THE PLUMBING CODE.  
 3. REINSPECTIONS: WHENEVER THE PIPING SYSTEM FAILS TO PASS THE TEST OR INSPECTION, MAKE THE REQUIRED CORRECTIONS, AND ARRANGE FOR REINSPECTED BY THE PLUMBING OFFICIAL.  
 4. REPORTS: PREPARE INSPECTION REPORTS, SIGNED BY THE PLUMBING OFFICIAL.  
 PIPING SYSTEM TEST - TEST DRAINAGE AND VENT SYSTEM IN ACCORDANCE WITH THE PROCEDURES OF THE AUTHORITY HAVING JURISDICTION, OR IN THE ABSENCE OF A PUBLISHED PROCEDURE, AS FOLLOWS:  
 1. TEST FOR LEAKS AND DEFECTS ALL INSTALLED DRAINAGE AND VENT PIPING SYSTEMS AND PARTS OF EXISTING SYSTEMS, WHICH HAVE BEEN ALTERED, EXTENDED OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST. COMPLETE WITH A DIAGRAM OF THE PORTION OF THE SYSTEM TESTED.  
 2. LEAVE UNCOVERED AND UNCONCEALED ALL INSTALLED, ALTERED, EXTENDED, OR REPLACED DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE ALL SUCH WORK FOR TESTING, WHICH HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED.  
 3. ROUGH PLUMBING TEST PROCEDURE: EXCEPT FOR OUTSIDE LEADERS AND PERFORATED OR OPEN JOINTED DRAIN TILE, TEST THE PIPING OF PLUMBING DRAINAGE AND VENTING SYSTEMS UPON COMPLETION OF THE ROUGH PIPING INSTALLATION. TIGHTLY CLOSE ALL OPENINGS IN THE PIPING SYSTEM, AND FILL WITH WATER TO THE POINT OF OVERFLOW, BUT NOT LESS THAN 10 FEET HEAD OF WATER. WATER LEVEL SHALL NOT DROP DURING THE PERIOD FROM 15 MINUTES BEFORE THE INSPECTION STARTS, THROUGH COMPLETION OF THE INSPECTION. INSPECT ALL JOINTS FOR LEAKS.  
 4. FINISHED PLUMBING TEST PROCEDURE: AFTER THE PLUMBING FIXTURES HAVE BEEN SET AND THEIR TRAPS FILLED WITH WATER, THEIR CONNECTIONS SHALL BE TESTED AND PROVED GAS AND WATER-TIGHT. PLUG THE STACK OPENINGS ON THE ROOF AND BUILDING DRAIN WHERE IT LEAVES THE BUILDING, AND INTRODUCE AIR INTO THE SYSTEM EQUAL TO A PRESSURE OF 1" WATER COLUMN. USE A 1/2" TUBE OR MANOMETER INSERTED IN THE TRAP OF A WATER CLOSET TO MEASURE THIS PRESSURE. AIR PRESSURE SHALL REMAIN CONSTANT WITHOUT THE INTRODUCTION OF ADDITIONAL AIR THROUGHOUT THE PERIOD OF INSPECTION. INSPECT ALL PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS.  
 5. REPAIR ALL LEAKS AND DEFECTS USING NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.  
 6. PREPARE REPORTS FOR ALL TESTS AND REQUIRED CORRECTIVE ACTION.

**3.6 ADJUSTING AND CLEANING**  
 CLEAN INTERIOR OF PIPING SYSTEM. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES. CLEAN DRAIN STRAINERS, DOMES, AND TRAPS. REMOVE DIRT AND DEBRIS.  
**3.7 PROTECTION**  
 PROTECT DRAINS DURING REMAINDER OF CONSTRUCTION PERIOD, TO AVOID CLOGGING WITH DIRT AND DEBRIS, AND TO PREVENT DAMAGE FROM TRAFFIC AND CONSTRUCTION WORK.  
 PLACE PLUGS IN ENDS OF UNCOMPLETED PIPING AT END OF DAY OR WHENEVER WORK STOPS.



**100 CORPORATE DRIVE**  
**PARKING STRUCTURE**  
**BLAUVELT**  
**NEW YORK**

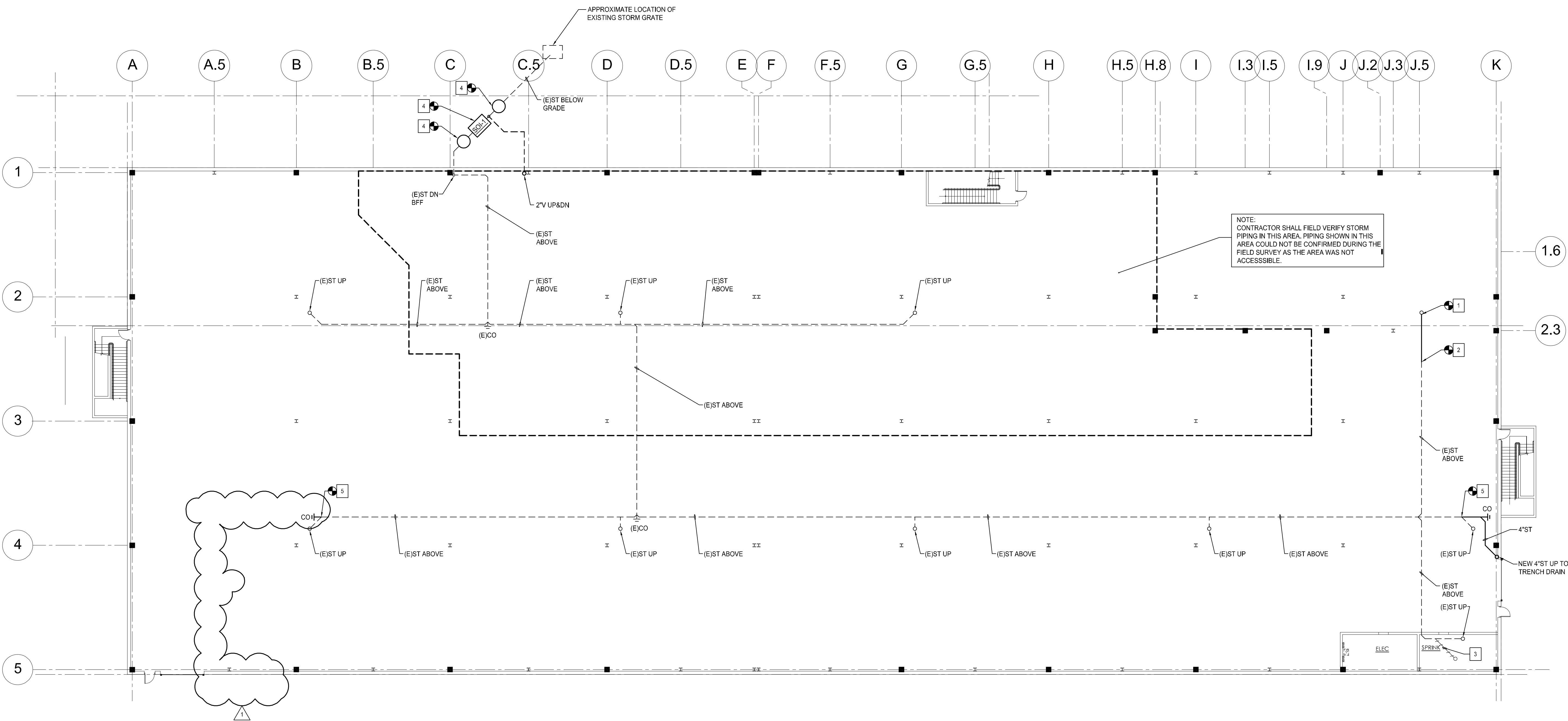
MARK	DATE	DESCRIPTION	ISSUE
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**PLUMBING SPECIFICATIONS SHEET 2**  
**P-003**





100 CORPORATE DRIVE  
PARKING STRUCTURE  
NEW YORK  
BLAUVELT



2 P100 SHEET GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED CODES AND PER LOCAL AUTHORITY HAVING JURISDICTION.
- PLUMBING CONTRACTOR SHALL VISIT THE SITE TO FULLY FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS, TOTAL SCOPE AND IMPACT ON EXISTING SYSTEMS PRIOR TO BID. THE VISIT SHALL TAKE PLACE PRIOR TO BID AND FAILURE TO ALERT ENGINEER/ARCHITECT OF DISCREPANCIES FORFEITS RIGHTS TO ADDITIONAL MONIES FOR REDESIGN/INSTALLATION OF SUCH SYSTEMS.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE PLUMBING SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
- THIS CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING PIPING WHICH WILL BE REQUIRED TO BE RELOCATED/RAISED DUE TO RENOVATION WORK AND NEW FINISH INSTALLATION.

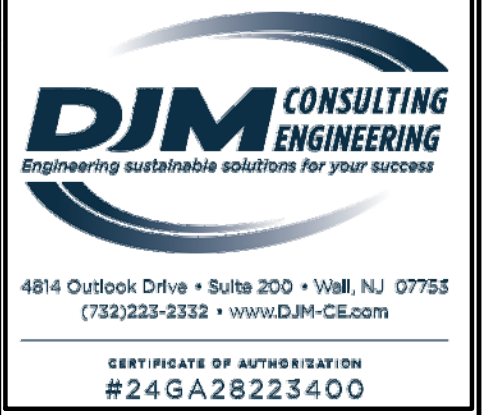
- ALL EXISTING LINES SHOWN TO BE REUSED ARE BASED ON LIMITED FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL LINES PRIOR TO INSTALLATION AND SHALL ALERT OWNER / ENGINEER OF ANY LINES THAT CANNOT BE REUSED. PROVIDE A PER LINEAR FOOT LINE ITEM COST IN BID FOR ANY TRENCHING, NEW LINE, BACKFILL WORK THAT MAY BE REQUIRED.
- PLUMBING CONTRACTOR SHALL PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES.
- MAINTAIN FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATINGS.
- THE CONTRACTOR SHALL COORDINATE ALL SHUTDOWNS AND IDENTIFY ANY WORK WHICH MAY BE REQUIRED TO BE PERFORMED ON OVERTIME IN ORDER NOT TO DISTURB OCCUPIED SPACES WHICH ARE NOT WITHIN THE SCOPE OF THIS CONTRACT. OBTAIN WRITTEN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO PERFORMING ANY SHUTDOWNS OR PERFORMING WORK ON OVERTIME.

3 P100 SHEET KEY NOTES

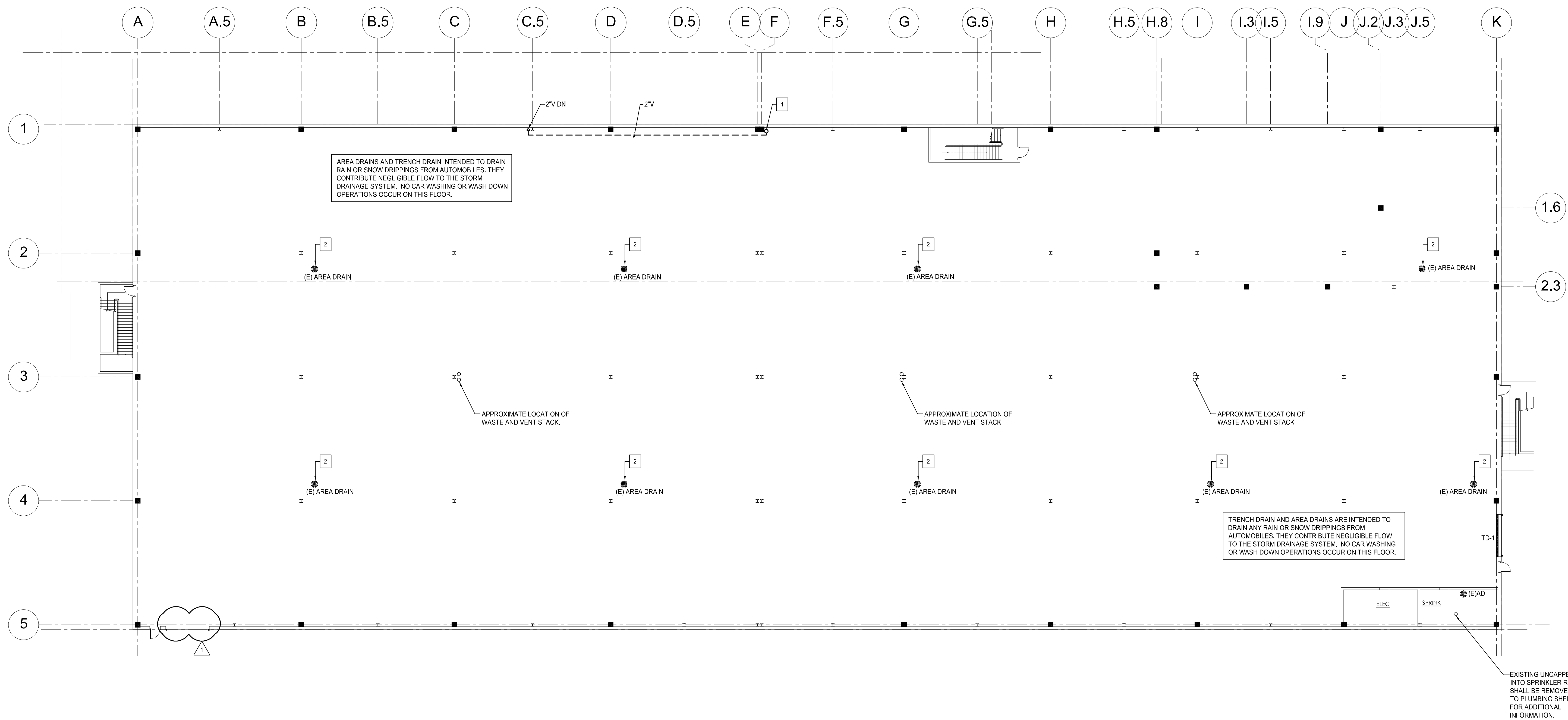
- CONNECT NEW STORM PIPING TO EXISTING STORM DRAIN OUTSIDE FIRST FLOOR INTERIOR FOOTPRINT IN APPROXIMATE LOCATION SHOWN. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING AREA DRAIN. ROUTE NEW STORM PIPING FULL SIZE AS SHOWN AND PENETRATE EXTERIOR WALL TO CONNECT TO STORM PIPING AT FIRST FLOOR CEILING UP HIGH. SEAL ANNULAR SPACE WEATHER TIGHT. THE CONTRACTOR WILL ACCOUNT FOR ALL ADJUSTMENTS IN LAYOUT DUE TO FIELD COORDINATION IN BID. COORDINATE EXACT ROUTING WITH FIELD CONDITIONS AND MAKE TRANSITIONS AS REQUIRED. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES.
- CONNECT NEW STORM PIPING FULL SIZE TO EXISTING STORM PIPING IN APPROXIMATE LOCATION SHOWN. FIELD VERIFY EXACT SIZE, LOCATION, INVERT AND DIRECTION OF FLOW OF EXISTING PIPING. MODIFY EXISTING PIPING AS REQUIRED TO MAKE CONNECTION. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES. THE CONTRACTOR WILL ACCOUNT FOR ALL ADJUSTMENTS IN LAYOUT DUE TO FIELD COORDINATION IN BID.
- CUT BACK AND REMOVE EXISTING STORM PIPING IN APPROXIMATE LOCATION SHOWN TO MAIN AND CAP. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS, AND IS ALSO RESPONSIBLE FOR REPORTING ALL CONFLICTS TO THE ENGINEER PRIOR TO THE START OF ANY WORK.
- PLUMBING CONTRACTOR SHALL CUT BACK AND REMOVE SECTION OF EXISTING STORM PIPING AS REQUIRED FOR INSTALLATION OF NEW SOI-1. FIELD VERIFY EXACT SIZE, LOCATION, INVERT AND DIRECTION OF FLOW OF EXISTING PIPING. INSTALL NEW MANHOLES UPSTREAM AND DOWNSTREAM OF NEW SOI-1 AS SHOWN. MODIFY EXISTING PIPING AS REQUIRED TO INSTALL NEW SOI-1 AND MAKE NEW CONNECTIONS. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS, AND IS ALSO RESPONSIBLE FOR REPORTING ALL CONFLICTS TO THE ENGINEER PRIOR TO THE START OF ANY WORK. THE CONTRACTOR WILL ACCOUNT FOR ALL ADJUSTMENTS IN LAYOUT DUE TO FIELD COORDINATION IN BID.
- CONNECT NEW 4" STORM PIPING TO EXISTING STORM PIPING IN APPROXIMATE LOCATION SHOWN. FIELD VERIFY EXACT SIZE, LOCATION AND INVERT OF EXISTING PIPING. MODIFY EXISTING PIPING AS REQUIRED TO MAKE CONNECTION. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES. THE CONTRACTOR WILL ACCOUNT FOR ALL ADJUSTMENTS IN LAYOUT DUE TO FIELD COORDINATION IN BID.

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	01/28/2021	PERMIT	
	10/05/2020	CLIENT REVIEW	

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**PLUMBING FIRST FLOOR PLAN**  
 P-100



100 CORPORATE DRIVE  
PARKING STRUCTURE  
BLAUVELT  
NEW YORK



2 P101 SHEET GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED CODES AND PER LOCAL AUTHORITY HAVING JURISDICTION.
- PLUMBING CONTRACTOR SHALL VISIT THE SITE TO FULLY FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS, TOTAL SCOPE AND IMPACT ON EXISTING SYSTEMS PRIOR TO BID. THE VISIT SHALL TAKE PLACE PRIOR TO BID AND FAILURE TO ALERT ENGINEER/ARCHITECT OF DISCREPANCIES FORFEITS RIGHTS TO ADDITIONAL MONIES FOR REDESIGN/INSTALLATION OF SUCH SYSTEMS.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE PLUMBING SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.
- THIS CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING PIPING WHICH WILL BE REQUIRED TO BE RELOCATED/RAISED DUE TO RENOVATION WORK AND NEW FINISH INSTALLATION.

- ALL EXISTING LINES SHOWN TO BE REUSED ARE BASED ON LIMITED FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL LINES PRIOR TO INSTALLATION AND SHALL ALERT OWNER / ENGINEER OF ANY LINES THAT CANNOT BE REUSED. PROVIDE A PER LINEAR FOOT LINE ITEM COST IN BID FOR ANY TRENCHING, NEW LINE, BACKFILL WORK THAT MAY BE REQUIRED.
- PLUMBING CONTRACTOR SHALL PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES.
- MAINTAIN FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATINGS.
- THE CONTRACTOR SHALL COORDINATE ALL SHUTDOWNS AND IDENTIFY ANY WORK WHICH MAY BE REQUIRED TO BE PERFORMED ON OVERTIME IN ORDER NOT TO DISTURB OCCUPIED SPACES WHICH ARE NOT WITHIN THE SCOPE OF THIS CONTRACT. OBTAIN WRITTEN APPROVAL OF THE CONSTRUCTION MANAGER PRIOR TO PERFORMING ANY SHUTDOWNS OR PERFORMING WORK ON OVERTIME.

3 P101 SHEET KEY NOTES

- PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL NEW 3" VENT THRU ROOF. VENT SHALL BE A MINIMUM OF 10'-0" FROM ALL FRESH AIR INTAKES. OFFSET VENT ON THIRD FLOOR ABOVE TIGHT TO DECK AS REQUIRED. REFER TO PLUMBING DETAILS FOR ADDITIONAL INFORMATION. VENT SHALL RUN UP TO THIRD FLOOR CEILING BETWEEN EXISTING WINDOWS. FIELD VERIFY EXACT LOCATION OF EXISTING WINDOWS ON THIRD FLOOR AND ADJUST LOCATION OF VENT RISER ACCORDINGLY. COORDINATE EXACT ROUTING WITH FIELD CONDITIONS, OWNER, EXISTING TENANT AND MAKE TRANSITIONS AS REQUIRED. PATCH ALL SURFACES DISTURBED OR LEFT UNFINISHED BY THIS WORK TO MATCH ADJACENT SURFACES.
- PLUMBING CONTRACTOR TO JET CLEAN ALL EXISTING GARAGE DRAINS AND PIPING. REPORT ANY ISSUES WITH PROPER FLOW AFTER COMPLETION OF CLEANING TO ARCHITECT, ENGINEER AND OWNER. TYPICAL FOR ALL GARAGE DRAINS.

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	01/28/2021	PERMIT	
	10/05/2020	CLIENT REVIEW	

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CHECKED BY: LBS  
SHEET TITLE:  
**PLUMBING SECOND FLOOR PLAN**  
**P-101**





**1**  
**M001** PROJECT GENERAL MECHANICAL NOTES

- ENTIRE INSTALLATION SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND OTHER AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT RIGGING, HOISTING, CUTTING AND PATCHING AS A RESULT OF THEIR WORK.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND SHALL ARRANGE ALL REQUIRED INSPECTIONS.
- PROPER FIRE PROTECTION MEASURES, SATISFACTORY TO THE LOCAL FIRE DEPARTMENT SHALL BE TAKEN WHEN WELDING OR CUTTING WITH TORCHES OR ELECTRIC ARC.
- VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
- PROVIDE FLEXIBLE CONNECTIONS ON ALL ROTATING EQUIPMENT, UNLESS INDICATED OTHERWISE.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY MISCELLANEOUS STEEL FOR THE SUPPORT OF ALL EQUIPMENT, PIPING, CONDUIT, AND DUCTWORK.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED ADJUSTING AND BALANCING TO MEET SYSTEM OPERATION REQUIREMENT.
- CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE WORK OF ALL OTHER TRADES AND THE EXISTING FIELD CONDITIONS.
- ALL AIR MOVING DEVICES, INCLUDING BUT NOT LIMITED TO, AIR HANDLING UNITS AND ROOFTOP AIR CONDITIONING UNITS MUST COMPLY WITH AMCA STANDARD 210 AND ASHRAE.
- ALL MECHANICAL CONTROLS (THERMOSTATS, ETC.) SHALL BE FURNISHED AND INSTALLED AS PER BARRIER-FREE SUB-CODE OF THE LOCAL GOVERNING CODE.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF SOUND TO THE BUILDING STRUCTURE. VIBRATION ISOLATORS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND ON ACTUAL WEIGHT DISTRIBUTION OF THE EQUIPMENT FURNISHED. DEFLECTIONS SHALL BE AS NOTED ON THE EQUIPMENT SHOP DRAWING SUBMITTALS.
- ALL REMOVED EQUIPMENT, MATERIAL AND DEBRIS SHALL BE LEGALLY DISPOSED OF BY THIS CONTRACTOR.
- CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL DEVICES WILL BE INSTALLED IN A LOCATION WHICH AFFORDS ACCESSIBILITY FOR MAINTENANCE AND REPAIR. COORDINATE INSTALLATION AMONG ALL TRADES TO AVOID INTERFERENCE, AND LOCATE EQUIPMENT TO PROVIDE CLEARANCE OR EXCEED THOSE RECOMMENDED BY THE MANUFACTURER. PRIOR TO PROJECT COMPLETION, REPRESENTATIVES OF OWNER AND ENGINEER, WILL REVIEW EACH INSTALLATION AND WILL DIRECT CHANGES WHENEVER ACCESS OR SERVICE ABILITY IS, IN THEIR OPINION, UNACCEPTABLE.
- INSTALL ALL DIELECTRIC UNIONS IN A MANNER WHICH MAKE THEM READILY ACCESSIBLE FOR FUTURE REPAIR OR REPLACEMENT.
- FURNISH LOCAL DISCONNECT SWITCHES FOR ALL ELECTRICALLY DRIVEN HVAC EQUIPMENT. DISCONNECT SWITCH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
- CONTROL WIRING IN OCCUPIED SPACE SHALL BE INSTALLED IN CONCEALED SPACE, WALL OR CHASE.
- ALL INSULATION PROVIDED FOR THE PROJECT MUST MEET A MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED OF 50 OR LESS, AS TESTED IN ACCORDANCE WITH ASTM, NFPA & U.L. GUIDELINES.
- ALL EQUIPMENT FOR THIS PROJECT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
- PROVIDE FIRE DAMPERS (AND/OR COMBINATION FIRE/SMOKE DAMPERS) WITH RATED ACCESS DOORS AT ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS, SMOKE AND FIRE STOPPING, SHAFTS, FLOORS, AND PARTITIONS AS REQUIRED TO MAINTAIN ARCHITECTURAL FIRE RATINGS.
- HVAC UNIT MANUFACTURER TO PROVIDE 24V SMOKE DETECTORS WITH AUXILIARY CONTACTS AS SHOWN. UPON ACTIVATION, THE SMOKE DETECTORS SHALL SHUT DOWN THE AIR DISTRIBUTION SYSTEM TO WHICH IT IS CONNECTED AND ACTIVATE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION VIA THE SPRINKLER/FIRE ALARM PANEL. SMOKE DETECTORS SHALL ALSO BE FURNISHED WITH WALL MOUNTED REMOTE TEST. REMOTE TEST SUPERVISORY SIGNAL SHALL BE LED TYPE WITH AUDIBLE BEEPING ALERT.

**2**  
**M001** MECHANICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	LAT	LEAVING AIR TEMPERATURE
AFG	ABOVE FINISHED GRADE	LBS	POUNDS
AH	AIR HANDLER	LWT	LEAVING WATER TEMPERATURE
AHU	AIR HANDLING UNIT	M, MD	MOTORIZED DAMPER
AMPS	AMPERES	MAX	MAXIMUM
APD	AIR PRESSURE DROP	MBH	THOUSANDS OF BTU'S/HOUR
ASHRAE	AMERICAN SOCIETY OF REFRIGERATION & AIR-CONDITIONING ENGINEERS	MC	MECHANICAL CONTRACTOR
		MCA	MINIMUM CIRCUIT AMPS
		MEZZ	MEZZANINE
BFG	BELOW FINISHED GRADE	MFR	MANUFACTURER
BHP	BRAKE HORSE POWER	MIN	MINIMUM
BLDG	BUILDING	MUA	MAKEUP AIR UNIT
BOD	BOTTOM OF DUCT	N/A	NOT APPLICABLE
BS	BIRD SCREEN	NC	NORMALLY CLOSED
BTUH	BRITISH THERMAL UNITS PER HOUR	NEC	NATIONAL ELECTRIC CODE
		NIC	NOT IN CONTRACT
CD	CEILING DIFFUSER	NO	NORMALLY OPEN
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CLG	CEILING	OAI	OUTSIDE AIR
CO	COMPANY	OAI	OUTSIDE AIR INTAKE
COND	CONDENSATE	OC	ON CENTER
CONTR	CONTRACTOR	OED	OPEN ENDED DUCT
CR	CEILING REGISTER	PC	PLUMBING CONTRACTOR
CU	CONDENSING UNIT	PSI	POUNDS PER SQUARE INCH
DB	DRY BULB	RA	RETURN AIR
DN	DOWN	RAV	RELIEF AIR VENT
DWG(S)	DRAWING(S)	RC	REFRIGERATION CONTRACTOR
EA	EXHAUST AIR	RG	RETURN GRILLE
EAT	ENTERING AIR TEMPERATURE	RH	RELATIVE HUMIDITY
EC	ELECTRICAL CONTRACTOR	RLA	RUNNING LOAD AMPS
EDB	ENTERING DRY BULB	RPM	REVOLUTIONS PER MINUTE
EER	ENERGY EFFICIENCY RATING	RR	RETURN REGISTER
EF	EXHAUST FAN	RTU	ROOF TOP UNIT
EG	EXHAUST GRILLE	SA	SUPPLY AIR
EQUIP	EQUIPMENT	SD	DUCT SMOKE DETECTOR
ESP	EXTERNAL STATIC PRESSURE	SDD	SMOKE DAMPER W/ ACCESS DOOR
EWB	ENTERING WET BULB	SEER	SERVICE ENERGY EFFICIENCY RATING
EWT	ENTERING WATER TEMPERATURE	SEF	SMOKE EXHAUST FAN (POST SMOKE)
		SF	SUPPLY FAN
		SR	SUPPLY REGISTER
		TBD	TO BE DETERMINED
'F	DEGREES FAHRENHEIT	TG	TRANSFER GRILLE
F&T	FLOAT AND THERMOSTATIC TRAP	TR	TRANSFER REGISTER
FC	FLEXIBLE CONNECTION	TSP	TOTAL STATIC PRESSURE
FD	FIRE DAMPER W/ ACCESS DOOR	TYP	TYPICAL
FLA	FULL LOAD AMPS	UH	UNIT HEATER
FPI	FINS PER INCH	UV	UNIT VENTILATOR
FPM	FEET PER MINUTE	VAV	VARIABLE AIR VOLUME
FRPM	FAN REVOLUTIONS PER MINUTE	VD	VOLUME DAMPER
FS	FLOW SWITCH	VFD	VARIABLE FREQUENCY DRIVE
FT	FEET	W	WIDTH
G	GAS	WB	WET BULB
GC	GENERAL CONTRACTOR	WC	WATER COLUMN
GPM	GALLONS PER MINUTE	WG	WATER GAUGE
H	HEIGHT	WMS	WIRE MESH SCREEN
HCWP	HEATING CONDENSER WATER PUMP		
HP	HORSEPOWER		
HS	HUMIDITY SENSOR		
HVAC	HEATING, VENTILATING AND AIR CONDITIONING		
HX	HEAT EXCHANGER		
HZ	HERTZ		
IN	INCHES		
L	LENGTH		

**3**  
**M001** CODES AND REGULATION INFORMATION

THE WORK SHALL BE EXECUTED IN STRICT CONFORMITY WITH BASE BUILDING SPECIFICATIONS AND WITH THE LATEST EDITION OF THE STATE AND LOCAL BUILDING CODES AND ALL LOCAL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY. REGULATIONS INCLUDING BUT NOT LIMITED TO:

THE BUILDING SHALL BE CONSTRUCTED TO BE IN COMPLIANCE WITH THE NEW YORK STATE ADOPTED 2018 INTERNATIONAL BUILDING CODE.

OTHER APPLICABLE CODES ARE:

- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2017 NATIONAL ELECTRICAL CODE
- 2016 ASHRAE 90.1 ENERGY CONSERVATION CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL FIRE CODE

**4**  
**M001** PROJECT DESIGN INFORMATION

CITY OF WORK: BLAUVELT, NEW YORK

SUMMER OUTDOOR DESIGN CONDITIONS:

- DESIGN CITY: WESTCHESTER COUNTY AP, NY
- DRY BULB: 86.4 °F
- WET BULB: 71.8 °F

SUMMER INDOOR DESIGN CONDITIONS:

- DRY BULB: 75.0 °F
- RELATIVE HUMIDITY: 45% - 50%

WINTER OUTDOOR DESIGN CONDITIONS:

- DESIGN CITY: WESTCHESTER COUNTY AP, NY
- DRY BULB: 13.5 °F

WINTER INDOOR DESIGN CONDITIONS:

- DRY BULB: 70.0 °F

**5**  
**M001** MECHANICAL SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	RETURN OR EXHAUST GRILLE
	SUPPLY REGISTER
	SUPPLY DUCT UP OR DOWN
	RETURN OR EXHAUST DUCT UP OR DOWN
	EXISTING TO BE REMOVED
	CONNECT TO EXISTING
	ROUND DUCT
	FLEXIBLE DUCT
	FLEXIBLE CONNECTOR
	MANUAL VOLUME DAMPER
	FIRE DAMPER WITH ACCESS DOOR
	COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	RETURN/EXHAUST AIR FLOW
	SUPPLY AIR FLOW
	FAN CONTROL SWITCH
	NECK SIZES IN DUCT SPLIT
	DUCTWORK (RECTANGULAR & ROUND)
	FLEXIBLE CONNECTION
	ELBOW WITH DOUBLE THICKNESS TURNING VANES
	45° BOOT TAKE-OFF W/ VOLUME DAMPER
	BELLMOUTH TAKE-OFF W/ VOLUME DAMPER
	KEY NOTE
	AIR DEVICE TAG
	CFM
	EQUIPMENT TAG OR DETAIL INDICATOR

NOTE: NOT ALL SYMBOLS LISTED ABOVE ARE NECESSARILY USED ON THIS PROJECT.

**6**  
**M001** MECHANICAL DRAWING LIST

DWG. #	DRAWING TITLE
M-001	MECHANICAL GENERAL INFORMATION
M-002	MECHANICAL SPECIFICATIONS AND SCHEDULES
M-100	MECHANICAL SECOND FLOOR PLAN



100 CORPORATE DRIVE  
PARKING STRUCTURE  
BLAUVELT  
NEW YORK

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MECHANICAL  
GENERAL  
INFORMATION

M-001



**MECHANICAL SPECIFICATIONS**

**GENERAL:**

- THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION EQUIPMENT, SERVICES, RIGGING AND FACILITIES REQUIRED FOR THE COMPLETE, PROPER INSTALLATION OF ALL MECHANICAL WORK. ALL FIXTURES, DEVICES AND EQUIPMENT SHOWN, NOTED OR REQUIRED ON THE DRAWINGS, AND/OR CONTAINED HEREIN SHALL BE FURNISHED, INSTALLED, TESTED AND MADE READY FOR OPERATION.
- THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND OWNER FOR EQUIPMENT LOCATIONS AND CLEARANCES REQUIRED FOR EQUIPMENT. CONTRACTOR TO COORDINATE AND MODIFY LAYOUT ACCORDINGLY.
- ALL INTERLOCKING WIRING IS TO BE DONE BY THE ELECTRICAL CONTRACTOR. THE HVAC CONTRACTOR SHALL PROVIDE STARTERS FOR ALL EQUIPMENT FURNISHED BY THE HVAC CONTRACTOR, UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE INDICATED, THE ARRANGEMENT, POSITION, CONNECTIONS, ETC. SHOWN ON THE DRAWINGS SHALL BE TAKEN AS PRACTICABLE. THE RIGHT IS RESERVED BY THE ENGINEER TO MAKE MINOR CHANGES IN LOCATIONS AND ARRANGEMENTS WHEN REQUIRED BY JOB DEVELOPMENT WITHOUT ADDITIONAL COMPENSATION TO THIS CONTRACTOR.
- THE HVAC CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH THEIR WORK. FILE ALL NECESSARY APPROVALS OF ALL DEPARTMENTS HAVING JURISDICTION. OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR THEIR WORK AND DELIVER SAME TO THE ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK. THE HVAC CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS), IN ORDER TO COMPLY WITH ALL APPLICABLE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF ALL APPLICABLE CODES AND REGULATIONS, INCLUDING IMC, UL, ASME, NEMA, IBR, AMCA, NFPA, IEEE, OSHA, SMACNA AND THE REQUIREMENTS OF THE LATEST ASHRAE GUIDE AND DATA BOOK.
- THIS CONTRACTOR SHALL VISIT AND EXAMINE THE PREMISES SO AS TO FULLY UNDERSTAND ALL CONDITIONS PERTAINING TO THEIR WORK, UNDERSTAND DIFFICULTIES TO BE ENCOUNTERED AND MATERIALS REQUIRED FOR THE INSTALLATION OF THIS WORK AT NO ADDITIONAL COST TO THE OWNER. THE EXACT LOCATION OF EXISTING OUTLETS, UNITS, ETC. ARE TO BE VERIFIED IN THE FIELD (IF APPLICABLE), DO NOT SCALE THE DRAWINGS. FOLLOW WRITTEN DIMENSIONS, FIELD VERIFY WHERE NECESSARY.
- IT IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO DETERMINE FROM THE ARCHITECTURAL PLANS, AREAS IN THE BUILDING WHICH HAVE BEEN DESIGNATED AS HAVING A FIRE RATED CONSTRUCTION. FIRE RATED DAMPERS, DIFFUSERS, GRILLES, REGISTERS, FIRE LINKS, ETC. SHALL BE PROVIDED TO COMPLY WITH ALL APPLICABLE CODE REQUIREMENTS.
- THESE DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF OUTLETS, CONDUIT, PIPING, DUCTWORK, APPARATUS, ETC. TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE PRIOR TO THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
- DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
- THIS CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY DAMAGE CAUSED BY THE OVERLOADING OF THE STRUCTURE WHICH OCCURRED FROM

- THEIR HOISTING AND RIGGING OF THEIR EQUIPMENT AND MATERIALS AND SHALL BE REPAIRED BY HIM TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- THIS CONTRACTOR SHALL GUARANTEE ALL WORK DONE BY HIM AND MATERIAL SUPPLIED BY HIM FOR THE PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE.
  - HVAC CONTRACTOR TO VERIFY ALL ELECTRICAL POWER ON JOBSITE PRIOR TO ORDERING NEW EQUIPMENT.
  - THIS CONTRACTOR SHALL LABEL ALL CONTROL UNITS, SWITCHES, ETC. BY PERMANENTLY ATTACHED WHITE CORE LAMINATED "Bakelite" NAMEPLATES.
  - ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL CODES AND REGULATIONS. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL HVAC WORK IS PROVIDED AND INSTALLED IN STRICT ACCORDANCE WITH SEISMIC REQUIREMENTS.
  - THE EXACT MOUNTING HEIGHTS AND LOCATIONS OF ALL HVAC EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL OTHER MECHANICAL, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL SYSTEMS.
  - ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED SUFFICIENTLY AWAY FROM EDGE OF ROOF SO AS TO ALLOW FOR THE INSTALLATION OF PROPER FLASHING TO ENSURE A WEATHER TIGHT SEAL. IN ADDITION, ADEQUATE CLEARANCES SHALL BE PROVIDED FOR CLEANING AND MAINTENANCE REQUIREMENTS. THE FINAL LOCATION OF ALL ROOFTOP UNITS MUST ALSO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS.

**SCHEDULING AND COORDINATION OF OTHER TRADES**

- IT IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO COORDINATE WITH ALL INVOLVED PARTIES TO ACCURATELY LOCATE AND DIMENSION ALL REQUIRED ROOF OPENINGS BASED UPON APPROVED EQUIPMENT SUBMITTALS.
- FINAL EQUIPMENT LOCATIONS ARE TO BE VERIFIED WITH STRUCTURAL PLANS.
- OBTAIN AND INSTALL ALL EQUIPMENT, ACCESSORIES AND DUCTWORK ON SCHEDULE TO AVOID ANY DELAY OF RELATED/OTHER WORK BY OTHER TRADES. PLAN FOR A SMOOTH FLOW OF WORK.
- ALL CUTTING AND PATCHING OF ROOF, WALLS, CEILINGS, ETC. INCLUDING TRIMMING CEILING GRID FOR LARGE SIZED AIR DEVICES SHALL BE DONE BY THE GENERAL CONTRACTOR.
- THIS CONTRACTOR SHALL PERFORM THEIR WORK IN THE EXISTING BUILDING WHEN AND AS DIRECTED, AND GENERALLY IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS OF THE BUILDING, SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OWNER AND/OR OCCUPANTS.
- CONSULT WITH THE GENERAL CONTRACTOR FOR SEQUENCE OF CONSTRUCTION PRIOR TO SUBMITTING BID. SOME OR ALL OF THIS WORK MAY BE PERFORMED ON AN OVERTIME SCHEDULE. BID SHALL INCLUDE ALL SUCH PREMIUM TIME COSTS AND SHALL ELIMINATE ANY SUBSEQUENT REQUESTS FOR EXTRA COMPENSATION.

**HANGERS, SUPPORTS & VIBRATION ISOLATION**

- HANGERS AND SUPPORTS: A. PROVIDE ALL HANGERS AND SUPPORTS AND ALL STEEL FRAMEWORK REQUIRED FOR THE SUPPORT OF VARIOUS SYSTEMS.
- VIBRATION ISOLATION:
  - MOTOR DRIVEN EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATORS. UNLESS OTHERWISE NOTED, SUSPENDED EQUIPMENT SHALL HAVE SPRING ISOLATOR HANGERS AND BASE MOUNTED EQUIPMENT SHALL

HAVE DOUBLE DEFLECTION NEOPRENE MOUNTINGS.

**DUCTWORK AND ACCESSORIES**

- DUCTWORK:
  - ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL UNLESS OTHERWISE NOTED. ALL DUCTWORK SHALL BE IN ACCORDANCE WITH THE LATEST PUBLICATION OF THE ASHRAE GUIDE AND SMACNA.
  - PROVIDE SHEETMETAL DUCTWORK WHEREVER SHOWN ON THE DRAWINGS OR AS REQUIRED IN ACCORDANCE WITH THE LATEST ASHRAE GUIDE AND IN CONFORMANCE WITH THE CONSTRUCTION STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND SMACNA.
  - FORM AND RUN SHEETMETAL DUCTWORK IN A THOROUGHLY WORKMANLIKE MANNER WITH ALL CORNERS TRUE SQUARES, ETC. BRACE AND SUPPORT THOROUGHLY TO PREVENT VIBRATION SO AS TO BE FIRM AND RIGID THROUGHOUT.
  - PROVIDE ANGLE BRACING ON ALL DUCTS OVER 24" EITHER DIMENSIONS.
  - MAKE SHEET METAL OFFSETS BETWEEN DUCTWORK, WHERE AND IF REQUIRED, AND PROVIDE CLOSELY FITTING HEAVY FLANGED COLLARS TO EFFECT TIGHT JOINTS WHERE IRON DUCTS OR SLEEVES TERMINATE IN OPENINGS. MAKE AIR-TIGHT CONNECTIONS TO PLENUMS OR OTHER CONSTRUCTION THAT IS PART OF ANY SYSTEM.
  - STANDING SEAMS OR LOCK SEAM AND SLIP JOINTS - RIVET AND SOLDER AT SEAMS WHERE NOT TIGHT IN ERRECTING. CONTRACTOR TO CEMENT CAULK ONLY WHERE MECHANICALLY TIGHT JOINTS ARE NOT OTHERWISE POSSIBLE.
  - ERECT ALL WORK IN FURRED SPACES IN TIME TO CAUSE NO DELAY TO THE OTHER TRADES.
  - THE INTAKE AND DISCHARGE COLLARS OF ALL FAN DRIVEN UNITS SHALL BE PROVIDED WITH HEAVY 10 OZ. DOUBLE WOVEN CANVAS SLEEVE BETWEEN THE UNITS AND THE DUCTWORK. THE SLEEVE SHALL BE A MINIMUM OF 6" LONG SECURELY FASTENED TO THE UNIT COLLARS AND DUCTS.
  - WHERE DUCTS PASS THROUGH WALLS OR PARTITIONS, THE SPACE AROUND DUCTS SHALL BE SEALED WITH MINERAL WOOL AND OTHER NON-COMBUSTIBLE MATERIAL AS REQUIRED BY NFPA. DUCTS SHALL BE PROVIDED WITH SHEETMETAL ANGLE FRAMES CLOSE-FITTED TO THE OPENINGS.
  - ALL EQUIPMENTS, DUCTWORK, ACCESSORIES, ETC. INSTALLED BELOW THE ROOF SHALL BE SUPPORTED FROM TOP OF STRUCTURE. HANGERS, BRACKETS, PLATFORMS, ETC. TO BE PROVIDED. INSTALL VIBRATION ISOLATORS OR SPRING HANGERS AT ALL VIBRATING EQUIPMENT.
  - DUCT SIZES MUST BE VERIFIED FOR CLEARANCES AT THE JOB SITE PRIOR TO FABRICATION. DIMENSIONS MAY BE CHANGED TO ACCOMMODATE CONSTRUCTION AS LONG AS EFFECTIVE CROSS-SECTIONAL AREA IS MAINTAINED. DUCT TRANSITIONS SHALL BE CONSTRUCTED WITH A SLOPE OF 1" TO 4". ALL DEVIATIONS FROM ORIGINAL CONTRACT DRAWINGS SHALL BE REVIEWED BY ENGINEER DURING THE SHOP DRAWING PROCESS.
  - PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO VIBRATING EQUIPMENT. THESE CONNECTIONS SHALL BE INSTALLED IN CLOSE PROXIMITY TO SUCH EQUIPMENT.

**TESTING, CLEANING, ADJUSTING AND BALANCING**

- BALANCING THE AIR SYSTEMS:
  - THE BALANCING CONTRACTOR SHALL BALANCE NEW AND EXISTING AIR SYSTEMS TO QUANTITIES INDICATED ON DRAWINGS AND SHALL FURNISH TO THE ENGINEER, A REPORT INDICATING FAN PERFORMANCE, LOUVERS,

- DIFFUSERS, REGISTERS AND GRILLE SIZES, LOCATIONS, CFM VALUES, OUTSIDE AIR CFM QUANTITIES, VELOCITIES, STATIC PRESSURE LOSSES, VOLUME CONTROL DEVICES, AIR TEMPERATURES, ETC. THE BALANCING WORK AND THE BALANCING REPORT SHALL BE BY AN INDEPENDENT BALANCING CONTRACTOR. BALANCING CONTRACTOR SHALL BE CONTRACTED BY THE HVAC CONTRACTOR, HOWEVER, THE INSTALLING HVAC CONTRACTOR SHALL ASSIST THE BALANCING CONTRACTOR AS REQUIRED. SYSTEMS TO BE BALANCED ONLY AFTER POST CONSTRUCTION FILTER CHANGE. THE BALANCING CONTRACTOR SHALL SUBMIT A BALANCING REPORT PRIOR TO FINAL ACCEPTANCE AND REQUEST FOR FINAL PAYMENT.
- A MINIMUM OF FOUR (4) TEST REPORTS SHOWING ALL PERTINENT OPERATING DATA, SUCH AS CFM AND FPM AT EACH OUTLET, FAN RPM, MOTOR CURRENT, ETC. SHALL BE SUBMITTED FOR PERMANENT RECORD. DURING ADJUSTING PERIOD, MAKE ALL NECESSARY SETTINGS AND ADJUSTMENTS OF TEMPERATURE REGULATING EQUIPMENT.
- AIR LEAKAGE TEST: THE COMPLETE AIR HANDLING SYSTEMS, ALL VENTILATING EXHAUST SYSTEMS, INCLUDING ALL CONVENTIONAL SUPPLY AND RETURN DUCTWORK SHALL BE TESTED AND ALL THE AIR LEAKS FOUND SHALL BE CORRECTED TO MAKE THEM AIR TIGHT.
- ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF TARPULINS AND COVE ALL EQUIPMENT IN WORK AREA WITH SAME DURING WORK OPERATIONS. SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THIS CONTRACTOR.
- UPON COMPLETION OF THE INSTALLATION, EACH SYSTEM SHALL BE CLEANED AND ALL SAFETY FEATURES SHALL BE TESTED IN THE PRESENCE OF THE OWNER/THE OWNERS REPRESENTATIVE.
- ALL DEFECTIVE WORK SHALL BE PROMPTLY REPAIRED AND REPLACED AND THE TESTS SHALL BE REPEATED UNTIL THE PARTICULAR SYSTEM AND COMPONENT PARTS THEREOF RECEIVE THE APPROVAL OF THE ENGINEER OR OWNER.
- THE HVAC CONTRACTOR SHALL DEMONSTRATE THAT ALL EQUIPMENT AND APPARATUS FULFILL THE REQUIREMENTS OF THESE SPECIFICATIONS
- ALL WORK PROVIDED UNDER THE CONTRACT SHALL OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION.
- SHOULD OPERATION OF ANY ONE OR MORE OF THE SEVERAL SYSTEMS PRODUCE NOISE, AND/OR VIBRATION WHICH IS, IN THE OPINION OF THE ENGINEER OBJECTIONABLE, THE HVAC CONTRACTOR SHALL, AT THEIR OWN EXPENSE, MAKE CHANGES IN EQUIPMENT, ETC., AND DO ALL WORK NECESSARY TO ELIMINATE THE OBJECTIONABLE NOISE AND/OR VIBRATION.

**ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT**

- MOTOR STARTERS:
  - THE HVAC CONTRACTOR SHALL FURNISH ALL STARTERS REQUIRED FOR THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS. STARTERS WILL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.
  - STARTERS FOR MOTORS 1/2 HP AND OVER SHALL BE COMBINATION MAGNETIC TYPE, CONSISTING OF STARTER AND DISCONNECT SWITCH MOUNTED IN A COMMON NEMA ENCLOSURE. COMBINATION STARTERS SHALL BE FURNISHED WITH THERMAL MAGNETIC BREAKERS WITH START-STOP PUSHBUTTONS IN COVER AND HAND-OFF-AUTOMATIC SWITCH. FURNISH CONTROL TRANSFORMERS FOR PILOT LIGHTS, PUSHBUTTONS, ETC.
  - STARTERS FOR NON-CONTROLLED MOTORS LESS THAN 1/2 HP SHALL BE MANUAL TYPE WITH TOGGLE SWITCH.
  - ALL STARTERS SHALL PROVIDE THERMAL OVERLOAD AND UNDERVOLTAGE PROTECTION OF THE MOTORS. STARTERS FOR THESE PHASE EQUIPMENT SHALL BE PROVIDED WITH THREE OVERLOAD ELEMENTS.

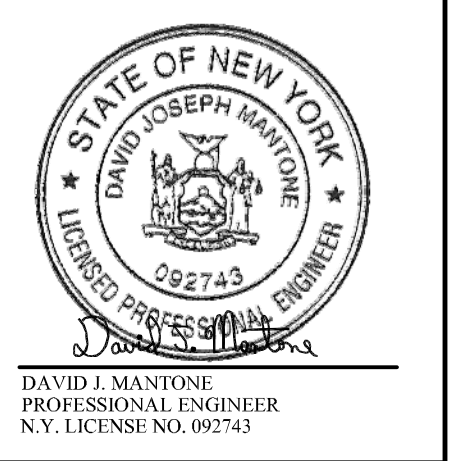
- MAGNETIC STARTERS INTERLOCKED WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE OF THE MAINTAINED CONTACT TYPE WITH TWO WIRE CIRCUITS.
- COORDINATE ALL MOTOR STARTERS WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM.
- ALL STARTERS SHALL HAVE PLASTIC LAMINATE NAMEPLATES, BLACK WITH WHITE CORE AND 1/2" HIGH LETTERING, FASTENED WITH SELF-TAPPING STAINLESS STEEL SCREWS.
- ALL STARTERS FOR HVAC SHALL BE OF ONE MANUFACTURER.
- HVAC CONTRACTOR TO PROVIDE ALL RELAYS, CONTACTORS, SENSORS, THERMOSTATS, ACTUATORS, ETC.
- HVAC CONTRACTOR TO PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT, WEATHERPROOF TYPE FOR ALL OUTDOOR EQUIPMENT.
- VERIFY ALL EQUIPMENT VOLTAGES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.

**SHOP DRAWINGS**

- CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO OWNER FOR APPROVAL (MINIMUM 6 COPIES). ALL EQUIPMENT MUST BE APPROVED BY ENGINEER PRIOR TO EQUIPMENT PURCHASES. ATTEND TO LONG LEAD ITEMS IN ADVANCE FOR TIMELY DELIVERY.
- SHOP DRAWINGS FOR SHEET METAL WORK SHALL BE DRAWN AT A MINIMUM OF 1/8" = 1'-0" SCALE AND SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. THE SUBMITTAL SHALL BE COMPLETE WITH ALL HVAC EQUIPMENT LOCATIONS, ACCESSORIES, DUCTWORK, AIR DEVICES TYPES AND SIZES, CFM, ETC.
- ALL EQUIPMENT SHALL BE PROPERLY LABELED IN ACCORDANCE WITH HVAC DRAWING NOMENCLATURE.

**CONTROLS**

- HVAC CONTRACTOR SHALL PROVIDE ALL CONTROL AND INTERLOCK DEVICES SUCH AS DAMPERS, DAMPER ACTUATORS, THERMOSTATS, TRANSFORMERS, ETC.
- THE ELECTRICAL CONTRACTOR SHALL INSTALL ALL INTERLOCK WIRING BETWEEN CONTROL DEVICES AND TERMINAL EQUIPMENT.



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**MECHANICAL SCHEDULES**

EXHAUST FAN SCHEDULE														
UNIT ID	MODEL NO.	TYPE	DRIVE	CFM	FAN RPM	S.P. (IN. W.G.)	MOTOR			SERVICE	INTERLOCKED WITH	WEIGHT (LBS)	NOTES	ACCESSORIES
							HP	VOLTS	PHASE					
EF-1	R-AWPD-36	SIDEWALL	DIRECT	15950	1,155	0.50	3	460	3	VENTILATION	CONTINUOUS	570	1 TO 4	1 TO 8
EF-2	R-AWPD-36	SIDEWALL	DIRECT	15950	1,155	0.50	3	460	3	VENTILATION	CONTINUOUS	570	1 TO 4	1 TO 8
EF-3	R-AWPD-36	SIDEWALL	DIRECT	15950	1,155	0.50	3	460	3	VENTILATION	CONTINUOUS	570	1 TO 4	1 TO 8

NOTES:

<ol style="list-style-type: none"> <li>UNIT SELECTION BASED ON RUPP AIR SYSTEMS.</li> <li>UL/cUL 705 LISTED - "POWER VENTILATORS"</li> <li>MOTOR ACCESS: FROM INTERIOR OF BUILDING.</li> <li>CONTRACTOR SHALL VERIFY NOISE RATING (SONES) AND VERIFY ACCEPTABILITY BY OWNER/CLIENT PRIOR TO ORDERING OF EQUIPMENT.</li> </ol>	<p>ACCESSORIES:</p> <ol style="list-style-type: none"> <li>WALL BOX ASSEMBLY WITH OSH APPROVED GUARD SCREEN (INCLUDE WITH HANGING BRACKETS AND LIFTING LUGS).</li> <li>WALL COLLARS.</li> <li>BACKDRAFT DAMPERS (EXHAUST).</li> <li>SHAFT GROUNDING RING - EPOXY MOUNTED TO FACE OF MOTOR.</li> <li>VAV PACKAGE WITH MANUAL CONTROL (VFD INCLUDED).</li> <li>VFD FACTORY MOUNTED AND WIRED IN EXHAUST FAN.</li> <li>JUNCTION BOX MOUNTED &amp; WIRED.</li> <li>DISCONNECT SWITCH.</li> </ol>
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LOUVER SCHEDULE										
UNIT ID	MODEL NO.	CFM	FREE AREA VELOCITY (FPM)	S.P. (IN. W.G.)	SIZE			APPLICATION	FREE AREA (SF)	NOTES
					W (IN.)	H (IN.)	D (IN.)			
L-1	ESD-635	15950	611	0.05	116.0	54.0	6.0	EXHAUST	26.10	1 TO 4
L-2	ESD-635	15950	686	0.06	104.0	54.0	6.0	EXHAUST	23.30	1 TO 4
L-3	ESD-635	15950	611	0.06	116.0	54.0	6.0	EXHAUST	26.10	1 TO 4
L-4	ESD-635	11965	459	0.03	116.0	54.0	6.0	INTAKE	26.10	1 TO 4
L-5	ESD-635	11965	459	0.03	116.0	54.0	6.0	INTAKE	26.10	1 TO 4
L-6	ESD-635	11965	459	0.03	116.0	54.0	6.0	INTAKE	26.10	1 TO 4
L-7	ESD-635	11965	459	0.03	116.0	54.0	6.0	INTAKE	26.10	1 TO 4

NOTES:

- UNIT SELECTION BASED ON GREENHECK.
- COLOR AND FINISH PER ARCHITECT.
- REFER TO PLANS FOR EXACT LOCATION AND QUANTITY.
- PROVIDE WITH BIRD SCREEN.

CODE REQUIRED OUTSIDE AIR VENTILATION RATES																		
BASED ON IMC 2018 TABLE 403.3.1.1																		
ZONE & AREA	OCCUPANCY CATEGORY	NET AREA (A <sub>z</sub> ) FT <sup>2</sup>	AREA OUTDOOR AIR RATE (Ra) CFM/FT <sup>2</sup>	CODE REQ'D BASED ON FLOOR AREA (A <sub>z</sub> Ra) CFM	DEFAULT OCC. DENSITY #/1000 FT <sup>2</sup>	OCCUPANT DENSITY (Pz) PEOPLE	ACTUAL OCCUPANT LOAD USED	PEOPLE OUTDOOR AIR RATE (Rp) CFM/PERSON	CODE REQ'D BASED ON PEOPLE (RpPz) CFM	TOTAL OA REQ'D BY CODE (Vb2) CFM	ZONE AIR DISTRIBUTION EFF. (Ez)	ZONE OA REQ'D BY CODE (Voz) CFM	OA PROVIDED CFM	EXHAUST AIRFLOW RATE CFM/FT <sup>2</sup>	EXHAUST REQ'D BY CODE CFM	EXHAUST PROVIDED CFM		
																	PARKING GARAGE	Storage - Repair garages, enclosed parking garages
TOTALS		63,100					0			0			0				47,850	

01/28/2024	PERMIT																		
10/05/2020	CLIENT REVIEW																		
	MARK																		
	DATE																		
	DESCRIPTION																		
	ISSUE																		

PROJECT NO: 18-1615.01  
 DRAWN BY: AHV  
 CHECKED BY: LBS

**MECHANICAL SPECIFICATIONS AND SCHEDULES**



1  
M100

MECHANICAL SECOND FLOOR PLAN

SCALE: 1/16" = 1'-0"

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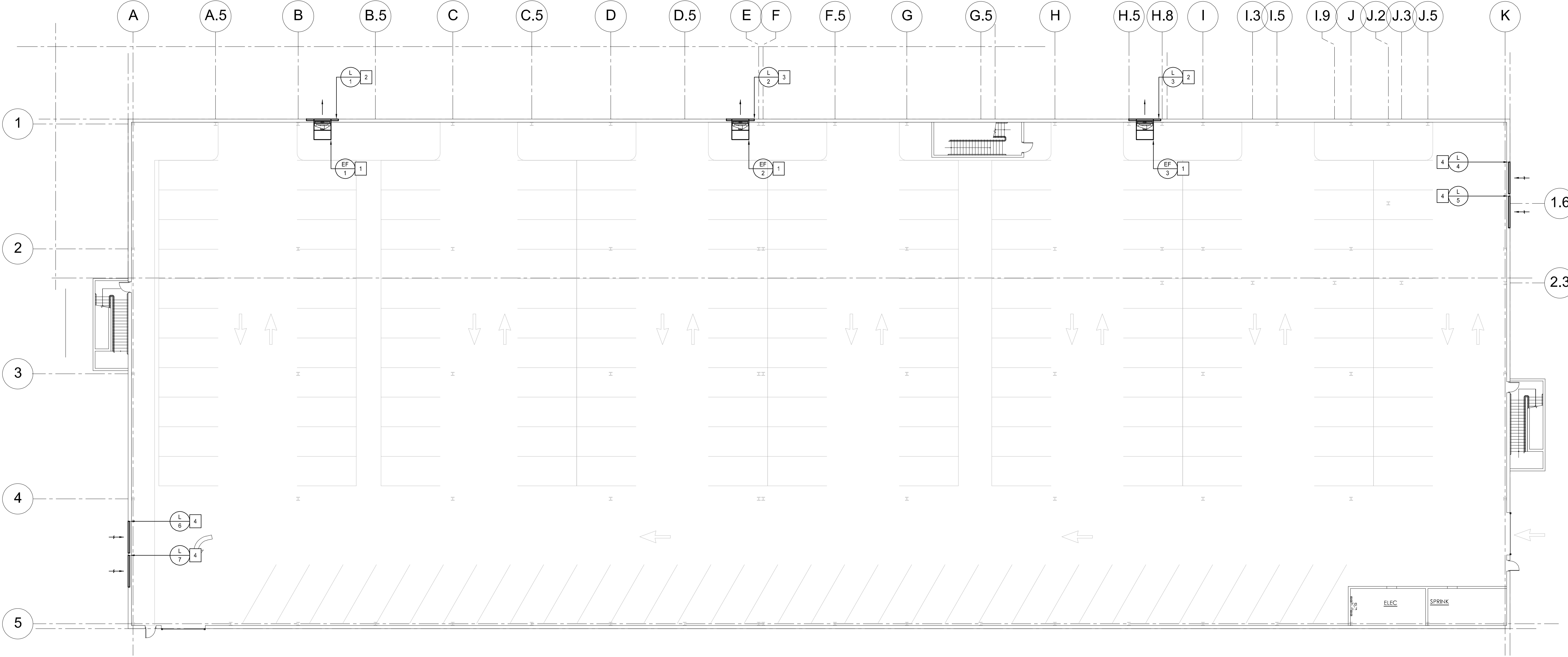
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CERTIFICATE OF AUTHORIZATION  
#24GA28223400

STATE OF NEW YORK  
DAVID J. MANTONE  
PROFESSIONAL ENGINEER  
N.Y. LICENSE NO. 092743



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2  
M100

SHEET GENERAL NOTES

- ALL PENETRATIONS REQUIRED FOR EQUIPMENT (DUCTS, PIPES, ETC.) THROUGH ANY WALL SHALL BE PROPERLY SEALED OFF TO MAINTAIN THE INTEGRITY OF THE STRUCTURE.
- CONTRACTOR SHALL VERIFY ALL SPECIFIC MANUFACTURER REQUIREMENTS FOR ALL EQUIPMENT PRIOR TO INSTALLATION.
- ALL EQUIPMENT SHALL BE LOCATED AS TO BE IN COMPLIANCE WITH ALL LOCAL SIGHT AND SOUND RESTRICTIONS.
- ALL EXHAUST FANS, FLUES AND OUTLETS SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE.
- ALL HEATING, VENTILATING AND AIR CONDITIONING SHALL BE DONE IN STRICT ACCORDANCE WITH ALL REQUIREMENTS OF THE LOCAL BUILDING CODES, N.E.C., N.F.P.A., AND ALL OTHER APPLICABLE CODES HAVING JURISDICTION.
- DUCTWORK SHALL BE IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE".
- DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS. INTERNALLY LINED DUCTS SHALL BE INCREASED IN SIZE TO MAINTAIN THE SAME INTERNAL SIZE. RUN ALL DUCTWORK TIGHT TO STEEL JOISTS AND THRU JOISTS WHEREVER POSSIBLE AND NECESSARY.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF SOUND TO THE BUILDING STRUCTURE. VIBRATION ISOLATORS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND ON ACTUAL WEIGHT DISTRIBUTION OF THE EQUIPMENT FURNISHED. DEFLECTIONS SHALL BE AS NOTED ON THE EQUIPMENT SHOP DRAWING SUBMITTALS. PROVIDE VIBRATION ISOLATION ON ALL DUCT CONNECTIONS TO FANS AND OTHER EQUIPMENT.
- LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS, AND CONNECTIONS OF SUPPLY AND RETURN DUCTS SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL DEVICES WILL BE INSTALLED IN LOCATIONS WHICH AFFORD ACCESSIBILITY FOR MAINTENANCE AND REPAIR. COORDINATE INSTALLATION AMONG ALL TRADES TO AVOID INTERFERENCES, AND LOCATE EQUIPMENT TO PROVIDE CLEARANCES WHICH EXCEED THOSE RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

3  
M100

SHEET KEY NOTES

- MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW SIDEWALL PROPELLER FAN WITH FACTORY OSHA FAN GUARD HOUSING. FAN SHALL OPERATE CONTINUOUSLY TO PROVIDE CONTINUOUS VENTILATION FOR PARKING GARAGE. MOUNT FAN BEHIND NEW EXHAUST DISCHARGE LOUVER. FAN IS SIZED TO MOUNT IN 45-58" HIGH OPENING. VERIFY EXISTING 54" HIGH OPENING IN FIELD AND PROVIDE SHEET METAL DUCT CONNECTION AND TRANSITION FROM OUTLET OF FAN TO LOUVER (PROVIDE STEEL BLANK-OFFS BEHIND UNUSED PORTIONS OF LOUVER) AS REQUIRED AND SEAL AIR-TIGHT. PROVIDE UNI-STRUT BRACKET AND SUPPORT FOR FAN. FAN SHALL BE SUPPORTED FROM STRUCTURE ABOVE WITH SPRING VIBRATION ISOLATORS. REFER TO MECHANICAL SCHEDULES AND DETAILS FOR ADDITIONAL INFORMATION.
- DISCONNECT, REMOVE, AND DISCARD OFF-SITE EXISTING 116"W x 54"H WINDOW. PROVIDE NEW 116"W x 54"H EXHAUST DISCHARGE LOUVER WITHIN EXISTING OPENING. PROVIDE STEEL BLANK-OFFS BEHIND LOUVER FOR INACTIVE / UNUSED SECTIONS AROUND NEW SIDEWALL PROPELLER FAN.
- DISCONNECT, REMOVE, AND DISCARD OFF-SITE EXISTING 104"W x 54"H WINDOW. PROVIDE NEW 104"W x 54"H EXHAUST DISCHARGE LOUVER WITHIN EXISTING OPENING. PROVIDE STEEL BLANK-OFFS BEHIND LOUVER FOR INACTIVE / UNUSED SECTIONS AROUND NEW SIDEWALL PROPELLER FAN.
- DISCONNECT, REMOVE, AND DISCARD OFF-SITE EXISTING 116"W x 54"H WINDOW. PROVIDE NEW 116"W x 54"H MAKEUP AIR INTAKE LOUVER WITHIN EXISTING OPENING.

MARK	DATE	DESCRIPTION	ISSUE
PERMIT	01/28/2021		
CLIENT REVIEW	10/05/2020		

PROJECT NO: 18-1615.01  
DRAWN BY: AHV  
CHECKED BY: LBS

SHEET TITLE:  
**MECHANICAL  
SECOND FLOOR  
PLAN**

**M-100**



**1**  
**E-001** PROJECT GENERAL ELECTRICAL NOTES

- OBTAIN ALL PERMITS AND PAY ALL FEES NECESSARY FOR INSPECTION, TESTS, AND OTHER SERVICES REQUIRED FOR THE COMPLETION OF WORK.
- THE CONTRACTOR SHALL NOT SCALE FROM THESE DRAWINGS AS FIELD CONDITIONS MAY DIFFER AT TIME OF CONSTRUCTION AND ROUGH-IN. FIELD MEASURE ALL AND MAKE ALL ADJUSTMENTS AS NECESSARY TO PROVIDE THE INSTALLATION INTENDED ON THESE DRAWINGS.
- GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE BY OWNER.
- THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE THE CONDITION OF THE PREMISES AND THE CHARACTER AND EXTENT OF WORK REQUIRED PRIOR TO THE SUBMISSION OF BIDS. ANY DIFFICULTIES IN COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE BEFORE BIDDING.
- IT IS THE INTENT OF THESE DRAWINGS AND OTHER RELATED DOCUMENTS TO PRODUCE A COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND OTHER SERVICES NECESSARY TO ACCOMPLISH THIS. THE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE ANY DISCREPANCIES IN THE PLANS AND SPECIFICATIONS THAT WILL AFFECT THE WORK PRIOR TO SUBMISSION OF HIS BID PRICE.
- IF, DURING THE COURSE OF THE WORK, THE CONTRACTOR EXPERIENCES A PROBLEM RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES AND GOVERNING DOCUMENTS, THE CONTRACTOR SHALL BRING THE PROBLEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR RESOLUTION PRIOR TO EXECUTION OF WORK.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE AND OTHER APPLICABLE CONDITIONS, MAINTAIN HEADROOM AND SPACE CONDITIONS.
- PRIOR TO ROUGH-IN VERIFY LOCATIONS OF DEVICES IN FINISHED AREAS. IF DISCREPANCIES EXIST BETWEEN DRAWINGS, ADJUST DEVICE LOCATIONS PER FIELD CONDITIONS AT NO ADDITIONAL COST TO OWNER.
- THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS. ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM AND PER N.E.C.
- RACEWAYS AND CABLES SHALL BE CONCEALED IN CEILINGS OR WALLS PER SPECIFICATIONS UNLESS OTHERWISE INDICATED.
- JUNCTION AND PULL BOXES SHALL NOT BE EXPOSED IN FINISHED SPACES. AS NECESSARY, ROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. PROVIDE JUNCTION OR PULL BOXES AS INDICATED AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE LOCATIONS WITH OTHER TRADES. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE FOR EMPTY RACEWAY RUNS, PROVIDE PULL BOXES EVERY 100 FEET OR AS INDICATED.
- THE CONTRACTOR SHALL VERIFY SIZES AND RATINGS OF CONDUIT, WIRE, CIRCUIT BREAKERS, FUSES, ETC. SERVING EQUIPMENT AND DEVICES AND ADJUST AS NEEDED FOR ACTUAL EQUIPMENT AND DEVICES, ETC. AS NEEDED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- PROVIDE FINAL CONNECTION TO ALL EQUIPMENT AS DIRECTED BY THESE DOCUMENTS, THE SPECIFICATIONS AND OWNER REPRESENTATIVE.
- SIZES OF BRANCH CIRCUIT WIRING, CONDUIT, SAFETY SWITCHES, OVERCURRENT PROTECTION DEVICES, ETC. SHOWN SERVING DEVICES AND EQUIPMENT ARE BASED ON THE INFORMATION AVAILABLE AT THE TIME THESE DOCUMENTS WERE PREPARED. THE CONTRACTOR SHALL PROVIDE THE NECESSARY CIRCUITS AND CONNECTIONS REQUIRED BY THE EQUIPMENT MANUFACTURER'S DATA AND THE NATIONAL ELECTRICAL CODE, INCLUDING THE PROVIDING OF SAFETY SWITCHES.
- REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL MATERIAL AND INSTALLATION REQUIREMENTS.
- WIRING SHALL BE SIZED FOR THE APPROPRIATE VOLTAGE DROP, AS DICTATED BY NATIONAL ELECTRICAL CODE.
- CONTROL WIRING SHALL NOT BE LESS THAN #14 AWG COPPER UNLESS OTHERWISE NOTED.
- WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE COMPLETION OF THE PROJECT.
- CONDUIT PASSING THROUGH PARTITIONS SHALL BE APPROPRIATE SLEEVED AND SEALED. AS APPLICABLE, PROVIDE FIRE SEALANTS.
- ALL ELECTRICAL EQUIPMENT SUBJECT TO BE SUBJECTED TO EXTERIOR CONDITIONS SHALL BE WEATHER PROOF NOT RAIN TIGHT.

**2**  
**E-001** ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION AND/OR SPECIFICATION
⚡	SINGLE POLE 20A SNAP ACTION SWITCH - LEVITON 1221-2I
⚡ <sub>S</sub>	3-WAY 20 AMP TOGGLE SWITCH, LEVITON 1223-2I
S <sub>S</sub>	SINGLE POLE 20A SNAP ACTION SWITCH W/PILOT LIGHT, LEVITON #1221-PL
S <sub>M</sub>	SINGLE POLE 30A MOTOR RATED SNAP ACTION SWITCH, LEVITON MS302-DS
⏏	FUSED OR UNFUSED DISCONNECT SWITCH
⏏ <sub>2</sub>	DUPLEX CONVENIENCE RECEPTACLE 20A, 125V, LEVITON #5362-1 MOUNT 18" A.F.F. TO BOTTOM UNLESS OTHERWISE NOTED.
⏏ <sub>IG</sub>	ISOLATED GROUND RECEPTACLE - TVSS DUPLEX, PASS & SEYMOUR # IG6282-OSP
⏏ <sub>2</sub>	QUADPLEX RECEPTACLE (2) 20A, 125V, LEVITON #5362-1 IN COMMON BOX. MOUNT ABOVE COUNTERTOP HEIGHT U.O.N.
⏏ <sub>GFI</sub>	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, LEVITON #4926
⏏ <sub>TR</sub>	TAMPER RESISTANT DUPLEX RECEPTACLE, LEVITON #TBR20-W
⏏	SINGLE RECEPTACLE 20A, 125V, LEVITON #5361-1 18" A.F.F. TO BOTTOM
⏏	SPECIAL PURPOSE RECEPTACLE - VOLTAGE AND AMPS AS REQUIRED BY EQUIPMENT E.C. IS RESPONSIBLE TO PROVIDE MATCHING CORD AND PLUG.
⏏	TELE/DATA OUTLET - 18" AFF UNLESS OTHERWISE NOTED. RUN CAT6 CABLING FROM THIS LOCATION TO PATCH PANEL.
⏏	CEILING AND WALL MOUNTED JUNCTION BOX
⏏	JUNCTION BOX - ELECTRICAL CONTRACTOR TO MAKE ALL REQUIRED CONNECTIONS TO DESIGNATED EQUIPMENT
⏏	ELECTRICAL PANEL

NOTE: SYMBOL LIST ABOVE IS GENERIC IN NATURE AND REPRESENT THE TOTAL POSSIBLE SYMBOLS PRESENT FOR ELECTRICAL. NOT ALL SYMBOLS MAY NOT BE USED ON THIS PARTICULAR PROJECT.

**3**  
**E-001** CODES AND REGULATIONS INFORMATION

- 2017 NATIONAL ELECTRICAL CODE
- 2020 INTERNATIONAL BUILDING CODE
- 2020 INTERNATIONAL MECHANICAL CODE
- 2020 ASHRAE 90.1 ENERGY STANDARD CODE
- NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
- ASHRAE HANDBOOKS - AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE).

**4**  
**E-001** ELECTRICAL SPECIFICATIONS

- GENERAL:
  - THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION EQUIPMENT, SERVICES AND FACILITIES REQUIRED FOR THE COMPLETE, PROPER AND SUBSTANTIAL INSTALLATION OF ALL ELECTRICAL WORK. ALL FIXTURES, DEVICES AND EQUIPMENT SHOWN, NOTED OR REQUIRED ON THE DRAWINGS, AND/OR CONTAINED HEREIN SHALL BE CONNECTED FROM THE SOURCE OF ELECTRIC POWER TO THE FINAL CONNECTION, TESTED AND MADE READY FOR SATISFACTORY OPERATION.
  - THE ELECTRICAL CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND OWNER FOR EQUIPMENT LOCATIONS AND CLEARANCES REQUIRED FOR EQUIPMENT. CONTRACTOR TO COORDINATE AND MODIFY LAYOUT ACCORDINGLY.
  - THE ENTIRE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), ALL LOCAL GOVERNING CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION.
  - THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH AN ELECTRICAL EQUIPMENT AND MAINTENANCE BINDER INCLUDING EACH SYSTEM MANUFACTURER'S INSTRUCTIONS, MAINTENANCE REQUIREMENTS, GUARANTEES AND WARRANTY INFORMATION.
  - THE ELECTRICAL CONTRACTOR SHALL PROTECT THE ELECTRICAL EQUIPMENT FROM THE WEATHER AND DAMAGE AT ALL TIMES DURING SHIPMENT, STORAGE AND CONSTRUCTION.
- DEMOLITION:
  - THE CONTRACTOR SHALL REMOVE ANY AND ALL OBSOLETE, UNUSED OR UNNECESSARY ELECTRIC ITEMS SUCH AS CONDUIT, BOXES, FITTINGS, WIRE, LIGHTING FIXTURES, ETC. ANY SUCH ITEMS INTENDED FOR SUCH REMOVAL SHALL BE COMPLETELY VERIFIED AND APPROVED BY THE OWNER AND ENGINEER.
  - ANY EXISTING ELECTRICAL EQUIPMENT THAT MUST BE RELOCATED TO ACCOMMODATE NEW WORK MAY BE ACCOMPLISHED BY THE CONTRACTOR, PROVIDED IT IS DONE SO AT NO ADDITIONAL EXPENSE TO THE OWNER AND WRITTEN PERMISSION HAS BEEN OBTAINED FROM THE OWNER AND ENGINEER.
  - ALL ELECTRICAL ITEMS REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER, BUT SHALL BE LEGALLY DISPOSED OF, IF SO DIRECTED BY THE OWNER AND ENGINEER, ITEMS SO DIRECTED SHALL BE REMOVED FROM THE PREMISES BY THE CONTRACTOR AT HIS EXPENSE.
- GROUNDING:
  - ALL GROUNDING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND THE LOCAL UTILITY COMPANY.
- GROUND FAULT PROTECTION:
  - THE ELECTRICAL CONTRACTOR SHALL PROVIDE GROUND FAULT PROTECTION AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AND AS SPECIFIED HEREIN.
- IDENTIFICATION:
  - PROVIDE ELECTRICAL IDENTIFICATION MATERIALS AND DEVICES REQUIRED TO COMPLY WITH ANSI C2, NFPA 70, OSHA STANDARDS, AND AUTHORITIES HAVING JURISDICTION. LABEL EACH PIECE OF EQUIPMENT, ALL CONDUITS, CONDUCTORS, BOXES, AND OUTLETS.
  - PROVIDE ENGRAVED PLASTIC NAMEPLATES AND SIGNS FOR ALL ELECTRICAL EQUIPMENT. ENGRAVING STOCK SHALL BE MELAMINE PLASTIC LAMINATE, MINIMUM 1/16 INCH THICK, ENGRAVED LEGEND WITH BLACK LETTERS ON WHITE FACE. PUNCHED OR DRILLED FOR MECHANICAL FASTENERS.
  - PROVIDE UNDERGROUND LINE WARNING TAPE FOR ALL BURIED ELECTRICAL RUNS. PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED, VINYL TAPE, NOT LESS THAN 6 INCHES WIDE BY 4 MILS THICK, INTENDED FOR PERMANENT DIRECT-BURIAL SERVICE.
  - COLOR-CODING FOR PHASE AND VOLTAGE LEVEL IDENTIFICATION, 600V AND LESS: USE THE COLORS LISTED BELOW FOR SERVICE, FEEDER AND BRANCH CIRCUIT CONDUCTORS.
 

1. COLOR FOR 208/120V CIRCUITS	2. COLOR FOR 480/277V CIRCUITS
PHASE A: BLACK	PHASE A: BROWN
PHASE B: RED	PHASE B: ORANGE
PHASE C: BLUE	PHASE C: YELLOW
- LIGHTING AND POWER PANELS:
  - PANELS SHALL BE FACTORY ASSEMBLED, THERMAL MAGNETIC CIRCUIT BREAKER TYPE, TRIP FREE, WITH TRIP SETTINGS AND NUMBER OF POLES AS INDICATED ON THE DRAWINGS. TWO AND THREE POLE CIRCUIT BREAKERS SHALL BE OF THE COMMON TRIP TYPE. BUSSING SHALL BE COPPER AND ARRANGED FOR SEQUENCE PHASING AND ALL CONNECTIONS SHALL BE SILVER PLATED.
  - THE PANELS SHALL BE OF DEAD FRONT CONSTRUCTION WITH SINGLE DOOR AND HINGED COVER AND CODE GAUGE GALVANIZED STEEL BACK BOX, WITH LOCK AND KEY. A TYPEWRITTEN CIRCUIT IDENTIFICATION DIRECTORY, INDICATING THE USE OF EACH BRANCH CIRCUIT AND DESIGNATING SPARE CIRCUITS, SHALL BE FURNISHED ON THE INSIDE OF THE PANEL. HANDWRITTEN DIRECTORIES ARE NOT ACCEPTABLE.
  - CIRCUIT BREAKERS SHALL BE THE BOLT-IN TYPE, UNLESS NOTED OTHERWISE. MINIMUM 10,000 AIC AND BE ARRANGED USING DOUBLE ROW CONSTRUCTION. SERIES BREAKERS ARE ACCEPTABLE.
  - BRACING SHALL BE EQUIVALENT TO, OR COMPATIBLE WITH, THE RATED INTERRUPTING CAPACITY OF SMALLEST OVERCURRENT DEVICE IN THAT PANEL.
- SAFETY SWITCHES:
  - SWITCHES SHALL BE HEAVY DUTY TYPE, FUSED OR UNFUSED, AS INDICATED OR REQUIRED, NEMA 1 FOR INDOOR USE AND NEMA 3R FOR OUTDOOR USE; AS MANUFACTURED BY GENERAL ELECTRIC, SQUARE D OR EQUAL.
  - THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED DISCONNECT SWITCHES, AND FUSES, FOR EQUIPMENT FURNISHED BY OTHERS, UNLESS INDICATED OTHERWISE.

- RACEWAYS AND CABLE:
  - ALL CONDUIT SHALL BE RUN CONCEALED IN SO FAR AS IS PRACTICABLE. CONDUITS SHALL BE EXPOSED ONLY WHERE SO INDICATED ON THE DRAWINGS OR IN UNFINISHED AREAS SUCH AS ELECTRICAL AND BOILER ROOMS.
  - MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS NOTED OTHERWISE ON THE PLANS.
  - RIGID METAL CONDUIT: HOT DIPPED GALVANIZED, MILD STEEL PIPE, ZINC COATED THREADS WITH AN OUTER COATING OF ZINC BICHRROMATE, AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.
  - PVC COATED RIGID METAL CONDUIT: HOT DIPPED GALVANIZED MILD STEEL PIPE WITH .040" (40 MIL) POLYVINYL CHLORIDE COATING. THE BOND BETWEEN THE PVC AND CONDUIT SURFACE SHALL BE GREATER THAN THE TENSILE STRENGTH OF PVC. CONDUIT SHALL BE AS MANUFACTURED BY OCCIDENTAL COATING COMPANY, ROBROY INDUSTRIES OR EQUAL.
  - INTERMEDIATE METAL CONDUIT (IMC): HOT DIPPED GALVANIZED, MILD STEEL PIPE, ZINC COATED THREADS WITH AN OUTER COATING OF ZINC BICHRROMATE AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.
  - ELECTRIC METALLIC TUBING (EMT): HOT DIPPED GALVANIZED, MILD STEEL TUBE, ZINC COATED, AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.
  - FLEXIBLE METAL CONDUIT: GALVANIZED OR ZINC METALIZED STEEL, SINGLE STRIP INTERLOCKED CONSTRUCTION AS MANUFACTURED BY TRIANGLE, ANACONDA, AMERICAN FLEXIBLE CONDUIT, ELECTRIC-FLEX, OR EQUAL.
  - LIQUID TIGHT FLEXIBLE METAL CONDUIT: GALVANIZED STEEL CORE, SINGLE STRIP INTERLOCKED CONSTRUCTION, WITH AN EXTRUDED POLYVINYL CHLORIDE COVERING AS MANUFACTURED BY TRIANGLE, CARLON, ALLED OR EQUAL.
  - RIGID NONMETALLIC CONDUIT: SCHEDULE 40 PVC AS MANUFACTURED BY CARLON OR EQUAL.
  - METAL CLAD CABLE: TYPE MC, COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, 90 DEG. C, INTERLOCKED STEEL TAPE ARMOR.
  - ARMORED CABLE: TYPE AC, COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, 90 DEG. C.
  - ANY EXPOSED RACEWAY SHALL BE RUN TRUE, PLUMB AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.
  - RACEWAYS SHALL BE SEALED WHERE ENTERING PULL BOXES OR STRUCTURES.
- WIRING:
  - SINGLE CONDUCTOR CABLES SHALL BE USED FOR FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT WHERE AC AND MC CABLE IS USED). MINIMUM SIZE WIRE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED AND SHALL BE SIZED TO CONFORM TO NORMAL NEC VOLTAGE DROPS. WIRE SIZES #10 AWG AND SMALLER SHALL BE SOLID, #8 AWG AND LARGER SHALL BE STRANDED. [ALL CONDUCTORS SHALL BE COPPER.]
  - FEEDERS AND ALL WIRING IN MOIST OR WET LOCATIONS UNDERGROUND OR UNDER THE SLAB SHALL BE 600 VOLT CODE TYPE THHN/THWN. BRANCH CIRCUIT WIRING IN DRY LOCATIONS, ABOVE GRADE, IN THE INTERIOR OF THE BUILDING SHALL BE 600 VOLT CODE TYPE THHN/THWN OR XHHW.
  - WIRING TO RECESSED FIXTURE AND WITHIN FIXTURE RACEWAYS SHALL BE TYPE THHN, #12 AWG MINIMUM.
  - SIGNAL CABLE (4-20 MA) TO BE 2 CONDUCTOR #16 TWISTED SHIELDED, BELDEN #9342 OR EQUAL.
  - 120 VOLT CONTROL WIRING: SINGLE CONDUCTOR AC CONTROL WIRES SHALL BE RANDOM COLORS EXCEPT FOR YELLOW, GREEN OR WHITE. WHITE SHALL BE USED FOR CONTROL NEUTRAL LEG AND YELLOW SHALL BE USED FOR INTERLOCK WIRES OF FOREIGN VOLTAGE THAT ENTER A MOTOR CONTROL CENTER COMPARTMENT OR CONTROL PANEL.
  - EQUIPMENT GROUND: GREEN CONDUCTOR SHALL BE USED.
  - CONDUCTORS SHALL BE CONTINUOUS FROM ORIGIN TO PANEL OR EQUIPMENT WITHOUT SPLICES. WHERE TAP SPLICES ARE NECESSARY AND APPROVED, THEY SHALL BE MADE WITH SUITABLE CONNECTORS IN JUNCTION BOXES.
  - ALL CABLE INSTALLED IN SPACES USED FOR MOVEMENT OF ENVIRONMENTAL AIR SHALL BE APPROVED FOR USE IN A PLENUM. THIS STORE HAS OPEN CEILING WITH CENTRAL RETURN SO IT MAY BE CONSIDERED A LARGE PLENUM BY CODE OFFICIAL. EC TO CONFIRM PRIOR TO INSTALLATION AND PROVIDE ACCORDINGLY.
- WIRING METHODS:
  - INDOORS (UNCLASSIFIED):
    - EXPOSED: EMT CONDUIT.
    - IN DRY WALLS/ABOVE CEILINGS: EMT CONDUIT OR MC CABLE
    - IN CONCRETE WALLS: EMT CONDUIT.
    - IN CONCRETE FLOOR SLAB: RGS CONDUIT.
    - FINAL CONNECTIONS: FLEXIBLE METAL CONDUIT (LIQUID-TIGHT FLEXIBLE CONDUIT IN DAMP OR WET AREAS).
- WIRING DEVICES, OUTLET BOXES, PLATES:
  - SWITCHES, RECEPTACLES AND OTHER WIRING DEVICES SHALL BE SPECIFICATION GRADE OF TYPE, SIZE AND RATING INDICATED ON THE CONTRACT DRAWINGS, AS MANUFACTURED BY ARROW HART, HUBBELL, OR PASS AND SEYMOUR. CONFIRM COLOR SELECTIONS WITH THE ARCHITECT.
  - OUTLET BOXES FOR CONCEALED WORK SHALL BE GALVANIZED STEEL, PRESSED. OUTLET BOXES FOR EXPOSED WORK SHALL BE MALLEABLE IRON WITH THREADED HUBS, TYPES FS AND FD WITH ROUNDED STEEL COVER PLATES.
  - DEVICE PLATES FOR CONCEALED WORK SHALL BE SMOOTH POLYCARBONATE, COLOR TO MATCH DEVICE.

**5**  
**E-001** ABBREVIATIONS

ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
A	AMP, AMPERE	KW	KILOWATT
AC	ALTERNATING CURRENT	KWH	KILOWATT-HOUR
AFF	ABOVE FINISHED FLOOR	LRA	LOCKED ROTOR AMPS
AHU	AIR HANDLING UNIT	LTG	LIGHTING
AIC	AMPERE INTERRUPTING CURRENT	MCA	MINIMUM CIRCUIT AMPACITY
AWG	AMERICAN WIRE GAUGE	MCS	MAIN CIRCUIT BREAKER
C	CONDUIT	MH	METAL HALIDE
C.B.	CIRCUIT BREAKER	MLO	MAIN LUGS ONLY
CKT	CIRCUIT	NEC	NATIONAL ELECTRICAL CODE
CUH	CEILING UNIT HEATER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
DC	DIRECT CURRENT	OC	ON CENTER
EC	ELECTRICAL CONTRACTOR	PH	PHASE
EF	EXHAUST FAN	RGS	RIGID GALVANIZED STEEL
EWH	ELECTRIC WATER HEATER	RLA	RUNNING LOAD AMPS
GFI	GROUND FAULT CIRCUIT INTERRUPTER	RTU	ROOFTOP UNIT
GND	GROUND	TEL	TELEPHONE
HP	HORSEPOWER	TYP	TYPICAL
IG	ISOLATED GROUND	U.C.	UNDER COUNTER
IMC	INTERMEDIATE METAL CONDUIT	V	VOLT
JB	JUNCTION BOX	VA	VOLT-AMPERE
KCML	1000 CIRCULAR MILS	W	WATT
KV	KILOVOLT	WP	WEATHERPROOF (NEMA 3R WHILE IN USE)
KVA	KILOVOLT-AMPS	XFMR	TRANSFORMER

**6**  
**E-001** ELECTRICAL DRAWING LIST

DWG #	DRAWING TITLE
E-001	ELECTRICAL GENERAL INFORMATION
E-100	LIGHTING PLAN AND SCHEDULE
E-200	POWER AND FIRE ALARM PLAN
E-300	ELECTRICAL SCHEDULES AND DIAGRAMS

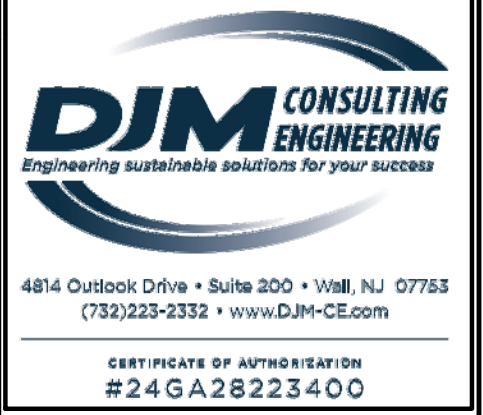


**100 CORPORATE DRIVE**  
**PARKING STRUCTURE**  
**NEW YORK**  
**BLAUVELT**

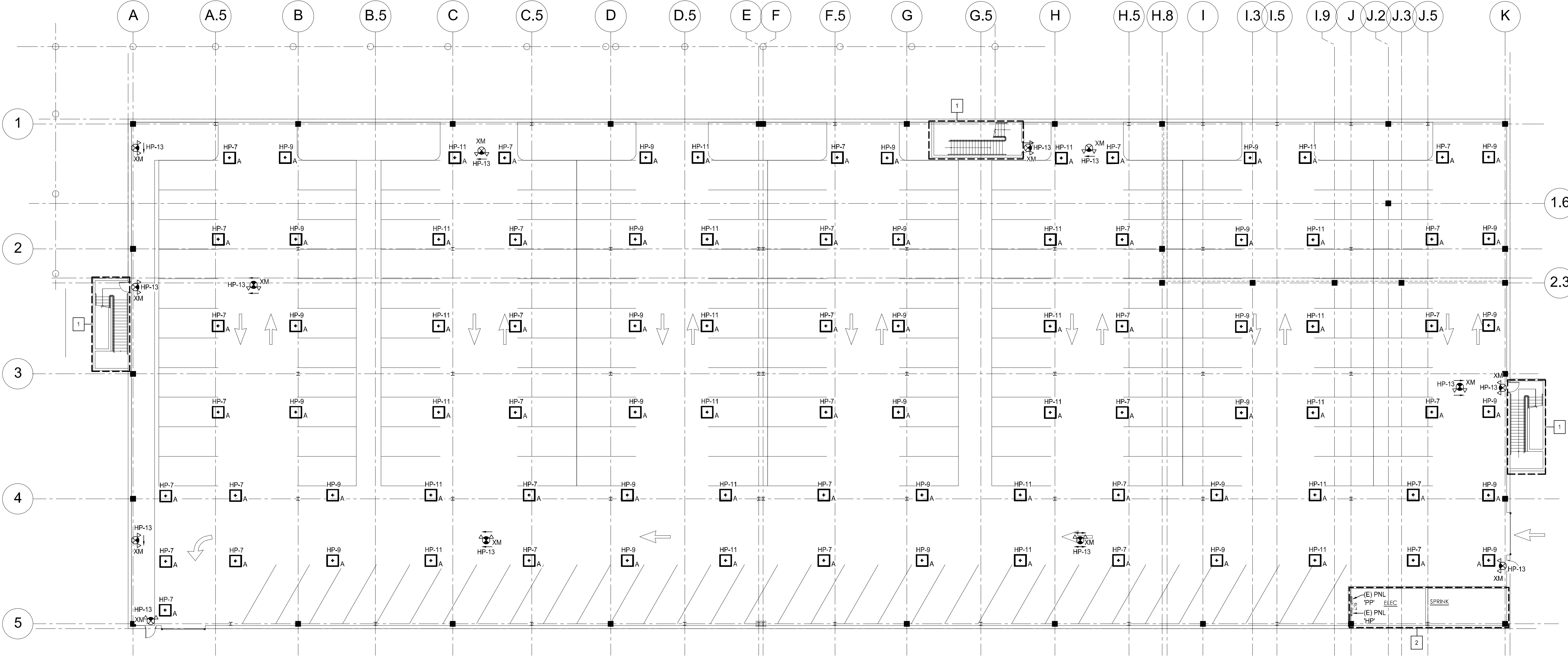
MARK	DATE	DESCRIPTION	ISSUE
	01/28/2024	PERMIT	
	10/05/2020	CLIENT REVIEW	

PROJECT NO: 18-1615.01  
 DRAWN BY: AC  
 CHECKED BY: CWW  
 SHEET TITLE:  
**ELECTRICAL GENERAL INFORMATION**  
**E-001**





100 CORPORATE DRIVE  
PARKING STRUCTURE  
NEW YORK  
BLAUVELT



2  
E-100 SHEET GENERAL NOTES

1. WIRING AND RACEWAY SHALL BE ROUTED CONCEALED TO EXTENT POSSIBLE AND THE SHORTEST PRACTICAL DISTANCES ARE MAINTAINED.
2. ALL WORK RELATED TO ELECTRICAL SHALL BE DONE IN ACCORDANCE WITH LATEST ACCEPTED NEC AND PER LOCAL AUTHORITY HAVING JURISDICTION.
3. ALL WIRING, FIXTURES, AND EQUIPMENT SHALL BE U.L. LISTED OR LABELED.
4. EC SHALL INCLUDE ALL REQUIRED MOUNTING HARDWARE AND ACCESSORIES REQUIRED FOR COMPLETE LIGHTING MOUNTING / INSTALLATION.
5. PRIOR TO COMPLETION OF WORK, EC SHALL VERIFY ALL EXIT ACCESS AND EGRESS PATHS MAINTAIN A MINIMUM OF 1 FOOTCANDLE OF ILLUMINATION WHEN ONLY EMERGENCY LIGHTING IS OPERATIONAL. ADJUST AS NECESSARY TO MEET CODE.

3  
E-100 SHEET KEY NOTES

1. EXISTING STAIRWELL NORMAL AND EMERGENCY LIGHTING TO REMAIN. EC SHALL TEST EMERGENCY BATTERY UNITS AND REPLACE AS REQUIRED.
2. EXISTING UTILITY ROOM NORMAL AND EMERGENCY LIGHTING TO REMAIN. EC SHALL TEST EMERGENCY BATTERY UNITS AND REPLACE AS REQUIRED.

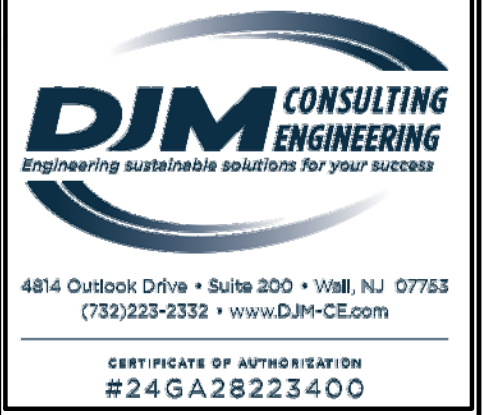
4  
E-100 LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	DESCRIPTION	VOLTAGE	LAMPS	MOUNTING	MANUFACTURER	CATALOG NUMBER
	A	LED ENERGY EFFICIENT CANOPY LIGHTS FOR PARKING AREAS. 5000K, 40W, INTEGRATED 5W EMERGENCY BATTERY BACKUP. SUSPENDED FLUSH WITH BOTTOM OF STEEL.	UNV	LED	SUSPENDED	PRODIGY LIGHTING	PL-CPPG-40W-50K-UNV-WH-AAN (EM)
	XM	COMBINATION EMERGENCY & EXIT COMBO LIGHT FIXTURE, HIGH LUMEN OPTION.	UNV	LED	SURFACE / SUSPENDED	BEST LIGHTING	LEDCTXEU2RW-HL

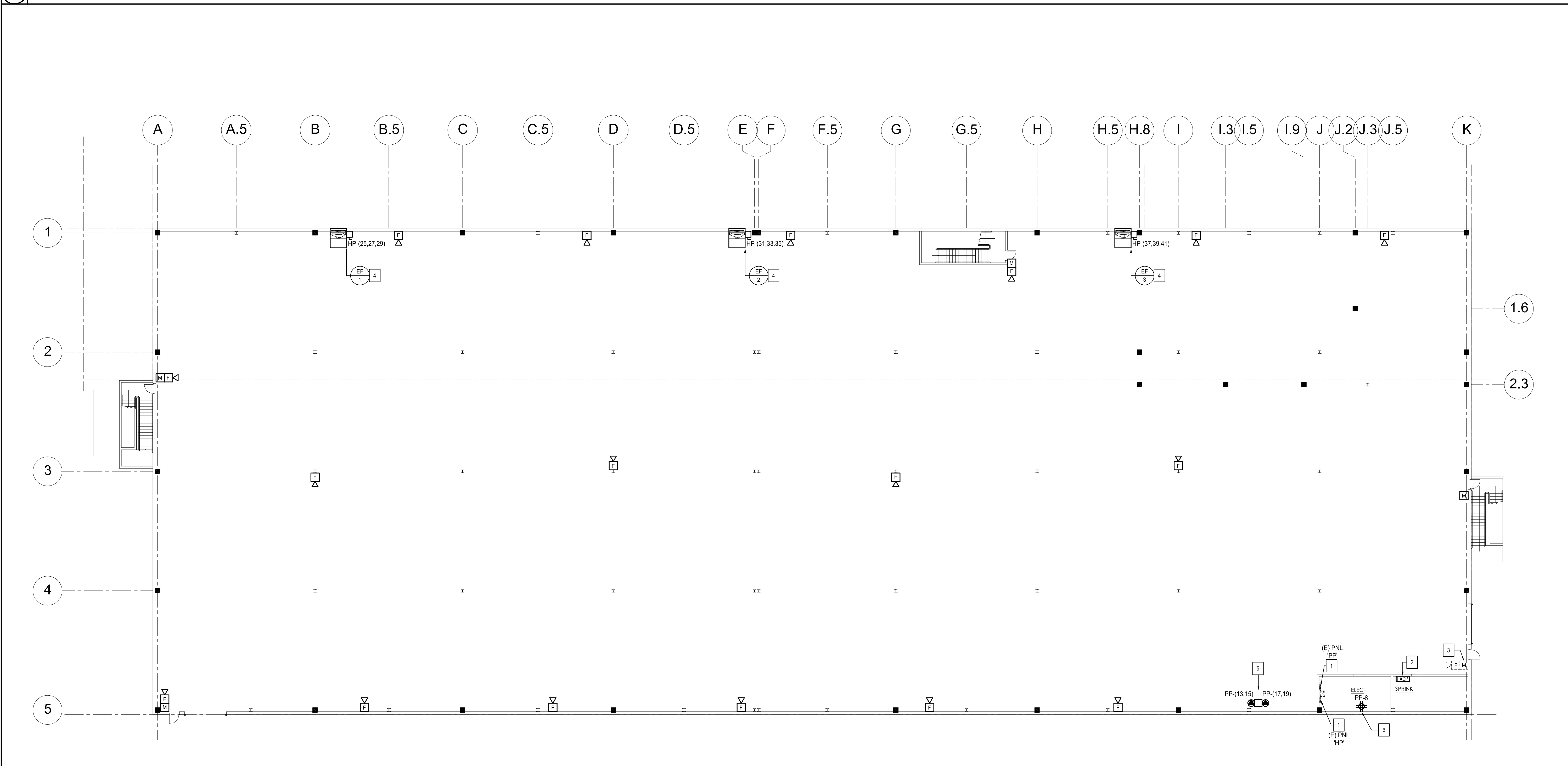
- NOTES:
1. ALL FIXTURES, LAMP, MOUNTING HARDWARE, ACCESSORIES ARE TO BE PROVIDED BY EC AND INCLUDED IN BID. EC IS RESPONSIBLE TO ORDER, RECEIVE AND STORE IN SAFE CONDITION FOR INSTALLATION.
  2. APPROVAL OF FINAL LIGHTING FIXTURE SUBMITTAL PACKAGE INCLUDING FINISHES, ACCESSORIES AND MOUNTING HARDWARE MUST BE RECEIVED IN WRITING FROM BOTH ARCHITECT AND OWNER PRIOR TO ORDERING.

MARK	DATE	DESCRIPTION	ISSUE
PERMIT	01/28/2021	CLIENT REVIEW	
	10/05/2020		

PROJECT NO: 18-1615.01  
DRAWN BY: AC  
CHECKED BY: CWW  
SHEET TITLE:  
LIGHTING PLAN AND SCHEDULE



100 CORPORATE DRIVE  
PARKING STRUCTURE  
NEW YORK  
BLAUVELT



**2 E-200 SHEET GENERAL NOTES**

1. WIRING AND RACEWAY SHALL BE ROUTED CONCEALED TO EXTENT POSSIBLE AND THE SHORTEST PRACTICAL DISTANCES ARE MAINTAINED.
2. ALL WORK RELATED TO ELECTRICAL SHALL BE DONE IN ACCORDANCE WITH LATEST ACCEPTED NEC AND PER LOCAL AUTHORITY HAVING JURISDICTION.
3. PROVIDE GROUND CONDUCTOR IN ALL CONDUIT RUNS.
4. EC SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR DOOR STRIKE AND SECURITY SYSTEM WITH AUTHORIZED OWNER REPRESENTATIVE AND EQUIPMENT VENDOR AND PROVIDE AS REQUIRED. BELOW IS A GENERAL DESCRIPTION OF WORK:  
**MASTER CONTROL PANEL - IT ROOM OR LOCATION TBD**
  - ELECTRICIAN TO PROVIDE CONDUIT, BACKBOXES AND STUB UPS
  - ONE 4' X 4' SHEET OF PLYWOOD FOR OUR MASTER CONTROL PANEL
  - ONE (1) DEDICATED 120VAC, 20-AMP ELECTRICAL CIRCUIT FOR THE CONTROL PANEL. IT IS PREFERRED IF THE CIRCUIT HARDWIRED INTO OUR POWER SUPPLY BOXES MOUNTED ON OUR PLYWOOD AND TERMINATED WITHIN THE LOW VOLTAGE TRANSFORMER, OTHERWISE A QUAD OUTLET WILL SUFFICE. WE WILL ALSO REQUIRE A DUPLEX RECEPTACLE LOCATED NEAR OUR PLYWOOD.
  - ANY DOORS CONSIDERED FIRE EXITS OR WITH MAG LOCKS MUST BE TIED INTO THE BUILDING'S CLASS 'E' SYSTEM, SO THAT IN THE EVENT OF AN ACTIVE FIRE PANEL, THESE DOORS WILL AUTOMATICALLY UNLOCK. KASTLE REQUIRES A RELAY / ONE SET OF NORMALLY CLOSED DRY CONTACTS TIED INTO THE BUILDING'S CLASS 'E' SYSTEM THAT WILL ALLOW ALL OUR LOCKS TO RELEASE WHEN THE CLASS 'E' SYSTEM IS ACTIVATED. WE WILL NEED YOUR FIRE VENDOR TO LOCATE THE RELAY AT OUR PANEL LOCATION. YOUR SCOPE REFLECTS A MAGNETIC LOCK SO WE WILL NEED THE RELAY TO CONNECT TO YOUR DOOR RELEASES. THIS SHOULD BE ARRANGED VIA YOUR PROPERTY MANAGER AND BUILDING FIRE VENDOR.
  - NETWORK, DSL OR CABLE INTERNET CONNECTION WITH IP ADDRESSING - DETAILS ATTACHED FOR THE ACCESS CONTROL & SECURITY SYSTEM.
  - CONTACT PROCEDURES - THESE ARE THE HOURS THAT WE WILL MONITOR YOUR LOCATION & THE PERSONAL IN YOUR ORGANIZATION THAT WILL BE CONTACTED BY OUR OPERATIONS CENTER, IF NEEDED.**BACK BOX REQUIREMENTS (WITH 1/2" STUB UP TO THE CEILING)**
  - THE BACK BOXES ARE NOT REQUIRED BY KASTLE BUT MAY BE REQUIRED BY THE BUILDING FOR OUR DEVICES AT THE DOOR.**MAG LOCK DOOR -**
  - SINGLE GANG BACK BOX OUTSIDE THE DOOR WITH A STUB UP TO THE CEILING FOR THE CARD READER
  - SINGLE GANG BACK BOX INSIDE THE DOOR WITH A STUB UP TO THE CEILING FOR THE REQUEST TO EXIT BUTTON

**3 E-200 FIRE ALARM GENERAL NOTES**

1. ELECTRICAL CONTRACTOR MUST MAINTAIN A SAFE ENVIRONMENT FOR THE GENERAL PUBLIC. COORDINATE WITH OWNER FIELD REPRESENTATIVE FOR THE PHASES OF CONSTRUCTION.
2. ELECTRICAL CONTRACTOR MUST NOTIFY THE ENGINEER AS TO ANY CHANGES IN FIELD CONDITIONS WHICH MAY ALTER THE FIRE ALARM DESIGN.
3. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL BACK BOXES FOR ALL DEVICES AND CONDUIT FOR ALL EXPOSED LOCATIONS TO A MINIMUM OF 10" OFF.
4. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE A COMPLETE OPERABLE FIRE ALARM SYSTEM IN ACCORDANCE WITH ALL NATIONAL, LOCAL AND ADA REQUIREMENTS.
5. COORDINATE LOCATION OF FIRE ALARM DEVICES WITH LOCAL AUTHORITIES HAVING JURISDICTION PRIOR TO INSTALLATION.
6. AUDIBLE NOTIFICATION APPLICATIONS MUST BE THREE-PULSE TEMPORAL PATTERN AS PER NFPA#72, SECTION 18.4.2.1.
7. A RECORD OF COMPLETION MUST BE SUBMITTED FOR FIRE ALARM SYSTEM INSTALLATION AS PER NFPA#72, SECTION 7.5.6.
8. THE G.C. SHALL NOTIFY THE LOCAL AUTHORITY HAVING JURISDICTION TO WITNESS 100 PERCENT RE-ACCEPTANCE TESTING OF FIRE ALARM SYSTEM AS PER NFPA #72, SECTION 14.
9. ALL FIRE ALARM WIRING SHALL COMPLY WITH 2017 NEC ARTICLE 760 REQUIREMENTS.
10. EC IS RESPONSIBLE TO SUBMIT COMPLETE SHOP DRAWING PACKAGE TO ENGINEER AND LOCAL AUTHORITY HAVING JURISDICTION INCLUDING DEVICE LAYOUT AND SPECIFICATIONS, BATTERY CALCULATIONS, AND VOLTAGE DROP CALCULATIONS.

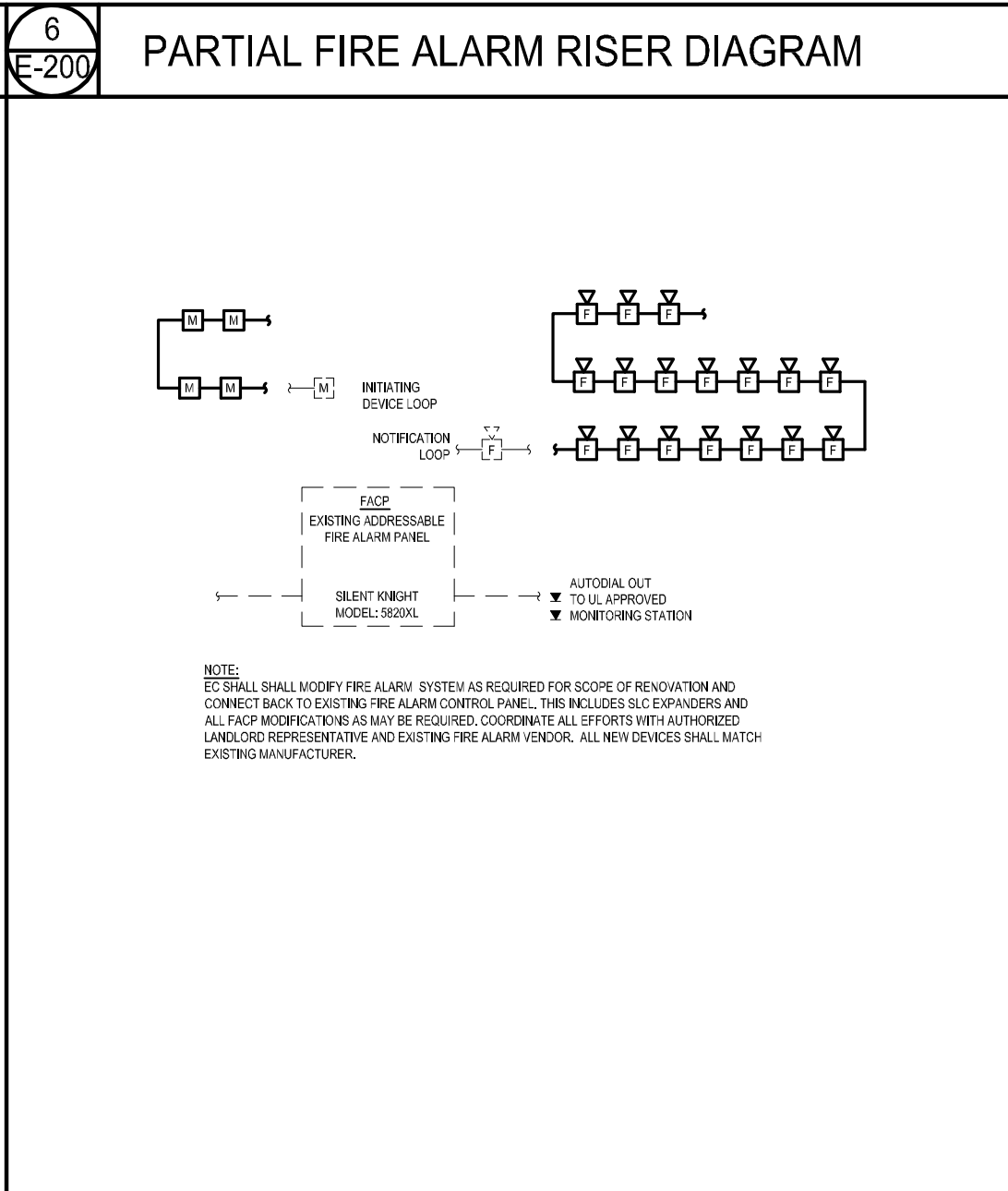
**4 E-200 SHEET KEY NOTES**

1. EXISTING ELECTRICAL PANEL TO REMAIN. EC SHALL MODIFY AS REQUIRED FOR SCOPE OF RENOVATION. REFER TO PANEL SCHEDULES ON DRAWING E-300 FOR ADDITIONAL INFORMATION.
2. EXISTING FIRE ALARM CONTROL PANEL. EC SHALL MODIFY AS REQUIRED FOR SCOPE OF RENOVATION. REFER TO FIRE ALARM RISER DIAGRAM ON THIS DRAWING FOR ADDITIONAL INFORMATION.
3. EXISTING FIRE ALARM DEVICE TO REMAIN.
4. COORDINATE ALL SIDEWALL EXHAUST FAN INSTALLATION EFFORTS WITH MECHANICAL CONTRACTOR.
5. APPROXIMATE LOCATION OF LEVEL 2 DUAL OUTPUT CHARGING STATION. EC SHALL COORDINATE EXACT LOCATION, CONDUIT ROUTING, AND PREFERRED METHOD OF INSTALLATION WITH EV CHARGING STATION VENDOR AND AUTHORIZED OWNER REPRESENTATIVE.
6. EC SHALL FURNISH AND INSTALL DOUBLE DUPLEX DEDICATED RECEPTACLE FOR ALARM AND SECURITY SYSTEM. COORDINATE FINAL LOCATION WITH SYSTEM VENDOR AND AUTHORIZED OWNER REPRESENTATIVE.

**5 E-200 FIRE ALARM LEGEND**

SYMBOL	DESCRIPTION
	HORNSTROBE - WALL MOUNTED
	EXISTING HORNSTROBE - WALL MOUNTED
	NEW MANUAL PULL STATION
	EXISTING MANUAL PULL STATION

1. NEW DEVICES SHALL MATCH MANUFACTURER OF EXISTING SYSTEM.
2. EC SHALL COORDINATE THE EXACT MODEL NUMBERS OF NEW DEVICES WITH THE MANUFACTURER.
3. EC SHALL VERIFY SYSTEM IS UL APPROVED AND ACCEPTED BY LOCAL AUTHORITY HAVING JURISDICTION.



MARK	DATE	DESCRIPTION	ISSUE
PERMIT	01/28/2021		
CLIENT REVIEW	10/05/2020		

PROJECT NO: 18-1615.01  
DRAWN BY: AC  
CHECKED BY: CWW  
SHEET TITLE:  
**POWER AND FIRE ALARM PLAN**  
E-200



1  
E-300 ELECTRICAL PANEL SCHEDULES

PANEL ID: 'HP'		(EXISTING PANEL)														
VOLTAGE: 480Y/277V, 3PH, 4W		MLO	X	MCB	N/A	AIC: 65K	COMMENTS:									
MAIN BUS: Z25A		MOUNTING:		SURFACE			ACCESSORIES:									
CIR. NO.	WIRE DATA	LOAD DESCRIPTION	BREAKER POLE	TRIP (A)	LOAD (VA)	PHASE A	PHASE B	PHASE C	LOAD (VA)	BREAKER TRIP (A)	POLE	LOAD DESCRIPTION	WIRE DATA	CIR. NO.		
NO.	NO.   WIRE   GND												NO.   WIRE   GND			
1														2		
3	(E)   (E)   (E)	EXISTING SUBFEED PNL 'PP'	3	60	13200	13200			8800			30	3	EXISTING SPARE	(E)   (E)   (E)	4
5					8800				8800					6		
7	2   12   12	NEW GARAGE LIGHTING	1	20	1320	1320						30	3	EXISTING SPARE	(E)   (E)   (E)	8
9	2   12   12	NEW GARAGE LIGHTING	1	20	1200		1200							10		
11	2   12   12	NEW GARAGE LIGHTING	1	20	960			960						12		
13	2   12   12	NEW EXIT SIGNS (LOCK-ON)	1	20	12	2892			2880			30	3	EXISTING LOAD	(E)   (E)   (E)	14
15		EXISTING SPARE	1	20			2880		2880					16		
17		EXISTING SPARE	1	20			2880		2880					18		
19		EXISTING SPARE	1	20		1920			1920			20	3	(E) SPRINKLER ROOM HEATER	(E)   (E)   (E)	20
21		EXISTING SPARE	1	20					1920					22		
23		EXISTING SPARE	1	20			1920		1920					24		
25					600	20						20	1	EXISTING LOAD		26
27	3   12   12	NEW SIDEWALL EXHAUST FAN EF-1	3	15	1330		1330					20	1	EXISTING SPARE		28
29					1330			1330				20	1	EXISTING SPARE		30
31					1330							20	1	EXISTING SPARE		32
33	3   12   12	NEW SIDEWALL EXHAUST FAN EF-1	3	15	1330		1330					20	1	EXISTING SPARE		34
35					1330			1330				20	1	EXISTING SPARE		36
37					1330							20	1	EXISTING SPARE		38
39	3   12   12	NEW SIDEWALL EXHAUST FAN EF-1	3	15	1330		1330					20	1	EXISTING SPARE		40
41					1330			1330				20	1	EXISTING SPARE		42
					PHASE CONN. (VA)	23922	18790	18550								
					PHASE CONN. (AMPS)	86.3	67.8	66.9								
NOTES:										61.3	TOTAL CONNECTED LOAD (KVA)					
										73.7	TOTAL CONNECTED LOAD (AMPS)					

PANEL ID: 'PP'		(EXISTING PANEL)															
VOLTAGE: 208Y/120V, 3PH, 4W		MLO	X	MCB	100A	AIC: 22K	COMMENTS:										
MAIN BUS: Z25A		MOUNTING:		SURFACE			ACCESSORIES:										
CIR. NO.	WIRE DATA	LOAD DESCRIPTION	BREAKER POLE	TRIP (A)	LOAD (VA)	PHASE A	PHASE B	PHASE C	LOAD (VA)	BREAKER TRIP (A)	POLE	LOAD DESCRIPTION	WIRE DATA	CIR. NO.			
NO.	NO.   WIRE   GND												NO.   WIRE   GND				
1														2			
3	(E)   (E)   (E)	EXISTING LOAD	3	70	4000	4600			4600			600	20	1	EXISTING LOAD	(E)   (E)   (E)	4
5					4000				4600			600	20	1	EXISTING LOAD	(E)   (E)   (E)	6
7	(E)   (E)   (E)	EXISTING LOAD	1	20	600	1400			800			20	1	NEW SECURITY SYSTEM RECEPTACLE		8	
9	(E)   (E)   (E)	EXISTING LOAD	1	20	600		600					20	1	EXISTING SPARE		10	
11	(E)   (E)   (E)	EXISTING LOAD	1	20	600			600				20	1	EXISTING SPARE		12	
13	2   8   10	NEW EV CHARGING STATION	2	40	3600		3600					20	1	EXISTING SPARE		14	
15					3600		3600					20	1	EXISTING SPARE		16	
17	2   8   10	NEW EV CHARGING STATION	2	40	3600			3600				20	1	EXISTING SPARE		18	
19					3600		3600					20	1	EXISTING SPARE		20	
21		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		22	
23		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		24	
25		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		26	
27		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		28	
29		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		30	
31		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		32	
33		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		34	
35		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		36	
37		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		38	
39		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		40	
41		EXISTING SPARE	1	20				0				20	1	EXISTING SPARE		42	
					PHASE CONN. (VA)	13200	8800	8800									
					PHASE CONN. (AMPS)	109.9	73.3	73.3									
NOTES:										30.8	TOTAL CONNECTED LOAD (KVA)						
										85.5	TOTAL CONNECTED LOAD (AMPS)						

3  
E-300 PANEL SCHEDULE NOTES

- EC SHALL PROVIDE NEW CIRCUIT BREAKERS IN EXISTING PANELS AS REQUIRED. MANUFACTURER AND AIC RATING OF NEW CIRCUIT BREAKERS SHALL MATCH EXISTING.
- WHERE EXISTING CIRCUITS ARE BEING REMOVED AND NOT REUTILIZED AS PART OF RENOVATION, ELECTRICAL CONTRACTOR SHALL LABEL CIRCUIT BREAKERS AS 'SPARE' AND LEAVE IN OFF POSITION.
- PRIOR TO COMPLETION OF RENOVATION, ELECTRICAL CONTRACTOR SHALL REBALANCE ELECTRICAL PANELS AS REQUIRED, AND PROVIDE NEW TYPE-WRITTEN PANEL SCHEDULE DIRECTORIES.



100 CORPORATE DRIVE  
PARKING STRUCTURE  
BLAUVELT  
NEW YORK

2  
E-300 CONDUIT SIZING SCHEDULE

CONDUIT SIZING - BRANCH/FEEDER CIRCUITS										
Conduit Size / Fill										
1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	Wire Size (AWG / KCMIL)
(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	(Inch)	
6	10	16	28	39	64	112	169	221	282	14
4	8	13	23	31	51	90	136	177	227	12
3	6	10	18	24	40	70	106	138	177	10
1	4	6	10	14	24	42	63	83	106	8
1	3	4	8	11	18	32	48	63	81	6
1	1	3	6	8	13	24	36	47	60	4
1	1	3	5	7	12	20	31	40	52	3
1	1	2	4	6	10	17	26	34	44	2
1	1	1	3	4	7	12	18	24	31	1
0	1	1	2	3	6	10	16	20	26	1/0

Amperage Adjustments Factors for More than 3 Current Carrying Conductors in a Raceway or Cable:

# Conductors	Adj Factor
4-6	80%
7-9	70%
10-20	50%
21-30	45%
31-40	40%
40+	35%

- Conduit fill is 40% maximum based upon EMT conduit and THW/THHW copper conductors taken from the latest adopted NEC table.
- Amperage Adjustment Factors are taken from the latest adopted NEC.

This chart is provided as direction to EC, as conduit sizes are not shown, providing the EC with the discretion to group circuits in conduits as best dictated by field conditions. Conductors must then be derated accordingly.

MARK	DATE	DESCRIPTION	ISSUE
	01/28/2021	PERMIT	
	10/05/2020	CLIENT REVIEW	

PROJECT NO: 18-1615.01  
DRAWN BY: AC  
CHECKED BY: CWW

SHEET TITLE:  
ELECTRICAL SCHEDULES



SCHEDULE "A" LEGAL DESCRIPTION

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE HAMLET OF BLAUVELT, TOWN OF ORANGETOWN, COUNTY OF ROCKLAND AND STATE OF NEW YORK, AND BEING MORE PARTICULARLY SHOWN AND DESIGNATED AS PART OF LOT # 10.2 ON THE SUBDIVISION PLAN ENTITLED "SPENCER SUBDIVISION" PREPARED BY ADLER & YOUNG, P.C. FILED IN THE ROCKLAND COUNTY CLERK'S OFFICE ON MAY 4, 1983 IN MAP BOOK 100 AT PAGE 18, AS MAP NUMBER 5486, AND ALSO DESIGNATED AS LOT #4 ON THE SUBDIVISION PLAN ENTITLED "BRADLEY SUBDIVISION" TOWN OF ORANGETOWN, COUNTY OF ROCKLAND, NEW YORK, AS PREPARED BY ALLEN AND YOUNG, P.C. LAST DATED 12/30/86 AND WHICH WAS FILED IN THE ROCKLAND COUNTY CLERK'S OFFICE ON MARCH 3, 1987 IN MAP BOOK 107 AT PAGE 21, AS MAP NUMBER 6014.

ALSO BEING DESCRIBED AS:

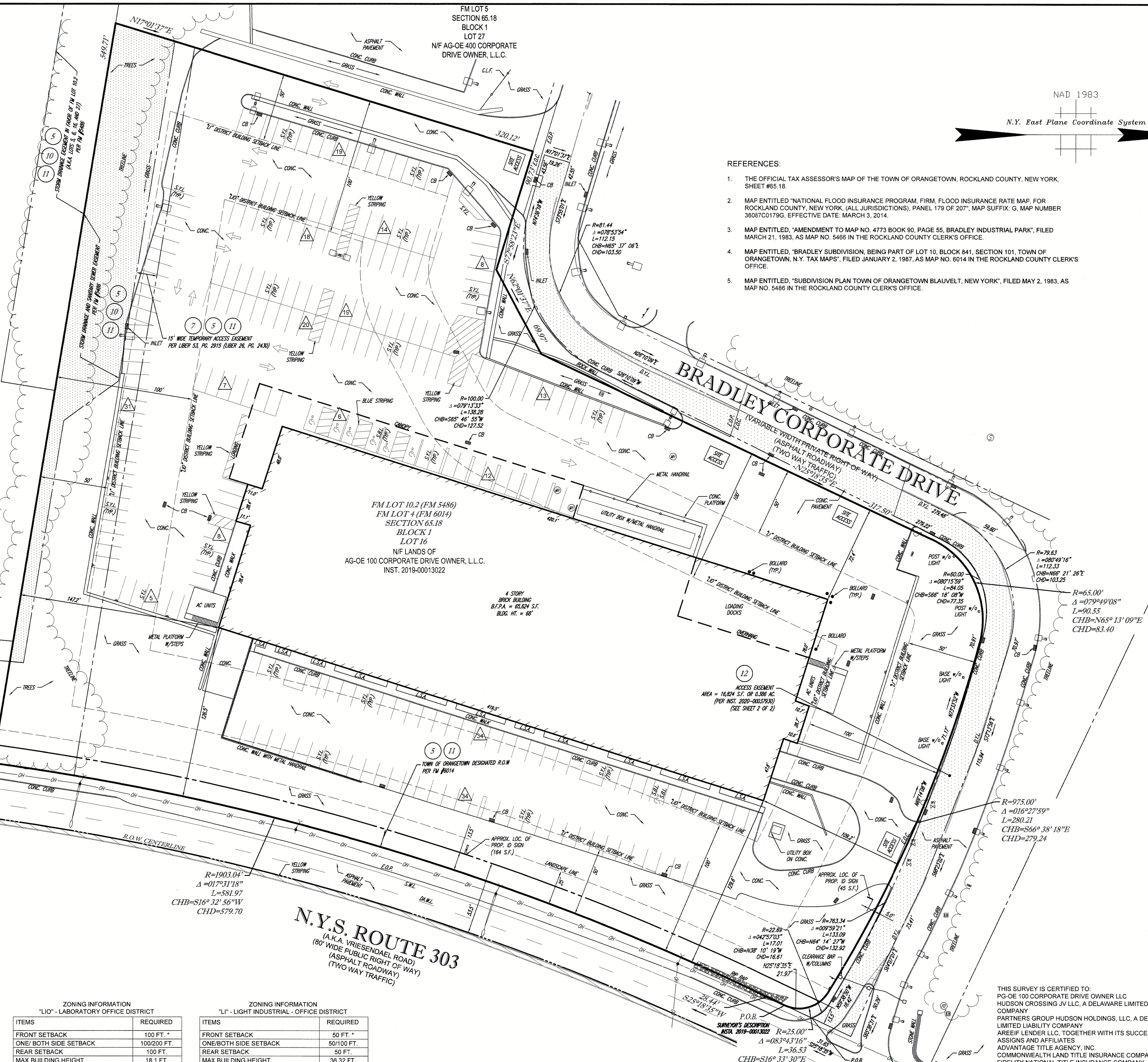
ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE HAMLET OF BLAUVELT, TOWN OF ORANGETOWN, COUNTY OF ROCKLAND AND STATE OF NEW YORK, AND BEING MORE PARTICULARLY SHOWN AND DESIGNATED AS LOT #4 ON THE SUBDIVISION PLAN ENTITLED "BRADLEY SUBDIVISION" TOWN OF ORANGETOWN, ROCKLAND, NEW YORK, AS PREPARED BY ALLEN AND YOUNG, P.C. LAST DATED 12/30/86 AND WHICH WAS FILED IN THE ROCKLAND COUNTY CLERK'S OFFICE ON MARCH 3, 1987 IN MAP BOOK 107 AT PAGE 21, AS MAP NUMBER 6014.

BEGINNING AT A POINT IN THE NORTHWESTERLY LINE OF NEW YORK STATE ROUTE 303 (A.K.A. VRIESEDAEL ROAD - 80 FEET WIDE - PUBLIC RIGHT OF WAY SAID POINT BEING THE TERMINUS OF A CURVE CONNECTING THE SAID NORTHWESTERLY LINE OF NEW YORK STATE ROUTE 303 WITH THE SOUTHWESTERLY LINE OF BRADLEY CORPORATE DRIVE (VARIABLE WIDTH - PRIVATE RIGHT OF WAY), THENCE THE FOLLOWING TWO (2) COURSES ALONG THE SAID NORTHWESTERLY LINE OF NEW YORK STATE ROUTE 303:

- 1. SOUTH 25 DEGREES - 18 MINUTES - 35 SECONDS WEST, A DISTANCE OF 28.44 FEET TO A POINT, THENCE;
2. SOUTHERLY ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 1903.04 FEET, AN ARC LENGTH OF 581.97 FEET, A CENTRAL ANGLE OF 17 DEGREES - 31 MINUTES - 18 SECONDS, BEARING A CHORD OF SOUTH 16 DEGREES - 32 MINUTES - 56 SECONDS WEST, AND A CHORD DISTANCE OF 578.70 FEET TO A POINT OF NON TANGENCY AND CORNER TO SECTION 65.18, BLOCK 1, LOT 17, LANDS NOW OR FORMERLY OF GUSSACK REALTY CO LLC, THENCE;
3. ALONG THE LINE OF LOT 17 NORTH 60 DEGREES - 35 MINUTES - 57 SECONDS WEST, A DISTANCE OF 545.71 FEET TO A POINT AND CORNER OF SECTION 65.18, BLOCK 1, LOT 27, LANDS NOW OR FORMERLY OF AG-OE 400 CORPORATE DRIVE OWNER, L.L.C., THENCE;
4. ALONG THE LINE OF LOT 27, NORTH 17 DEGREES - 01 MINUTE - 37 SECONDS EAST, A DISTANCE OF 320.12 FEET TO A POINT IN THE LINE OF BRADLEY CORPORATE DRIVE, THENCE THE FOLLOWING (6) COURSES ALONG BRADLEY CORPORATE DRIVE;
5. SOUTH 72 DEGREES - 58 MINUTES - 23 SECONDS EAST, A DISTANCE OF 90.73 FEET TO A POINT, THENCE;
6. NORTH 62 DEGREES - 01 MINUTE - 37 SECONDS EAST, A DISTANCE OF 89.87 FEET TO A POINT, THENCE;
7. NORTH 25 DEGREES - 18 MINUTES - 35 SECONDS EAST, A DISTANCE OF 317.50 FEET TO A POINT OF CURVATURE, THENCE;
8. NORTHERLY AND EASTERLY ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 65.00 FEET, AN ARC LENGTH OF 90.55 FEET, A CENTRAL ANGLE OF 79 DEGREES - 49 MINUTES - 08 SECONDS, BEARING A CHORD OF NORTH 65 DEGREES - 13 MINUTES - 09 SECONDS EAST, AND A CHORD DISTANCE OF 83.40 FEET TO A POINT OF COMPOUND CURVE, THENCE;
9. EASTERLY ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 975.00 FEET, AN ARC LENGTH OF 280.21 FEET, A CENTRAL ANGLE OF 18 DEGREES - 27 MINUTES - 59 SECONDS, BEARING A CHORD OF SOUTH 66 DEGREES - 38 MINUTES - 18 SECONDS EAST, AND A CHORD DISTANCE OF 279.24 FEET TO A POINT OF COMPOUND CURVE, THENCE;
10. SOUTHEASTERLY ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 25.00 FEET, AN ARC LENGTH OF 36.53 FEET, A CENTRAL ANGLE OF 83 DEGREES - 43 MINUTES - 16 SECONDS, BEARING A CHORD OF SOUTH 16 DEGREES - 33 MINUTES - 30 SECONDS EAST, AND A CHORD DISTANCE OF 33.37 FEET TO A POINT OF TANGENCY AND THE POINT AND PLACE OF BEGINNING.

TOGETHER WITH THE BENEFITS AND SUBJECT TO THE BURDENS OF A NON-EXCLUSIVE EASEMENT AS SET FORTH IN SECTION 2.01 IN INSTRUMENT NUMBER 2020-00037930, SEE SHEET 2 OF 2.

THE LAND SHOWN IN THIS SURVEY IS THE SAME AS THAT DESCRIBED IN A TITLE REPORT PREPARED BY ADVANTAGE TITLE AGENCY, INC., TITLE NO. 20-GRO-56818, WITH AN EFFECTIVE DATE OF 11/20/2020.

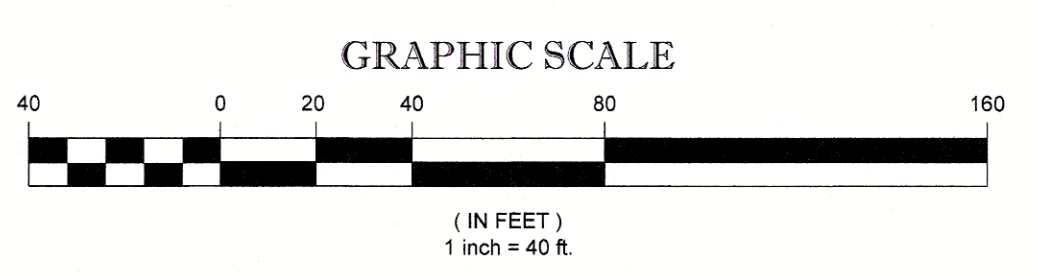


- NOTES:
1. PROPERTY KNOWN AS LOT 16, BLOCK 1, SECTION 65.18, AS SHOWN ON THE OFFICIAL TAX ASSESSOR'S MAP OF THE TOWN OF ORANGETOWN, ROCKLAND COUNTY, NEW YORK.
2. AREA = 301,831 S.F. OR 6.924 AC.
3. ABOVE GROUND UTILITY STRUCTURES, WHERE VISIBLE, SHOWN HEREON BEFORE ANY SITE EVALUATION, PREPARATION OF DESIGN DOCUMENTS OR EXCAVATION IS TO BEGUN, THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE PROPER UTILITY COMPANIES.
4. THIS PLAN IS BASED ON DATA ACQUIRED BY A FIELD SURVEY PREPARED BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. THIS SURVEY IS PREPARED WITH REFERENCE TO A TITLE REPORT PREPARED BY ADVANTAGE TITLE AGENCY, INC., TITLE NO. 20-GRO-56818, WITH AN EFFECTIVE DATE OF 11/20/2020, WHERE THE FOLLOWING SURVEY RELATED EXCEPTIONS APPEAR IN SCHEDULE B, SECTION II:
6. NOTES, EASEMENTS AND SETBACKS SET FORTH ON FILED MAP NOS. 5486 AND 6014, BRADLEY CORPORATE DRIVE, A PRIVATE DRIVE, AS SET FORTH ON FILE MAP 6014, STORM DRAINAGE AND SANITARY SEWER EASEMENT PER AS SET FORTH ON FILE MAP 5486, 15' WIDE TEMPORARY ACCESS EASEMENT AS SET FORTH IN REEL 53, PG. 2915, STORM DRAINAGE EASEMENT IN FAVOR OF FM LOT 10.2 AS SET FORTH IN FILE MAP 5486, 15' WIDE SANITARY FORCE MAIN EASEMENT IN FAVOR OF FM LOT 10.2 AS SET FORTH IN FILE MAP 5486, TOWN OF ORANGETOWN DESIGNATED R.O.W. AS SET FORTH IN FILE MAP 6014, SHOWN HEREON.
7. DECLARATION OF COVENANTS AND RESTRICTIONS RECORDED IN REEL 53 PAGE 2912. NOT SHOWN, NO SURVEY RELATED EXCEPTIONS.
8. EASEMENT RECORDED IN LIBER 35 PAGE 2915, SHOWN HEREON.
9. SEWER EASEMENT AND MAINTENANCE AGREEMENT RECORDED IN INSTRUMENT NO. 2004-0008644, THE LOCATION CANNOT BE DETERMINED FROM THE RECORD DOCUMENT.
10. LICENSE AGREEMENT RECORDED IN LIBER 245 PAGE 173. THE LOCATION CANNOT BE DETERMINED FROM THE RECORD DOCUMENT.
11. RESERVATION OF EASEMENTS SET FORTH IN THE DEED RECORDED IN LIBER 14 PAGE 722, SHOWN HEREON.
12. UNRECORDED EASEMENT SET FORTH IN THE CONTRACT OF SALE RECORDED IN LIBER 26, PAGE 2430
13. SUBJECT TO NOTES, NOTATIONS & EASEMENTS AS SHOWN ON FILED MAP 5486
14. STORM DRAINAGE & SANITARY SEWER EASEMENT, 15' WIDE TEMPORARY ACCESS EASEMENT, STORM DRAINAGE EASEMENT, 15' WIDE SANITARY FORCE MAIN EASEMENT, TOWN OF ORANGETOWN DESIGNATED R.O.W. - SHOWN HEREON
15. SLOPE EASEMENT - NOT SHOWN, IS NOT ON AND DOES NOT TOUCH SURVEYED PROPERTY
16. SUBJECT TO RIGHTS, EASEMENTS & AGREEMENTS CONTAINED IN LIBER 14, PAGE 722
17. STORM DRAINAGE EASEMENT, 15' WIDE SANITARY FORCE MAIN EASEMENT, STORM DRAINAGE & SANITARY SEWER EASEMENT - SHOWN HEREON
18. SLOPE EASEMENT, INGRESS/EGRESS & UTILITY RIGHTS IN BRADLEY PARKWAY - NOT SHOWN, IS NOT ON AND DOES NOT TOUCH SURVEYED PROPERTY
19. SUBJECT TO TEMPORARY ACCESS EASEMENT TO THE TOWN OF ORANGETOWN - SHOWN HEREON
20. SUBJECT TO SIDEWALK COVENANT TO THE TOWN OF ORANGETOWN - NOT SHOWN, NO SURVEY RELATED
21. SUBJECT TO GRANT TO ROCKLAND LIGHT & POWER, NOT SHOWN, LOCATION CANNOT BE DETERMINED FROM RECORD DOCUMENT, POLE REFERENCES IN SAID DOCUMENT NOT OBSERVED AT TIME OF SURVEY
22. SUBJECT TO LICENSE TO NEW YORK TELEPHONE CONTAINED IN LIBER 245, PAGE 173 - NOT SHOWN, IS NOT ON AND DOES NOT TOUCH SURVEYED PROPERTY
23. RECIPROCAL EASEMENT AND OPERATION AGREEMENT RECORDED IN INSTRUMENT NO. 2020-00037930, SHOWN HEREON (SEE SHEET 2)
24. BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD ZONE X (OTHER AREAS) (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER REF. #2.
25. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
26. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
27. PLANIMETRIC FEATURES COMPILED BY CONTROL POINT ASSOCIATES, INC. UTILIZING CONVENTIONAL GROUND SURVEYING TECHNIQUES COUPLED WITH PHOTOGRAMMETRIC METHODS FROM UAV PHOTOGRAPHY (UAV PHOTOGRAPHY PERFORMED BY CONTROL POINT ASSOCIATES, INC. ON FEBRUARY 22, 2019 WITH A PHOTO SCALE OF 1.7m GSD).
28. PHOTOGRAMMETRIC MAPPING HAS BEEN COMPILED IN ACCORDANCE WITH PROCEDURES THAT HAVE BEEN DEMONSTRATED TO COMPLY WITH THE AMERICAN SOCIETY FOR PHOTOGRAMMETRY AND REMOTE SENSING (ASPRS) CLASS 1 STANDARD FOR A HORIZONTAL MAPPING SCALE OF 1"=40'. FEATURES ARE LIMITED TO THOSE VISIBLE AT THE TIME OF THE PHOTOGRAPHY AND ARE SUBJECT TO FIELD VERIFICATION BY THE END USER.
29. THE PROPERTY HAS DIRECT VEHICULAR AND PEDESTRIAN ACCESS TO BRADLEY CORPORATE DRIVE (VARIABLE WIDTH, PRIVATE RIGHT OF WAY).
30. THE SURVEYOR IS UNAWARE OF ANY ENCROACHMENTS (A) BY IMPROVEMENTS OR PROJECTIONS LOCATED ON THE PROPERTY OUTSIDE THE PROPERTY LINES, (B) BY IMPROVEMENTS OR PROJECTIONS LOCATED ON ANY ADJACENT PROPERTY ONTO THE PROPERTY AND (C) BY IMPROVEMENTS OR PROJECTIONS ON THE PROPERTY UPON ANY ADJACENT PROPERTY, EASEMENT BOUNDING THE PROPERTY, RIGHTS OF WAY OR SETBACK LINES, EXCEPT AS SHOWN ON THE SURVEY.
31. THERE ARE 247 PAINTED PARKING SPACES ON SITE.
32. THERE IS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.
33. NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES HAVE BEEN MADE AVAILABLE TO THE SURVEYOR BY THE CONTROLLING JURISDICTION.
34. THERE WERE NO DELINEATED WETLAND FLAGS OBSERVED ON THE SUBJECT PREMISES AT THE TIME OF SURVEY.
35. PROFESSIONAL LIABILITY INSURANCE HAS BEEN OBTAINED BY THE SURVEYOR THAT EXCEEDS THE AMOUNT REQUIRED BY CLIENT.

LEGEND: OVERHEAD WIRES, HYDRANT, GAS VALVE, GAS METER, ELECTRIC METER, ELECTRIC BOX, SANITARY/SEWER MANHOLE, FIBER OPTIC MANHOLE, UNKNOWN MANHOLE, CLEAN OUT, STREET LIGHT, SIGN, BOLLARD, MONITORING WELL, MONITORING WELL ON CONC., AREA LIGHT, AREA LAMP, CATCH BASIN OR INLET, PARKING SPACE COUNT, E.O.C., E.O.P., LANDSCAPED AREA, L.S.A., METAL COVER, TYPICAL, S.P.L., SOLID YELLOW LINE, S.B.L., SOLID BLUE LINE, D.Y.L., DOUBLE YELLOW LINE, H.T., HEIGHT, B.L.C.D., BUILDING, B.F.P.A., BUILDING FOOTPRINT AREA, F.M., FILED MAP, T.M., TITLE REPORT EXCEPTION, O.F., OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE, D.D., DEED DIMENSION.

ZONING INFORMATION TABLES: 'L1O' - LABORATORY OFFICE DISTRICT, 'L1' - LIGHT INDUSTRIAL - OFFICE DISTRICT. Includes columns for ITEMS, REQUIRED, and specific measurements like FRONT SETBACK, ONE/BOTH SIDE SETBACK, etc.

SOURCE: ZONING REPORT ENTITLED "ZONING AND SITE REQUIREMENTS REPORT FOR 100 CORPORATE DRIVE, ORANGETOWN, NEW YORK" PREPARED BY NATIONWIDE ZONING SERVICES, L.L.C. CERTIFIED TO PARTNERS GROUP USA, INC. DATE: JANUARY 22, 2021. REPORT NO. 187317. NOTE: ZONING CRITERIA IDENTIFIED HEREON ARE BASED UPON PRELIMINARY RESEARCH AND PRESENTED FOR REFERENCE ONLY. SAME MUST BE CONFIRMED WITH LOCAL ZONING OFFICIAL AND LEGAL COUNSEL TO CONFIRM VALIDITY.

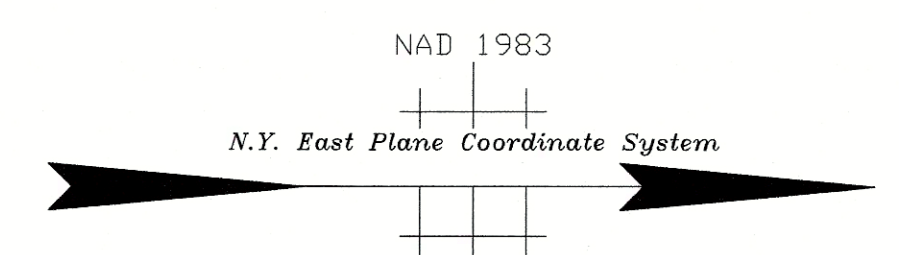
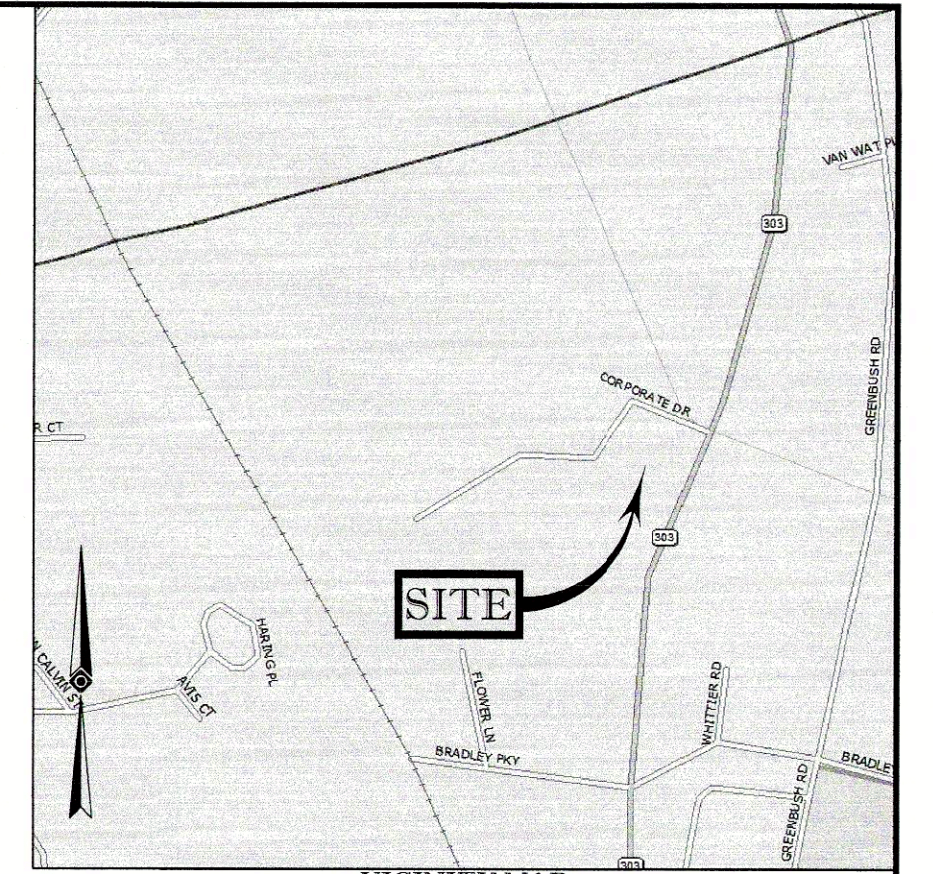


UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW. ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT WAS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16, 17, 18, 19 & 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 01-12-2021.

STATE OF NEW YORK seal and signature of James D. Sens, dated 3/19/21. Includes text: 'I AM A LICENSED LAND SURVEYOR AND THIS IS VALID UNTIL SEALED'.

Table with columns: FIELD DATE, FIELD BOOK NO., FIELD BOOK PG., FIELD CREW, DRAWN, APPROVED, DATE. Includes project details for ALTA/NSPS LAND TITLE SURVEY, PARTNERS GROUP HUDSON HOLDINGS, LLC, and CONTROL POINT ASSOCIATES, INC. PC.





NON-EXCLUSIVE EASEMENT DESCRIPTION:

TOGETHER WITH THE BENEFITS AND SUBJECT TO THE BURDENS OF A NON-EXCLUSIVE EASEMENT AS SET FORTH IN SECTION 2.01 IN INSTRUMENT NUMBER 2020-00037930, AS BOUNDED AND DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE TOWNS OF ORANGETOWN AND CLARKSTOWN, COUNTY OF ROCKLAND, STATE OF NEW YORK, MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

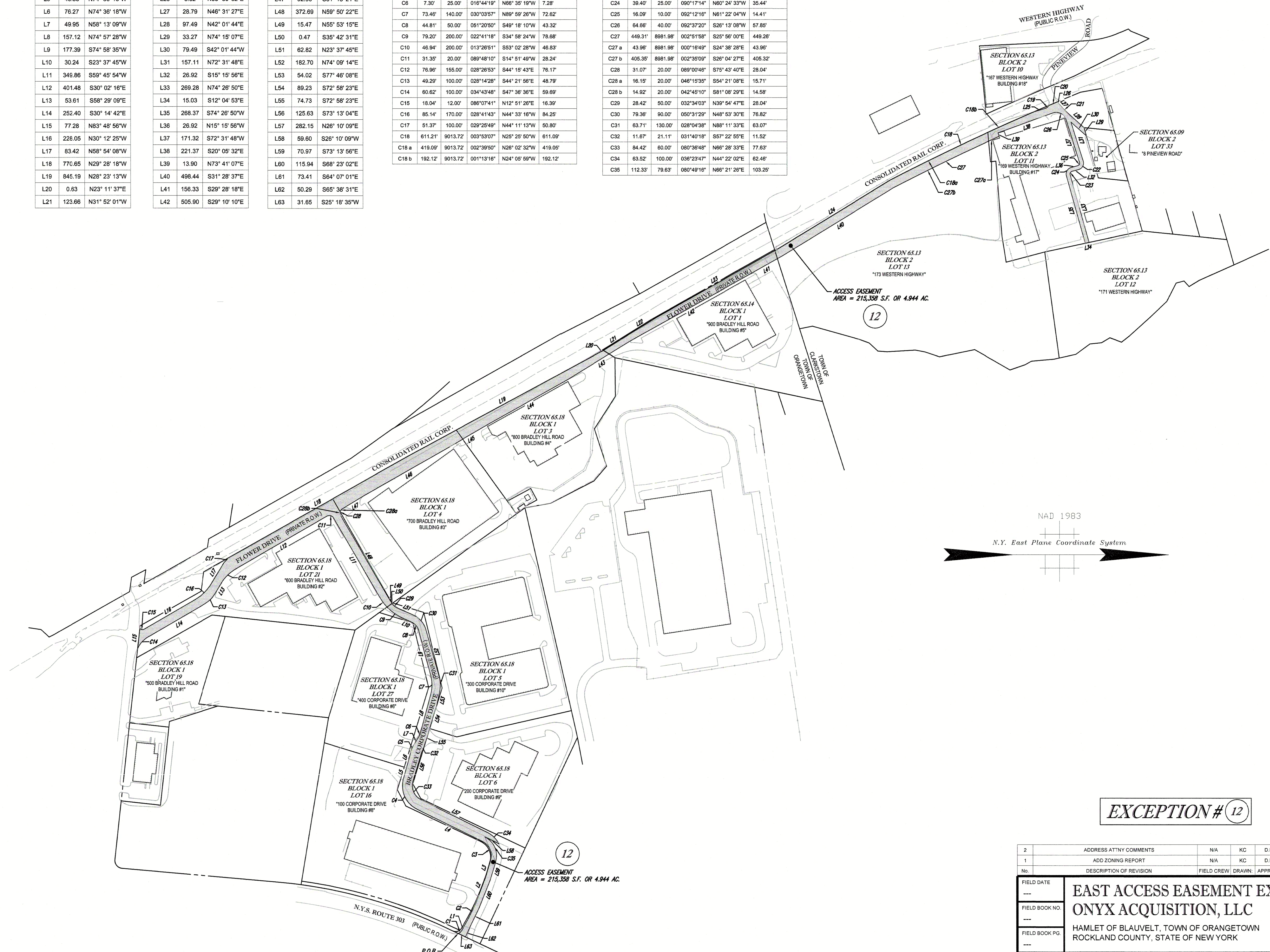
COMMENCING AT A POINT IN THE NORTHWESTERLY LINE OF NEW YORK STATE ROUTE 303 (A.K.A. VRIESENDIAEL ROAD - 80 FEET WIDE - PUBLIC RIGHT OF WAY) SAID POINT BEING DISTANT NORTH 26 DEGREES - 18 MINUTES - 35 SECONDS EAST, A DISTANCE OF 21.97 FEET FROM THE SOUTHWESTERLY TERMINUS OF A CURVE CONNECTING THE SAID NORTHWESTERLY LINE OF NEW YORK STATE ROUTE 303 WITH THE SOUTHWESTERLY LINE OF BRADLEY CORPORATE DRIVE (VARIABLE WIDTH - PRIVATE RIGHT OF WAY), TO THE POINT OR PLACE OF BEGINNING, THENCE:

1. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 22.69 FEET, A CENTRAL ANGLE OF 62 DEGREES - 57 MINUTES - 03 SECONDS, AN ARC LENGTH OF 17.01 FEET, A CHORD BEARING OF NORTH 38 DEGREES - 10 MINUTES - 19 SECONDS WEST, AND A CHORD DISTANCE OF 16.61 FEET TO A POINT OF TANGENCY, THENCE;
2. NORTH 59 DEGREES - 38 MINUTES - 50 SECONDS WEST, A DISTANCE OF 18.42 FEET TO A POINT, THENCE;
3. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 763.34 FEET, A CENTRAL ANGLE OF 09 DEGREES - 59 MINUTES - 21 SECONDS, AN ARC LENGTH OF 133.09 FEET, A CHORD BEARING OF NORTH 64 DEGREES - 14 MINUTES - 27 SECONDS WEST, AND A CHORD DISTANCE OF 127.92 FEET TO A POINT OF TANGENCY, THENCE;
4. NORTH 69 DEGREES - 14 MINUTES - 08 SECONDS WEST, A DISTANCE OF 71.17 FEET TO A POINT, THENCE;
5. NORTH 73 DEGREES - 33 MINUTES - 52 SECONDS WEST, A DISTANCE OF 70.91 FEET TO A POINT, THENCE;
6. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET, A CENTRAL ANGLE OF 08 DEGREES - 15 MINUTES - 59 SECONDS, AN ARC LENGTH OF 64.06 FEET, A CHORD BEARING OF SOUTH 66 DEGREES - 18 MINUTES - 08 SECONDS WEST, AND A CHORD DISTANCE OF 77.35 FEET TO A POINT OF TANGENCY, THENCE;
7. SOUTH 26 DEGREES - 10 MINUTES - 09 SECONDS WEST, A DISTANCE OF 279.22 FEET TO A POINT, THENCE;
8. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 79 DEGREES - 13 MINUTES - 33 SECONDS, AN ARC LENGTH OF 138.28 FEET, A CHORD BEARING OF SOUTH 65 DEGREES - 48 MINUTES - 55 SECONDS WEST, AND A CHORD DISTANCE OF 127.52 FEET TO A POINT OF TANGENCY, THENCE;
9. NORTH 74 DEGREES - 36 MINUTES - 18 SECONDS WEST, A DISTANCE OF 43.56 FEET TO A POINT, THENCE;
10. NORTH 74 DEGREES - 36 MINUTES - 18 SECONDS WEST, A DISTANCE OF 70.91 FEET TO A POINT, THENCE;
11. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 25.00 FEET, A CENTRAL ANGLE OF 16 DEGREES - 23 MINUTES - 09 SECONDS, AN ARC LENGTH OF 7.15 FEET, A CHORD BEARING OF NORTH 66 DEGREES - 24 MINUTES - 44 SECONDS WEST, AND A CHORD DISTANCE OF 7.13 FEET TO A POINT OF TANGENCY, THENCE;
12. NORTH 58 DEGREES - 13 MINUTES - 09 SECONDS WEST, A DISTANCE OF 49.95 FEET TO A POINT, THENCE;
13. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 25.00 FEET, A CENTRAL ANGLE OF 16 DEGREES - 44 MINUTES - 19 SECONDS, AN ARC LENGTH OF 7.30 FEET, A CHORD BEARING OF SOUTH 66 DEGREES - 35 MINUTES - 19 SECONDS WEST, AND A CHORD DISTANCE OF 7.28 FEET TO A POINT OF TANGENCY, THENCE;
14. NORTH 74 DEGREES - 57 MINUTES - 28 SECONDS WEST, A DISTANCE OF 157.12 FEET TO A POINT, THENCE;
15. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 140.00 FEET, A CENTRAL ANGLE OF 30 DEGREES - 03 MINUTES - 57 SECONDS, AN ARC LENGTH OF 73.46 FEET, A CHORD BEARING OF NORTH 89 DEGREES - 59 MINUTES - 28 SECONDS WEST, AND A CHORD DISTANCE OF 72.82 FEET TO A POINT OF TANGENCY, THENCE;
16. SOUTH 74 DEGREES - 58 MINUTES - 35 SECONDS WEST, A DISTANCE OF 177.39 FEET TO A POINT, THENCE;
17. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET, A CENTRAL ANGLE OF 04 DEGREES - 20 MINUTES - 50 SECONDS, AN ARC LENGTH OF 64.81 FEET, A CHORD BEARING OF SOUTH 49 DEGREES - 18 MINUTES - 18 SECONDS WEST, AND A CHORD DISTANCE OF 43.32 FEET TO A POINT OF TANGENCY, THENCE;
18. SOUTH 23 DEGREES - 37 MINUTES - 45 SECONDS WEST, A DISTANCE OF 30.24 FEET TO A POINT, THENCE;
19. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 200.00 FEET, A CENTRAL ANGLE OF 22 DEGREES - 41 MINUTES - 18 SECONDS, AN ARC LENGTH OF 79.20 FEET, A CHORD BEARING OF SOUTH 34 DEGREES - 58 MINUTES - 24 SECONDS WEST, AND A CHORD DISTANCE OF 78.66 FEET TO A POINT OF TANGENCY, THENCE;
20. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 200.00 FEET, A CENTRAL ANGLE OF 13 DEGREES - 29 MINUTES - 51 SECONDS, AN ARC LENGTH OF 46.94 FEET, A CHORD BEARING OF SOUTH 53 DEGREES - 02 MINUTES - 28 SECONDS WEST, AND A CHORD DISTANCE OF 49.83 FEET TO A POINT OF TANGENCY, THENCE;
21. SOUTH 59 DEGREES - 45 MINUTES - 54 SECONDS WEST, A DISTANCE OF 349.86 FEET TO A POINT, THENCE;
22. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 20.00 FEET, A CENTRAL ANGLE OF 89 DEGREES - 48 MINUTES - 10 SECONDS, AN ARC LENGTH OF 31.35 FEET, A CHORD BEARING OF SOUTH 14 DEGREES - 51 MINUTES - 49 SECONDS WEST, AND A CHORD DISTANCE OF 28.24 FEET TO A POINT OF TANGENCY, THENCE;
23. SOUTH 30 DEGREES - 02 MINUTES - 16 SECONDS EAST, A DISTANCE OF 401.48 FEET TO A POINT, THENCE;
24. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 155.00 FEET, A CENTRAL ANGLE OF 28 DEGREES - 26 MINUTES - 53 SECONDS, AN ARC LENGTH OF 76.96 FEET, A CHORD BEARING OF SOUTH 44 DEGREES - 15 MINUTES - 43 SECONDS EAST, AND A CHORD DISTANCE OF 76.17 FEET TO A POINT OF TANGENCY, THENCE;
25. SOUTH 58 DEGREES - 29 MINUTES - 09 SECONDS EAST, A DISTANCE OF 53.91 FEET TO A POINT, THENCE;
26. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 28 DEGREES - 14 MINUTES - 28 SECONDS, AN ARC LENGTH OF 49.29 FEET, A CHORD BEARING OF SOUTH 44 DEGREES - 21 MINUTES - 56 SECONDS EAST, AND A CHORD DISTANCE OF 48.79 FEET TO A POINT OF TANGENCY, THENCE;
27. SOUTH 30 DEGREES - 14 MINUTES - 42 SECONDS EAST, A DISTANCE OF 252.40 FEET TO A POINT, THENCE;
28. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 34 DEGREES - 43 MINUTES - 48 SECONDS, AN ARC LENGTH OF 60.62 FEET, A CHORD BEARING OF SOUTH 47 DEGREES - 36 MINUTES - 36 SECONDS EAST, AND A CHORD DISTANCE OF 59.69 FEET TO A POINT OF NON-TANGENCY, THENCE;
29. NORTH 83 DEGREES - 48 MINUTES - 56 SECONDS WEST, A DISTANCE OF 77.28 FEET TO A POINT, THENCE;
30. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 12.00 FEET, A CENTRAL ANGLE OF 80 DEGREES - 07 MINUTES - 41 SECONDS, AN ARC LENGTH OF 18.04 FEET, A CHORD BEARING OF NORTH 12 DEGREES - 51 MINUTES - 28 SECONDS EAST, AND A CHORD DISTANCE OF 16.39 FEET TO A POINT OF NON-TANGENCY, THENCE;
31. NORTH 30 DEGREES - 12 MINUTES - 25 SECONDS WEST, A DISTANCE OF 228.05 FEET TO A POINT, THENCE;
32. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 170.00 FEET, A CENTRAL ANGLE OF 28 DEGREES - 41 MINUTES - 43 SECONDS, AN ARC LENGTH OF 80.14 FEET, A CHORD BEARING OF NORTH 44 DEGREES - 33 MINUTES - 18 SECONDS WEST, AND A CHORD DISTANCE OF 84.25 FEET TO A POINT OF TANGENCY, THENCE;
33. NORTH 58 DEGREES - 54 MINUTES - 08 SECONDS WEST, A DISTANCE OF 83.42 FEET TO A POINT, THENCE;
34. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 29 DEGREES - 25 MINUTES - 49 SECONDS, AN ARC LENGTH OF 51.37 FEET, A CHORD BEARING OF NORTH 44 DEGREES - 11 MINUTES - 13 SECONDS WEST, AND A CHORD DISTANCE OF 50.80 FEET TO A POINT OF TANGENCY, THENCE;
35. NORTH 29 DEGREES - 28 MINUTES - 18 SECONDS WEST, A DISTANCE OF 443.48 FEET TO A POINT, THENCE;
36. NORTH 80 DEGREES 28 MINUTES 34 SECONDS EAST, A DISTANCE OF 53.34 FEET TO A POINT;
37. CONTINUING ALONG THE PREVIOUS CURVE TO THE LEFT HAVING A RADIUS OF 20.00 FEET, A CENTRAL ANGLE OF 42 DEGREES - 45 MINUTES - 10 SECONDS, AN ARC LENGTH OF 14.52 FEET, A CHORD BEARING OF NORTH 81 DEGREES - 06 MINUTES - 29 SECONDS EAST, AND A CHORD DISTANCE OF 14.58 FEET TO A POINT OF TANGENCY, THENCE;
38. NORTH 59 DEGREES - 50 MINUTES - 22 SECONDS EAST, A DISTANCE OF 372.69 FEET TO A POINT, THENCE;
39. NORTH 55 DEGREES - 53 MINUTES - 15 SECONDS EAST, A DISTANCE OF 15.47 FEET TO A POINT, THENCE;
40. SOUTH 35 DEGREES - 42 MINUTES - 31 SECONDS EAST, A DISTANCE OF 0.47 FEET TO A POINT, THENCE;
41. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET, A CENTRAL ANGLE OF 52 DEGREES - 34 MINUTES - 03 SECONDS, AN ARC LENGTH OF 28.42 FEET, A CHORD BEARING OF NORTH 39 DEGREES - 54 MINUTES - 47 SECONDS EAST, AND A CHORD DISTANCE OF 28.04 FEET TO A POINT OF TANGENCY, THENCE;
42. NORTH 23 DEGREES - 37 MINUTES - 45 SECONDS EAST, A DISTANCE OF 62.82 FEET TO A POINT, THENCE;
43. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 90.00 FEET, A CENTRAL ANGLE OF 50 DEGREES - 31 MINUTES - 29 SECONDS, AN ARC LENGTH OF 79.38 FEET, A CHORD BEARING OF NORTH 48 DEGREES - 53 MINUTES - 30 SECONDS EAST, AND A CHORD DISTANCE OF 76.82 FEET TO A POINT OF TANGENCY, THENCE;
44. NORTH 74 DEGREES - 09 MINUTES - 14 SECONDS EAST, A DISTANCE OF 182.70 FEET TO A POINT, THENCE;
45. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 28 DEGREES - 04 MINUTES - 38 SECONDS, AN ARC LENGTH OF 63.71 FEET, A CHORD BEARING OF NORTH 88 DEGREES - 11 MINUTES - 33 SECONDS EAST, AND A CHORD DISTANCE OF 63.07 FEET TO A POINT OF TANGENCY, THENCE;
46. SOUTH 77 DEGREES - 48 MINUTES - 08 SECONDS EAST, A DISTANCE OF 54.02 FEET TO A POINT, THENCE;
47. SOUTH 72 DEGREES - 58 MINUTES - 23 SECONDS EAST, A DISTANCE OF 89.23 FEET TO A POINT, THENCE;
48. SOUTH 72 DEGREES - 58 MINUTES - 23 SECONDS EAST, A DISTANCE OF 74.73 FEET TO A POINT, THENCE;
49. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 21.11 FEET, A CENTRAL ANGLE OF 31 DEGREES - 40 MINUTES - 18 SECONDS, AN ARC LENGTH OF 11.67 FEET, A CHORD BEARING OF SOUTH 57 DEGREES - 22 MINUTES - 55 SECONDS EAST, AND A CHORD DISTANCE OF 11.52 FEET TO A POINT OF TANGENCY, THENCE;
50. SOUTH 73 DEGREES - 13 MINUTES - 04 SECONDS EAST, A DISTANCE OF 123.63 FEET TO A POINT, THENCE;
51. ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET, A CENTRAL ANGLE OF 80 DEGREES - 36 MINUTES - 48 SECONDS, AN ARC LENGTH OF 84.42 FEET, A CHORD BEARING OF NORTH 66 DEGREES - 29 MINUTES - 33 SECONDS EAST, AND A CHORD DISTANCE OF 77.63 FEET TO A POINT OF TANGENCY, THENCE;
52. NORTH 28 DEGREES - 10 MINUTES - 09 SECONDS EAST, A DISTANCE OF 282.15 FEET TO A POINT, THENCE;
53. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 38 DEGREES - 23 MINUTES - 47 SECONDS, AN ARC LENGTH OF 63.52 FEET, A CHORD BEARING OF NORTH 44 DEGREES - 22 MINUTES - 02 SECONDS EAST, AND A CHORD DISTANCE OF 62.46 FEET TO A POINT, THENCE;
54. SOUTH 26 DEGREES - 10 MINUTES - 09 SECONDS WEST, A DISTANCE OF 59.60 FEET TO A POINT, THENCE;
55. ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 79.63 FEET, A CENTRAL ANGLE OF 80 DEGREES - 49 MINUTES - 16 SECONDS, AN ARC LENGTH OF 112.33 FEET, A CHORD BEARING OF SOUTH 68 DEGREES - 21 MINUTES - 28 SECONDS EAST, AND A CHORD DISTANCE OF 103.25 FEET TO A POINT OF TANGENCY, THENCE;
56. SOUTH 73 DEGREES - 13 MINUTES - 56 SECONDS EAST, A DISTANCE OF 70.97 FEET TO A POINT, THENCE;
57. SOUTH 88 DEGREES - 23 MINUTES - 02 SECONDS EAST, A DISTANCE OF 115.94 FEET TO A POINT, THENCE;
58. SOUTH 64 DEGREES - 07 MINUTES - 01 SECONDS EAST, A DISTANCE OF 73.41 FEET TO A POINT, THENCE;
59. SOUTH 65 DEGREES - 38 MINUTES - 31 SECONDS EAST, A DISTANCE OF 50.29 FEET TO A POINT, THENCE;
60. SOUTH 25 DEGREES - 18 MINUTES - 35 SECONDS WEST, A DISTANCE OF 91.65 FEET TO THE POINT AND PLACE OF BEGINNING.

Line #	Length	Direction	Line #	Length	Direction	Line #	Length	Direction
L1	18.42	N59° 38' 50"W	L22	115.63	N31° 52' 01"W	L41	156.33	S29° 28' 18"E
L2	71.17	N69° 14' 08"W	L23	541.50	N29° 28' 18"W	L42	505.90	S29° 10' 10"E
L3	70.91	N73° 33' 52"W	L24	499.02	N31° 28' 37"W	L43	283.53	S31° 31' 41"E
L4	276.22	S26° 10' 09"W	L25	46.84	N16° 57' 44"W	L44	349.09	S29° 23' 53"E
L5	43.56	N74° 38' 18"W	L26	8.32	N53° 30' 32"E	L45	170.93	S30° 08' 11"E
L6	76.27	N74° 38' 18"W	L27	28.79	N46° 31' 27"E	L46	380.89	S29° 42' 20"E
L7	49.95	N58° 13' 09"W	L28	97.49	N42° 01' 44"E	L47	92.98	S31° 13' 21"E
L8	157.12	N74° 57' 28"W	L29	33.27	N74° 15' 07"E	L48	372.69	N59° 50' 22"E
L9	177.39	S74° 57' 35"W	L30	79.49	S42° 01' 44"W	L49	15.47	N55° 53' 15"E
L10	30.24	S23° 37' 45"W	L31	157.11	N72° 31' 48"E	L50	0.47	S35° 42' 31"E
L11	346.86	S59° 44' 54"W	L32	26.92	S15° 15' 56"E	L51	62.82	N23° 37' 45"E
L12	401.48	S30° 02' 16"E	L33	269.28	N74° 26' 50"E	L52	182.70	N74° 09' 14"E
L13	53.61	S58° 29' 09"E	L34	15.03	S12° 04' 53"E	L53	54.02	S77° 46' 08"E
L14	252.40	S30° 14' 42"E	L35	288.37	S74° 26' 50"W	L54	89.23	S72° 58' 23"E
L15	77.28	N83° 48' 55"W	L36	26.92	N15° 15' 56"W	L55	74.73	S72° 58' 23"E
L16	228.05	N30° 12' 25"W	L37	171.32	S72° 31' 48"W	L56	125.63	S73° 13' 04"E
L17	83.42	N58° 54' 08"W	L38	221.37	S20° 05' 32"E	L57	282.15	N26° 10' 09"E
L18	770.65	N29° 19' 18"W	L39	13.90	N73° 41' 07"E	L58	59.60	S26° 10' 09"W
L19	845.19	N28° 23' 13"W	L40	498.44	S31° 28' 37"E	L59	70.97	S73° 13' 56"E
L20	0.63	N23° 11' 37"E	L41	156.33	S29° 28' 18"E	L60	115.94	S68° 23' 02"E
L21	123.66	N31° 52' 01"W	L42	505.90	S29° 10' 10"E	L61	73.41	S64° 07' 01"E
						L62	50.29	S65° 38' 31"E
						L63	31.65	S25° 18' 35"W

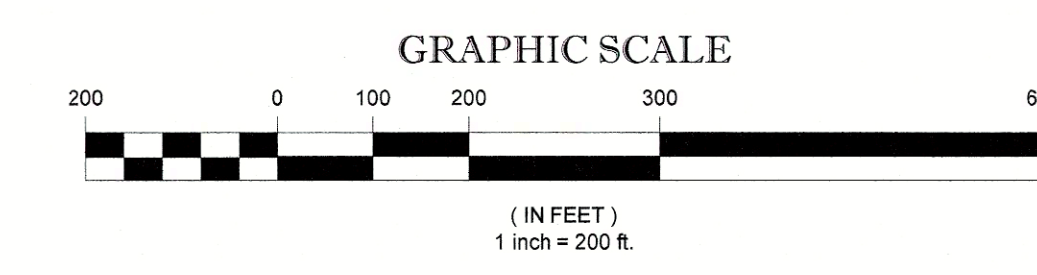
Curve #	Length	Radius	Delta	Chord Bearing	Chord Length
C1	17.01	22.69	042°57'03"	N38° 10' 19"W	16.61
C2	133.09	763.34	009°59'21"	N64° 14' 27"W	132.92
C3	64.06	60.00	080°15'59"	S66° 18' 08"W	77.35
C4	138.28	100.00	079°13'33"	S65° 46' 55"W	127.52
C5	7.15	25.00	018°23'09"	N66° 24' 44"W	7.13
C6	7.30	25.00	018°44'19"	N66° 35' 19"W	7.28
C7	73.46	140.00	030°03'57"	N89° 59' 26"W	72.62
C8	44.81	50.00	051°20'50"	S49° 18' 10"W	43.32
C9	79.20	200.00	022°41'18"	S34° 58' 24"W	78.68
C10	46.94	200.00	013°28'51"	S53° 02' 28"W	46.83
C11	31.35	20.00	089°48'10"	S14° 51' 49"W	28.24
C12	76.96	155.00	028°26'53"	S44° 15' 43"E	76.17
C13	49.29	100.00	028°14'28"	S44° 21' 56"E	48.79
C14	60.62	100.00	034°43'48"	S47° 36' 38"E	59.69
C15	16.04	12.00	086°07'41"	N12° 51' 26"E	16.39
C16	85.14	170.00	028°41'43"	N44° 33' 16"W	84.25
C17	51.37	100.00	029°29'49"	N44° 11' 13"W	50.80
C18	611.21	9013.72	003°53'07"	N25° 29' 50"W	611.09
C18 a	419.09	9013.72	002°39'50"	N26° 02' 32"W	419.09
C18 b	192.12	9013.72	001°13'16"	N24° 05' 59"W	192.12

Curve #	Length	Radius	Delta	Chord Bearing	Chord Length
C19	17.09	20.00	048°57'28"	N41° 28' 29"W	16.57
C20	35.00	9013.72	000°13'21"	N22° 58' 54"W	35.00
C21	7.85	100.00	004°29'42"	N44° 16' 35"E	7.84
C22	40.23	25.00	092°12'16"	S61° 22' 04"E	36.03
C23	15.76	10.00	090°17'14"	S60° 24' 33"E	14.18
C24	38.40	25.00	090°17'14"	N60° 24' 33"W	35.44
C25	16.09	10.00	092°12'16"	N61° 22' 04"W	14.41
C26	64.66	40.00	092°37'20"	S26° 13' 08"W	57.85
C27	449.31	8981.98	002°51'58"	S25° 56' 00"E	449.26
C27 a	43.98	8981.98	000°16'40"	S24° 38' 28"E	43.96
C27 b	405.33	8981.98	002°39'09"	S26° 04' 27"E	405.32
C28	31.07	20.00	089°00'46"	S75° 43' 40"E	28.04
C28 a	18.15	20.00	048°15'30"	S54° 21' 08"E	15.71
C28 b	14.92	20.00	042°45'10"	S81° 08' 29"E	14.58
C29	28.42	50.00	032°34'03"	N39° 54' 47"E	28.04
C30	79.36	90.00	050°31'29"	N48° 53' 30"E	76.82
C31	63.71	130.00	028°04'38"	N88° 11' 33"E	63.07
C32	11.67	21.11	031°40'18"	S57° 22' 55"E	11.52
C33	84.42	60.00	080°36'48"	N66° 28' 33"E	77.63
C34	63.52	100.00	036°23'47"	N44° 22' 02"E	62.46
C35	112.33	79.63	080°49'18"	N66° 21' 28"E	103.25



**EXCEPTION # 12**

NO.	ADDRESS	ATTY COMMENTS	N/A	KC	D.P.S.	DATE					
2						03-16-2021					
1						03-05-2021					
NO.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE						
---											
FIELD DATE	<b>EAST ACCESS EASEMENT EXHIBIT</b>										
FIELD BOOK NO.	<b>ONYX ACQUISITION, LLC</b>										
FIELD BOOK PG.	HAMLET OF BLAUVELT, TOWN OF ORANGETOWN ROCKLAND COUNTY, STATE OF NEW YORK										
FIELD CREW											
DRAWN:	K.V.G.										
REVIEWED:	J.D.S.	APPROVED:	J.D.S.	DATE:	11-03-2020	SCALE:	1"=200'	FILE NO.:	01-190059-00	DWG. NO.:	2 OF 2



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