375 Essjay Road, Suite 200, Williamsville, New York 14221
P 716.688.0766 **F** 716.625.6825

ADDENDUM NO. 2

BUFFALO AND ERIE COUNTY BOTANICAL GARDENS ADDITION
Erie County DPW Project #2022-903-02
Wendel Project #605802

DATE

03-06-2025

CLIENT/PROJECT OWNER
Buffalo and Erie County Botanical Gardens Society
2655 South Park Ave
Buffalo, NY 14218

PROPERTY OWNER
County of Erie
c/o Department of Public Works
Edward A. Rath County Office Building
95 Franklin Street
Buffalo, NY 14202

ARCHITECT/ENGINEER
Wendel WD Architecture, Engineering, Surveying & Landscape Architecture, PC
375 Essjay Road
Suite 200
Williamsville, NY 14221
Phone: 716-688-0766
Fax: 716-625-6825

This Addendum is being issued to clarify the bid documents and shall supersede and supplement all portions of previously issued bid documents with which it conflicts. It shall be made an integral part of the construction documents.

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Project **Buffalo and Erie County Botanical Gardens Addition**
Addendum No. **2**
DPW Project # **2022-903-02**
Wendel Project No. **605802**
Date **03.06.2025**

1
DRAWING NO.
SPEC SECTION **00 20 20; 00 20 30; 00 20 50; 00 30 30**

Turner Addendum #2 Coversheet with Clarifications on Sections 00 20 20; 00 20 30; 00 20 50; 00 30 30

ARTICLE - **2**
DRAWING NO.
SPEC SECTION

2025-02-27 Pre-Bid Conference Documents: Agenda and Sign-In Sheet

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ARTICLE - **3**
DRAWING NO.
SPEC SECTION **00 10 00**

Replace: 00 10 00 Exhibit E Addendum #1 in its entirety, with Exhibit E Addendum #2

ARTICLE - **4**
DRAWING NO. **M102**
SPEC SECTION

Transfer grille between spaces 103 & 105 relocated to above entry door to space 105. Refer to revised plan.

ARTICLE - **5**
DRAWING NO. **A001**
SPEC SECTION

Added General Note 7: Definition of “Owner”

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Project	**Buffalo and Erie County Botanical Gardens Addition**	Addendum No.	**2**
		DPW Project #	**2022-903-02**
Wendel Project No.	**605802**	Date	**03.06.2025**

ARTICLE - **6** DRAWING NO. **A101**
SPEC SECTION

Keynote added for OFOI Coffee Maker location.
Section marker added to counter in Retail Manager Room 004
Keynote P69 added at locations of OFCI TVs to clarify blocking requirements.
Keynote P70 added at OFCI data rack location in Security Room 028 to clarify blocking requirements.
Keynote P71 added at OFCI Ticketing Kiosk location to clarify blocking requirements.

ARTICLE - **7** DRAWING NO. **A201**
SPEC SECTION

Enlarged Plan 6: Dimensions and Keynote added for OFCI wall-mounted TVs and associated blocking.
Enlarged Plan 3: Annotation added for clarification regarding OFOI equipment in Event Servery 105.
Enlarged Plan 3: Keynote P68 and P69 added at locations of OFCI TVs to clarify blocking requirements.
Enlarged Plan 4: Keynote TA15 added for clarification at OFCI baby changing stations.

ARTICLE - **8** DRAWING NO. **A301**
SPEC SECTION

Keynote E36 revised for exterior signage clarification.

ARTICLE - **9** DRAWING NO. **A601**
SPEC SECTION

OFCI Clarification added to Keynotes for surface mounted changing stations.
OFCI Clarification added to Keynote for flip-down child protection seat.
Interior Elevation 25: Keynote added for OFCI Refrigerator.
Interior Elevation 25: Keynote added for OFCI Microwave.
Interior Elevation 29: Keynote added for OFOI Vending machines.

wendel

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ARTICLE - **10**
DRAWING NO. **A602**
SPEC SECTION

Location of through-wall mechanical transfer grille updated and new keynote P67 added for clarification.

ARTICLE - **11**
DRAWING NO. **A951**
SPEC SECTION

Room finish tag added for Corridor 110 in grow range.

ARTICLE - **12**
DRAWING NO. **A952**
SPEC SECTION

Finish Schedule description edited for resilient base RB-3

ARTICLE - **13**
DRAWING NO. **ED103, E105, E106, E401, E503, E504,**
SPEC SECTION

REPLACE: Replace sheets ED103, E105, E106, E401, E503, E504 with sheets ED103, E105, E106, E401, E503, E504 attached as part of this Addendum.

ARTICLE - **14**
DRAWING NO.
SPEC SECTION **01 41 00b**

ADD: Section 01 41 00b Special Inspections Schedule

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ARTICLE - **15**
DRAWING NO.
SPEC SECTION **05 40 00**

ADD: Specification Cold-Formed Metal Framing

ARTICLE - **16**
DRAWING NO.
SPEC SECTION **07 72 00**

ADD: Specification Roof Accessories

ARTICLE - **17**
DRAWING NO.
SPEC SECTION **08 90 00**

ADD: Specification Louvers and Vents

ARTICLE - **18**
DRAWING NO.
SPEC SECTION **13 34 13**

REVISED: Specification Special Construction- Greenhouse

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Project	**Buffalo and Erie County Botanical Gardens Addition**	Addendum No.	**2**
		DPW Project #	**2022-903-02**
Wendel Project No.	**605802**	Date	**03.06.2025**

ARTICLE - **19** DRAWING NO. _____

SPEC SECTION **22 14 29**

ADD: Specification Sump Pumps

ARTICLE - **20** DRAWING NO. _____

SPEC SECTION **33 10 00**

REVISE: Specification Water Utilities

ARTICLE - **21** DRAWING NO. **C102, C200, C201, C504**

SPEC SECTION _____

REPLACE: Replace sheets C102, C200, C201,C504 with sheets C102,C200,C201,C504 attached as part of this Addendum.

ARTICLE - **22** DRAWING NO. **PD101, P101, P201**

SPEC SECTION _____

REPLACE: Replace sheets PD101, P101, P201 with sheets PD101, P101, P201 attached as part of this Addendum.

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Project	**Buffalo and Erie County Botanical Gardens Addition**	Addendum No.	**2**
		DPW Project #	**2022-903-02**
Wendel Project No.	**605802**	Date	**03.06.2025**

ARTICLE - **23** DRAWING NO. _____

SPEC SECTION _____

REVISE: Project Manual Table of Contents (TOC)

ARTICLE - **24** DRAWING NO. _____

SPEC SECTION _____

ADD: 25.03.06 Pre-Bid RFI's Received to Date_w Resp

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

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Project	**Buffalo and Erie County Botanical Gardens Addition**	Addendum No.	**2**
		DPW Project #	**2022-903-02**
Wendel Project No.	**605802**	Date	**03.06.2025**

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

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Project	**Buffalo and Erie County Botanical Gardens**	Addendum No.	**2**
	Addition	DPW Project #	**2022-903-02**
Wendel Project No.	**605802**	Date	**03.06.2025**

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

ARTICLE - _____ DRAWING NO. _____

SPEC SECTION _____

BID ADDENDUM NO. 2

To

BUFFALO AND ERIE COUNTY BOTANICAL GARDENS ADDITION

All Contractors bidding on the named project shall be governed by the following changes in the Specifications and Plans which herewith shall become part of the Contract Documents.

SPECIFICATIONS

Section 00 20 20 – BP-102 General Contractor SOW

CLARIFICATION: Addendum #1 Specification 00 20 20 BP-102-page 2 item "h", The General Contractor shall furnish CAD drawings of the existing Grow Range, Conservatory, Vault, and new building Addition to the Mechanical Contractor. The CAD drawing design must be at a level of detail were the Mechanical Contractor can input the information into a coordinated BIM and conduct clash detection and penetration locations. Per specification 013100 section 1.6, the Architect will furnish one set of digital files for use in preparing the coordinated CAD drawings. Scanning of the existing structure is not required. The CAD drawings level of design should include at a minimum elevations, wall details, ceilings, beam locations & thickness, decking details, roofing details, etc.

Section 00 20 30 – BP-103 Plumbing Contractor SOW

CLARIFICATION: Addendum #1 Specification 00 20 30 BP-103-page 2 item "j", The Plumbing Contractor shall furnish CAD drawings of the existing Grow Range, Conservatory, Vault, and new building Addition to the Mechanical Contractor. The CAD drawing design must be at a level of detail were the Mechanical Contractor can input the information into a coordinated BIM and conduct clash detection and penetration locations. Per specification 013100 section 1.6, the Architect will furnish one set of digital files for use in preparing the coordinated CAD drawings. Scanning of the existing structure is not required. The CAD drawings level of design should include at a minimum pipe locations, hangers, supports, equipment, fixtures, etc.

Section 00 20 50 – BP-105 Electrical Contractor SOW

CLARIFICATION: Addendum #1 Specification 00 20 50 BP-105-page 2 item "j", The Electrical Contractor shall furnish CAD drawings of the existing Grow Range, Conservatory, Vault, and new building Addition to the Mechanical Contractor. The CAD drawing design must be at a level of detail were the Mechanical Contractor can input the information into a coordinated BIM and conduct clash detection and penetration locations. Per specification 013100 section 1.6, the Architect will furnish one set of digital files for use in preparing the coordinated CAD drawings. Scanning of the existing structure is not required. The CAD drawings level of design should include at a minimum conduit locations, hangers, supports, equipment, fixtures, etc.

Section 00 30 30 – County and State Requirements

CLARIFICATION: Specification 00 30 30 section 1.1, A, 14 (page 3), All bidders shall submit a properly executed OCSD-4 Utilization Plan with their bid proposal at the time of bid. The OCSD-4 Utilization Plan may be revised or edited within 24 hours of the bid opening and resubmitted to the Owner & CM. Failure to submit this form with the bid will result in disqualification of bidder. Any changes to this form after 24 hours of the bid opening will not be accepted.

Buffalo and Erie County Botanical Gardens

Pre-Bid Conference & MWBE/SDVOB Mixer Agenda

February 27th, 2025 @ 2:00pm

1. Welcome and Introductions:

- **Project Owner:** *Buffalo and Erie County Botanical Gardens Society Inc.*
  - Erin Grajek – President/CEO
  - Joe Mannion – Vice President of Operations and Visitor Experience

- **Property Owner:** *Erie County*
  - Tracy Cichocki – Deputy Commissioner of Erie County Building & Grounds
  - Kayla Whitherspoon – Minority & Women Owned Business Enterprise Specialist

- **Construction Manager:** *Turner Construction*
  - Jim Hickey – Senior Project Manager
  - Sam Auria – Project Engineer

- **Architect:** *Wendel WD Architecture, Engineering, Surveying and Landscape Architecture, P.C.*
  - Betsy McGee – Program Manager
  - Tom Reynolds – Senior Civil Engineer
  - Ann Casey – Associate Principle Architect

2. General Bid Information:

- Site is open for further contractor investigation as needed. Contractors must contact Sam Auria with Turner Construction at sauria@tcco.com or (716) 954-1945.
- All Pre-Bid questions shall be forwarded in writing via email: to Turner Construction Company, attention Sam Auria at sauria@tcco.com.
  - All questions are due on **Monday March 17, 2025, by 12:00pm**.
- Sealed bids for the project (separately submitted based on the type of construction work) will be received by the Buffalo and Erie County Botanical Gardens, in the Administration Building located at 2655 South Park Ave, Buffalo, NY 14218. **Sealed Bids will be accepted at 2:00pm local time on Tuesday, March 25, 2025, at which time they will be publicly opened and read aloud.**
- Low bidder will meet with Turner Construction, Botanical Gardens, Design Team, and Erie County for a mandatory scope review meeting 1-3 days after the bid due date.

3. General Project Information:

A. Project Description/General Overview: 2655 South Park Avenue, Buffalo, NY 14218

Project Site Work:

- Demolition of existing trees, stumps, asphalt, etc.
- New North Asphalt Roundabout & Concrete Entrance Walkway
- Renovated Courtyard Space and Heavy-Duty Stone Dust Path
- New South Parking Lot
- New Concrete Wedding Pad and ADA Ramp
- Fire Access Path
- New Site Luminaires and Pole Bases

- New Exterior ACCU's and Associated Concrete Pads/Foundations
- New Plantings by Owner

Grow Range Building Renovations (2 floors):

- Abatement of window/door caulk, flooring, and mud fittings
- Demolition and removal of existing interior walls, MEP systems, doors, and staircases
- Demolition and removal of existing roof & skylights
- New metal stud walls with Gyp board
- New Doors
  - Aluminum Doors by Window Contractor
  - Hollow metal, wood, FRP, and steel doors by General Contractor
- New Plumbing Systems
  - Includes water heater, return pump, expansion tank, fixtures, etc.
- New Fire Protection System (Dry & Wet)
- New Mechanical System
  - Includes indoor split system air conditioning units, unit heaters, air handlers, finned tube, etc.
- New Electrical Systems
  - Includes mechanical/plumbing equipment connections, main distribution panel, panelboards, transformer, Fire Alarm Panel, disconnects, etc.
- P1 Greenhouse Renovations
  - See Alternates Section
- ACT Ceiling System
- Security Camera System by Owner
  - Electrical Contractor shall provide wire, conduit, and connection
- Access Control System by Owner
  - Electrical Contractor shall provide wire, conduit, and connection

New Building Addition (3 floors):

- New Foundations
  - Excavation and backfill by Site Contractor
  - Concrete, reinforcing, and forming by General Contractor
- Structural Components of building Addition by General Contractor
  - Glue Laminated Beams and Columns
  - Cross Laminated Timber decking
  - Steel beams
  - Concrete beams/walls
- Fiber Cement Panel Siding
- New metal stud walls with Gyp board
- New Doors
  - Aluminum Doors by Window Contractor
  - Hollow metal, wood, and FRP doors by General Contractor
- New Plumbing Systems
  - Includes water heater, return pump, expansion tank, fixtures, etc.
- New Fire Protection System (Wet Only)
- New Mechanical System
  - Includes unit heaters, air handlers, duct heaters, etc.
- New Electrical Systems

    - Includes mechanical/plumbing equipment connections, main distribution panel, panelboards, transformer, Fire Alarm Panel, disconnects, etc.
- New Hydraulic Elevator
    - Elevator cab, lighting, components by General Contractor
    - Wire, Conduit, Connection to Elevator Control Panel by Electrical Contractor
- Standing Seam Metal Roof
- Aluminum Storefront Window Systems
- Security Camera System by Owner
    - Electrical Contractor shall provide wire, conduit, and connection
- Access Control System by Owner
    - Electrical Contractor shall provide wire, conduit, and connection
- Open Ceilings

B. Moisture Control Plan (Review 00 10 00 Exhibit G for more information)

- The General Contractor will be responsible for removing water/snow off the CLT Decking at all times while its exposed. There shall be no standing water on the deck.
- The General Contractor shall be responsible for temporary heating, dehumidification, and cooling of the new building Addition. The temporary climate of the new building addition shall conform with the Cross Laminated Timber (CLT) and Glue Laminated beams/columns/truss manufacturer's requirements.

C. Contract Allowances:

- Following contract allowances are to be included in the base bid (see 012100):

BP-101 Site Work: Contract Allowance *No. #01 Water Authority Fee*	$80,000
BP-101 Site Work: Contract Allowance *No. #02 National Fuel Fee*	$125,000

D. Alternates:

- Contract #102 – GENERAL CONTRACTOR
    - Alternate Bid No. #01 is a DEDUCT amount to the General Contractor Base Bid. Quote the amount to be DEDUCTED to the Base Bid to provide all material & labor for all P1 Greenhouse work in the Grow Range.
- Contract #103 – PLUMBING CONTRACTOR
    - Alternate Bid No. #01 is a DEDUCT amount to the Plumbing Contractor Base Bid. Quote the amount to be DEDUCTED to the Base Bid to provide all material & labor for all P1 Greenhouse plumbing work in the Grow Range.
- Contract #104 – MECHANICAL CONTRACTOR
    - Alternate Bid No. #01 is a DEDUCT amount to the Mechanical Contractor Base Bid. Quote the amount to be DEDUCTED to the Base Bid to provide all material & labor for all P1 Greenhouse mechanical work in the Grow Range.
- Contract #105 – ELECTRICAL CONTRACTOR
    - Alternate Bid No. #01 is a DEDUCT amount to the Electrical Contractor Base Bid. Quote the amount to be DEDUCTED to the Base Bid to provide all material & labor for all P1 Greenhouse electrical work in the Grow Range.

E. Bid Packages and Budget Estimates:

- There are 6 Prime Contracts as follows:

Trade Package	*Total Estimate
BP-101: Site Work	$2,800,000
BP-102: General	$8,800,000
BP-103: Plumbing	$1,100,000
BP-104: Mechanical	$2,500,000
BP-105: Electrical	$2,000,000
BP-106: Window	$550,000

**Numbers are for budgetary use only and do not represent actual contract values.*

1. Plans and Specifications must be downloaded from the Erie.gov website http://www.erie.gov/dpw, 'Bids, RFPs, RFQs' then select 'Bid Documents'.
2. 5% Bid Bond or Certified Check is required with your bid.
3. Prevailing Wage Job. Go to www.labor.state.ny.us for the most up to date rate schedules. Note: Each bidder is responsible for escalation on both labor and materials for the life of the project. Labor rate worksheets required.
4. Buffalo and Erie County Botanical Gardens has tax exempt status.
5. Insurance – Reference the Agreement AIA132 and AIA232 CMa, Article 11
6. Bid Form – Verify the Bid Form has been completely filled out (including unit prices and alternates, etc). SUBMIT IN DUPLICATE AND DO NOT LEAVE ANYTHING BLANK OR BID MAY BE CONSIDERED INCOMPLETE AND DISCARDED.
7. Bid bonds, unit prices, and several other criteria are required to be provided at time of bid. Refer to Information for Bidders specification IB-1

F. County and State Requirements (Review 00 30 00 for more information)

- MBE & WBE Requirements - must be certified by Empire State Development (ESD)
  - Minority Business Enterprise – **15%**
  - Women Business Enterprise – **15%**
- SDVOB Requirements **-** must be certified by NYS Office of General Services (OGS)
  - Service-Disabled Veteran Owned Business – **6%**
- Minority and Women Workforce Requirements
  - Minority Manpower Utilization – **13.2%**
  - Women Manpower Utilization – **6.9%**
- Executive Order No. 13 – Pay Equity Certification
  - Must sign certification and include with bids
- Executive Order No. 18 – First Source Hiring Policy
  - 100% of the workforce must be from NYS 8 Western Counties
  - 70% of the workforce must be from County of Erie

- 30% of the workforce must be from the identified zip codes qualifying as disadvantaged status.
- County of Erie Local Law #3 (2018) – Certified Worker Training Program
  - Certified Apprenticeship Training Program Certification & Plan
- Contractors' Own Workforce
  - Prime Contractors shall perform not less than 25% of the original contract price

G. Project Labor Agreement (Review 00 30 00 Appendix M for more information)

- Provides access to a qualified pool of apprentices for non-union contractors otherwise not available. (More information in Article 13)
- It is understood that the first two employees per subcontractor by craft shall be obtained through the local Union's job referral system and hiring halls: the 3rd employee may be requested under special provisions set forth above. (More information in Article 4)
  - Exception: New York State certified MBE or WBE subcontractors who are not a signatory to a collective bargaining agreement and who has a contract of $500,000 or less, may hire one (1) journeyperson employee referred by the affected trade or craft and then may hire one (1) core employee who is employed by the subcontractor and shall repeat this process until there is a crew of ten. (More information in Article 4)
- The contractors retain full and exclusive Owners for the management of their operations. (More information in Article 6, Section 1)
- The successful bidder, and its subcontractors of whatever tier shall sign the Letter of Assent and become bound by this agreement. (More information in Article 2)

H. LEED Certification / Requirements

- Specification 01 81 13 – Sustainable Design Requirements
  - All relevant product data submittals MUST include a LEED Cover Sheet with relevant LEED information (applies to divisions 3-10, 31, & 32)
- Specification 01 74 19 – Demolition and Construction Waste Management & Disposal
  - All Prime Contractors need to be familiar with the Construction Waste Management specification and requirements and be aware of the landfill diversion requirements.
  - Additional information is included in the 00 10 00 Special Provisions Sections 7.3, 7.4, 9.0, & 13.0.

4. Scheduling, Logistics, and Phasing:

- Review of Milestone Schedule and Phasing Plan
  - Start of Construction – **June 9th, 2025**
  - Area 7 – Conservatory Ground Floor Turnover - **Aug. 14th, 2025**
  - Area 8 – Grow Range Roof Complete- **Sep. 2nd, 2025**
  - Area 4 – Grow Range First Floor Turnover (South) **Sep. 24th OR Nov. 25th, 2025**
  - Area 5 – Grow Range First Floor Turnover (North) - **Mar. 31th, 2026**
  - Area 6 – Grow Range Ground Floor Turnover - **Mar. 31th, 2026**
  - Area 2 – North Roundabout Turnover – **June 16th, 2026**

    - Area 3 – South Parking Lot Turnover – **Nov. 25th, 2026**
    - Area 1 – New Building Addition Turnover - **Dec. 18th, 2026**
- Review of Site Logistics Plan
- Submittal submissions/approvals – Long lead items
    - Cross Laminated Timber
    - Glue Laminated Beams/Columns

5. MWBE & SDVOB Mixer:

- Take the next 20 minutes to network and connect with potential MWBE & SDVOB subcontractors.

6. QA and Site Walk Through Period:

	Question	Bid Package
1		
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BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo and Erie County Botanical Gardens

Pre-Bid Conference & MWBE/SDVOB Mixer Agenda

March 27th, 2025 @ 2:00pm

	Print Name	Company	Business Enterprise (If Applicable)	Email	Phone Number
1	Russell Cramer	Great Lakes Iron		r.cramer@gliron.com	7166228908
2	IAN ABIZAM	MONTANTE	—	IABIZAM@MONTANTE.com	716-863-2900
3	John Dexter	MSH /SCC	N/A	john@mshco.com	585-297-7023
4	SHAWN DOYLE	Hohl		sdoyle@hohlind.com	716 583-9875
5	TIM SUCH	DSP	N A	timsuch63@gmail.com	716 583-5063
6	Josh Hoelscher	DSP	NA	Joshua Hoelscher@aol.com	716-597-8153
7	Mike King	LPP		office@lawnsdelpc.com	(716) 633-6944
8	JAIMEE BLASKOVITS	ZALAD2	N/A	jaimeeb@zalad2.com	716-937-6575
9	DAN GEORGE	MSH /SCC		dgeorge@mshco.com	716-572-5809
10	EMIL FERRUCCI	IDEAL INC.		emilio@idealconcreteinc.com	716-893-6122
11	Mike Kiebzak	Sanders Roofing		progsupport@sandersroofing.com	716-893-1470
12	BRAD TOBIN	DK CONSTRUCTION		brad@dkconstruction.com	716-708-0112
13	CARMEN	"		"	"
14	Mercedes Calway	RP Oak Hill Bldg Co		mcalway@rpoakhill.com	716-597-4371
15	Dominic D'Alba	CIR Electric		ddalba@cirelectric.com	585 813 8657

	Print Name	Company	Business Enterprise (If Applicable)	Email	Phone Number
16	Bill Appler	JW Danforth		bappler@jwdanforth.com	716-830-1940
17	Jared Smyth	AAC Contracting	WBE	Jared.Smyth@AAC-Contracting.com	585-953-4379
18	CHRISTOPHER BEAL	IROQUOIS		cbeal@iroquoisbar.com	
19	Stacia Valik	Stark Tech		Valiks@Starktech.com	716-531-2126
20	Stacy Gnacinski	S.E.G.		Stacy@segconstructioninc.com	716-602-9105
21	Cory Arbogast	Siemens		Cory.arbogast@siemens.com	716 208 3929
22	JACOB MASTERSON	ECHELON DAVIS		JMASTERSON@ECHELONDAVIS.COM	7168011480
23	Chris Kulik	LeChase		chris.kulik@lechase.com	585 629 6891
24	Sal Casuccio	LeChase		salvatore.casuccio@lechase.com	716-449-4588
25	TIM SCHWAB	BUFFALO COATER		TSCHWAB@BUFFALOCOATER.COM	278.3285
26	Adam Wichlacz	Rodriguez CG		awichlacz@rodriguez-cg.com	716 725 1864
27	Andrew Maziarz	Pinto Construction		amaziarz@pintocs.com	716-481-6998
28	Kevin Dagler	Cedarland Construction		(716) 228-6140	
29	Michael Peterson	Peterson Healing	Michael	Peterson6140@yahoo.com	
30	Adam Garrison	Miller Const. Services		agarrison@scottbuntyard.com	716-697-5698
31	Jeremy Stock	Stock Service		Stock.service@yahoo.com	716-361-0265
32	Tom Said	IROQUOIS BAR CORP		TSAID@IROQUOISBAR.COM	
33	Arnold Collier	"	"	ACollier@IroquoisBar.com	716-583-1683
34	Trish Hutchinson	United Thermal Systems		thutchinson@unitedthermalsystems.com	716-399-4626
35	Dmitri Tsabai	Life Tree Services		dtsabai@yahoo.com	716 553-3318
36	MEG STACK	GREENWAY USA		MSTACK@GREENWAYUSACO.COM	716-228-1837
33	LOUIS CANNATA	North Edge Const.		louis cannata @gmail.com	716-491-8464

	Print Name	Company	Business Enterprise (If Applicable)	Email	Phone Number
37	Chris Wan	Dyno Group		Chris.wan@dyno	716-617-0058
38	Lauren Amulaitis	Upstate Steel	WBE/DBE	lauren@upstatesteel.com	716-523-0999
39	Darrell Baker	Upstate Rebar	DBE		
40	Samuel Sabrino	Sabrino Enterprise	SDVOB	Sam.Sabrino@Sabrinoenterprise.	716-617-1265

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER
Buffalo and Erie County Botanical Gardens Addition; EC DPW #2022-903-02

PROJECT MANUAL: TABLE OF CONTENTS

LEGAL AND PROCEDURAL DOCUMENTS

NTB	Notice to Bidders
IB 1	Information for Bidders
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	Attachment- Local Law 3-2023
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Section 01 91 00	General Commissioning Requirements

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Exhibit E: Specification Responsibility Matrix (Addendum #2)							
	Buffalo & Erie County Botanical Gardens Project **X = Primary Responsibility** **O = As it relates to this contract**	Site Work	General	Plumbing	Mechanical	Electrical	Windows
Spec #	**Spec Name**	**BP-101**	**BP-102**	**BP-103**	**BP-104**	**BP-105**	**BP-106**
Legal and Procedural Documents							
NTB (Addendum #1)	Notice to Bidders	X	X	X	X	X	X
IB 1 (Addendum #1)	Information for Bidders Attachment - Local Law 2-2021, Lowest Responsible Bidding Law Attachment - Local Law 3-2023	X	X	X	X	X	X
PW 1	Prevailing Wage Rates	X	X	X	X	X	X
SC1-SC10	Bid Proposal - Site Construction	X					
G1-G10	Bid Proposal - General Construction		X				
P1-P10	Bid Proposal - Plumbing Construction			X			
M1-M10	Bid Proposal - Mechanical Construction				X		
E1-E10	Bid Proposal - Electrical Construction					X	
W1-W10	Bid Proposal - Window Construction						X
CCA-2	New York State Vendor Responsibility Questionnaire For-Profit Construction (CCA-2)	X	X	X	X	X	X
General Conditions							
Section 00 10 00	Special Provisions (Exhibits A, B, C, D, E, F, G, H, I, J, K)	X	X	X	X	X	X
Section 00 20 10	BP-101 Site Work Contractor SOW	X					
Section 00 20 20	BP-102 General Contractor SOW		X				
Section 00 20 30	BP-103 Plumbing Contractor SOW			X			
Section 00 20 40	BP-104 Mechanical Contractor SOW				X		
Section 00 20 50	BP-105 Electrical Contractor SOW					X	
Section 00 20 60	BP-106 Window Contractor SOW						X
Section 00 30 00	County and State Requirements (Appendix A, B, C, D, E, F, G, H, I, J, K, L, M)	X	X	X	X	X	X
Section 00 60 00	AIA Documents (A132, A132 Exh. A, A232, A312 P&P Bond)	X	X	X	X	X	X
Division 1 - General Requirements							
Section 01 10 00	Summary of the Work (by consultant)	X	X	X	X	X	X
Section 01 21 00	Allowances	X	X	X	X	X	X
Section 01 22 00 (Addendum #1)	Unit Prices ~~(by consultant - If applicable)~~	X	X	X	X	X	X
Section 01 23 01 (Addendum #1)	Alternate Bids ~~(by consultant - If applicable)~~	X	X	X	X	X	X
Section 01 31 00	Project Management and Coordination	X	X	X	X	X	X
Section 01 31 00a	Request for Electronic Files	X	X	X	X	X	X
Section 01 32 33	Photographic Documentation	X	X	X	X	X	X
Section 01 40 00	Quality Requirements	X	X	X	X	X	X
Section 01 41 00	Special Inspections	X	X	X	X	X	X
Section 01 41 00a	Special inspection Statement	X	X	X	X	X	X
Section 01 41 00b	Special Inspections Schedule	X	X	X	X	X	X
Section 01 41 00c	Special Inspections Final Report	X	X	X	X	X	X
Section 01 42 00	References	X	X	X	X	X	X
Section 01 56 39	Temporary Tree and Plant Protection	X	X	X	X	X	X
Section 01 60 00	Product Requirements	X	X	X	X	X	X
Section 01 73 00	Execution	X	X	X	X	X	X
Section 01 74 19	Demolition and Construction Waste Management and Disposal	X	X	X	X	X	X
Section 01 77 00	Closeout Procedures	X	X	X	X	X	X
Section 01 78 23	Operation and Maintenance Data	X	X	X	X	X	X
Section 01 78 39	Project Record Documents	X	X	X	X	X	X
Section 01 79 00	Demonstration and Training	X	X	X	X	X	X
Section 01 81 13	Sustainable Design Requirements	X	X	X	X	X	X
Section 01 91 00	General Commissioning Requirements	X	X	X	X	X	X
Division 2 - Existing Condition							
Section 02 41 00 (Addendum #1)	Demolition	X	X	X	X	X	O
Section 02 82 13	Asbestos Abatement		X				
Section 02 8319	Removal of Lead Containing Material OSHA		X				
Division 3 - Concrete							
Section 03 10 00 (Addendum #1)	Concrete Forming	X	X			X	
Section 03 20 00 (Addendum #1)	Concrete Reinforcing	X	X			X	
Section 03 30 00 (Addendum #1)	Cast-in-Place Concrete	X	X			X	
Section 03 54 13 (Addendum #1)	Gypsum Concrete Underlayment		X				

Exhibit E: Specification Responsibility Matrix (Addendum #2)							
	Buffalo & Erie County Botanical Gardens Project **X = Primary Responsibility** **O = As it relates to this contract**	Site Work	General	Plumbing	Mechanical	Electrical	Windows
Spec #	**Spec Name**	**BP-101**	**BP-102**	**BP-103**	**BP-104**	**BP-105**	**BP-106**
Division 4 - Masonry							
Section 04 22 00 (Addendum #1)	Concrete Masonry Unit		X				
Section 04 26 13	Masonry Veneer		X				
Section 04 72 00	Cast Stone Masonry		X				
Division 5 - Metals							
Section 05 12 00 (Addendum #1)	Structural Steel Framing	O	X				
Section 05 31 00	Steel Decking		X				
Section 05 40 00	Cold-Formed Metal Framing		X				
Section 05 50 00	Metal Fabrications		X				
Section 05 51 00	Metal Stairs		X				
Section 05 51 33	Metal Ladders		X				
Section 05 52 13	Pipe and Tube Railings	X	X				
Section 05 75 00	Decorative Formed Metal		X				
Division 6 - Wood, Plastics, and Comosites							
Section 06 10 00	Rough Carpentry		X	O	O	O	O
~~Section 06 10 53~~ (Addendum #1)	~~Miscellaneous Rough Carpentry~~						
Section 06 17 19	Cross-Laminated Timber		X				
Section 06 18 00	Glue-Laminated Construction		X				
Section 06 20 00	Finish Carpentry		X				
Section 06 41 00	Architectural Wood Casework		X				
Section 06 83 16	Fiberglass Reinforced Paneling		X				
Division 7 - Thermal and Moisture Protection							
Section 07 101 50.19	Preparation for Re-Roofing		X				
Section 07 14 00	Fluid-Applied Waterproofing		X				
Section 07 21 00	Thermal Insulation		X				
Section 07 21 19	Foamed-In-Place Insulation		X				O
Section 07 26 00	Vapor Retarders		X				
Section 07 27 00	Air Barriers		X				
Section 07 41 13	Metal Roof Panels		X				
Section 07 42 43	Composite Wall Panels		X				
Section 07 53 00	Elastomeric Membrane Roofing		X				
Section 07 62 00	Sheet Metal Flashing and Trim		X				
Section 07 71 00	Roof Specialties		X				
Section 07 71 23	Manufactured Gutters and Downspouts		X				
Section 07 72 00	Roof Accessories		X				
Section 07 81 23	Intumescent Fire Protection		X				
Section 07 84 00	Firestopping		X	O	O	O	O
Section 07 92 00	Joint Sealants	X	X	X	X	X	X
Section 07 95 13	Expansion Joint Cover Assemblies		X				
Division 8 - Openings							
Section 08 11 13	Hollow Metal Doors and Frames		X				
Section 08 14 16	Flush Wood Doors		X				
Section 08 16 13 (Addendum #1)	Fiberglass Doors		X				
Section 08 31 00 (Addendum #1)	Access Doors and Panels		O	X	X	X	
Section 08 36 13	Sectional Doors		X			O	
Section 08 43 13	Aluminum-Framed Storefronts		O				X
Section 08 44 35	Fire-Rated Framed Glazing Assemblies		O				X
~~Section 08 51 13~~ (Addendum #1)	~~Alluminum Windows~~						
Section 08 54 00	Composite Windows						X
Section 08 63 00	Metal-Framed Skylights		X				
Section 08 70 00 (Addendum #1)	Hardware		X				X
Section 08 80 00	Glazing		O				X
Section 08 88 13	Fire-Rated Glazing- SAFTI		O				X
Section 08 90 00 (Addendum #2)	Louvers and Vents		O		X		
Section 08 92 00 (Addendum #2)	Louvered Equipment Enclosures	X					

Exhibit E: Specification Responsibility Matrix (Addendum #2)							
	Buffalo & Erie County Botanical Gardens Project **X = Primary Responsibility** **O = As it relates to this contract**	Site Work	General	Plumbing	Mechanical	Electrical	Windows
Spec #	**Spec Name**	**BP-101**	**BP-102**	**BP-103**	**BP-104**	**BP-105**	**BP-106**
Division 9 - Finishes							
Section 09 05 61	Common Work Results for Floor Preparation		X				
Section 09 21 16	Gypsum Board Assemblies		X				
Section 09 30 00	Tiling		X				
Section 09 51 00	Acoustical Ceilings		X				
Section 09 65 00	Resilient Flooring		X				
Section 09 66 13	Portland Cement Terrazzo Flooring		X				
Section 09 68 13	Tile Carpeting		X				
Section 09 72 00	Wall Coverings		X				
Section 09 78 00	Interior Wall Paneling		X				
Section 09 84 30	Sound-Absorbing Wall and Ceiling Units		X				
Section 09 91 13 (Addenudm #1)	Exterior Painting		X	O	O	O	O
Section 09 91 23 (Addenudm #1)	Interior Painting		X	O	O	O	O
Division 10 - Specialties							
Section 10 21 13.19	Plastic Toilet Compartments		X				
Section 10 22 39	Folding Panel Partitions		X				
Section 10 26 00	Wall and Door Protection		X				
Section 10 28 00	Toilet, Bath, and Laundry Acessories		X				
Section 10 44 00	Fire Protection Specalties		X				
~~Section 10 51 13~~ (Addendum #1)	~~Metal Lockers~~						
Division 12 - Furnishings							
Section 12 24 00	Window Shades		X				
Section 12 36 00	Countertops		X				
Division 13 - Special Construction							
Section 13 34 13 (Addendum #1)	Special Construction - Glasshouses		X	O		O	
Division 14 - Conveying Equipment							
Section 14 24 00	Hydraulic Elevators		X	O	O	O	
Division 21 - Fire Suppression							
Section 21 05 17	Sleeves and Sleeve Seals for Fire Suppression Piping		O	X			
Section 21 05 18	Escutcheons for Fire Suppression Piping			X			
Section 21 05 23	General Duty Valves for Fire Protection Piping			X			
Section 21 05 29	Hangers and Supports for Fire Suppression Piping and Equipment			X			
Section 21 05 53	Identification fore Fire Suppression Piping and Equipment			X			
Section 21 11 19	Fire Department Connections			O		X	
Section 21 13 13	Wet Pipe Sprinkler Systems			X			
Section 21 13 16	Dry Pipe Sprinkler Systems			X		O	
Division 22 - Plumbing							
Section 22 05 00	Common Work Results for Plumbing			X			
Section 22 05 19	Meters and Gages			X			
Section 22 05 23	General Duty Valves for Plumbing Piping			X			
Section 22 05 29	Hangers & Supports for Plumbing Piping & Equipment			X			
Section 20 05 53	Identification for Plumbing Piping and Equipment			X			
Section 22 07 19	Plumbing Piping Insulation			X			
Section 22 08 00	Commissioning of Plumbing Systems			X			
Section 22 11 16	Domestic Water Piping	O		X			
Section 22 11 19	Domestic Water Piping Specialties	O		X			
Section 22 13 16	Sanitary Waste & Vent Piping	O		X			
Section 22 13 19	Sanitary Waste Piping Specialties	O		X			
Section 22 14 13	Facility Storm Drainage Piping	O		X			
Section 22 14 23	Storm Drainage Piping Specialties	O		X			
Section 22 14 29 (Addendum #2)	Sump Pumps			X		O	
Section 22 40 00	Plumbing Fixtures			X			
Division 23 - Heating Ventilating and Air Conditioning							
Section 23 00 10	General Mechanical Requirements				X		

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Spec #	**Spec Name**	**BP-101**	**BP-102**	**BP-103**	**BP-104**	**BP-105**	**BP-106**
Section 23 05 13	Common Motor Requirements For Hvac Equipment				X	O	
Section 23 05 17	Sleeves And Sleeve Seals For Hvac Piping		O		X		
Section 23 05 23	General- Duty Valves for HVAC Piping				X		
Section 23 05 29	Hangers and Supports for HVAC Piping and Equipment				X		
Section 23 05 53	Identification For HVAC Piping And Equipment				X		
Section 23 05 93	Testing, Adjusting, and Balancing for HVAC				X		
Section 23 07 13	Duct Insulation				X		
Section 23 07 19	HVAC Piping Insulation				X		
Section 23 08 00	Commissioning of HVAC Systems				X		
Section 23 09 23	Direct Digital Control System for HVAC				X	O	
Section 23 09 93	Sequence of Operation of HVAC Controls				X	O	
Section 23 31 13	Hydronic Piping				X		
Section 23 23 00	Refrigerant Piping				X		
Section 23 31 13	Metal Ducts				X		
Section 23 33 00	Air Duct Accessories				X		
Section 23 34 00	HVAC Fans				X	O	
Section 23 36 00	Air Terminal Units				X	O	
Section 23 37 13	Diffusers, Registers, And Grilles		O		X		
Section 23 73 13.16	Indoor, Semi-Custom Air-Handling Units				X	O	
Section 23 81 29	Variable-Refrigerant-Flow HVAC Systems				X	O	
Division 26 - Electrical							
Section 26 00 10	Basic Electrical Requirements					X	
Section 26 05 00 (Addendum #1)	Common Work Results					X	
Section 26 05 19	Low-Voltage Conductors					X	
Section 26 05 26 (Addendum #1)	Grounding & Bonding					X	
Section 26 05 29	Hangers and Supports					X	
Section 26 05 33	Raceway and Boxes					X	
Section 26 05 53	Identification for Electrical Systems					X	
Section 26 08 00	Comissioning of Electrical Systems					X	
Section 26 09 23	Lighting Control System					X	
Section 26 22 00	Low-Volt Transformers					X	
Section 26 24 16	Panelboards					X	
Section 26 24 16.1	Power Distribution Panelboards					X	
Section 26 27 26	Wiring Devices					X	
Section 26 27 43 (Addendum #1)	Electric-Vehicle Service Equipment					X	
Section 26 28 16	Enclosed Switches					X	
Section 26 51 00	Interior Lighting					X	
Section 26 56 00 (Addendum #1)	Exterior Lighting					X	
Division 27 - Communications							
Section 27 05 26	Communications Grounding					X	
Section 27 15 23	Computer-Telephone Network					X	
Division 28 - Electric Safety and Security							
Section 28 31 11	Digital, Addressable Fire-Alarm System					X	
Division 31 - Earthwork							
Section 31 10 00	Site Clearing, Preparation & Removals	X					
Section 31 20 00	Earth Moving	X					
Section 31 23 19 (Addendum #1)	Dewatering	X	O	O		O	
Section 31 25 00	Temporary Erosion and Sedimentation Control	X					
Division 32 - Exterior							
Section 32 12 16	Asphalt Paving	X					
Section 32 13 13	Concrete Paving	X					
Section 32 13 73	Concrete Paving Joint Sealants	X					
Section 32 17 23	Pavement Markings	X					
Section 32 17 26	Tactile Warning Surfacing	X					

Exhibit E: Specification Responsibility Matrix (Addendum #2)							
	Buffalo & Erie County Botanical Gardens Project ***X = Primary Responsibility*** ***O = As it relates to this contract***	**Site Work**	**General**	**Plumbing**	**Mechanical**	**Electrical**	**Windows**
Spec #	**Spec Name**	**BP-101**	**BP-102**	**BP-103**	**BP-104**	**BP-105**	**BP-106**
Section 32 91 13	Planting Soil	X					
Section 32 92 19	Seeding	X					
Section 32 92 23	Sodding	X					
Division 33 - Utilities							
Section 33 10 00 (Addendum #2)	Water Utilities Buffalo Water Authority Standards	X					
Section 33 30 00	Sanitary Sewer System	X					
Section 33 42 00	Stormwater Conveyance	X					

Section 01 41 00b Project: Buffalo and Erie County Botanical Gardens Addition

Schedule of Special Inspection Services

The following sheets comprise the required schedule of special inspections for this project. The construction divisions which require special inspections for this project are as follows:

- ☒ Soils and Foundations
- ☒ Concrete & Precast Construction
- ☒ Masonry Construction
- ☒ Structural Steel Construction
- ☐ Steel Joist & Joist Girder Construction
- ☐ Cold-Formed Steel Framing
- ☒ Fire Resistant Material
- ☒ Wood Construction
- ☐ Exterior Insulation and Finish System
- ☒ Smoke Control

Inspection Agents	Firm	Address
1. Special Inspector		
2. Testing Laboratory		
3. Testing Laboratory		
4. Other		

Note: The qualifications of all personnel performing Special Inspection activities are subject to the approval of the Building Official.

The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

The credentials of all Inspectors and testing technicians shall be provided if requested.

It is recommended that the person administering the Special Inspections program be a Professional Engineer experienced in the design of buildings.

Minimum Qualifications

Project: Buffalo and Erie County Botanical Gardens Addition

When the Structural Engineer of Record (SER) deems it appropriate that the individual performing a stipulated test of inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

Key for Minimum Qualifications of Inspection Agents (where indicated on Schedules)	
PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineering in Training – a graduate engineer who has passed the FE exam
ACI-CFTT	American Concrete Institute Certified Concrete Field Testing Technician
ACI-CCI	American Concrete Institute Certified Concrete Field Testing Technician
ACI-LTT	American Concrete Institute Certified Concrete Field Testing Technician
ACI-STT	American Concrete Institute Certified Concrete Field Testing Technician
AWS-CWI	American Welding Society Certified Welding Inspector
AWS/AISC-SSI	American Welding Society Certified Structural Steel Inspector
ASNT	American Society of Non-Destructive Testing - Level II or III
ICC-SMSI	International Code Council Certified Structural Masonry Special Inspector
ICC -SWSI	International Code Council Certified Structural Steel and Welding Special Inspector
ICC -SFSI	International Code Council Certified Spray-Applied Fireproofing Special Inspector
ICC -PCSI	International Code Council Certified Prestressed Concrete Special Inspector
ICC -RCSI	International Code Council Certified Reinforced Concrete Special Inspector
NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET -ST	Soils Technician – Levels I, II, III & IV
NICET -GET	Geotechnical Engineering Technician – Levels I, II, III & IV
EDI-EIFS	EIFS Third Party Inspector

Note: The qualifications of inspection agents may be indicated on the Schedule in instances where the Structural Engineer deems such requirements are appropriate.

Schedule of Special Inspection Services
Soils and Foundations

Sheet of
Project: Buffalo and Erie County Botanical Gardens Addition

Verification & Inspection Task	Continuous	Periodic	Referenced Standard	Bldg Code Reference	Agent No. (Qualif.)
SOILS INSPECTIONS			**Specification Section 312000**	1705.6	
1. Verify materials below footings and foundations are adequate to achieve the design bearing capacity.	-	X			PE/GE
2. Verify excavations are extended to proper depth and have reached proper material.	-	X			PE/GE
3. Perform classification and testing of compacted fill materials.	-	X			PE/GE
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	-			PE/GE
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	-	X			PE/GE

Verification & Inspection Task	Continuous	Periodic	Referenced Standard	Bldg Code Reference	Agent No. (Qualif.)
CONCRETE CONSTRUCTION			**Specification Section 033000**	1705.3	
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4	
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706; b. Inspect single-pass fillet welds, maximum 5/16"; and c. Inspect all other welds.	- - X	X X -	AWS D1.4 ACI 318: 26.5.4	1705.3.1	
3. Inspect anchors cast in concrete.	-	X	ACI 318: 17.8.2		
4. Inspect anchors post-installed in hardened concrete members. a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. b. Mechanical anchors and adhesive anchors not defined in section "a".	X -	- X	ACI 318: 17.8.2.4 ACI 318: 17.8.2		
5. Verifying use of required design mix.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3	
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.4.5, 26.12	1908.10	
7. Inspect concrete and shotcrete placement for proper application techniques.	X	-	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8	
8. Verify maintenance of specified curing temperature and techniques.	-	X	ACI 318: 26.4.7-26.4.9	1908.9	
9. Inspect formwork for shape, location and dimensions of concrete member being formed.	-	X	ACI 318: 26.10.1(b)		

Verification & Inspection Task	Frequency		Reference for Criteria			Agent No. (Qualif.)
	Continuous	Periodic	Bldg Code Reference	ACI 530 ASCE 5 TMS 402	ACI 530.1 ASCE 6 TMS 602	
1. Verify compliance with the approved submittals.	-	X			Art. 1.5	
2. As masonry construction begins, verify that the following are in compliance:						
a. Proportions of site-prepared mortar.	-	X			Art. 2.1 and 2.6 A	
b. Construction of mortar joints.	-	X			Art. 3.3 B	
c. Location of reinforcement, connectors, and anchorages.		X			Art. 3.4 and 3.6 A	
3. Verify during construction:						
a. Size and location of structural elements.	-	X			Art. 3.3 F	
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	-	X		Sec. 1.16.4.3, 1.17.1		
c. Welding of reinforcing bars.	X	-		Sec. 2.1.7.7.2, 3.3.3.4 (c), 8.3.3.4 (b)		
d. Preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	-	X			Art. 1.8 C, 1.8 D	
4. Prior to grouting, verify that the following are in compliance:						
a. Grout space.	-	X			Art. 3.2 D and 3.2 F	
b. Grade, type, and size of reinforcement, anchor bolts, and anchorages.	-	X		Sec. 1.16	Art. 2.4 and 3.4	
c. Placement of reinforcement, connectors, and anchorages.	-	X		Sec. 1.16	Art. 3.2 E, 3.4, 3.6 A	
c. Proportions of site-prepared grout.	-	X			Art. 2.6 B	
d. Construction of mortar joints.	-	X			Art. 3.3 B	
5. Observe preparation of grout specimens, mortar specimens and/or prisms.	-	X			Art. 1.4 B	

Schedule of Special Inspection Services
Structural Steel Construction

Sheet of
Project: Buffalo and Erie County Botanical Gardens Addition

Verification & Inspection Task	Continuous	Periodic	Referenced Standard	Bldg Code Reference	Agent No. (Qualif.)
STRUCTURAL STEEL CONSTRUCTION			**Specification Section 051200**	1705.2	
1. Material verification of high-strength bolts, nuts, and washers:			AISC 360, Section A3.3; Applicable ASTM material standards		
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X			
b. Manufacturer's certificate of compliance required.	-	X			
2. Inspection of high-strength bolting:			AISC 360, Section M2.5		
a. Snug-tight joints.	-	X			
b. Pretensioned and slip-critical joints using turn-of-nut with match-marking, twist-off bolt or direct tension indicator methods of installation.	-	X			
c. Pretensioned and slip-critical joints using turn-of-nut without match-marking or calibrated wrench methods of installation.	X	-			
3. Material verification of structural steel:			AISC 360, Section M5.5; Applicable ASTM material standards		
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	X			
b. Manufacturers' certified mill test reports.	-	X			
4. Material verification of weld filler materials:			AISC 360, Section A3.5; Applicable AWS A5 documents		
a. Identification markings to conform to AWS specification in the approved construction documents.	-	X			
b. Manufacturer's certificate of compliance required.	-	X			
5. Inspection of welding:			AWS D1.1	1705.2	
a. Structural steel and cold-formed deck:					
1) Complete and partial penetration groove welds.	X	-			
2) Multi-pass fillet welds.	X	-			
3) Single-pass fillet welds > 5/16″.	X	-			
4) Single-pass fillet welds < 5/16″.	-	X			
5) Floor and roof deck welds.	-	X	AWS D1.3		
b. Reinforcing steel:			AWS D1.4	1705.3.1	
1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	X	ACI 318: 3.5.2		
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	X	-			
3) Shear reinforcement.	X	-			
4) Other reinforcing steel.	-	X			
6. Inspection of steel frame joint details for compliance with approved construction documents:				2204	
a. Details such as bracing and stiffening.	-	X			
b. Member location.	-	X			
c. Application of joint details at each connection.	-	X			

Verification & Inspection Task	Continuous	Periodic	Referenced Standard	Bldg Code Reference	Agent No. (Qualif.)
SPRAY FIRE RESISTANT MATERIAL			**Specification Section 078100**	1705.14	
1. Surface Preparation: Verify surfaces are prepared in accordance with the approved fire-resistance design and manufacturer's written instructions.	-	X		1705.14.2	
2. Application & Ambient Temperature: Verify minimum ambient temperatures before and after applications are in accordance with the manufacturer's written instructions.	-	X		1705.14.3	
3. Thickness: Verify that the average thickness of sprayed fire-resistant materials is not less than that required by the approved fire-resistance design. - For design thicknesses > 1", the minimum allowable individual thickness shall be the design thickness minus ¼". - For design thicknesses < 1", the minimum allowable individual thickness shall be the design thickness minus 25%.	-	X	ASTM E 605	1705.14.4	
4. Density: Verify the density of the sprayed fire-resistant material is not less than that required by the approved fire-resistance design.	-	X	ASTM E 605	1705.14.5	
5. Bond Strength: Verify that the cohesive/adhesive bond strength of the cured sprayed fire-resistant material is not less than 150 pounds per square foot.	-	X	ASTM E 736	1705.14.6	
6. Inspection for maintenance of specified curing temperature and techniques.	-	X			
MASTIC AND INTUMESCENT COATINGS			**Specification Section 078123**	1705.15	
1. Inspect mastic and intumescent fire-resistant coatings applied to structural elements and decks.	-	X			
FIRE RESISTANT PENETRATIONS AND JOINTS			**Specification Section 078413 and 078443**	1705.17	
1. Inspect penetration firestop systems.	-	X	ASTM E 2174		
2. Inspect fire-resistant joint systems.	-	X	ASTM E 2393		

Verification & Inspection Task	Scope	Agent No. (Qualif.)
1. Fabricator Certification/ Quality Control Procedures *1704.2*	Verify that the CLT and Glued-laminated Timber fabricators have submitted a certificate of compliance in accordance with Section 1704.2.5.1 of the Building Code	
2. Material Grading	Verify that all sawn lumber, plywood CLT and glued-laminated timber contain grade marks in accordance with DOC PS 20, ANSI/AIYC A 190.1, APA and ANSI/APA PRG 320 as required.	
3. Connections	Inspect all column to beam connections to verify they are complete and in accordance with the approved shop drawings. Inspect all vertical shear walls for proper nailing sizes and spacing.	
4. Framing and Details	Verify that wall framing has been installed in accordance with the design drawings and members have been nailed in accordance with the design drawings and the relevant provisions in in Section 23 of the Building Code.	
5. Other		

SECTION 05 40 00 – COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Exterior non-load-bearing wall framing.

B. Related Sections include the following:

1. Division 06 Section "Rough Carpentry" adjacent construction.
2. Division 09 Section "Gypsum Board" for interior and exterior gypsum board and tile backing panels.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads:

a. Dead Loads: Weights of materials and construction.
b. Wind Loads: 22 psf
c. Seismic Loads: Sds = 0.2%, site Class D.

2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:

a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/240 of the wall height.

3. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:

a. Upward and downward movement of 3/4 inch..

B. Cold-Formed Steel Framing, General: Design according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

1. Headers: Design according to AISI's "Standard for Cold-Formed Steel Framing - Header Design."
2. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

1.4 SUBMITTALS

A. Product Data: For each type of cold-formed metal framing product and accessory indicated.

B. LEED Submittal:

1. Product Data for Credit MR 4.1: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.

a. Include statement indicating costs for each product having recycled content.

C. Shop Drawings: Provide shop drawings prepared by cold-formed metal framing manufacturer. Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer, who shall be licensed in the State of New York and responsible for their preparation.

D. Welding certificates.

E. Qualification Data: For testing agency.

F. Product Test Reports: From a qualified testing agency, unless otherwise stated, indicating that each of the following complies with requirements, based on evaluation of comprehensive tests for current products:

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.
5. Vertical deflection clips.
6. Horizontal drift deflection clips
7. Miscellaneous structural clips and accessories..

G. Research/Evaluation Reports: For cold-formed metal framing.

Metal stud manufacturer to have a 3rd party evaluation report current to the latest NYS Building Code including ICC and ESR reports.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Member in good standing of Steel Stud Manufacturer's Association (SSMA).

B. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.

C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in New York State and who is experienced in providing engineering services for installations of cold-formed metal framing that are similar to those indicated for this project in material, design, and extent.

D. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E329 to conduct the testing indicated.

E. Product Tests: Mill certificates or data from a qualified independent testing agency ,or in-house testing with calibrated test equipment indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness..

F. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."

G. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing identical to that of assemblies tested for fire resistance per ASTM E119 by, and displaying a classification label from, a testing and inspecting agency acceptable to authorities having jurisdiction.

H. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."

1. Comply with AISI's "Standard for Cold-Formed Steel Framing - Header Design."

I. Preinstallation Conference: Conduct conference at project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required in AISI's "Code of Standard Practice".

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Basis-of-Design Product: Subject to compliance with requirements, provide cold-formed metal framing products manufactured by a current member in good standing of the Steel Stud Manufacturers Association (SSMA).

2.2 MATERIALS

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.

B. Steel Sheet: ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: ST33H and ST50H As required by structural performance.
2. Coating: G60.

C. Steel Sheet for Vertical Deflection Drift Clips: ASTM A1003/A1003M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: As required by structural performance.
2. Coating: G90.

2.3 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Basis-of-Design Product: Dietrich Metal Framing; CSJ.

2. Minimum Base-Metal Thickness, Flange Width and Section Properties: As required by structural performance.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness, Flange Width and Section Properties: As required by structural performance.

C. Headers and Jambs - Heavy-Duty Stud: Manufacturer's proprietary shape used to form header beams and jambs, columns or posts, of web depths as required by structural performance, unpunched, with stiffened flanges.

D. Vertical Deflection Clips: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

E. Slotted Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; punched with vertical slots in both legs. Studs should be positively attached to deep-leg track using vertical slots while allowing free vertical movement. Legs designed to support horizontal and lateral loads and transfer them to the primary structure as required by structural performance.

F. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure. Install a continuous row of bridging, composed of 1-1/2 inch U-channel secured to each stud with clip angle at upper-most knockout, not more than 12 inches from top of wall.

G. U-Channel: Manufacturer's standard length.

1. Basis-of-Design Product: Dietrich Metal Framing; U-Channel.
2. Size: 1-1/2 inches.
3. Minimum Base-Metal Thickness: 0.0538 inch.

H. Bridging and Spacer Bar:

1. Basis-of Design-Product: Dietrich Metal Frahming; TradeReady Spazzer 5400.
2. Minimum Base-Metal Thickness: 0.0538 inc.
3. Size: 1-1/4 by 1-1/4 by 50 inches long, pre-notched at 12, 16 and 24 inches centers.

I. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.

1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure as required by structural performance.

2. Inner Track: Web depth indicated as required by structural performance.

J. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure.

2.4 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from steel sheet, ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

1. Supplementary framing.
2. Bracing, bridging, and solid blocking.

3. Web stiffeners.Anchor clips.
4. End clips.
5. Foundation clips.
6. Gusset plates.
7. Stud kickers, knee braces, and girts.
8. Joist hangers and end closures.
9. Hole reinforcing plates.
10. Backer plates.

2.5 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.

B. Anchor Bolts: ASTM F1554, Grade 36, threaded carbon-steel and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A153/A153M, Class C, or mechanical deposition according to ASTM B695, Class 50.

C. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E488 conducted by a qualified independent testing agency..

D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E1190 conducted by a qualified independent testing agency.

E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.

1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: SSPC-Paint 20 or ASTM A780].

B. Cement Grout: Portland cement, ASTM C150, Type I; and clean, natural sand, ASTM C404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

C. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C1107, with fluid consistency and 30-minute working time.

D. Shims: Load bearing, high-density multimonomer plastic, nonleaching.

E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.7 FABRICATION

A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.

4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

C. Install load bearing shims or grout between the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations to ensure a uniform bearing surface on supporting concrete or masonry construction.

D. Install sealer gaskets to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.

D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.

H. Install insulation, specified in Division 07 Section "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.

J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.4 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.

B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as follows:

1. Stud Spacing: Maximum spacing 16 inches.

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Install single-leg deflection tracks or slotted slip track and anchor to building structure.
2. Install double deep-leg deflection tracks and anchor outer track to building structure.
3. Connect vertical deflection clips to infill studs and anchor to building structure.
4. Connect drift clips to cold-formed metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.

1. Top Bridging for Single Deflection Track: Install a row of horizontal bridging within 12 inches of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and

thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.

a. Install solid blocking at 96 inch centers.

2. Bridging: Cold-formed steel channel, welded or mechanically fastened to webs of punched studs.
3. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
4. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.

3.5 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work where test results indicate that it does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 40 00

SECTION 077200 - ROOF ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Roof curbs.

1.2 RELATED REQUIREMENTS

A. Section 018113 - Sustainable Design Requirements.

B. Section 077100 - Roof Specialties: Other manufactured roof specialty items.

1.3 REFERENCE STANDARDS

A. 29 CFR 1910.23 - Ladders.

B. 29 CFR 1910.29 - Fall Protection Systems and Falling Object Protection - Criteria and Practices.

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

D. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Maintenance requirements.

B. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.

C. Warranty Documentation:
   1. Submit manufacturer warranty.
   2. Ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.1 ROOF CURBS

A. Roof Curbs Manufacturers:
   1. The Pate Company: www.patecurbs.com/#sle.
   2. LMCurbs; Roof Curbs: www.lmcurbs.com/#sle.
   3. MKT Metal Manufacturing: www.mktduct.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

B. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.
   1. Roof Curb Mounting Substrate: Curb substrate consists of corrugated metal roof deck with insulation.
   2. Sheet Metal Material:
      a. Aluminum: 0.080 inch minimum thickness, with manufacturer's standard alloy and temper.
         1) Finish: Mill finish.
   3. Provide layouts and configurations indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.4 CLEANING

A. Clean installed work to like-new condition.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION 077200

SECTION 089000 - LOUVERS AND VENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Horizontal Blade Louver.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Louvers shall withstand the effects of gravity and wind loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver blade rattle or flutter, or permanent damage to fasteners and anchors.

B. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.

C. Color and finish samples: For each type of metal finish required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T5, T-52, or T6.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.

C. Fasteners: Use types and sizes to suit unit installation conditions.

1. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
2. For color-finished louvers, use fasteners with heads that match color of louvers.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.2 FABRICATION, GENERAL

A. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

B. Join frame members to each other and to fixed louver blades with fillet welds, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.3 STATIONARY, EXTRUDED-ALUMINUM LOUVERS

A. Horizontal Wind Driven Rain Louver:

1. Products: Subject to compliance with requirements, provide one of the following:

    a. Greenheck
    b. Titus
    c. Ruskin

2. Louver Depth: 4 inches.
3. Frame: Heavy gauge extruded 6063-T5 aluminum, not less than .081 in nominal wall thickness
4. Blades: Horizontal rain resistant, heavy gauge extruded 6063-T5 aluminum, not less than 0.081 inch nominal wall thickness, positioned at approximately 2 inch blade spacing.
5. Mechanically fastened construction
6. Finish: 70% Kynar
7. AMCA Seal: Mark units with AMCA Certified Ratings Seal.
8. Provide with mounting flange on all four sides
9. Wind Loads: Determine loads based on a uniform pressure of 25PSF (100 MPH equivalent), acting inward or outward. Louver frames, mullions, and section joints shall be adequately supported from the building structure to withstand this same wind loading.
10. Color to be selected by Architect
11. Sill pan: .063 formed aluminum.
12. Warranty: 10 years

2.4 LOUVER SCREENS

A. General: Provide screen at each exterior louver.

B. Louver Screen Frames: Same kind and form of metal as indicated for louver to which screens are attached.

C. Louver Screening:

1. Bird Screening: Aluminum, 1/2-inch square mesh, 0.063-inch wire.

2.5 ALUMINUM FINISHES

A. High-Performance Organic Finish: 2-coat 70% Kynar finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Color and Gloss: Selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate and place louvers and vents level, plumb, and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weather tight connection.

C. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

D. Repair damaged finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory and refinish entire unit or provide new units.

E. Protect nonferrous-metal surfaces that will be in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint.

F. Caulk all sides.

END OF SECTION 089000

SECTION 09 – WATER SUPPLY

09-900 - FIRE HYDRANTS

DESCRIPTION

This work shall consist of relocating existing or installing new fire hydrants at the locations indicated on the plans or approved by the Engineer. The work will include all excavation, materials and equipment necessary to complete the installation, including removal of existing designated hydrants and returning them to the Division of Water. Painting of the hydrants shall also be included in this item. Fire hydrants purchased or installed shall meet or exceed all latest applicable requirements and tests of ANSI and the latest revisions of AWWA Standard C-502. Fire hydrants shall be UL Listed and FM approved. Fire hydrants shall meet the following requirements:

1. Fire hydrants shall be rated for a minimum working pressure of 200 PSI
2. Hydrants shall be of a true compression type, opening against pressure and closing with the pressure. The main valve seat shall 5-1/4" in diameter.
3. Hydrants shall be a three-way design, having one 4" pumper nozzle with thread gauge 6-640 and two 2-1/2" NTS hose nozzles. All nozzles shall fit into barrel and be field replaceable. The operating nut shall be a one-piece design, 1-3/8" square in size and shape. The direction of opening shall be RIGHT (clockwise).
4. The bonnet assembly shall be provided with an oil or grease lubrication system that circulates lubricant to all stem threads and bearing surfaces each time the hydrant is operated. This lubrication system shall be sealed from the waterway by use of "o" ring pressure seals.
5. Hydrants shall be of the traffic-model design having upper and lower barrels joined at the ground line (grade @ bury elevation) by a separate and breakable "swivel" flange providing 360 degree rotation of upper barrel for proper nozzle facing, and provided with a stainless steel or cast coupling between the upper and lower stems.
6. Hydrants shall be equipped with drain valves, which drain the barrel when the hydrant is closed. The bronze seat ring shall thread into a bronze drain ring.
7. Hydrants shall have a 6" MJ shoe and be five foot bury, unless otherwise approved by the Engineer.
8. Hydrants shall be Mueller Super Centurion 250 or Kennedy K81 models. Barrel height shall be available in 6" length increments to allow for field installation.

It is the Contractor's responsibility to examine the hydrants delivered to them for any defects before accepting them. Once the Contractor has taken possession of the hydrants, they are responsible for maintaining and repairing the hydrants until the project has been completed and accepted.

Before setting hydrant, the contractor shall unplug the waste opening in the bowl of the hydrant as directed by the Engineer if it has not already been unplugged.

09-900 - FIRE HYDRANTS cont'd

CONSTRUCTION DETAILS

Hydrants must be set plumb with the pumper nozzle facing the street. The hydrant must be set on a concrete block and braced against unexcavated earth with a poured concrete thrust block or anchored with steel rods and clamps. All bends shall be braced with concrete thrust blocks against unexcavated earth or the joints shall be restrained by methods acceptable to the Engineer.

The pumper nozzle must be 20 inch +/- 1 inch above surrounding grade. The bury line on the hydrant shall match up with the final grade and a concrete collar (3'x3'x4") shall be installed if the hydrant is not in a sidewalk. Offsets may be used to achieve proper hydrant elevations. The 6" pipe, 6"valve and valve box are described under their respective section. The hydrant and valve shall be located on the same side of the water main. The hydrant valve shall be located as close to the main as possible. Hydrants are to be flushed out by operating the hydrant nut and the hydrant valve. The hydrant shall be flushed for a minimum of 15 minutes after the water runs clear.

The Contractor shall use every precaution in handling hydrants to insure that no damage occurs. If any hydrants are damaged as a result of the Contractor's actions, the Contractor shall replace such damaged material at his own expense.

The Contractor shall excavate and remove existing hydrants, indicated to be removed on the Contract Drawings or as directed by the Engineer and return the hydrants to the City of Buffalo, Division of Water's storage yard. The sites where hydrants are removed shall be restored to original or better condition. The cost of this work shall be included for in the item bid for Hydrant Installations.
Offsets in the hydrant branch line can be used to adjust the pipe to accommodate for proper hydrant bury. The cost for offsets shall be paid for under the bid item for pipe specials. The Contractor is advised to periodically check with the vendor for currently stocked hydrant sizes. Typically, hydrants are available in 6-inch increments; however, if the supply of particular size required is unavailable the Contractor shall make necessary adjustments during their pipe laying operations to accommodate the next closest size.

Hydrants not in service shall be painted yellow until put into service or removed from the job site. Bagging of hydrants will not be acceptable at any time.

Before final acceptance by the City, the Contractor shall give hydrants a final coat of paint. Before painting, damaged areas of the existing coat shall be prepared as follows:

SURFACE PREPARATION (shop and/or field)

All surfaces to be coated should be dry, free of all dust, dirt, oils or materials detrimental to the adhesion of the coating to the surface.

1.) Areas contaminated by oil etc. should be washed clean with a strong solvent such as xylene etc. as described and in conjunction with the methods and practices set by the Steel Structures Painting Council for SSPC-SP-1 cleaning.

09-900 - FIRE HYDRANTS cont'd

2.) If the area to be coated has oxidation build up, those areas should be either "power tool" cleaned to SSPC-SP-3 Standards or "commercial" cleaned to SSPC-SP-6 Standards as set by the Steel Structures Painting Council for surface preparations.

METHODS OF APPLICATION:

All surfaces shall be dry and free of all dust, dirt, oil or contaminates and shall be between 45º to 95º Fahrenheit.

1) Prime Coat: Rust-Oleum # 7669 primer, or equal. Apply minimum of one coat DFT 1 mil thick.
2) Final Coat: Benjamin Moore M22 Urethane Alkyd with DFT of 2.mil, or equal. Color shall be as selected by the Engineer.

METHOD OF MEASUREMENT

The quantity paid for this work will be the number of hydrants installed, replaced or relocated.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, material and equipment necessary to complete the work of installation of the new hydrant; excavation (except rock excavation); pumping, draining, sheeting, shoring, backfilling, tamping and disposal of surplus excavation material; concrete thrust collar, thrust block or restraint and all other labor, equipment and materials necessary to complete the work not specifically included for payment under other items of the Contract. In addition, the price bid shall include removal and transportation to the Col. Ward Plant of any old hydrant left abandoned due to new work included in the contract plans. Removed hydrants are City Property and are to be returned to the City Stockyard.

Any required new valves, pipe and pipe specials shall be paid under their respective items.

Concrete or asphalt concrete replacement at the hydrant shall be paid for under their respective items.

Payment will be made under:

Item No.	Description	Pay Unit
09.910	Fire Hydrant	Each
09.920	Relocate Existing Fire Hydrant	Each

SECTION 221429 - SUMP PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submersible sump pumps.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
4. Include diagrams for power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For pumps and controls, to include in operation and maintenance manuals.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Retain shipping flange protective covers and protective coatings during storage.

B. Protect bearings and couplings against damage.

C. Comply with manufacturer's written instructions for handling.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. UL Compliance: Comply with UL 778 for motor-operated water pumps.

2.2 SUBMERSIBLE SUMP PUMPS

A. Submersible, Fixed-Position, Double-Seal Sump Pumps:

1. List of Manufacturers:
   a. Liberty Pumps Inc
   b. Zoeller Pump Company
   c. Approved Equal

2. Description: Factory-assembled and -tested sump-pump unit.
3. Pump Type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller, centrifugal sump pump as defined in HI 1.1-1.2 and HI 1.3.
4. Pump Casing: Cast iron, with strainer inlet, legs that elevate pump to permit flow into impeller, and vertical discharge for piping connection.
5. Impeller: Statically and dynamically balanced, ASTM A48/A48M, Class No. 25 A cast iron, design for clear wastewater handling, and keyed and secured to shaft.
6. Pump and Motor Shaft: Stainless steel, with factory-sealed, oil-lubricated ball bearings.
7. Seals: Mechanical.
8. Moisture-Sensing Probe: Internal moisture sensor and moisture alarm.
9. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; lifting eye or lug; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.

   a. Motor Housing Fluid: Oil.

10. Controls:

    a. Enclosure: NEMA 250, Type 1.
    b. Switch Type: Pedestal-mounted float switch with float rods and rod buttons.
    c. Automatic Alternator: Start pumps on successive cycles and start multiple pumps if one cannot handle load.
    d. Float Guides: Pipe or other restraint for floats and rods in basins of depth greater than 60 inches.
    e. High-Water Alarm: Cover-mounted, compression-probe alarm, with electric bell; 120 V ac, with transformer and contacts for remote alarm bell.

11. Control-Interface Features:

    a. Remote Alarm Contacts: For remote alarm interface.
    b. Building Automation System Interface: Auxiliary contacts in pump controls for interface to building automation system and capable of providing the following:

        1) On-off status of pump.
        2) Alarm status.

2.3 SUMP-PUMP CAPACITIES AND CHARACTERISTICS

A. Unit Capacity: 100 gpm

B. Number of Pumps: One.

C. Each Pump:

1. Capacity: 50 gpm.
2. Total Dynamic Head: 15 feet.
3. Speed: 3450 rpm.
4. Discharge Size: 2 NPS.
5. Electrical Characteristics:

    a. Motor Horsepower: .5 hp.
    b. Volts: 115 V ac.
    c. Phases: Single.
    d. Hertz: 60.

2.4 SUMP-PUMP BASINS AND BASIN COVERS

A. Basin Covers: Fabricate metal cover with openings having gaskets, seals, and bushings; for access to pumps, pump shafts, control rods, discharge piping, vent connections, and power cables.

1. Reinforcement: Steel or cast iron, capable of supporting foot traffic for basins installed in foot-traffic areas.

2.5 MOTORS

A. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

B. Motors for submersible pumps shall be hermetically sealed.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation and filling are specified in Section 312000 "Earth Moving."

3.2 EXAMINATION

A. Examine roughing-in for plumbing piping to verify actual locations of storm drainage piping connections before sump pump installation.

3.3 INSTALLATION

A. Pump Installation Standards: Comply with HI 1.4 for installation of sump pumps.

3.4 CONNECTIONS

A. Comply with requirements for piping specified in Section 221413 "Facility Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to equipment, allow space for service and maintenance.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test, inspect, and adjust components, assemblies, and equipment installations, including connections.

B. Perform the following tests and inspections:

1. Perform each visual and mechanical inspection.
2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Pumps and controls will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.6 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.7 ADJUSTING

A. Adjust pumps to function smoothly, and lubricate as recommended by manufacturer.

B. Adjust control set points.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train owner's maintenance personnel to adjust, operate, and maintain controls and pumps.

END OF SECTION 221429

SECTION 331000 - WATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 018113 – Sustainable Design Requirements.

C. Buffalo Water Authority Standard Specification 09-900 Fire Hydrants – see attachment

1.2 SUMMARY

A. Extent of water distribution system work is shown on Drawings.

B. Water utilities work includes, but is not limited to, the following:

1. Piping
2. Valves
3. Hydrants
4. Testing
5. Disinfection

C. Comply with requirements of applicable Division 31 sections for excavation and backfilling required in connection with water distribution system.

D. Comply with requirements of applicable Division 03 sections for concrete work required in connection with water distribution system

E. Related Requirements:

1. City of Buffalo Division of Water Specifications: applicable for work associated with the City of Buffalo water mains and appurtenances.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.

B. Field quality-control test reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Comply with ASTM F645 for selection, design, and installation of thermoplastic water piping.

D. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

E. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.

1. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:

1. Ensure that valves are dry and internally protected against rust and corrosion.
2. Protect valves against damage to threaded ends and flange faces.
3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves, including fire hydrants, according to the following:

1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.

2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.8 PROJECT CONDITIONS

A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:

1. Notify Architect no fewer than five days in advance of proposed interruption of service.
2. Do not proceed with interruption of water-distribution service without Architect's written permission.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Application" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

B. Potable-water piping and components shall comply with NSF 14, NSF 61, and NSF 372.

2.2 DUCTILE-IRON WATER PIPE FOR DIRECT BURY

A. Ductile-Iron water pipe in sizes three inches (3") to sixty-four inches (64") in diameter inclusive will be centrifugally cast conforming with the applicable requirements of the AWWA Standard for Ductile-Iron Pipe, Centrifugally Cast for Water, ANSI/AWWA C151/A21.51- (latest revision), as manufactured by the U.S. Pipe Co. or equal.

B. Ductile-Iron pipe less than 16” diameter shall be Class 52 unless otherwise specified on the plans.

C. Mechanical and push-on joints for ductile-iron pipe shall conform to the AWWA Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings. ANSI/AWWA C111/A21.11-(latest revision).

D. All ductile-iron pipe shall be double thickness cement lined in accordance with the requirements of the AWWA Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water. ANSI/AWWA C104/A21.4 - (latest revision).

E. Integral restrained joint ductile-iron pipe shall be: "TR-Flex" joint as manufactured by McWane, Inc. or US Pipe; "Flex-Ring" as manufactured by American Cast Iron Pipe Co.; or approved equal.

1. Flexible restrained joint pipe shall be a boltless, glandless restraining system utilizing patented ductile iron locking segments or flex ring with factory applied spigot retainer weldment.
2. Weldments must be factory applied. Field applied weldments will not be allowed.

    a. Field cut pipe and joints requiring restraint must utilize wedge action retainer glands or a flexible restrained closure.

3. Pipe that utilizes gaskets with embedded restraining gripper or friction segments will not be acceptable.

2.3 DUCTILE IRON FLANGED PIPE AND FITTINGS

A. Ductile Iron Pipe with Threaded Flanges:

1. Pipe shall be centrifugally cast ductile iron conforming to the requirements of AWWA C151 and C115 for material, dimensions, tolerance, tests, markings, and other requirements.
2. Where required, pipe barrels and flanges shall have a taper pipe thread (NPT) in accordance with ANSI B1.20.1, with pipe diameters adapted to ductile iron pipe standard outside diameters.
3. Flanged pipe shall be minimum Class 52 thickness and shall be furnished in standard laying lengths as specified or required.

B. Joints for Ductile Iron Flanged Pipe and Fittings:

1. Flanged joints shall conform to the requirements of AWWA C110 and drilling and facing of flanges shall be in accordance with ANSI B16.1 Class 125 flanges unless otherwise specified.
2. Flanged ductile iron pipe and fittings shall be furnished complete with all necessary joint accessories consisting of natural or synthetic rubber gaskets, $^{1}/_{8}$-inch thick, full face; and, nuts, bolts and washers, unless otherwise specified.
3. All nuts, bolts and washers for flanges and accessories shall conform to ANSI B18.2.1 and ANSI B18.2.2, respectively and shall be Type 304 stainless steel, high strength, low alloy steel or fluorocarbon coated as specified herein.

C. Flange Fillers, Blind Flanges and Reducing Companion Flanges:

1. Conform to the requirements of AWWA C115 for material, dimensions, tolerance, tests, markings and other requirements.
2. Drilling and facing of flanges shall be in accordance with ANSI B16.1, Class 125 flanges unless otherwise specified.
3. Flanged fillers, blind flanges and reducing companion flanges shall be furnished complete with all necessary joint accessories consisting of natural or synthetic rubber gaskets, $^{1}/_{8}$-inch thick, full face; and, nuts, bolts and washers, unless otherwise specified.
4. Threaded outlets or taps, (Mueller threads), shall be provided in blind flanges as specified or required.
5. All nuts, bolts and washers for flanges and accessories shall conform to ANSI B18.2.1 and ANSI B18.2.2, respectively and shall be Type 304 stainless steel, high strength, low alloy steel.

2.4 DUCTILE IRON FITTINGS

A. Ductile Iron Fittings

1. Ductile Iron fittings for three (3") inch to sixty-four (64") inch ductile iron and polyvinyl chloride pipes shall be Class 350 Ductile-Iron and conform to the AWWA Standard for Ductile-Iron Compact Fittings for Water Service, ANSI/AWWA C153/A21.53-(latest revision) as manufactured by Tyler Pipe Co. or equal.
2. All ductile-iron fittings shall be double thickness cement lined in accordance with the requirements of the AWWA Standard for Cement - Mortar Lining for Ductile-Iron Pipe and Fittings for Water, ANSI/AWWA C104/A21.4- (latest revision).
3. All ductile-iron fittings shall have mechanical joint ends and be furnished with sufficient quantities of accessories. All nuts and tee bolts for fittings shall be Flourocarbon coated, high strength, corrosion resistant, low alloy steel and shall conform to AWWA C-111/A21.11-(latest revision). Restrained joints utilizing mechanical joint wedge action retainer glands will be required.
4. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, "Protecto-Cap"; Trumbell Industries, Inc.; or equal.
5. Integral restrained joint ductile-iron fittings shall be: "TR-Flex" joint as manufactured by McWane, Inc. or US Pipe; "Flex-Ring" as manufactured by American Cast Iron Pipe Co.; or approved equal.

    a. Flexible restrained joint fittings shall be a boltless, glandless restraining system utilizing patented ductile iron locking segments or flex ring with factory applied spigot retainer weldment.
    b. Weldments must be factory applied. Field applied weldments will not be allowed.
    c. Fittings connected to field cut pipes without weldments must be mechanical joint utilizing wedge action retainer glands.

        1) If flexible restrained joint fittings are used, a number of mechanical joint fittings must also be provided and on-hand to allow for field adjustments.

    d. Fittings that utilize gaskets with embedded restraining gripper or friction segments will not be acceptable.

B. Thrust blocks and mechanical restraints will be provided where fittings are used for direction changes as shown on the plans and details, and wherever specified by the Engineer.

2.5 PVC PIPE AND FITTINGS

A. PVC, AWWA Pipe: AWWA C900, Class 150, with bell end with gasket, and with spigot end.

1. Comply with UL 1285 for fire-service mains if indicated.
2. PVC Fabricated Fittings: AWWA C900, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Gaskets: AWWA C111, rubber.

5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.6 PIPING SPECIALTIES

A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

B. Tubular-Sleeve Pipe Couplings:

1. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.

    a. Standard: AWWA C219.
    b. Center-Sleeve Material: Manufacturer's standard.
    c. Gasket Material: Natural or synthetic rubber.
    d. Pressure Rating: 200 psig minimum.
    e. Metal Component Finish: Corrosion-resistant coating or material.

2.7 GATE VALVES

A. Valves three inches (3”) to twelve inches (12”) shall be iron body with fusion bonded epoxy coating, and resilient seated conforming to the requirements of the AWWA Standard for Resilient-Seated Gate Valves, for Water Supply Service, ANSI/AWWA C509- (latest revision), as manufactured by the Mueller Co. or Kennedy Valve Mfg. Co. or approved equal.

B. All valves shall have non-rising stems, "0" ring seals (capable of being replaced under pressure), two inch (2") square operating nut, stainless steel bonnet bolts and nuts, open counterclockwise (to the left), and have mechanical joint ends unless specified otherwise. Sufficient quantities of accessories shall be provided to install the valve in the pipeline.

C. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, “Protecto-Cap”; Trumbell Industries, Inc.; or equal.

D. Valves up to 12” diameter shall be designed to operate vertically in a horizontal pipeline.

E. Gate valves three inches (3”) to twelve inches (12”) shall be designed for a minimum design working pressure of 200 psig. Gate valves fourteen inches (14”) to forty-eight inches (48”) shall be designed for a minimum design working pressure of 150 psig.

F. All gate valves shall be designed for a minimum test pressure equal to the test pressure specified for the watermain.

2.8 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches in diameter.

1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

2.9 CORPORATION VALVES AND CURB VALVES

A. Manufacturers:

B. Service-Saddle Assemblies: Comply with AWWA C800. Include saddle and valve compatible with tapping machine.

1. Service Saddle: Copper alloy with seal and AWWA C800, threaded outlet for corporation valve.
2. Corporation Valve: Bronze body and ground-key plug, with AWWA C800, threaded inlet and outlet matching service piping material.

C. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.

2.10 FIRE HYDRANTS

A. Hydrants shall be UL Listed, FM approved and conform to the requirements of the AWWA Standard For Dry-Barrel Fire Hydrants, ANSI/AWWA C502-(latest revision) and to the Buffalo Water Authority Standard Specification 09-900. See attachment.

2.11 ANCHORAGES

A. General: Provide anchorages for tees, plugs, caps, bends, valves, couplings and pipe as shown on the plans and as follows:

1. Retainer glands shall be wedge action EBAA Iron Series 1100 for ductile iron pipe or EBAA Iron Series 2000 PV for PVC pipe or approved equal to fit mechanical joints.
2. Restraining harnesses shall be wedge action EBAA Iron Series 1700 Megalug for push joint ductile iron pipe or EBAA Iron Series 1600 for push joint PVC pipe or approved equal. Restraining harnesses for cast iron pipe joints shall be of the friction clamp type with threaded rods.
3. All anchorages shall have fusion bonded epoxy coating.
4. All bolts and nuts for buried joints shall be Fluorocarbon coated, high strength, corrosion resistant, low alloy steel, conforming to ANSI/AWWA C-111/A21.11- (latest revision).
5. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, “Protecto-Cap”; Trumbell Industries, Inc.; or equal.
6. All bolts and nuts for use inside chambers shall be Fluorocarbon coated, high strength, corrosion resistant, low alloy steel, conforming to ANSI/AWWA C-111/A21.11- (latest revision).
7. Thrust Blocks shall be 3000 psi concrete.

2.12 ANCHOR PIPE, COUPLINGS, TEES AND ELBOWS

A. All M.J. anchoring pipe, couplings, tees and elbows shall be as manufactured by Tyler Pipe Co. or equal. They shall be cement-lined in accordance with the requirements of the AWWA Standard for Cement - Mortar Lining for Ductile Iron Pipe and Fittings for Water, ANSI/AWWA C104/A21.4- (latest revision) and the thickness shall not be less than 1/8". All anchoring pipe, couplings, tees and elbows shall meet pressure requirements equivalent to that for pipe.

B. All nuts and bolts for joints shall be Fluorocarbon Coated, high strength, corrosion resistant, low alloy steel, and shall conform to AWWA C-111/A21.11 (latest revision).

C. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, “Protecto-Cap”; Trumbell Industries, Inc.; or equal.

2.13 COUPLINGS AND REPAIR CLAMPS

A. Couplings and clamps shall be as manufactured by Smith-Blair Inc., Ford Meter Box Co., Inc., Romac Industries, Inc., or approved equal.

B. Couplings and clamps shall be equipped with high strength, low alloy steel bolts and nuts having a fluorocarbon SC-1 coating.

C. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, “Protecto-Cap”; Trumbell Industries, Inc.; or equal.

D. Gaskets for couplings and joint clamps shall be molded rubber, Smith-Blair grade 30, Ford SBR compound, Romac SBR, or equal. Gaskets for repair clamps shall be molded rubber, grade 60, SBR compound, Nitrile (Buna N), or equal.

E. Sleeve type, Flexible Couplings shall be of the Smith-Blair type #411 (or #441 “Omni” where specified); Ford style FC1; Romac style 501; or equal. All couplings shall have fusion bonded epoxy coating finish.

F. Bell joint leak clamps shall be: Smith-Blair type #274; Ford style FBC; Romac style 516 or 416; or equal.

G. Transition couplings shall be: Smith-Blair type #413; Ford style FC2A; Romac style 501; or equal. All couplings shall have fusion bonded epoxy coating finish.

H. Repair clamps shall be full circle, 18-8 type 304 stainless steel, provided in minimum length of twelve inches (12"), unless otherwise noted.

1. Repair clamps for diameters up to twelve inches (12”) shall be single band as manufactured by: Smith-Blair type #261; Ford style FS1; Romac style SS1; or approved equal.
2. Repair clamps for sizes over twelve inches (12”) shall be with two or three sections as manufactured by: Smith-Blair type #263; Ford style FS2 or FS3; Romac style SS3; or approved equal.
3. All Repair Clamps shall be equipped with high strength, low alloy steel stud bolts and nuts having a fluorocarbon SC-1 coating.
4. Repair clamps with a separate keeper bar will not be accepted.
5. Cast iron or ductile iron fingers are not allowed except as noted or as approved by the Engineer.

2.14 HYMAX STYLE COUPLINGS

A. Hymax style couplings may be used only when approved by the Owner and/or Engineer.

B. Hymax style couplings for diameters up to twelve inches (12”) shall be as manufactured by: “Hymax Wide Range Coupling” or “Hymax Grip Wide Range Coupling”; Romac “Macro HP”; Smith-Blair #421, or approved equal. For diameters over twelve inches (12”): Krausz Industries, “Hymax Wide Range Coupling”; “Hymax Grip Wide Range Coupling”; or approved equal.

C. Center sleeve shall be fabricated of high strength carbon steel tubing with NFS-61 approved, fusion bonded epoxy coating on both interior and exterior.

D. Compression end rings to be either one bolt or two and fabricated of carbon steel.

E. Buried or submerged couplings shall be provided with Type 304 stainless steel bolts and nuts with anti-seize coating to prevent galling.

F. All field installed bolts for direct bury shall be capped with 6 ounce Zinc Anode cap nuts as manufactured by Maple Agencies, “Protecto-Cap”; Trumbell Industries, Inc.; or equal.

G. Gaskets shall be one piece, or two layered of which inner ring is removable to expand the range of the coupling. Gasket material shall be EPDM according to NSF61.

2.15 FLANGED COUPLING ADAPTERS

A. Flanged Coupling Adapters shall be as manufactured by: EBAA Iron, Series 2100 MegaFlange; Smith-Blair, Style 911 Flange-Lock; Ford style FFCA-XXX-K w/optional anchor studs; Krausz Industries, Hymax, Grip Flange Adapter; Romac, RFCA; or approved equal.

B. Coupling shall have ductile iron body and follower gland with bolt pattern conforming to AWWA C115 flanges.

C. Coupling body shall be painted with one coat of shop prime enamel and gasket ring shall have fusion bonded epoxy coating.

D. Gaskets and “O” rings shall be grade 30.

E. Bolts and nuts shall be either Type 304 stainless steel or high strength, low alloy steel having a fluorocarbon SC-1 coating.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Section 312000 "Earth Moving - Site" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.

B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

C. Do not use flanges or unions for underground piping.

D. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

3.3 VALVE APPLICATIONS

A. General Application: Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.

B. Drawings indicate valve types to be used.

3.4 PIPING INSTALLATION

A. Make connections NPS 2 and smaller with drilling machine according to the following:

1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
4. Install corporation valves into service-saddle assemblies.
5. Install curb valve in water-service piping with head pointing up and with service box.

B. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.

C. Install PVC, AWWA pipe according to ASTM F645 and AWWA M23.

D. Bury piping with depth of cover over top at least 60 inches.

E. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.

F. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.5 ANCHORAGE INSTALLATION

A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:

1. Concrete thrust blocks.
2. Locking mechanical joints.
3. Set-screw mechanical retainer glands.
4. Bolted flanged joints.
5. Pipe clamps and tie rods.

B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.

C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.6 VALVE INSTALLATION

A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.

B. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.

3.7 FIRE HYDRANT INSTALLATION

A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.

B. AWWA Fire Hydrants: Comply with AWWA M17.

C. UL/FMG Fire Hydrants: Comply with NFPA 24.

3.8 CONNECTIONS

A. Connect water-distribution piping to existing water main.

B. Connect water-distribution piping to interior domestic water and fire-suppression piping.

3.9 WASTE MANAGEMENT

A. Separate and dispose of waste in accordance with the Project’s Waste Management Plan.

PART 4 - TESTING (As per ANSI/AWWA C600 latest revision for DIP; ANSI/AWWA C605 for PVC;)

4.1 TESTING AND DISINFECTION PROCEDURE

A. Prior to performing any work as described in this part, the Contractor shall submit to the Engineer for approval a flushing, testing and/or disinfection procedure. The procedure shall include when the work will be performed, source points for water, flush points for water, length and location of waterline to be included, and de-chlorination procedures.

4.2 PRELIMINARY FLUSHING

A. Prior to the pressure and leakage tests, and line valve tests, each potable water system shall be flushed until three (3) pipe volumes have passed through the new waterline and the water runs visually clear. Each valved system of the newly installed piping system shall be flushed separately with potable water from the public supply.

B. Flushing must have sufficient flowrate to achieve a fluid velocity of 3.0 feet per second inside the waterline. A 2-inch minimum diameter tap is required for proper flushing of all watermains having a diameter of 8-inches or less. Multiple or larger taps/outlets may be required to achieve minimum 3.0 ft./sec. flushing velocities as referenced in AWWA C651 and as determined by the Engineer.

C. When filling of the new line for flushing is achieved by accepting water from an existing water line, the Contractor shall, as a minimum, maintain an open outlet on the new work at all times that the connection between the existing water line and the new work is open. After initial filling/flushing, the Contractor shall, as a minimum, furnish and install a reduced pressure zone (RPZ) backflow preventer at the source of the supply to protect against the backflow of water from the new line into the existing line. When water is obtained from existing Town waterlines for these purposes, the work shall be coordinated with and approved by the water department having jurisdiction, and the water shall be metered.

4.3 PERFORM HYDROSTATIC TESTING OF COMPLETED CONDUIT LINES IN ACCORDANCE WITH THE FOLLOWING:

A. Test No. 1 - Pressure Test:

1. Assumptions:

   a. AWWA requirement of hydrostatic test pressure to be based on the elevation of the lowest point in the line or section under test corrected to the elevation of the test gauge.
   b. Minimum test pressure required: All pipe shall be tested by pressure 50% in excess of the normal working pressures, but in no event at less than 170 psi.

2. The maximum length of pipeline to be tested at any one time shall not exceed 2,000 lineal feet or valve to valve, whichever is less.

B. Test No. 2 - Leakage Test:

1. The hydrostatic pressure shall be the same as determined for Test No. 1 Pressure Test.
2. The leakage test may be conducted concurrently with the pressure test.
3. The maximum length of pipeline to be tested at any one time shall not exceed 2,000 lineal feet or valve to valve, whichever is less.
4. The leakage for pressure pipelines shall not exceed 75% of the AWWA allowable rates in gallons per hour per 1,000 feet of pipe at the test pressure specified above per the following table:

Pipe Diameter	Pipe Material	AWWA Allowable Leakage (GPH)
4"	PVC, DI	0.35
6"	PVC, DI	0.53
8"	PVC, DI	0.70
10"	PVC, DI	0.88
12"	PVC, DI	1.06
16"	DI, PCCP	1.57
20"	DI, PCCP	1.96
24"	DI, PCCP	2.35

4.4 DURATION

A. The duration of the pressure test (Test No. 1) shall be a minimum of two (2) hours for all pipe.

B. The duration of the leakage test (Test No. 2) shall be a minimum of two (2) hours for all pipe.

C. Pressure should not fluctuate by more than 5 psi during testing.

4.5 PROCEDURE

A. The pipe shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump, pipe connections, all necessary apparatus, taps into the pipe, gauges, and measuring devices, will be furnished by the Contractor. All work shall be accomplished by the Contractor.

B. When initial filling/flushing of the new line is achieved by accepting water from an existing water line, the Contractor shall, as a minimum, maintain an open outlet on the new work at all times that the connection between the existing water line and the new work is open. After initial filling/flushing, the Contractor shall, as a minimum, furnish and install a reduced pressure zone (RPZ) backflow preventer at the source of supply to protect against the backflow of water from the new line into the existing line. When water is obtained from existing Town waterlines for these purposes, the work shall be coordinated with and approved by the water department having jurisdiction, and the water shall be metered.

C. Testing shall be done as soon as the main line is installed and prior to disinfection.

4.6 EXPELLING AIR BEFORE TESTING

A. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at various locations and elevations in the test section including the points of highest elevation in the test section. After satisfactory test results, these taps shall be tightly closed and copper tube removed.

4.7 EXAMINATION UNDER PRESSURE (TEST NO. 1)

A. All exposed pipes, joints and fittings which are exposed when the test is conducted, shall be carefully examined for visible leakage. Those portions of the pipeline covered by backfill shall be walked to observe leakage appearing on the ground surface. Any leaks discovered in the joints shall be corrected until tight. Any cracked or defective pipe, fittings, etc., discovered in consequence of this pressure test shall be removed and replaced by the Contractor with new material as previously specified and the test repeated until satisfactory to the Engineer.

B. If the pressure drop is greater than 5 psi in 2 hours, or if the Engineer believes the line is suspect, the Contractor shall explore for the cause of the excessive leakage and after repairs have been made, the line shall be retested. This procedure shall be repeated until the pressure loss is less than the maximum allowable and the Engineer is satisfied.

4.8 PERMISSIBLE LEAKAGE (TEST NO. 2)

A. Suitable means (acceptable to the Engineer) shall be provided by the Contractor for determining the quantity of water loss by leakage under the specified test pressure. No pipe installation will be acceptable until, or unless, this leakage is less than that specified in this Section, at the test pressure specified.

B. Should any test of pipe laid disclose leakage greater than that specified in this section, the Contractor shall, at his own expense, locate and repair the defective joints or pipe until the leakage is within the specified allowable.

4.9 LEAKAGE DEFINED

A. Leakage is defined as the quantity of water to be supplied into the newly laid pipe necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

B. At the end of each test, the pressure shall be increased to the starting pressure so leakage test data may be acquired.

4.10 WATER FOR TESTING

A. Water for performing all tests shall be furnished and disposed of by the Contractor, at his expense. If the water for filling and testing is obtained from an existing Town waterline a meter shall be installed to measure the quantity of water used for these purposes. , The cost of water used shall be borne by the Contractor. No water shall be obtained from an existing water line unless the

Contractor first obtains the consent of the Owner or agency having jurisdiction over the existing main. Existing conditions may restrict the amount and rate of water that can be obtained from the existing line and the Contractor shall comply with the directions of the Owner or agency of jurisdiction.

B. When filling of the new line for testing is achieved by accepting water from an existing water line, the Contractor shall, as a minimum, furnish and install a reduced pressure zone (RPZ) back-flow preventer at the source of the supply to protect against the backflow of water from the new line into the existing line. When water is obtained from existing Town waterlines for these purposes, the work shall be coordinated with and approved by the water department having jurisdiction, and the water shall be metered.

PART 5 - DISINFECTION (AS PER ANSI/AWWA C651-(LATEST REVISION))

5.1 ADJUST AND CLEAN

A. Disinfection of Potable Water Systems: All piping connecting to, and forming a part of, a potable water system shall be disinfected in a manner acceptable to the New York State Department of Health. The method described as follows, or other method acceptable to the Health Department having jurisdiction, shall be used. Water for disinfection and flushing shall be furnished and disposed of by the Contractor.

5.2 CHLORINATION

A. Disinfect the piping system with chlorine applied by introduction of a hypochlorite solution derived from Sodium Hypochlorite (NaOCl) solution, conforming to ANSI/AWWA B300. The use of Liquefied Elemental Chlorine Gas (Cl_2) and/or Calcium Hypochlorite in any form shall not be allowed.
   1. Sodium Hypochlorite shall be provided in liquid form containing approximately 5% to 15% available (free) chlorine.

B. Solutions shall be prepared in a plastic or rust-free steel barrel.

C. The clear supernatant shall be applied to the main through a rubber hose by a suitable pump feeder. The point of application of the chlorinating agent shall be at the beginning of the piping system or any valved sections thereof, through a corporation inserted in the top of the newly installed pipe. Water from the existing distribution system shall be controlled so as to flow slowly into the newly installed piping system during the application of the chlorine. The rate of chlorine mixture flow shall be in such proportion to the water entering the newly installed pipe that the resulting free chlorine residual shall be between 50 and 100 ppm (*mg/l*). Concentrations over 100 ppm (*mg/l*) shall not be allowed to enter the piping system. Valves shall be manipulated so that the strong chlorine solution in the pipe being treated will not flow back into the line supplying the water.

D. The chlorinated water shall be retained in the main for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances.

At the end of this 24-hour period, the treated water shall contain no less than 25-ppm chlorine throughout the length of the main.

E. When making repairs, connections of the approved water main to the existing system, or when specified, the structures and portions of pipe lines not able to be disinfected by conventional methods, shall be chlorinated by a concentrated chlorine solution containing between 200 ppm (*mg/l*) and 300 ppm (*mg/l*) of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes and structures. The surfaces disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.

F. The Contractor must use an approved test method to determine chlorine levels. Test strips will be allowed for testing chlorine levels if the kit is new, in the original bottle, and has a color coded scale on the side with legible concentrations defined. Sending samples to an approved laboratory is also acceptable.

5.3 FINAL FLUSHING (As per ANSI/AWWA C655-(latest revision)

A. After the applicable retention period, the heavily chlorinated water shall be flushed from the main until the chlorine concentrated in the water leaving the main is no higher than that generally prevailing in the system, or less than 1 ppm. Chlorine residual determination shall be made at each bacteriological water sampling location to ascertain that the heavily chlorinated water has been removed from the pipeline.

B. Superchlorinated water shall be emptied into a tank truck, or similar containment device, and neutralized using a reducing agent (such as Sodium Thiosulfate) prior to being discharged in a manner that will not adversely affect flora and fauna, and shall conform to applicable state regulations for waste discharge as found in ANSI/AWWA C655-(latest revision) and NYSCRR Title 6, Chapter X, parts 700 - 705 (Water Quality Regulations).

C. Discharge of water into a storm or sanitary sewer system will require prior written approval from the municipality or owner/operator of the utility.

D. Water from flushing procedures shall not be discharged into a public roadway and shall not cause damage to any public or private property.

PART 6 - BACTERIOLOGICAL TEST (AS PER ANSI/AWWA C651-(LATEST REVISION), SECTION 5)

6.1 PROCEDURE

A. Sampling:

1. After completion of final flushing, before the new water main is connected to the distribution system, and in the presence of the Engineer, two (2) sets of bacteriological water samples shall be collected from an acceptable outlet(s) of the treated piping system (one immediately after final flushing and a second one after a minimum of 16 hours).
2. Other than the amount of water required to collect samples at each location, all water must be retained in the new main after final flushing until after the final set of bacteriological samples is collected. No additional flushing will be allowed during the sampling procedure.

3. If additional flushing is required to reduce chlorine residual, bacteriological sampling must cease and not resume until flushing operations have stopped and chlorine residual has reached acceptable levels.

B. Testing and Analysis:

1. All water samples shall be tested to show the presence of a free chlorine residual and the absence of coliform organisms in accordance with the latest Health Department requirements. If, at this time, the samples show unsatisfactory results, the chlorine treatment shall be repeated until all samples show safe results.
2. Bacteriological testing and analysis must be performed at a laboratory approved by the Health Department and the Owner and shall be paid for by the Contractor. Samples must be picked up by laboratory personnel and delivered to the laboratory. The certified bacteriological test results must be delivered to the Owner and/or Engineer immediately upon completion.
3. Bacteriological test results shall expire 30 calendar days after the samples are taken. After 30 calendar days, if the new main has not been placed into service, the Contractor will be required to repeat the process, taking two sets of samples and submitting the results to the Engineer for review.
4. Per AWWA C651 standards, the maximum length of new pipe that can be installed without bacteriological sampling is 20 lineal feet unless otherwise approved by the Owner, Engineer, and the Health Department having jurisdiction.

C. Sampling Locations:

1. The number of bacteriological water samples taken along the full length of pipeline shall be as determined by the Engineer and shall be acceptable to the Health Department having jurisdiction.
2. As a minimum, bacteriological water samples shall be taken as follows:
   a. At a maximum of every 1,000 feet along the new water main.
   b. Within 10 feet of each end of each section of water main
   c. Fire hydrants and hoses are not considered acceptable sampling ports.
3. The Contractor shall, at his expense, provide all necessary taps (wet or dry), outlets, fittings, piping, apparatus, labor, materials, equipment, water, etc. required.

END OF SECTION

SECTION 13 34 13 - SPECIAL CONSTRUCTION - GLASSHOUSES

PART 1 - GENERAL

1.1 SUMMARY

A. It is the intent of this specification that work of the Greenhouse Contractor include the furnishing and installation of the materials necessary for:

1. Complete re-building of the double roof ventilation sash including:
    a. Adding a second zone (Work area)
    b. Any re-glazing of broken or cracked glass with tempered safety glass
    c. Install new rack & pinion roof vent sash operators and leveling of the sash
    d. Install new automatic electric roof gear motors – 4 units, control by environmental control system
2. Replacement of all broken, cracked or slipped roof and sidewall glass lites
3. Repair and/or replacement of the greenhouse gable end flashing to headhouse
4. Replacement of the partial gable end wood sill connection to the headhouse with composite and aluminum materials
5. Re-position West sidewall vent sash from top of sidewall to bottom sill of sidewall
6. Install new rack & pinion sidewall vent sash operators to both sidewalls
7. Install new automatic electric sidewall gearmotors – 4 units, control by environmental control system
8. Install new “Floating aisle” plant benching per new layout design
9. Install new aluminum fin tube heat piping for the complete perimeter, high and low, of the greenhouse with appropriate automatic valves and regulators
10. Replace in kind overhead unit heaters
11. Install new horizontal air-flow circulation fans
12. Remove, relocated and replace gable end passage door & hardware
13. Reframe gable end and install new automatic overhead door
14. Install automatic shade/heat retention system in the growing area & fixed shade cloth in the new work area
15. Install new partition wall at 2nd truss line with double passage door to create new potting/work area
16. Add all mechanical equipment to existing environmental control system to create a new automated zone
17. Install drip-tube and overhead misting irrigation system for 25% of plant benches at P1

B. This section does not include plumbing for water supply and drainage, heating supply and return lines, electrical work (power and control wiring) including general lighting, concrete work, masonry repairs and utility connections work. Contracting these areas of work shall be the responsibility of the General Contractor/Owner.

1.2 SPECIFICATIONS, PLANS AND RELATED WORK

A. These specifications are intended to supplement the drawings and, therefore, it shall not be their purpose to mention any portion of the construction which the drawings are competent to explain and such omissions shall not relieve the Greenhouse Contractor from carrying out such portions indicated only on the drawings and should items and tasks be required by these specifications which are not indicated on the drawings, they shall be supplied and installed by this Contractor.

B. Related work specified elsewhere:

1. Division 2 – Selective Demolition
2. Division 3 – Concrete Work
3. Division 4 – Masonry Work
4. Division 7 – Thermal and moisture protection: Sheet metal flashings and counter-flashings to other non-greenhouse structures
5. Division 15 – Plumbing Work: Cold and hot water piping, greenhouse equipment requiring water service piping and hot water supply and return heat piping to facility boilers.
6. Division 16 – Electrical Work: power wiring for all equipment, control wiring for environmental control system, communication wiring.

1.3 SUMITTALS

A. Greenhouse Manufacturer shall submit approval drawings in digital format.

B. Submittals shall include fabricator's technical data covering metal components, glazing components, greenhouse equipment, hardware, fabrication processes, handling procedures and erection/installation schedule.

D. Approval drawings shall include, but not be limited to, the following individual detailed sheets where required by the greenhouse project description:

– Roof Glazing repair plan
– Gable Elevation for new passage & overhead door
– Partition Elevations – Work area and quarantine room walls
– Greenhouse Equipment location Plan and Schedule
– Control System Components and Wiring Plan
– Plant Bench Layouts
– Greenhouse to adjacent structure flashing connections
– Door & Door Hardware Schedule
– Roof Shade/Energy Blanket System and System closure details
– Fin-tube radiant heating layout

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: The fabricator shall be able to demonstrate a minimum of ten years experience in manufacturing greenhouse structures and components for institutional and research greenhouse projects similar in size, type and complexity specified and shall submit a minimum of three (3) references that are similar to the proposed project.

B. The entire greenhouse structure, glazing system and ventilation sash system shall be the product of a single supplier. The greenhouse shall be manufactured by a company with a record of successfully fabricating greenhouses for a period of no less than ten (10) years.

C. Installer's Qualifications: The fabricator shall provide supervisors and labor to install the greenhouse who are regularly engaged in greenhouse construction, restoration and installation, skilled and experienced in the type of erection that is proposed for this project. If the installation of the greenhouse is sub-contracted by the greenhouse manufacturer it shall be erected by a qualified greenhouse specialty contractor/builder, authorized and approved in writing by the manufacturer, showing at least five (5) years experience in building, installing and/or restoring greenhouses of the type specified. Laborers may be required to demonstrate advanced skills in glazing installation proceedures at the discretion of the General Contractor or Greenhouse Contractor.

D. Greenhouse components design shall comply with standards of the National Greenhouse Manufacturers Association (NGMA) and shall be in accordance with the 2021 IBC, International Building Code and or the Local Authority Building Code, whichever is more conservative.

E. Any substitutions shall be immediately submitted to the Architect or Project Engineer in writing for approval prior to commencing work of this section.

F. Regulatory Requirements: Comply with local goverening building code, OSHA, and EPA regulations during work on the greenhouse construction.

G. Disposal and hauling of debris, rubbish, scrap, and other non-salvageable materials resulting from construction operations shall comply with all applicable federal, state and local regulations.

1.5 DELIVERY, STORAGE AND HANDLING

A. All greenhouse metals shall be handled and stored with care, in accordance with manufacturer's published instructions. Time delivery and erection of materials to avoid extended on-site storage. Store materials on skids or platforms; do not store directly on ground. Stored mill finished aluminum components must be protected from moisture or completely separated from contact with each other. Mill finish aluminum components, if stored exposed to the elements, must be protected from surface to surface contact to avoid oxidation. Any oxidized components will be rejected by the Architect/Owner.

B. Greenhouse glazing materials shall be handled and stored with care, in accordance with manufacturer's published instructions. Protective coverings on plastic glazing materials must not be removed until installation and according to manufacturer's published instructions.Glass stored on site must be protected from moisture. Glass with etched or calcified surfaces from being stored while wet will be rejected by the Architect/Owner.

1.6 PROJECT CONDITIONS

A. Field measurements: Verify all dimensions, designs and fabrication of all other related construction; foundations, kneewalls, floors and connecting building structures, downspout locations for greenhouse gutters and utility stub-outs. It is the greenhouse contractor's responsibility to record and document existing conditions to receive his work. Verify all steel, concrete and masonry kneewall conditions, dimensions and elevations before delivery of greenhouse components.

B. If Owner is to be occupying any portions of the buildings adjacent to the greenhouse construction conduct greenhouse construction operations so that the Owner's operations will not be disrupted.

C. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner or General Contractor as far as possible.

D. Notify Architect or Project Engineer of any discrepancies between existing conditions and Drawings before proceeding with greenhouse construction.

E. Storage or sale of removed items or materials on-site is not permitted.

1.7 COORDINATION WITH OTHER TRADES

A. Greenhouse Contractor and other trades involved in the greenhouse areas and involved with greenhouse equipment shall coordinate all work. Coordination of the electrical work and the mechanical work involved in connecting the greenhouse equipment is the responsibility of the electrical trade sub-contractor and the mechanical trades sub-contractor(s). The greenhouse contractor is required to install, mount or set all greenhouse equipment that is supplied with the greenhouse contractor's package. For all of the greenhouse equipment supplied in his package, the greenhouse contractor is responsible for testing, commissioning and setting any equipment limits after electrical and plumbing connections are complete.

1. The power and control wiring, environmental controller wiring, conduit and conductors that are required for the greenhouse equipment are to be provided, installed and terminated by the electrical sub-contractor. Electrical power and control wiring work is also required for the following equipment that may be incorporated in this project:

    a. Automatic vent machines
    b. Automatic shade machines and tube motors

c. Circulation fans
d. Plant growth lighting
e. Automatic shutter motors
f. Automatic passage and overhead door operators
g. Themostat controls
h. Environmental control system
i. Hot water heat system pumps and automatic valves

2. The plumbing and piping required for any of the greenhouse equipment is to be provided, installed and connected by the mechanical sub-contractor(s). Plumbing and piping work is required for the following equipment that may be incorporated in this project:

a. Hot Water supply and return piping for the radiant fin tube heating system
b. Misting system control unit (Domestic Water)
c. Irrigation system control unit (Domestic or non-potable Water)
d. Hot, cold and/or tempered water supply hose bibs. (Domestic Water)
e. Utility sink
f. Emergency eyewash and shower water piping

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Drawings and specifications are based on products as manufactured by some or all of the following approved greenhouse manufacturers:

Albert J. Lauer, Inc., West Farmington, MN, 55024 (651)-423-1651
Ludy Greenhouse, New Madison, OH, 45346 (937)-996-1921
Prospiant (acquired Rough Brothers, Inc. and Nexus Corp), 5513 Vine Street, Cincinnati, OH, 45217
(513)-242-0310
Solar Innovations, Inc., 31 Roberts Road, Pine Grove, PA, 17963 (800)-618-0669
Van Wingerden Greenhouse Company, Mills River, NC, 28759 (828)-891-7389
Greenhouse Renovation Services, Inc. (RSI), Newport, KY, 41071 (606)-906-1921
EGC,, Edwin's Greenhouse Company, Old Zionsville, PA (484)951-8685

Manufacturers seeking approval to bid and who have products similar in design and meeting all the requirements of the specifications must submit complete product data and specifications along with a list of seven (7) projects of equal size and magnitude that have been successfully completed and operational for a minimum of four (4) years and evidencing not less than ten (10) years' experience in similar work. Name and location of project, name and address of general contractor, name and address of architect shall be provided for each of the references. Only those product descriptions received by the architect no later than ten (10) days prior to the bid opening and only those products

approved in writing by the architect prior to the bid opening shall be considered. Any bid from a non-pre-approved manufacturer may not be used or accepted.

2.2 RIDGE

A. Existing extruded aluminum ridge shall be inspected for; any damage or irregularities, connection to structural frame, sealed splice connections and clear ridge vent socket.

B. Ridge splices shall be covered with an aluminum splice plate cover and sealed according to the manufacturer's recommendations.

2.3 GABLE ENDRAFTER

A. Existing extruded gable end rafter and corner trim shall be inspected for any damage or irregularities and repaired or replaced as required.

B. The wood base sill for the existing partial gable end at the connection to the masonry headhouse structure is to be removed and replaced with aluminum framing for glass glazing and aluminum or stainless-steel transition flashing to the membrane roofing system of the headhouse structure.

1. Connection Installation of the transition flashing to the membrane roofing system is the responsibility of the roofing sub-contractor.

2.4 WALL AND VENT SILLS

A. Existing extruded aluminum sills shall be inspected for any damage or irregularities and repaired as required.

B. Sill splices shall be covered with an aluminum splice plate cover and sealed according to the manufacturer's recommendations.

2.5 GLAZING RAFTERS AND BARS

A. During any glass lite replacement on the roof or in sidewall and gable ends, the aluminum rafters and glazing bars are to be inspected for any damage and repaired as required.

1. For lapped glass roof, gable, sidewall and partition glazing, glazing bars shall be provided to accept stamped or extruded aluminum bar caps. Caps to be held in place with hex head stainless steel SMS screws placed on a minimum of 9" centers. Bar caps shall be applied to the bar/rafter covering the entire length of each lite of glass and made to conform to the laps in the glass and provide a uniform 3/8" lap. Caps shall be stamped and shaped with proper forming to exert a uniform, but not excessive, pressure along the entire length of the glass lite. Each cap shall be held with a minimum of two stainless steel self-tapping screws. Screws that hold bar

caps shall be spaced not over 15 inches apart, nor shall any screw be placed closer than 1-1/2" from the end of the caps.

2. At each steel beam structural member existing special scaffold bracket screws for roof glazing to be inspected and any loose, damaged or missing scaffold bracket screws shall be replaced with similar type of special scaffold bracket screws. The use of longer sheet metal screws is not acceptable. Submittal of the fastener for approval is required.

2.6 ROOF VENTS

A. Existing aluminum ridge vents with a continuous socket hinge shall be cleaned and refurbished as required for any damaged or bent aluminum components.

B. Any broken or cracked ridge vents glass shall be reglazed with clear tempered glass matching the original thickness and sizes of the original glazing.

C. All vents shall have provisions made at the hinge point to prevent movement, “creeping” of the vent sash assembly

2.7 SIDEWALL VENTS

A. Existing aluminum sidewall vents with a continuous socket hinge shall be de-glazed, cleaned and refurbished as required for any damaged or bent aluminum components.

B. West sidewall vent to be re-positioned with fixed glazing; bottom of vent to be at existing sill location

C. Refurbished sidewall vents shall be reglazed with clear tempered glass matching the original thickness and sizes of the original glazing.

D. All vents shall have provisions made at the hinge point to prevent movement “creeping” of the vent sash assembly

2.8 VENT OPERATORS

A. Existing vent operating equipment for roof and sidewall vents shall be removed and replaced with new aluminum rack arms with zinc alloy pinions. All sidewall vents shall be operated with either aluminum rack arms with zinc pinions or cast aluminum elbow arm assemblies depending on Owner requirements per location of sidewall vent.

B. Provide new 1.315" outside diameter galvanized steel tube steel or stainless-steel pipe vent sash drive shafting with aluminum couplings and end stops.

C. Provide new aluminum vent shaft hangers with UV resistant nylon type wear bushings or sealed stainless steel ball bearing bushings to support roof and side vent drive shafting as per manufacturer’s specifications.

D. Rack & pinion arms with aluminum rack, zinc pinion gear and extruded aluminum housing assembly to keep rack and pinions in proper mesh and alignment shall be provided. Racks attach to bottom rail of vents with aluminum clips and stainless-steel locking pins. No less than three sets of rack and pinion arms shall be provided for each twelve (12') foot bay per run of roof vents. Provide rack and pinion sets as manufactured by: Wadsworth Controls, Inc. – *Power Rack*® or Climate Controls, LTD. – *EZ Pinion*® or approved equal.

2.9 VENT MACHINES

A. New electric motor operated vent gear machines shall be provided to operate automatic roof and sidewall vents in the greenhouse compartments. Mount vent machine and vent machine stand-alone control boxes where indicated on the drawings and mount any vent machine low voltage sensor/limit switch boxes as per manufacturer's written instructions. Power and control wiring, including low voltage wiring between vent machine limit controls and vent machine stand-alone control boxes is to be installed by the electrical sub-contractor. Vent machines motors are to be 115 volt, 60Hz, continuous duty and quick reversing units. Greenhouse Manufacturer is responsible for determining the required size, (HP), of the vent machine model to operate the manufacturer's vent sash design and weight. Provide vent machines as manufactured by: Wadsworth Control Systems, Lock-USA, Ridder, or approved equal.

2.11 DOORS AND FRAMES

A. Double doors in the new partition wall shall be 1 3/4" x 6'0" x 7'0" half panel clear anodized with 5" extruded tube rails and 4" extruded aluminum tube frame with wool pile seals. Hardware shall include (1 ½ pr.) 4 ½ x 4 ½" stainless steel hinges with non-removable pins, [See Hardware Section 08710 for Door Lever handles locksets, cylinder locks and related hardware specifications.], aluminum threshold and door sweep. Provide dummy trim and top and bottom concealed flush bolts for inactive leaf. Upper panels shall be glazed with 1/4" clear safety glazing and lower panels shall be an aluminum-faced solid filler panel.

B. Center of Horizontal rails shall be located at 36" from door bottom. All rails and frame extrusions shall have a .125" minimum wall thickness.

C. Overhead door is to be an aluminum framed sectional vertical rolling type overhead door with clear polycarbonate section panels as described in the "Door Schedule", Section: 11640. Provide locking hand turn hardware, interior handles, weather striping, bottom gasket and any required installation hardware. Door unit to be supplied with automatic electric motor power lift equipment. Door to be as manufactured by Clopay, Corporation, Lux, Inc., C.S.I.or approved equal.

2.12 PARTITION WALL

A. New work area partition wall shall be constructed in a similar manner to the sidewall and gable glazing systems using extruded aluminum shapes for structural framing – aluminum glazing bars designed for use with stamped or extruded aluminum bar caps for 8 mm thermal-plastic glazing panels.

2.13 GLAZING

A. Replacement glass for all roof, vertical glazing, sidewalls, gable ends and partition walls, shall be clear 1/8” tempered glass. Tempered glass shall be used in locations as required by Section 2406.3, Safety Glazing, 2021 IBC, International Building Code and any locations shown on the drawings to be safety glass.

B. Glass glazing used in door units and 24” around both vertical sides of passageway door locations is to be clear tempered safety glass. Glass thickness in these locations is determined by size of glass unit and as specified in Section 2406.0, Safety Glazing of the 2006 IBC International Building Code.

2.14 VENTILATION AND COOLING

A. HORIZONTAL AIR FLOW FANS

1. Air circulation system shall be by 8” to 36" diameter (400 to 12,000 CFM) horizontal airflow fans. Sizing and manufacturer’s recommended mounting locations of the HAF fans is the responsibility of the greenhouse manufacturer. Sizing for each HAF Fan unit shall be a minimum of 1,000 cfm and total combined HAF fans cubic feet per minute should meet a minimum of 25% of the greenhouse compartment or zone volume. Assembled unit to include totally enclosed fan cooled motor (115v 60Hz), polyvinyl coated guard, aluminum 3 wind fan blade, certified CFM rating and aluminum mounting bracket for hanging. Electric motors are to be suitable for variable speed operation. Provide *PlantAir*® HAF fan assemblies as manufactured by Schaefer Ventilation Equipment, Inc. or equal.

2. Mount horizontal airflow fans in locations as show on the drawings or location recommended by the manufacturer and in such a manner that the fans and mounting brackets do not interfere with the installation of automatic shade systems, lighting systems and fog/misting systems. HAF fans will operate as one piece of equipment per greenhouse compartment. Speed control switch shall control all HAF Fans per greenhouse compartment. Power and control wiring to be provided by the electrical sub-contractor. Coordinate testing and adjustment with appropriate mechanical contractors.

2.15 HEATING

A. FIN-TUBE RADIATION - HOT WATER HEATING SYSTEM

1. General Requirements: The hot water radiant heating system for the greenhouses shall be sized and provided by the greenhouse manufacturer and be an all-aluminum fin tube hot water heating system. The heating system shall be designed to connect to the facility's hot water source and return piping system. System as designed and manufactured by *BioTherm Inc.* or equal. The system shall be designed for the following conditions:

(a)	Inside Temperature:	70º deg F
(b)	Outside Temperature:	-10º deg F
(c)	Temperature Difference:	80º deg F
(d)	Hot Water Supply:	180º deg F
(e)	Hot Water Return:	160º deg F
(f)	Water Temperature Mean:	170º deg F
(g)	Relief Valve Pressure:	30 psi
(h)	Operating Pressure:	12 psi

2. Heating Design: The system shall consist of perimeter-heated greenhouse compartment zones. Perimeter heat pipes shall be positioned "low" in greenhouse compartments and mounted on the perimeter knee walls. Fin tube to be mounted no higher than eave/gutter elevation if required for additional heat load and/or gutter snow melt heating.

3. Radiation Fin Tube: Radiating materials shall be aluminum/aluminum finned pipe, using water temperatures up to 230º degrees F and will consist of the following components: 1.25" Schedule 40 aluminum pipe with 3.25" x 3.25" x 0.025" aluminum fins at 48 fin/ft. Pipe shall have each end grooved to accept the grooved couplings provided with the system. Coupling shall be grooved style with high temperature gasket rated for -60º deg. F to 230º deg. F. Coupling and external grooved fin system shall absorb expansion from heated aluminum. Pressure rating shall be 125 psi at 230º deg. F. Product as manufactured by Delta-T Solutions, *Delta T -Fin SF125*® or equal.

4. Zone Control: By-pass zone control shall be able to supply water to the zone or pass water flow from the main system pump while maintaining a constant designed flow rate using an automatic flow control and three-way control valve. Control of the actuator valve shall be 24v-3 wire floating control from an environmental controller. Controller will control the actuator based on air temperature. Electric motor actuator to be *VC*™ series shall as manufactured by Honeywell Controls or equal. Automatic flow controls shall be *AutoFlow*™ as manufactured by Flow Design, Inc. or equal , factory set to automatically limit the flow within 5% of specified amount. Internal wear surfaces of the valve cartridge are to be nickel and stainless steel with stainless steel spring.

5. Control Valves: Three-way electric motor driven cartridge control valves shall be included with the system for each greenhouse compartment or zone. Valve actuator shall be removable and be connected to 24V power to open and power to close

control. Valve shall be bronze construction with a removable *Noryl*™ type engineered plastic cartridge, EPDM O-ring and stainless-steel stem. Valves shall be provided by the greenhouse contractor and installed by mechanical sub-contractor. Valves to be VCZM™ series as manufactured by Honeywell Controls, Inc. or equal.

6. System Pumps: System shall be provided with all electric motor driven in-line circulation pumps to maintain proper hot water supply requirements. Pumps shall be bronze construction and have permanent ceramic shaft seals. Electric motors shall be standard NEMA frame, totally enclosed units. Pumps shall be as manufactured by Federal Pump Corp., Bell and Gossett, Inc. or equal.

7. All sensors and interconnected control wiring between sensors, actuators, and control panel shall be by the electrical sub-contractor.

8. Aluminum or stainless-steel expanded metal mesh fin tube covers to be provided over the radiant fin tube heating system in compartments and corridors with "low" perimeter fin position.

9. Supply and return piping shall be Schedule 40 threaded or grooved steel pipe with all necessary Schedule 40 fittings to connect to the supply and return mains from either the facility's hot water heating source or the hot water boiler supplied with the system package. Supply and return piping that is not being used for radiation shall be insulated with 1" fiberglass heat piping insulation rated to 850ºF and wrapped with a PVC protective cover. Insulation and jacketing shall meet ASTM E84, 25/50 smoke and flame ratings. Provide insulation materials as manufactured by Speedline Corp. or equal.

10. Replace overhead unit heaters with new unit heaters matching the existing.

11. Installation: Full installation of the above system will be responsibility of the greenhouse contractor. The installation shall be done with a crew experienced for not less than 3 years of installing hot water heating systems. All necessary elbows, nipples, drain plugs, air bleeders, expansion joints, support system components, insulation, etc. to complete the system shall be included in the system package. Power and control wiring to be provided by the electrical sub-contractor. Coordinate testing and adjustment with appropriate mechanical contractors. Mechanical sub-contractor to verify with greenhouse
contractor the delivery of required flow rates from the facilities' central hot water supply system to the greenhouse compartments and to make final connections of supply and return piping to the facility's hot water heating source.

2.16 ENVIRONMENTAL CONTROL SYSTEM

A. General: Provide all necessary sensors and relays to connect to the existing automatic environmental control system in the conservatory and connected greenhouses zones. If

the existing environmental controller cannot be utilized then it is the responsibility of the greenhouse contractor to evaluate and select a computerized environmental control system specifically designed for institutional greenhouse operations and to submit greenhouse climate control equipment sequencing programs for all of the equipment in the P-1 greenhouse compartments with the control system submittal.

1. The control system shall be designed in accordance with the latest advancements in greenhouse control, with the objective of regulating the factors of environmental plant growth. The control system design shall include collecting, processing and storing greenhouse environmental data in view of the intended purpose of maintaining that environment(s).
2. All functions shall be accessible through central, satellite, and remote computers.
3. The control system shall take all control parameters into consideration to determine the appropriate operating conditions and the sequence of operation of the different mechanical systems to best maintain the desired set points.
4. The system shall allow for variable set points as a function of the control parameters as commonly found in industry practice and in accordance with the latest research in greenhouse control.
5. The control system shall consist of a dedicated, distributed, and networked control
system.
6. Control must be independent of all PC (personal computer) operator interfaces and terminals (failure of one part must not affect the rest).

B. Vendor Requirements

1. The supplier shall have as a principal activity the supply of specialized greenhouse computer control systems. The supplier shall supply proof of at least five (5) prior installations in facilities of comparable size, nature, and complexity. The supplier's software shall be proven in existing greenhouses for all the environmental mechanical systems specified.
2. Upgrades and modifications of the software shall be supplied at no cost for a period of one (1) year from the date of installation.
3. The manufacturer/supplier shall offer toll-free telephone support for the system, including applications support.
4. All hardware and software components shall be warranted for a period of one year following the date of final acceptance of work.
5. On site Owner/operator training for start-up of the control system.

C. Functional Features

1. The control software must be capable of maintaining the desired set points while operating all mechanical systems so that conditions remain optimal for plant growth, within the limits of the equipment capabilities.
2. Set points are required for: air temperature, air-moisture content and light

levels.

3. The control system shall be accessible via telephone modem for factory service, trouble shooting, support, and remote access by the conservatory operators.
4. Manual overrides for testing and emergency operation of machinery and equipment shall be located in the control panels where they are protected from the environment and lockable.
5. The controller is to operate independent from any other controllers and each controlled climate zone is to operate independent of other zones.
6. The control system shall be capable of automatic synchronization of client server files across computer networks and telephone access lines.
7. The control system shall support simultaneous access by multiple PC's
8. The system shall scan all sensors at least once every second.
9. The control system shall be capable of automatically transferring data to the local PC hard disk for long-term data storage
10. All settings are to be stored in controller-resident memory capable of maintaining settings for at least one month without power to the module.
11. Automatic backup of settings and data shall be compiled at least once per day for all changed parameters. Restoration of settings (i.e. after board replacement) or prolonged out-of-service periods should be manually initiated but otherwise fully automatic and complete.

D. Installation and Configuration

1. All line voltage electrical equipment and components shall be UL or CSA approved. All panels containing line voltage components must bear a UL and/or CSA stamp or approval.
2. The control system shall be configured with a minimum 20% additional capacity for future programs, sensor inputs, and control outputs.
3. Where applicable, the risk of lightning damage to the control system shall be minimized by the use of optical isolation and surge suppression components.
4. All components must meet the applicable standards for radio interference suppression (FCC part 15 in the U.S.).
5. The power source for the control system must be on a dedicated circuit that does not share power with other equipment loads.
6. All climate temperature/humidity sensors shall be provided in aspirated modules with backup temperature sensor protection.
7. All sensors and control components shall be selected & designed to withstand greenhouse and horticultural production environments.

E. System Components

1. A complete software package adapted for conservatory or greenhouse control (includes all equipment control program modules).
2. Event recording for logging equipment cycles, motor starts etc.

3. Comprehensive programmable alarms and alarm display. The system shall differentiate between critical and non-critical alarms. The system shall monitor outside and inside climate and equipment conditions with visual, audible, and signal output capabilities.
4. Graphic display of all logged data in up to 4 user-selectable parameter combinations. Data shall be displayable in daily, weekly, monthly, or yearly graphic and tabular intervals.
5. Long-term archival data storage.
6. Data export capability for all recorded data files for use in general programs such as Microsoft Excel.
7. Multi-level password protection (e.g. 16 levels of password protection down to the individual compartment level).
8. User-programmable menus and graphical display options.
9. Comprehensive display on a control group basis of measured environmental conditions, set points, control parameters, and outputs.
10. User-configurable display of current measured environmental conditions, set points, and control parameters.
11. On-screen help files for all functions should be available at all times.
12. A programmable start-up sequence to permit sequential starting of each piece of greenhouse equipment. The sequence will be initiated at each power up and after a power failure during the time the greenhouse is powered by the emergency generator.
13. A weather station to monitor global radiation, air temperature, rain detection, wind speed, and wind direction.
14. Reference to absolute or relative time values i.e. before/after solar dawn/dusk vs. absolute time of day.

15. Up to 4 diurnal climate temperature/humidity set point periods.

F. Equipment Controls Point List – Any or all of the equipment listed but not limited to:
1. Roof vent machines
2. Sidewall vent machines
3. Horizontal airflow fans
4. Exhaust fans
5. Shade system machines
6. Motorized shutters
7. Hot water heating valves and pump motors
8. Under-bench heating
9. HID Growth lighting fixtures
10. Misting systems
11. Irrigation systems

G. Acceptable Greenhouse Environmental Controls Providers

(**Note*** This specification is based on an environmental controller with features desired by the Owner/User. The below listed acceptable environmental control providers may or may not offer all of the specified features and options. Submittals for the

environmental control system shall define all of the features available with the Greenhouse Provider's selection for the environmental control system as it relates to this specification.)

1. Wadsworth Controls, Inc.; Arvada, CO 800-821-5829
2. Micro-Grow Greenhouse Systems, Inc.; Temecula, CA 909-296-3340
3. Argus Control Systems, Ltd.; White Rock, British Columbia; 604-538-3531

H. Provide a greenhouse controller with any necessary pre-wired NEMA 3R rated contactor cabinets for control of heating, ventilation, and cooling systems noted on drawings. The contactor panel shall contain relays and/or magnetic contactors for control of the equipment. Control and power wiring and conduit by electrical contractor.

I. Testing and Owner training: Allow two days for on-site testing and Owner training by environmental controls manufacturer.

J. In addition to the electrical line voltage equipment wiring requirements, low voltage conduits and wiring will also be required for a complete operational greenhouse environmental control system. This work and the associated materials are not performed or provided by the greenhouse contractor. This work would include, but not be limited to:

1. Limit switch cables routed from each vent or shade motor back to individual control boxes.
2. All automatic hot water zone control and/or mixing valves.
3. All sensor wiring and conduits, indoors and outdoors, including the mounting of the actual sensors and weather station equipment.
4. All interconnection control cable shown on the Environmental controller drawings.
5. Any wiring and conduit for low voltage equipment such as shutters, tube motors, VFD control lines, starter lines and solenoid valves required for operation of greenhouse equipment.

2.17 RETRACTABLE SHADE/HEAT RETENTION ROOF CURTAIN SYSTEM

A. GENERAL

1. Independently motorized per compartment, supported type Shading and Heat Retention Curtain System designed for greenhouse compartment size as shown on the drawings. Shade systems as manufactured by Wadsworth Controls, Inc.-*PowerPull*® or approved equal.
2. Curtains are to travel simultaneously from truss to truss and have a peaked or "roofline" profile with a flat top.(Slope/flat/Slope)

3. Curtains are to be suspended from U.V. stabilized reinforcing tape and suspension hooks which slide on stainless steel suspension wires.

4. All curtains are to be supplied sewn to size complete with reinforcing tape and suspension hooks factory installed.

5. Curtain fabric to be Ludvig Svensson Brand, *Harmony*™ Product No. 5747 FR- (65% shade factor) or equal.

B. MOTORS AND CONTROLS

1. Shade System in each compartment or Zone to be independently operated by one 115-volt, 60 HZ, single phase motor.

2. Motor is to be U.L. approved.

3. Primary and backup limit switches for each travel direction are to be integrally mounted into the motor.

4. Control panel is to be pre-wired for computer hookup and equipped with a manual override switch in each compartment. . Power and control wiring to be provided by the electrical sub-contractor. Coordinate testing and adjustment with appropriate mechanical contractors.

C. DRIVE SYSTEMS, Rack and Pinion

1.. Motor driven shafting with rack and pinion operators to be aluminum racks and cast zinc pinions with extruded aluminum pinion housing. Rack and Pinion operators to be *EZPinion*™ as manufactured by Climate Control, LTD or *PowerRack*™ as manufactured by Wadsworth Control Systems.

D. SYSTEM HARDWARE

1. All rotating components, i.e. bearing brackets, pinions and pulleys are to utilize pre-greased double sealed ball bearings.

2. All hardware is to be corrosion protected by either galvanizing, plating or high performance coating.

E. SYSTEM SEALING

1. Proper sealing of the curtain system at the trusses is to be accomplished using truss mounted aluminum extrusions.

2. Proper sealing of the curtain at the sidewall for heat retention is to be accomplished with fixed cloth sections installed on support wires mounted against the exterior

wall surface and a minimum of 8” into the greenhouse space to provide a positive overlap with the ends of the movable shade cloth panels.

F. FIXED SHADE FOR WORK AREA

1. Provide and install fixed overhead shade cloth in the new Work Area, Ludvig Svensson Brand, *Harmony*™ Product No. 8547 FR- (83% shade factor) or equal.

2.18 PLANT BENCHES

A. Freestanding stationary and/or floating aisle benches of the size and quantity shown on the drawings shall be provided by the greenhouse manufacturer. Support system shall be 14 ga., 1.25" square galvanized steel tubing spaced at 6'-0" intervals. Bench tops shall include 18 ga., 1" square galvanized steel tubing crosspieces spaced at 18" intervals, extruded aluminum side and end rails with 2” minimum perimeter edge and 3/4" “diamond”, minimum 13 gauge hot dipped galvanized steel expanded metal. Safety plastic corner connectors shall be used at end rails. Exposed metal corners are not acceptable. Two runs of 14 ga., 1.315 o.d. galvanized steel tubing shall be provided to support bench tops above the support system. Two runs of 14 ga., 1.315" o.d. galvanized steel tubing shall be installed 1'-2" above the floor to stabilize the support system. Extruded aluminum fittings with galvanized bolts and stainless-steel screws shall be used to assemble the benches. Bench height shall be 2'-6" from floor to expanded metal or as show on the drawings. Bench support system for floating aisle benches shall be attached to concrete floor with stainless steel clips and stainless-steel wedge or drive anchors. Benches shall be *Ro-Flo*® as manufactured by Rough Brothers, Inc., Ludy Bench, Paul Boers LTD or approved equal.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Field measurements: Verify all dimensions, designs and fabrication of all connecting construction. It is the contractor’s responsibility to verify existing steel and aluminum, concrete and masonry conditions,dimensions and elevations before delivery of greenhouse components. Verify that mounting surfaces are correctly prepared for receiving greenhouse structure, glazing systems and new equipment.

3.2 INSTALLATION

A. Install entire system components in strict accord with the greenhouse manufacturer’s published instructions and recommendations.

B. Drilling and setting of structural anchor bolts for new additions are the responsibility of the greenhouse manufacturer’s installer.

C. The fabricator shall provide supervisors and labor to install the greenhouse repairs and additions who are regularly engaged in greenhouse construction, restoration and installation, skilled and experienced in the type of erection that is proposed for this project. If the installation of the greenhouse is sub-contracted by the greenhouse manufacturer it shall be erected by a qualified greenhouse specialty contractor/builder, authorized and approved in writing by the manufacturer, showing at least five (5) years experience in building, installing and/or restoring greenhouses of the type specified. Laborers may be required to demonstrate advanced skills in glazing installation proceedures at the discretion of the Owner, General Contractor or Greenhouse Manufacturer.

3.3 DISSIMILAR MATERIALS

A. Separate dissimilar metals with polyurethane or asphalt coating or Teflon™ type barrier sheet material. Separate aluminum from cementitious material with polyurethane or asphaltic coating.

3.4 FLASHING

A. All flashing and counter-flashing necessary for greenhouse connections to other structures shall be furnished and placed by the sheet metal contractor. The Greenhouse Contractor shall furnish drawings establishing flashing line. All flashing and counter-flashing shall be aluminum or stainless steel.

3.5 GREENHOUSE EQUIPMENT

A. Install, place or mount all greenhouse operational equipment specified in this section in accordance with manufacturer's published recommendations and in locations shown on the drawings. Coordinate all setting of this equipment with other greenhouse components installation and with the installation of power and control wiring and plumbing and piping connections being executed by electrical and mecanical sub-contractors.

3.6 ADJUSTING

A. Final Adjustments: Upon achieving Substantial Completion of the Work, adjust all operable components and limits to ensure that they are properly installed and functioning correctly as described by the manufacturer. Replace any equipment or component which cannot be adjusted for proper operation.

3.7 INSTRUCTION

A. Greenhouse Manufacturer’s project manager shall be certified for having completed an OSHA Construction Safety Training Course, ten (10) hour minimum. Greenhouse Manufacturer shall provide to the jobsite one (1) complete “job-specific” Jobsite Safety Manual.

B. In addition to a minimum of (2) site visits by greenhouse manufacturer project management, Greenhouse manufacturer shall provide two (2) one day instructional presentations to the owner on use of the greenhouse and all greenhouse environmental equipment and controls. Provide all equipment operation and maintenance manuals to the owner.

C. The environmental computer control system manufacturer shall provide two (2) days of training to the Owner for the programming and operation of the environmental control system and all of the system's peripherals.

3.8 CLEANING

A. During progress of the work, remove from project site all discarded materials, packaging, rubbish, and debris resulting from the work.

B. Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which shall not scratch or otherwise damage finished
surfaces. Use only products and techniques acceptable to manufacturer of products being cleaned.

3.9 WARRANTY

A. Greenhouse manufacturer shall provide a one (1) year warranty on materials and workmanship from the date of completion of his scope of work as described in the Contract Documents for this project and certified by the Owner and Architect. Any greenhouse warranty issue within the warranty period shall be directed to the greenhouse manufacturer and become the direct responsibility of the greenhouse manufacturer, its material suppliers, vendors and sub-contractors.

B. Written warranty confirmation, as described above, is to be submitted with the approval drawing submittal package.

3.10 PROTECTION

A. Institute protective procedures, follow all manufacturers' written procedures for storage and protection and install protective materials as required to ensure that work of this section shall be without damage or deterioration at Substantial Completion.

END OF SECTION 13123

Pre-Bid RFI Log

Pre-Bid RFI #	Title	RFI	Response	Addendum Response Issued
1	Apprenticeship Requirements	It appears that the project contains a apprenticeship stipulation, how are we able to bid if we are a non union company.	The County requirement on all projects is 10% apprenticeship through employees that are certified apprenticeships through NY State. How a contractor acheives that is through training programs within NYS and EEO can assist with providing direction on which programs. That said, the contractor also has the option to check inapplicable and provide reasoning why whithin the bid as shown on the NEW YORK STATE CERTIFIED APPRENTICESHIP TRAINING PROGRAM CERTIFICATION form within the bid proposal	Addendum #2
2	Fire Alarm	What company is the Fire Alarm Vendor?	Seimens	Addendum #2
3	Field Supervision	Per section 001000 3.3 Each Prime Contractor is to provide a breakout for a full-time Field Supervisor. The value of the payment application line item shall be the cost/salary of the Full-time Supervisor for the duration of the project. Please confirm that a full-time field supervisor is required, and if they can be working or non-working based on the package.	Refer to specification 001000 section 6.2 for field supervisor requirements.	Addendum #2
4	Gypsum Underlayment	Section 035413 Gypsum Underlayment was removed via Addendum 1. S101 still calls out a 3" gypcrete topping at S1 CLT deck. Is this work going to be performed by others?	Specification 03 54 13 Gypsum Concrete Underlayment will be added in addendum #3 and will be included in the BP-102 General Contractor Scope of Work. (Repeated in RFI #21)	Addendum #2
5	Contractors Own Workforce	Per the bid proposal, Contractors Own Workforce, please confirm that the only items that contribute to the 25% requirement is actual "work in place" and not management, supervision, general conditions, etc.	General Conditions, supervision, clerical **CAN** contribute to the minimum 25% requirement in addition to "work in place".	Addendum #2
6	Mechanical Screen	On A202, a mechanical screen is indicated, what package is responsible for this? Please provide specification	Per Addendum #1 specification 002010-7 section "Sitework, Excavation and Fill", item "o", the BP-101 Site Contractor shall provide the mechanical screen surrounding the exterior ACCU's. See specifications sections 08 90 00 and 08 92 00	Addendum #2
7	Spec. 072700	Per section 072700 an accredited ABAA contractor is required; can this be waived	No, this requirement can not be waived	Addendum #2
8	Spec. 074243	Section 074243 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal.	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
9	Spec. 078123	Section 078123 only lists one product as the basis of design for the fire protection material and top coat. Traditionally in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
10	Spec. 083613	Section 083613 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal.	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
11	Spec. 086300	Section 086300 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal.	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
12	Spec. 102239	Section 102239 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
13	Spec. 122400	Section 122400 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2

Addendum #2

Pre-Bid RFI Log

14	Spec. 142400	Section 142400 only lists one product as the basis of design. Traditionally, in public bids at least 3 products are listed. Please provide at least two other products that would be considered an equal.	A basis of design or approved equal fulfills the requirements for this project. No additional products will be added to the spec.	Addendum #2
15	Spec. 081613	Is section 081613 Fiberglass Doors part of package 106?	Refer to Addendum #1 Exhibit E Specification Responsibility Matrix, Specification 081613 is the primary responsibility of the BP-102 General Contractor. Refer to Addendum #1 specification 002020-12 section "Doors/Frames/Hardware", Item "a" for more information.	Addendum #2
16	Exhibit G Testing	Please confirm that all moisture testing required via Exhibit G will be performed by the owner	All moisture testing required via Exhibit G will be performed by the Owner's Special Inspection Testing Agency. The protection and testing measures included in Exhibit G shall be coordinated with the Cross Laminated Timber and Glue Laminated Construction Manufacturer. The Manufacturer requirements will supercede the Exhibit G requirements.	Addendum #2
17	Contractors Own Workforce	I wanted to reach out regarding the Erie County requirement for prime contractors to self-perform at least 25% of the work. Meeting the 25% self-performance requirement may be challenging for many Prime Contractors. Could you provide some clarification on this requirement? Specifically, is there any consideration for the general contracting portion of the bid to count toward this percentage? Any information you can share would be greatly appreciated.	Any and all work executed by the prime contractor will count toward the 25% requirements. This includes but is not limited to supervision, general conditions, clerical, any on on-site scoped work related to the project, etc. by employees working under the prime contractor.	Addendum #2
18	P2 Greenhouse	Are there any benches being installed in Greenhouse P2?	No benches for P2 Greenhouse	Addendum #2
19	Finish Schedule	CONC-1 is polished concrete called out on the Finish Schedule on Drawing A952. The Finish Schedule states to reference architectural specs, however there is no spec for polished concrete. Can you please provide?	Spec 03 35 11 for polished concrete will be added.	Addendum #2
20	Rm 105 Event Servery	Drawing A201: Rm 105 Event Servery, is the Prep Surface NIC like the Dirty Carts and Rack? If it is part of the contract, can you please provide a spec or additional details for what is desired?	The prep surface note is deleted in Addendum #2. The three basin sink is part of the contract. Refer to plumbing drawings.	Addendum #2
21	Exhibit E	Addendum #1: Specification 03 5413 Gypsum Concrete Underlayment was crossed off the TOC, however it was then added to the Exhibit E Specification Responsibility Matrix to be included in BP-102 scope of work. Please advise if this work is to be done by BP-102 or not.	Specification 03 54 13 Gypsum Concrete Underlayment will be added in Future Addendum and will be included in the BP-102 General Contractor Scope of Work.	Addendum #2
22	Masonry Specification	There are no specifications for the split face or ground face block on the Botanical Gardens project. Where could I find out what you are looking for? The color of the masonry units affects the price of the units. Please let me know where I can submit samples to.	Architect to reply in Future Addendum	Addendum #2
23	Temporary Stair Tower	Section 00 1000, 7.19, 1. The temporary stair towers call for 36" wide. Is this dimension from outside to outside wall or inside to inside wall? If it is inside to inside wall, these are special order and more expensive. The typical stair tower has a dimension of 25" from inside to inside.	The temporary stair tower's treads must have a 36" width from outside to outside wall. The intent is to not special order a stair tower.	Addendum #2
24	OCSD - 4	On bid day you are requesting that OCSD-4 M/WBE & SDVOB Utilization Report be filled out and submitted. Is there anyway to have this form be submitted within 24 - 48 hours after bid day? It will be very difficult to accurately fill this out on bid day, but given the extra time, the form would be filled out correctly.	Refer to Addendum #2 clarificaion on specification 00 30 00 section 1.1, A, 14 (page 3).	Addendum #2

Pre-Bid RFI Log

25	BIM Coordination	Per section 002020 BP-102 2-H all contractors are to provide coordination drawings of the new and existing buildings in a BIM format to the MC. Please clarify the exact BIM format and level of detail required, is scanning of the existing structures required? If so, what contract is responsible?	Refer to Addendum #2 Scope of Work clarifications.	Addendum #2
26	Spec. 042613	Per 042613 and note E17 on the elevation drawings, the face brick is to match existing. Please provide the basis of design, manufacture, size, color, and finish of face brick to match existing.	Architect will address in future Addendum	Addendum #2
27	Pre cast coping and split face CMU	Per notes E11 & E12 pre cast coping and split face CMU is to match existing conservatory stone base color. Please provide the basis of design, manufacture, size, color, and finish of precast coping and split face CMU to match the existing	Architect will address in future Addendum	Addendum #2
28	Footing Schedule	Ref. Drawing S100 "Footing Schedule": Please confirm that footing type F4.5 should be 4'-6" sq. to match the plan.	Architect will address in future Addendum	Addendum #2
29	Control System	Would a Niagara and/or Honeywell control system be acceptable as a BAS manufacturer for this project?	Architect will address in future Addendum	Addendum #2
30	BAS System	Is there an existing BAS system that would need to be incorporated or extended into the new and renovated areas? If so, what system is it currently?	Architect will address in future Addendum	Addendum #2
31	Builder's Risk	Section 00 2020 (page 17): States that Builder's Risk is by Owner, but AIA A132 Exhibit A, Section A.3.3.3.5. states that the contractor shall provide the Builder's Risk policy. Please confirm the Owner is providing.	This Pre-Bid RFI will be clarified in Addendum #3.	Addendum #2
32	Column Schedule	Drawing S200 Column Schedule: Column C-1 is 6.75x6.875. This is the only column of this size. Can you confirm this is correct, or is it a typo?	Architect will address in future Addendum	Addendum #2
33	Dumpster Coordination	Specification 00 1000, 7.3, 5: It states that you would like a separate dumpster for each type of material being recycled. One of the dumpster service providers has the ability to sort recyclables off site, lessening the amount of dumpsters onsite. This has been approved for LEED certified projects before. Would this be acceptable for this project?	Comingling dumpsters with multiple waste streams can be recycled and sorted offsite **ONLY IF** the offsite waste facility weighs each material stream separately after sorting. As stated in 00 10 00, 7.3, 3: Visual weight estimates will not be accepted. The offsite recycling facility must weigh each of the different waste streams from the comingling dumpster seperately and provide weight documentation for each waste stream to the Owner, CM or A/E LEED Coordinator.	Addendum #2

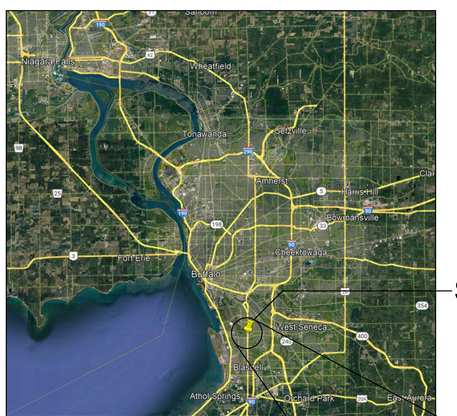
BUFFALO AND
ERIE COUNTY
Botanical
Gardens

Mark C. Poloncarz
County Executive

William E. Geary, Jr.
Commissioner of Public Works

Buffalo And Erie County Botanical Gardens

2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK 14218
Buffalo And Erie County Botanical Gardens Addition



100% CONSTRUCTION DOCUMENTS
02/18/2025

wendel

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Wendel Project No. 605802

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2 ADDENDUM 2 03/06/2025

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Buffalo And Erie County
Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK 14218

Buffalo And Erie County Botanical
Gardens Addition
100% CONSTRUCTION
DOCUMENTS

wendel

PROJECT TEAM

RSE ASSOCIATES Inc.
63 PLEASANT STREET
WATERTOWN, MA, 02472
T. 617-926-9300

BAC AxP
2495 MAIN STREET
BUFFALO, NY, 14214
T. 716-931-5827

ENCORUS GROUP
23 MECHANIC STREET
SPRINGVILLE, NY, 14141
T. 716-592-3980

1 SITE PREPARATION PLAN
SCALE: 1" = 30'-0"

SITE PREPARATION NOTES:

1. REMOVE AND DISPOSE OF TREES (STUMPS INCLUDED) AND BUSHES IN THEIR ENTIRETY. REMOVE AND DISPOSE OF BOULDERS UNLESS OTHERWISE DIRECTED BY OWNERS REPRESENTATIVE.
2. REMOVE AND DISPOSE OF ASPHALT PAVEMENT OR CONCRETE AND SUBBASE MATERIAL IN ITS ENTIRETY.
3. EXISTING UNIT PAVERS STOCKPILE. CONTRACTOR TO UTILIZE SELECT PORTION OF EXISTING PAVERS ONSITE, REFER TO C201 AND COORDINATE WITH THE OWNER AND LANDSCAPE ARCHITECT. REMAINING UNUSED PAVERS TO BE RELOCATED ONSITE BY THE OWNER.
4. REMOVE AND DISPOSE OF GRASS AND TOPSOIL TO REQUIRED SUBBASE DEPTH FOR PROPOSED ASPHALT AND CONCRETE SURFACES.
5. REMOVE AND DISPOSE OF CONCRETE CURB.
6. REMOVE EXISTING PAVEMENT STRIPING.
7. REMOVE EXISTING POST OR POLE MOUNT AND SIGNAGE.
8. REMOVE EXISTING WATER LINE AND APPURTANCES IN THEIR ENTIRETY.
9. REMOVAL OF EXISTING GAS SERVICE BY NATIONAL FUEL.
10. REMOVE EXISTING STORM SEWER PER PLAN.
11. REMOVE EXISTING SEPTIC FIELD; ACTUAL LIMITS TO BE CONFIRMED IN THE FIELD.
12. ABANDON IN PLACE EXISTING WATER SERVICE.
13. REMOVE EXISTING BOLLARD.
14. REMOVE EXISTING 6" STORM DRAIN (ASSUMED ABANDONED) WITHIN LIMITS OF WORK.
15. SAWCUT AND REMOVE CONCRETE RETAINING WALL TO LENGTH SHOWN. END OF WALL SHALL HAVE SMOOTH APPEARANCE.
16. ABANDON EXISTING WATER METER VAULT AT THE DIRECTION OF BUFFALO WATER INCLUDING RESTORATION OF LAWN AREA.
17. CONTRACTOR SHALL INVESTIGATE UNKNOWN UNDERGROUND ELECTRIC LINES AND RE-ROUTE AS REQUIRED; RE: C202.
18. REMOVE 115 LF± OF EXISTING 6" CLAY TILE SANITARY SEWER.
19. EXISTING PAVERS TO BE REMOVED AND SALVAGED FOR RE-USE; COORDINATE REMOVAL LIMITS WITH C201.

GENERAL SITE PREPARATION NOTES:

1. ALL EARTHWORK AND ESTABLISHMENT OF SUITABLE SUBGRADE SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE BUFFALO AND ERIE COUNTY BOTANICAL GARDENS MP ADDITION GEOTECHNICAL ENGINEERING REPORT, PREPARED BY TERRACON, DATED JULY 25, 2024; TERRACON PROJECT NO. J5245097, AND AS DIRECTED BY THE GEOTECHNICAL FIELD REPRESENTATIVE.
2. CLEAR SITE AND STRIP TOPSOIL WITHIN PROJECT LIMITS. ALL TOPSOIL SHALL BE STOCKPILED ON-SITE.
3. AT THE COMPLETION OF THE SITE WORK, PLACE STOCKPILED TOPSOIL IN ACCORDANCE WITH THE PLANTING PLANS.

GENERAL SITE UTILITY NOTES:

1. EXISTING UTILITIES SHOWN ARE APPROXIMATE AND BASED ON THE RESULT OF A FIELD SURVEY OF VISIBLE SURFACE IMPROVEMENTS IN ADDITION TO INFORMATION PROVIDED WITHIN AVAILABLE RECORD DOCUMENTS. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO THE START OF WORK AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICT.
2. ACTIVE SEWERS TO BE REMOVED OR MODIFIED SHALL BE BYPASSED UNTIL PERMANENT SEWER IMPROVEMENTS ARE IN PLACE.
3. WATERLINE "OPERATIONS" ARE TO BE PERFORMED BY BUFFALO WATER PERSONNEL AND COORDINATED BY THE CONTRACTOR.

SYMBOL LEGEND

= LIMITS OF DISTURBANCE

B-4 = APPROXIMATE LOCATION OF SOIL BORINGS

= OUTLINE OF PROPOSED SITE FEATURES

Dig Safely. New York Call811 before you dig

BUFFALO AND ERIE COUNTY Botanical Gardens

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Wendel WD Architecture, Engineering, Surveying and Landscape Architecture, P.C.

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NO.	REVISIONS	DATE
1	ADDENDUM #2	3-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

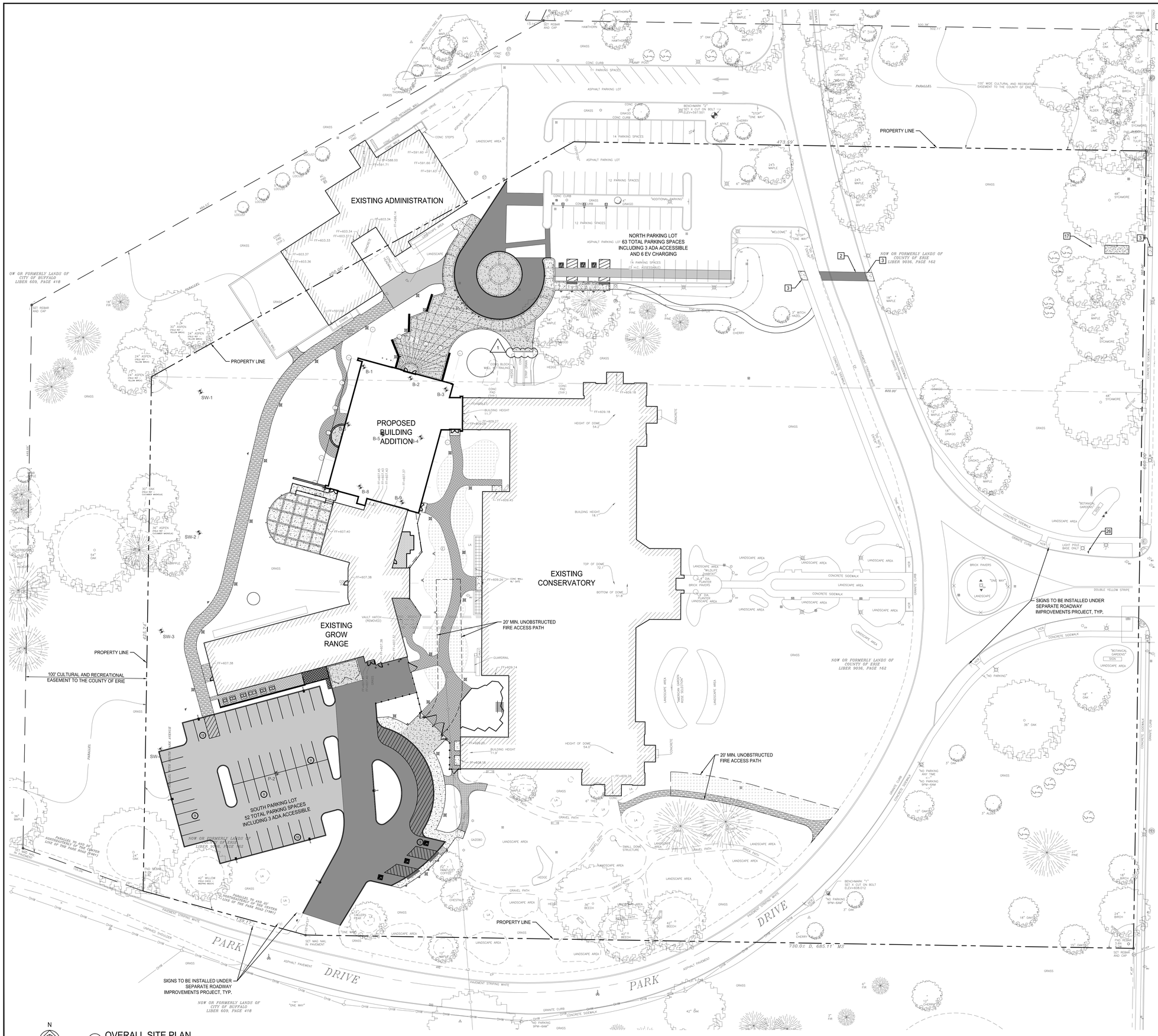
SITE PREPARATION PLAN

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

DATE	2/18/2025
SCALE	AS NOTED
DWN.	IR2
CHK.	TAR
PROJ. No.	605802

DWG. No.

C102



1 OVERALL SITE PLAN
SCALE: 1" = 30'-0"

SITE LAYOUT NOTES:

1. LIGHT DUTY ASPHALT PAVEMENT RE: 1, C501
2. HEAVY DUTY ASPHALT PAVEMENT RE: 1, C501
3. CONCRETE SIDEWALK RE: 2, 4, 5, C501
4. STAMPED CONCRETE RE: 2, 4, 5, C501
5. HEAVY DUTY CONCRETE RE: 2, 4, 5, C501
6. STANDARD STONE DUST PATH RE: 5, C502
7. HEAVY DUTY STONE DUST PATH RE; 6, C502
8. 4" YELLOW PAVEMENT STRIPING
9. ACCESSIBLE PARKING STRIPING AND SYMBOL RE: 1, C502
10. ACCESSIBLE PARKING SIGN RE: 2, C502
11. REINFORCED TURF, REFER TO LANDSCAPE DRAWINGS
12. CONCRETE CURB RE: 3, C501
13. CONNECT TO EXISTING GRAVEL PATH
14. ADA ACCESSIBLE RAMP RE: 8, C501
15. CURB TAPER RE: 9, C501
16. TOOLED CONCRETE JOINT (TJ) RE: 5, C501
17. CONCRETE PAD WITH CONCRETE FILLED BOLLARDS RE: 6 AND 10, C501
18. REMOVABLE BOLLARDS RE; 11, C501
19. DUMPSTER ENCLOSURE RE: 7, C502
20. COURTYARD SECURITY FENCING; RE: 9, L501
21. DUAL SWING GATE, 20' WIDE OPENING, STANDARD GATES #58 OR APPROVED EQUAL, WITH UTILITY / FIRE DEPT. ACCESS LOCK, UL-325 RATED, AND MATCHING 4' WIDE SINGLE SWING GATE WITH LOCKING AND PANIC BAR HARDWARE.
22. SEAT WALL, ALL WALL SURFACES TO MATCH; RE: 13, C501
23. CONCRETE PAD AND BOLLARD FOR EV CHARGERS RE: 10, C501 AND ELECTRICAL DRAWINGS.
24. SITE LIGHTING; REFER TO ELECTRICAL DRAWINGS
25. DO NOT ENTER SIGN RE: 2, C502
26. FIRE DEPARTMENT CONNECTION SIGN RE: 2, C502
27. SCREENING FOR AIR HANDLING UNITS; RE: 4,5,6 A202
28. BOLLARD; RE: 10, C501
29. MOUNTABLE CURB; RE:12 C501
30. SINGLE SWING GATE, 8' WIDE OPENING, STANDARD GATES #58 OR APPROVED EQUAL, WITH LOCKING HARDWARE.
31. ADJUST FENCE POST SPACING AS REQUIRED TO ACCOMODATE EXISTING TUNNEL.
32. NO PARKING FIRE LANE SIGN RE: 2, C502
33. RETAINING WALL, MATCH APPEARANCE OF SEAT WALL SURFACES; REFER TO STRUCTURAL DRAWINGS.
34. RELOCATED STOCKPILED UNIT PAVERS WITH RESTRAINT EDGING; RE: 4, C502
35. ORGANICLOCK STABILIZED AGGREGATE PATH; RE: 8, L501
36. EXISTING UNIT PAVERS TO REMAIN AND PROTECTED IN PLACE

GENERAL CONSTRUCTION NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR SITE LIGHTING.
2. REFER TO C300s FOR GRADING AND DRAINAGE PLAN.
3. REFER TO LANDSCAPE PLANS FOR SOILS, HARDSCAPE, PLANTINGS, AND DETAILS ON RESTORATION.
4. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION ON THE BUILDING ELEMENTS.
5. ALL SEWERS SHALL REMAIN ACTIVE THROUGHOUT CONSTRUCTION.

4 PARKING SPACE COUNTS:
TOTAL NORTH LOT = 63 INCL. 3 ADA
TOTAL SOUTH LOT = 52 INCL. 3 ADA

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DWG. TITLE

OVERALL SITE PLAN

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

DATE	2/18/2025
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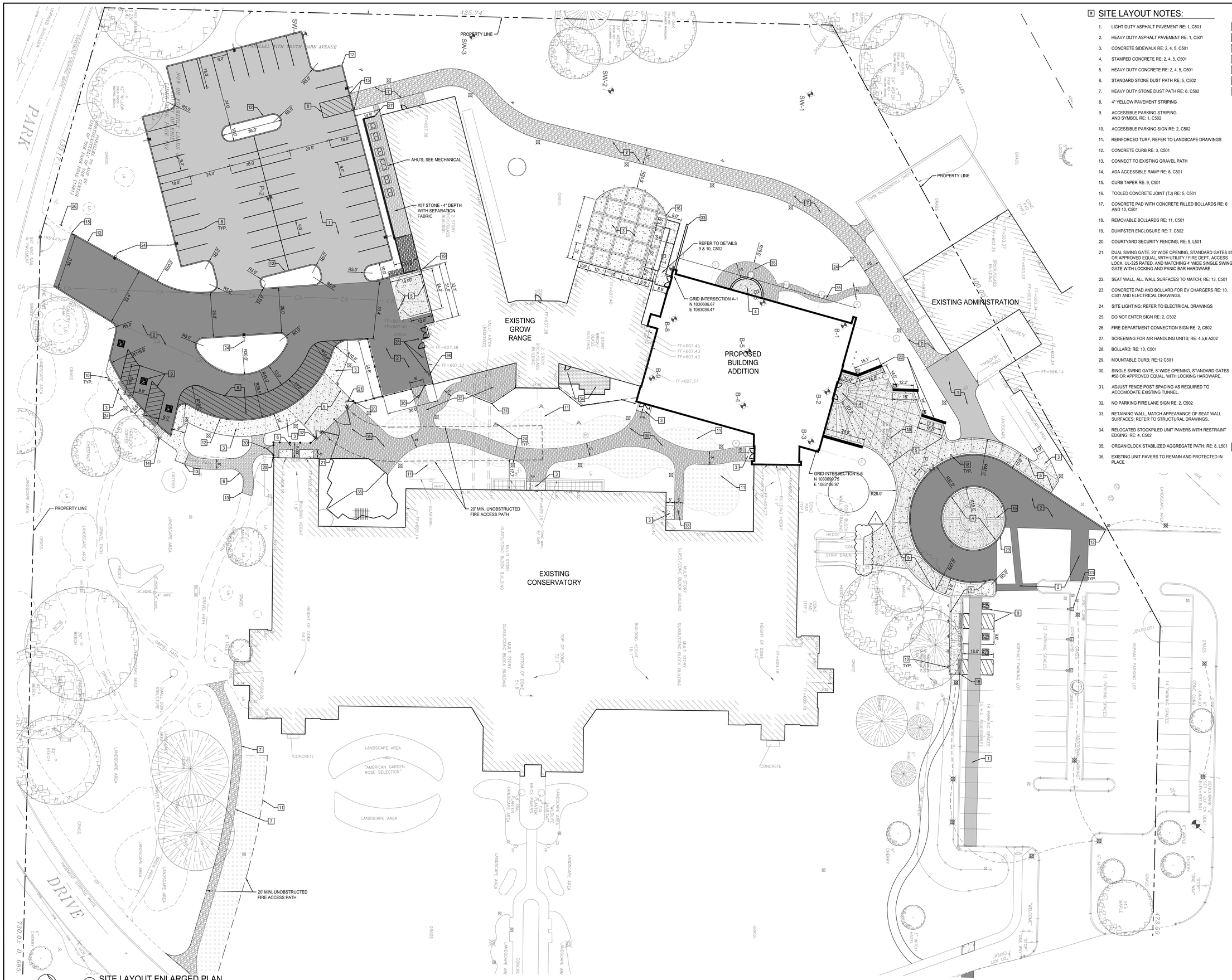
DWN.	IRZ CHK. TAR
PROJ. No.	605802

DWG. No.

C200



SITE LAYOUT NOTES:

1. LIGHT DUTY ASPHALT PAVEMENT RE: 1, C501
2. HEAVY DUTY ASPHALT PAVEMENT RE: 1, C501
3. CONCRETE SIDEWALK RE: 2, 4, 5, C501
4. STAMPED CONCRETE RE: 2, 4, 5, C501
5. HEAVY DUTY CONCRETE RE: 2, 4, 5, C501
6. STANDARD STONE DUST PATH RE; 5, C502
7. HEAVY DUTY STONE DUST PATH RE; 6, C502
8. 4" YELLOW PAVEMENT STRIPING
9. ACCESSIBLE PARKING STRIPING AND SYMBOL RE: 1, C502
10. ACCESSIBLE PARKING SIGN RE: 2, C502
11. REINFORCED TURF, REFER TO LANDSCAPE DRAWINGS
12. CONCRETE CURB RE: 3, C501
13. CONNECT TO EXISTING GRAVEL PATH
14. ADA ACCESSIBLE RAMP RE: 8, C501
15. CURB TAPER RE: 9, C501
16. TOOLED CONCRETE JOINT (TJ) RE: 5, C501
17. CONCRETE PAD WITH CONCRETE FILLED BOLLARDS RE: 6 AND 10, C501
18. REMOVABLE BOLLARDS RE; 11, C501
19. DUMPSTER ENCLOSURE RE: 7, C502
20. COURTYARD SECURITY FENCING; RE: 9, L501
21. DUAL SWING GATE, 20' WIDE OPENING, STANDARD GATES #58 OR APPROVED EQUAL, WITH UTILITY / FIRE DEPT. ACCESS LOCK, UL-325 RATED, AND MATCHING 4' WIDE SINGLE SWING GATE WITH LOCKING AND PANIC BAR HARDWARE.
22. SEAT WALL, ALL WALL SURFACES TO MATCH; RE: 13, C501
23. CONCRETE PAD AND BOLLARD FOR EV CHARGERS RE: 10, C501 AND ELECTRICAL DRAWINGS.
24. SITE LIGHTING; REFER TO ELECTRICAL DRAWINGS
25. DO NOT ENTER SIGN RE: 2, C502
26. FIRE DEPARTMENT CONNECTION SIGN RE: 2, C502
27. SCREENING FOR AIR HANDLING UNITS; RE: 4,5,6 A202
28. BOLLARD; RE: 10, C501
29. MOUNTABLE CURB; RE:12 C501
30. SINGLE SWING GATE, 8' WIDE OPENING, STANDARD GATES #58 OR APPROVED EQUAL, WITH LOCKING HARDWARE.
31. ADJUST FENCE POST SPACING AS REQUIRED TO ACCOMODATE EXISTING TUNNEL.
32. NO PARKING FIRE LANE SIGN RE: 2, C502
33. RETAINING WALL, MATCH APPEARANCE OF SEAT WALL SURFACES; REFER TO STRUCTURAL DRAWINGS.
34. RELOCATED STOCKPILED UNIT PAVERS WITH RESTRAINT EDGING; RE: 4, C502
35. ORGANICLOCK STABILIZED AGGREGATE PATH; RE: 8, L501
36. EXISTING UNIT PAVERS TO REMAIN AND PROTECTED IN PLACE

N

1 SITE LAYOUT ENLARGED PLAN
SCALE: 1" = 20'-0"

BUFFALO AND ERIE COUNTY Botanical Gardens

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1	ADDENDUM #2	3-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

SITE LAYOUT ENLARGED PLAN

GENERIC SCALE BAR
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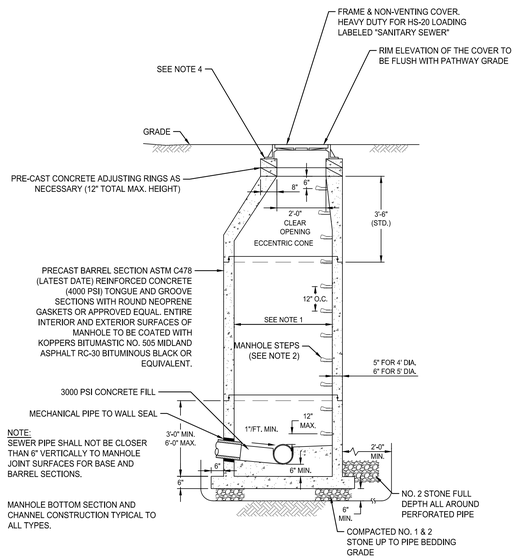
DATE	2/18/2025
SCALE	AS NOTED
DWN.	IR2
CHK.	TAR
PROJ. No.	605802
DWG. No.	C201

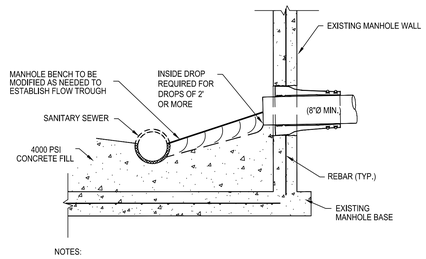


NOTES:

1. a. 4'-0" DIA. BOTTOM SECTION TYPICAL FOR ALL PIPE SIZES UNDER 18" DIA. UNLESS OTHERWISE NOTED.
   b. 5'-0" DIA. BOTTOM SECTION TYPICAL FOR PIPE SIZES 18" TO 27" DIA. AND OVER UNLESS OTHERWISE NOTED.
   c. 6'-0" DIA. BOTTOM SECTION TYPICAL FOR PIPE SIZES 30" TO 36" DIA. AND OVER UNLESS OTHERWISE NOTED.
2. FIRST MANHOLE STEP SHALL BE 6" FROM THE TOP OF CONE. M.H. STEPS TO BE ON STRAIGHT WALL. NO PIPE ON STRAIGHT WALL IF POSSIBLE. STRAIGHT WALL TO BE AWAY FROM ROAD.
3. AFTER THE BARREL SECTIONS ARE ASSEMBLED, ANY EXCESS JOINT COMPOUND SHALL BE TROWELED OFF THE OUTSIDE AND INSIDE FACE. THE INSIDE FACE OF THE JOINT SHALL THEN BE TROWELED WITH APPROVED PATCHING MATERIAL.
4. IF MANHOLE IS WITHIN A PAVED AREA, THE JOINTS BETWEEN THE MANHOLE FRAME AND THE EXTENSION RINGS TO BE MADE WITH A NON-METALLIC, SHRINK RESISTANT GROUT (FIVE STAR GROUT OR APPROVED EQUAL.) MIX GROUT PER MANUFACTURER'S RECOMMENDATIONS.
5. IF PIPE PENETRATION IS CORE DRILLED, USE WATERTIGHT MECHANICAL SEAL(S) AND NYSDOT APPROVED CONCRETE GROUTING MATERIAL OR CONCRETE REPAIR MATERIAL.

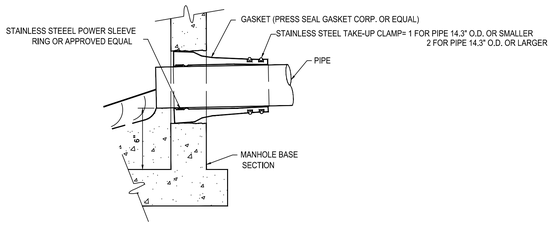
1 SANITARY SEWER MANHOLE DETAIL

NTS



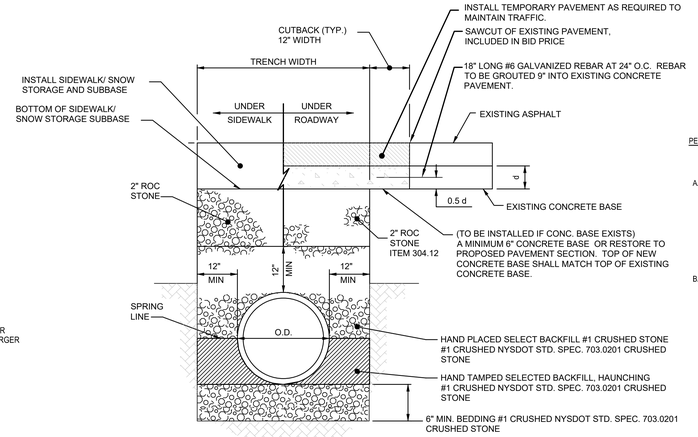
NOTES:

1. CORE DRILL ENTRANCE HOLE IN PRECAST MANHOLE BARREL, BASE AND/OR BENCH FOR REQUIRED PIPE CLEARANCE. PER MANUFACTURERS RECOMMENDATIONS.
2. DOES NOT APPLY TO HOUSE LATERALS.
3. WATERTIGHT PIPE TO MANHOLE BOOT SEAL REQUIRED FOR ALL CORE DRILLED ENTRANCE HOLES IN MANHOLE BARREL AS SHOWN BELOW.



2 MANHOLE CONNECTION DETAIL

NTS



NOTES:

1. CONNECT NEW PIPE TO EXISTING PIPE WITH MISSION COUPLING, APPROPRIATELY SIZED FOR CONNECTING PIPES. EXISTING PIPE EDGE MUST BE SQUARELY CUT, NO BROKEN EDGES.

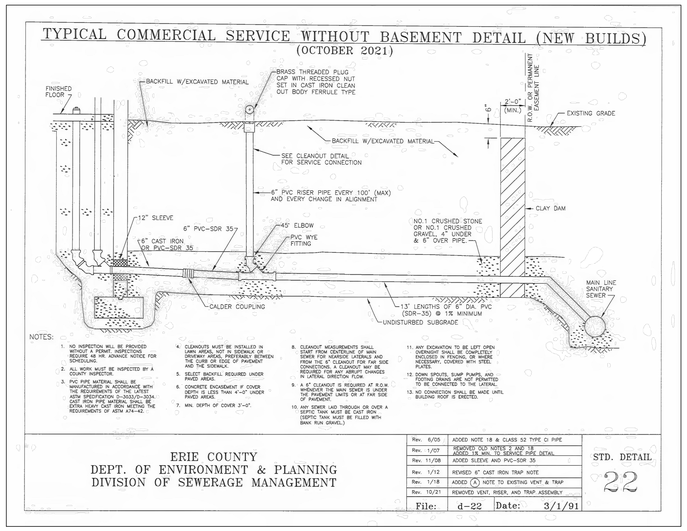
3 SANITARY SEWER PIPE TRENCH DETAIL

NTS

PERMANENT PAVEMENT REPLACEMENT IN CITY OF BUFFALO R.O.W.:

REPLACE PAVEMENT IN THICKNESS AND KIND, OR AS REQUIRED BY APPROPRIATE AUTHORITY.

A. MINIMUM STANDARD FOR DRIVEWAY
   - CONCRETE - 6" -4000 P.S.I. CONCRETE WITH 4x4 - W2.9xW2.9 W.W.F. 4" -2" R.O.C. SUB BASE COURSE
   - ASPHALT - 1" -N.Y.S.D.O.T. ITEM 403.18 TYPE 7 TOP 1 1/2" -N.Y.S.D.O.T. ITEM 403.13 TYPE 3 BINDER 6" -2" R.O.C. SUB BASE COURSE
   - STONE - 1/2" -No. 1A STONE COMPACTED ON SURFACE 8" -2" R.O.C. SUB BASE COURSE
B. MINIMUM STANDARD FOR ROAD
   - CONCRETE - 9" -4000 P.S.I. CONCRETE WITH 6x6 - W2.9xW2.9 W.W.F. TOP AND BOTTOM 12" -2" R.O.C. SUB BASE COURSE
   - ASPHALT - 1" -N.Y.S.D.O.T. ITEM 403.1901 TYPE 7F TOP 5" -N.Y.S.D.O.T. ITEM 403.13 TYPE 3 BINDER 12" -2" R.O.C. SUB BASE COURSE



4 CLEANOUT DETAIL AT BUILDING CONNECTION

NTS

SANITARY SEWER NOTES:

1. ALL UTILITY LOCATIONS ARE JUDGED TO BE APPROXIMATE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES IN THE FIELD WHETHER OR NOT SHOWN ON THE PLANS.
2. MANHOLE FRAMES AND COVERS CAN BE PURCHASED, IF AVAILABLE, BY THE CONTRACTOR FROM THE BUFFALO SEWER AUTHORITY AT THE FOOT OF FERRY ST.
3. STANDARD MANHOLE STEPS SHALL BE SYRACUSE CASTING SALES CORP. PATTERN NO. 2592-1 DR. NEENAH FOUNDRY CO. NO. A-1982-T OR EQUAL. THE METHOD OF ATTACHING MANHOLE STEPS TO THE PRECAST SECTIONS SHALL BE APPROVED BY THE ENGINEER.
4. WHERE PRECAST MANHOLE SECTIONS ARE USED, APPROVED NON-SHRINK MORTAR OR SELF CONTAINED RUBBER GASKETS WILL BE USED TO MAKE EACH JOINT. THE OUTSIDE AND INSIDE OF EACH JOINT WILL BE GROUTED WITH NON-SHRINK MORTAR.
5. THE CONTRACTOR SHALL CONSTRUCT, AT NO EXTRA COST, MANHOLES WITH FLAT SLAB COVERS OF APPROVED DESIGN WHERE THE MANHOLE DEPTH IS INSUFFICIENT TO PERMIT INSTALLATION OF THE TAPER TOP.
6. ALL MANHOLES ARE TO HAVE A TOP OPENING OF 2' - 0". THIS WILL BE ACCOMPLISHED BY THE USE OF ECCENTRIC TAPER TOPS AND/OR APPROVED TAPER SECTIONS MEETING ASTM C478. UNLESS OTHERWISE SHOWN.
7. OPENINGS SHALL BE PROVIDED IN PRECAST MANHOLE BASE SECTIONS WHERE A FUTURE CONNECTION IS CALLED FOR ON THE PLANS; THE INVERT FORMED AND THE OPENING SHALL BE BULKHEADED WITH BRICK.
8. ALL PRECAST MANHOLE SECTIONS AND PRECAST MANHOLE BASE CHAMBERS TO COMPLY WITH ASTM C478 YEAR OF LATEST REVISION.
9. MANHOLE TROUGHS TO BE CONSTRUCTED TO MAINTAIN SMOOTH HYDRAULIC FLOW PATTERNS.
10. ALL MANHOLE FRAMES AND COVERS SHALL BE INSTALLED WITH SUFFICIENT CONCRETE RINGS OR BRICK COURSES TO ALLOW FOR AN ADJUSTMENT IN GRADE FOR A 12 INCH MAXIMUM CUT.
11. ALL SDR 35 PVC PIPE MANHOLE CONNECTIONS SHALL BE ACCOMPLISHED USING AN APPROVED SEAL OR WATERSTOP. MANHOLE CONNECTIONS CAN BE MADE AS FOLLOWS:
    * MANHOLE COUPLINGS PROVIDING ELASTOMERIC GASKET SEAL. UNIT IS GROUTED INTO MANHOLE WALL. PIPE INSERTS INTO COUPLING.
    * WATERSTOP IN VARIOUS FORMS (E.G. FLEXIBLE BOOT OR SLEEVE. O - RING OR GASKET) PRODUCED FROM ELASTOMERIC COMPOUND IS GROUTED OR LOCKED INTO MANHOLE WALL. PIPE INSERTS INTO WATERSTOP.
    * PRECAST MANHOLE WITH CONNECTION PORTS WITH ELASTOMERIC SEALS PRECAST INTO MANHOLE WALL. PIPE INSERTS INTO CONNECTION PORT.
12. THE CONTRACTOR SHALL REPLACE SERVICE LATERALS WITH SDR 35 PVC PIPE FROM THE SEWER MAIN AS INDICATED ON THE PLANS OR A.O.B.E. AND MAKE THE CONNECTIONS AS DESCRIBED IN SECTION O8.100 OF THE CITY OF BUFFALO SPECIFICATIONS.
13. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY DRAINAGE FACILITIES REQUIRED TO ENSURE THE SATISFACTORY DRAINAGE OF THE ENTIRE PROJECT DURING CONSTRUCTION. NO DIRECT PAYMENT WILL BE MADE FOR THE TEMPORARY DITCHES, CHANNELS AND SPECIAL GRADING. BUT THE COST SHALL BE INCLUDED IN THE PRICE BID FOR ALL THE ITEMS OF THIS CONTRACT.
14. ANY BENDS NEEDED FOR CONNECTIONS FROM PROPOSED DRAINAGE STRUCTURES TO EXISTING STRUCTURES OR PIPE SHALL BE AS ORDERED BY THE ENGINEER.
15. ALL SEWER AND DRAINAGE WORK SHALL CONFORM IN ALL RESPECTS TO THE BUFFALO SEWER AUTHORITY STANDARDS.
16. MANHOLES AND COVERS SHALL BE ADEQUATE FOR HS20 LOADING.
17. EXISTING SEWERS AND MANHOLES SHALL NOT BE ABANDONED UNTIL THE NEW SEWER HAS BEEN COMPLETED AND ALL SERVICE LATERALS CONNECTED.
18. ON ALL EXISTING MANHOLES TO BE ABANDONED THE CONTRACTOR SHALL SALVAGE THE FRAME AND COVER AND RETURN THEM TO THE BUFFALO SEWER AUTHORITY MAINTENANCE GARAGE AT THE FOOT OF WEST FERRY STREET.
19. ALL ABANDONED PIPES ENCOUNTERED DURING TRENCHING EXCAVATIONS SHALL BE PROPERLY BULKHEADED AT THE FACE OF THE TRENCH OR A.O.B.E. NO PIPE IS TO BE BULKHEADED WITHOUT A THOROUGH INVESTIGATION THAT IT IS ABANDONED.
20. NEW SANITARY SEWER DEFLECTION SHALL NOT EXCEED 5% AFTER 30 DAYS.
21. TESTING:

    INFILTRATION AND LEAKAGE TESTING: ALL SANITARY SEWER CONSTRUCTION SHALL BE TESTED. TO ASSURE THAT INFILTRATION OR LEAKAGE SHALL NOT EXCEED 100 GALS. PER INCH OF INTERNAL PIPE DIAMETER PER MILE OF SEWER, PER 24 HOURS. THE ALLOWABLE RATE OF INFILTRATION GIVEN IN GALLONS PER MILE IS NOT TO BE CONSTRUED AS A COMMITMENT ON THE PART OF THE OWNER TO ACCEPT AN ENTIRE LINE WHERE OVERALL INFILTRATION IS LESS THAN THE ALLOWABLE, WHILE ONE OR MORE RUNS CONTRIBUTE EXCESSIVE INFILTRATION.
    PRIOR TO COMMENCING WORK ON THE SANITARY SEWER THE CONTRACTOR SHALL SUBMIT IN WRITING TO THE OWNER/ENGINEER HIS PROPOSED METHOD OF AIR TESTING TO INSURE THE ABOVE LIMITS OF POINT INTEGRITY. THESE AIR TESTS WILL BE PERFORMED AS THE WORK PROGRESSES. EACH RUN OF SEWER FROM MANHOLE TO MANHOLE SHALL BE TESTED FOR COMPLIANCE WITH THE INFILTRATION LIMITS. WHEN TESTS INDICATE DEFECTIVE CONSTRUCTION, THE DEFECTIVE PIPE RUN SHALL BE REPAIRED OR REPLACED AS REQUIRED TO COMPLY WITH THE ALLOWABLE RATE OF INFILTRATION AT NO ADDITIONAL COST TO THE OWNER.
22. ALL POLYVINYL CHLORIDE (PVC) SANITARY SEWER PIPE SHALL BE SDR-35 CONFORMING TO ASTM REQUIREMENTS IN D-3034 OR F679 AND D-1784 WITH RUBBER-RING BELL JOINTS AS IN D-3212.
23. CONTRACTOR IS RESPONSIBLE FOR ALL PERMIT FEES.

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo & Erie County Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK, 14218

Buffalo and Erie County Botanical Gardens Addition
ISSUED FOR BID

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NO.	REVISIONS	DATE
1	ADDENDUM #2	3-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

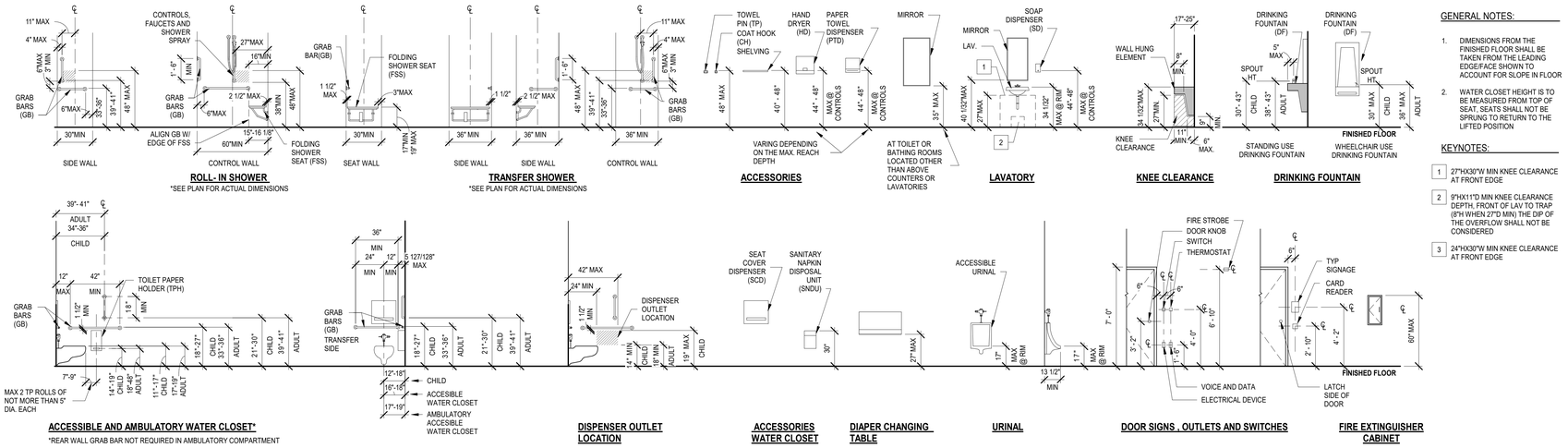
SANITARY SEWER DETAILS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE 2/18/2025
SCALE AS NOTED
DWN. IR2 CHK. TAR
PROJ. No. 605802
DWG. No.

C504

TYP FIXTURE MOUNTING HEIGHTS:



GENERAL NOTES:

1. DIMENSIONS FROM THE FINISHED FLOOR SHALL BE TAKEN FROM THE LEADING EDGE/FACE SHOWN TO ACCOUNT FOR SLOPE IN FLOOR
2. WATER CLOSET HEIGHT IS TO BE MEASURED FROM TOP OF SEAT, SEATS SHALL NOT BE SPRUNG TO RETURN TO THE LIFTED POSITION

KEYNOTES:

1. 27"HX30"W MIN KNEE CLEARANCE AT FRONT EDGE
2. 9"HX11"D MIN KNEE CLEARANCE DEPTH, FRONT OF LAV TO TRAP (8"H WHEN 27"D MIN) THE DIP OF THE OVERFLOW SHALL NOT BE CONSIDERED
3. 24"HX30"W MIN KNEE CLEARANCE AT FRONT EDGE

ACCESSIBLE AND AMBULATORY WATER CLOSET*
*REAR WALL GRAB BAR NOT REQUIRED IN AMBULATORY COMPARTMENT

DISPENSER OUTLET LOCATION

ACCESSORIES WATER CLOSET

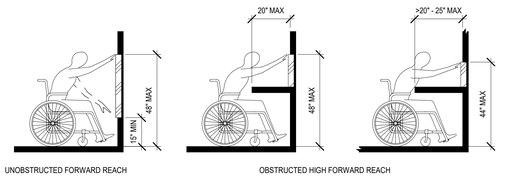
DIAPER CHANGING TABLE

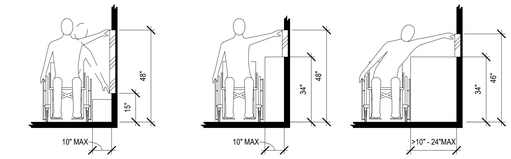
URINAL

DOOR SIGNS , OUTLETS AND SWITCHES

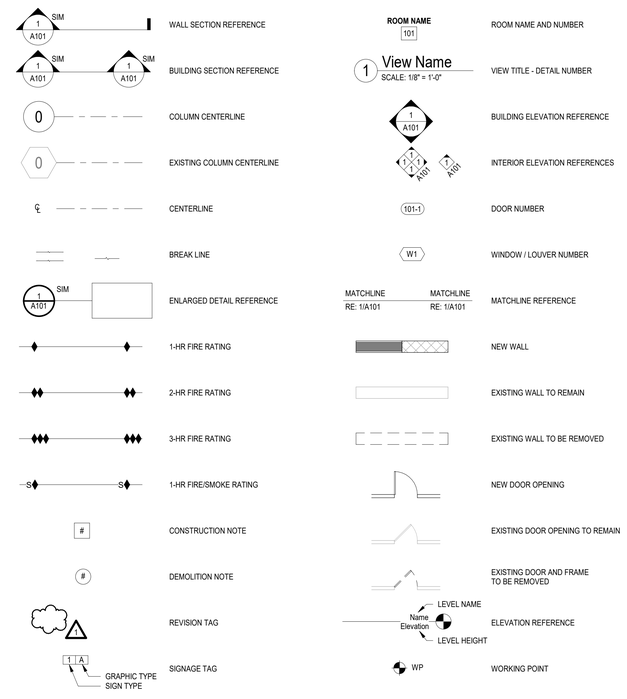
FIRE EXTINGUISHER CABINET

ADA REACH RANGE FIGURES:





DRAWING SYMBOLS:



ABBREVIATIONS

A/C	AIR CONDITION
ACP	ACCOUSTICAL CEILING PANEL
ACS DR	ACCESS DOOR
ACS PNL	ACCESS PANEL
ACT	ACCOUSTICAL CEILING TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT/ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZE
ANT	ANTENNA
AOR	AREA OF REFUGE
APPROX	APPROXIMATELY
ARCH	ARCHITECT
ASSY	ASSEMBLY
AV	AUDIO VISUAL
BD	BOARD
BLDG	BUILDING
BOT	BOTTOM
BQ	BANQUET HALL
BRG	BEARING
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
BYND	BEYOND
C TO C	CENTER TO CENTER
CAB	CABINET
CB	CATCH BASIN
CDCT	CIRCULAR DUCT
CFMF	COLD-FORMED METAL FRAMING
CFS	COMPOSITE FRAMING SUPPORT
CG	CORNER GUARD
CGFSU	CERAMIC GLAZED STRUCTURAL FACING UNITS
CH	COAT HOOK
CH BD	CHALK BOARD
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLO	CLOSET
CLOS	CLOSURE
CLR	CLEAR
CLRM	CLASSROOM
CLT	CROSS-LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CONF	CONFERENCE
CONSTR	CONSTRUCTION
CONT	CONTINUE
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CPRS	COMPRESSIBLE
CPT	CARPET
CT	CERAMIC TILE
CTB	CERAMIC TILE BASE
CUST	CUSTODIAN
D	DEEP/DEPTH
DBL	DOUBLE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DPTN	DEMOUNTABLE PARTITION
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
ENCL	ENCLOSURE
EP	ELECTRICAL PANEL
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ	EQUAL
EQUIP	EQUIPMENT
ETC	ET CETERA
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EXH FN	EXHAUST FAN
EXP	EXPANSION/EXPOSED
EXST	EXISTING
EXT	EXTERIOR
EXTRU	EXTRUSION
F/F	FACE TO FACE
FCP	FIBER CEMENT PANEL
FD	FLOOR DRAIN
FDTN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FACE
FHC	FIRE HOSE CABINET
FIN	FINISH
FIN FLR	FINISHED FLOOR
FLASH	FLASHING
FLR	FLOOR
FO	FACE OF
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF SHEATHING
FR	FRAME
FRG	FIBER REINFORCED GYPSUM
FRT	FIRE RETARDANT TREATED
FSS	FOLDING SHOWER SEAT
FT	FEET/FOOT
FURG	FURRING
G	NATURAL GAS
GA	GAGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GDR	GUARD RAIL
GFCI	GROUND FAULT CIRCUIT INERRUPTER
GL	GLASS
GLZ CMU	GLAZED CONCRETE MASONRY UNIT
GR	GROWING RANGE
GYP	GYPSUM
GYP BD	GYPSUM WALLBOARD
H	HIGH
HB	HOSE BIBB
HC	HANDICAP
HD	HAND DRYER
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HPC	HIGH PERFORMANCE COATING
HPT	HIGH POINT
HS	HOT STACK
HT	HEIGHT
HVAC	HEATING
HYD	HYDRANT
ID	INSIDE DIAMETER
IF	INSIDE FACE
INCL	INCLUDED
INSUL	INSULATION
INSUL PNL	INSULATED METAL PANEL
INT	INTERIOR
JAN	JANITOR
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LF	LINEAR FEET (FOOT)
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LIN	LINEAR
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNDSCP	LANDSCAPE
LOC	LOCATION
LPT	LOW POINT
LVT	LUXURY VINYL TILE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOD BIT	MODIFIED BITUMEN
MTD	MOUNTED
MTL	METAL
MTLP	METAL PARTITION
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OCC	OCCUPANCY
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHANG
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OS	OCCUPANCY SENSOR
P	PIPE
PCC	PRECAST CONCRETE
PEJ	PREMOLDED EXPANSION JOINT
PERF	PERFORATED
PH	PENTHOUSE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLYWD	PLYWOOD
PORC	PORCELAIN
PP	POWER POLE
PREF	PREFINISH
PREFAB	PREFABRICATE
PT	PAINT
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PTR	PRESERVATIVE-TREATED
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS/RISER/THERMAL RESISTANCE
RB	RUBBER BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECPT	RECEPTACLE
REF	REFERENCE/REFRIGERATOR
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RET	RETURN
RFG	ROOFING
RH	ROOF HATCH/RIGHT HAND
RHR	RIGHT HAND REVERSE
RL	ROOF LEADER
RM	ROOM
RO	ROUGH OPENING
RR	RAILROAD
RTU	ROOF TOP UNIT
RV	ROOF VENT
S	SOUTH
SA	SUPPLY AIR
SC	SOLID CORE
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SD	SOAP DISPENSER
SECT	SECTION
SF	SQUARE FOOT (FEET)
SFS	STOREFRONT SYSTEM
SHR	SHOWER
SHT	SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIM	SIMILAR
SLNT	SEALANT
SND	SANITARY NAPKIN DISPENSER
SNDU	SANITARY NAPKIN DISPOSAL UNIT
SP	STAND PIPE
SP FIN	SPECIAL FINISH
SPEC	SPECIFICATION
SQ	SQUARE
SS	STORM SEWER
SSM	SOLID SURFACE MATERIAL
SSMR	STANDING SEAM METAL ROOF
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SUSP	SUSPEND
SV	SHEET VINYL/SMOKE VENT
SYMM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TB	TOWEL BAR
TD	TRENCH DRAIN/TOWEL DISPENSER
TDR	TOWEL DISPENSER/RECEPTACLE
TEL	TELEPHONE
TER	TERRAZZO
THK	THICKNESS
TK BD	TACK BOARD
TOC	TOP OF CURB/TOP OF CONCRETE
TOJ	TOP OF JOIST
TOP	TOP OF PARAPET
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TOWEL PIN
TPH	TOILET PAPER HOLDER
TPO	THERMOPLASTIC POLYOLEFIN
TPTN	TOILET PARTITION
TRTD	TREATED
TV	TELEVISION
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNFIN	UNFINISH
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VP	VENT PIPE
VS	VACANCY SENSOR
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST/WIDE
W/	WITH
W/O	WITHOUT
WBL	WOOD BLOCKING
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WWR	WELDED WIRE REINFORCEMENT

MATERIALS LEGEND:

- FACE BRICK
- CONCRETE MASONRY UNIT
- FOAM PLASTIC BOARD INSULATION
- BLANKET INSULATION
- CONTINUOUS WOOD
- SHIM
- FINISHED WOOD
- GYPSUM BOARD / GROUT
- CONCRETE OR PRECAST CONCRETE
- ACOUSTICAL CEILING TILE OR PANEL
- MASONRY IN ELEVATION
- PLYWOOD
- GRAVEL
- FOAMED IN PLACE INSULATION
- STEEL
- EARTH
- SOLID SURFACE / CAST STONE
- STONE

GENERAL NOTES:

1. THE PROJECT SPECIFICATIONS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENTS AND WILL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND GENERAL NOTES. IN CASES, IF ANY, WHERE REQUIREMENTS INDICATED ON THE ARCHITECTURAL DRAWINGS DIFFER FROM THE SPECIFICATIONS, NOTIFY THE ARCHITECT.
2. UNLESS OTHERWISE NOTED, DETAILS, SECTIONS AND NOTES CONTAINED IN THE ARCHITECTURAL CONTRACT DOCUMENTS WILL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS EVEN IF NOT EXPLICITLY REFERENCED.
3. DEFICIENT WORK AND/OR WORK NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR WILL REIMBURSE THE PARTIES REQUIRED FOR PERFORMING THE DESIGN SERVICES ARISING FROM DEFICIENT WORK, REVIEW OF MODIFICATIONS/CONTRACTOR SUBSTITUTION, OR EXPEDITING OF SUBMITTALS.
4. COST OF INVESTIGATION AND/OR REDESIGN INCURRED BY THE ARCHITECT DUE TO CONTRACTOR ERRORS WILL BE AT THE CONTRACTOR'S EXPENSE.
5. VERIFY IN THE FIELD (VIF) ALL EXISTING JOB CONDITIONS, REVIEW ALL CONTRACT DRAWINGS, AND VERIFY DIMENSIONS AND ELEVATIONS NOTED IN THE CONTRACT DOCUMENTS PRIOR TO THE START OF WORK.
6. USE ONLY DIMENSIONS INDICATED ON THE DRAWINGS. DO NOT SCALE THESE DRAWINGS OR USE DIMENSIONS OBTAINED FROM ELECTRONIC DRAWING OR MODEL FILES, IF PROVIDED.
7. "OWNER" REFERS TO THE PROJECT OWNER, THE BUFFALO AND ERIE COUNTY BOTANICAL GARDENS SOCIETY, INC.

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo And Erie County Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK 14218

Buffalo And Erie County Botanical Gardens Addition
100% CONSTRUCTION DOCUMENTS

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NO.	REVISIONS	DATE
2	Addendum 2	03/06/2025
0	ISSUE FOR BID	02/18/2025

DWG. TITLE

TITLES & SYMBOLS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
SCALE	As indicated
DWN.	SSS CHK. SRN
PROJ. No.	605802
DWG. No.	

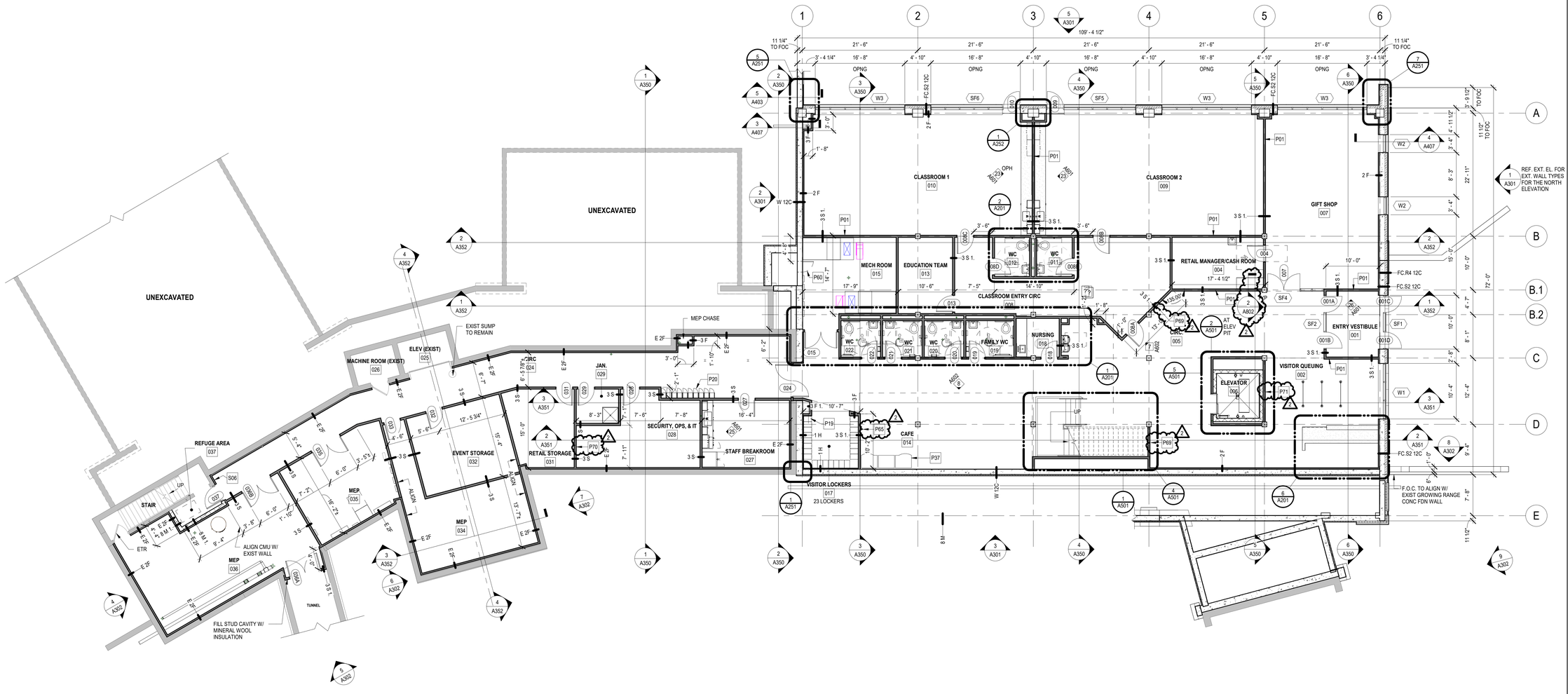
A001

GENERAL FLOOR PLAN NOTES:

1. FIRST FLOOR ELEVATION IS REFERENCED AS 609'-3", VERIFY EXACT ELEVATION TO MATCH CONSERVATORY FINISHED FLOOR ELEVATION AT ADDITION CONNECTION TO HOUSE 4.
2. GROWING RANGE (GR) FIRST FLOOR ELEVATION IS REFERENCED AS 607'-5", VERIFY EXACT ELEVATION.
3. GROUND FLOOR ELEVATION IS REFERENCED AS 597'-5", VERIFY EXACT ELEVATION TO MATCH GROWING RANGE LOWER LEVEL FINISHED FLOOR ELEVATION AT ADDITION CONNECTION TO GROWING RANGE.
4. NEW WORK SHALL ALIGN WITH AND MATCH EXISTING WORK EXCEPT WHERE OTHERWISE DIMENSIONED OR DETAILED.
5. PROVIDE ACCESS PANELS, MINIMUM 24" X 24", OR OF SIZES REQUIRED, WHERE PLUMBING AND HEATING VALVES, WATER SWITCHES, OXYGEN PRESSURE SWITCHES, VENTILATION SPLITTER DAMPERS, ETC ARE SHOWN ON PLUMBING, HEATING, AND VENTILATION DRAWINGS. SUCH ACCESS PANELS TO BE INSTALLED IN THE FOLLOWING:
   (A) STUD OR MASONRY PARTITIONS
   (B) SUSPENDED GYPSUM WALLBOARD CEILINGS
6. ALL WALL DIMENSIONS INDICATED ON FLOOR PLANS ARE TO FACE OF STUD FRAMING OR MASONRY UNLESS OTHERWISE NOTED.
7. WHERE A NEW DOOR, VIEW WINDOW OR OPENING IS CUT THROUGH AN EXISTING MASONRY WALL, PROVIDE A LOOSE LINTEL AS REQUIRED ON THE LOOSE LINTEL SCHEDULE INDICATED ON THE STRUCTURAL DRAWINGS OR SPECIFICATIONS.
8. IN ALL ROOMS BELOW AREAS WHICH RECEIVE UNDER FLOOR SERVICES, REMOVE A PORTION OF EXISTING CEILING BELOW AS REQUIRED. RESTORE OR REPLACE REMOVED CEILING AREAS TO MATCH EXISTING OR AS INDICATED ON ROOM FINISH SCHEDULE.
9. REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR EXISTING AND NEW FIXTURES AND SERVICES REMOVED AND/OR INSTALLED. PATCH EXISTING FINISHES DISTURBED BY THIS WORK TO MATCH ADJACENT UNDISTURBED FINISHES, MATERIAL AND SUB FLOORING COMPLETELY.
10. SEE SHEET A901 FOR FURRING AND PARTITION TYPES NOTED ON THIS SHEET.

PLAN KEYNOTES

P01	CENTER PARTITION ON COLUMN / BEAM ABOVE
P19	OFCI PREFINISHED METAL LOCKERS. COORDINATE WITH OWNER.
P20	OFCI EXISTING STAFF LOCKERS. COORDINATE WITH OWNER. PROVIDE NEW WALL BASE AT BASE OF LOCKERS.
P37	OFOI VENDING MACHINES AND CABINETRY BY OTHERS. COORDINATE EXTENTS WITH OWNER.
P60	24" x 36" FIRE RATED INSULATED ACCESS DOOR, SILL 4" ABOVE FINISHED FLOOR. COORDINATE LOCATION WITH BETWEEN MECHANICAL EQUIPMENT AND ELECTRICAL PANELS.
P65	OFOI COFFEE MAKER LOCATION.
P69	OFCI TV LOCATION. PROVIDE 4'-0" WIDE BLOCKING FOR WALL MOUNTED OFCI TV CENTER ON WALL. BLOCKING TO EXTEND FROM 4'0" AFF TO 6'-0" AFF.
P70	OFCI DATA RACK LOCATION. PROVIDE 2'-0" WIDE BLOCKING FOR WALL MOUNTED OFCI DATA RACK. CENTER ON WALL. COORDINATE HEIGHT WITH OWNER.
P71	OFCI KIOSK LOCATION. PROVIDE 8'-0" WIDE BLOCKING FOR WALL MOUNTED OFCI TICKETING KIOSKS. CENTER ON WALL. BLOCKING TO EXTEND FROM 4'0" AFF TO 6'-0" AFF.



1 GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

TRUE NORTH

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo And Erie County Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK 14218

Buffalo And Erie County Botanical Gardens Addition
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NO.	REVISIONS	DATE
2	Addendum 2	03/06/2025
0	ISSUE FOR BID	02/18/2025

DWG. TITLE

GROUND FLOOR PLAN

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
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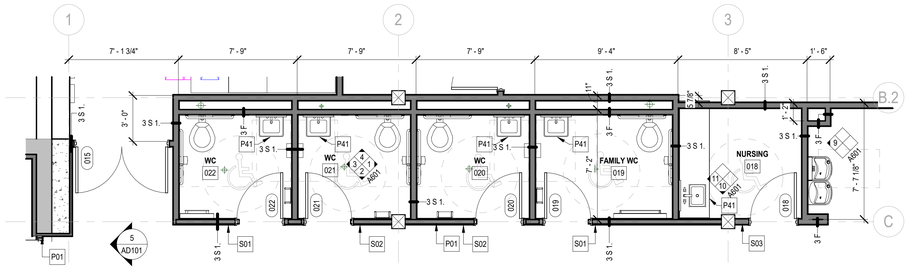
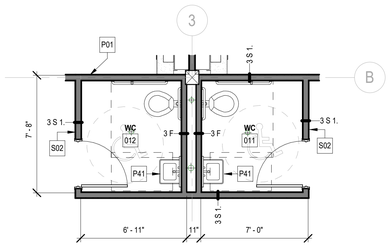
PROJ. No.	605802
DWG. No.	

A101



1 ENLARGED PLAN
SCALE: 1/4" = 1'-0"



2 ENLARGED PLAN
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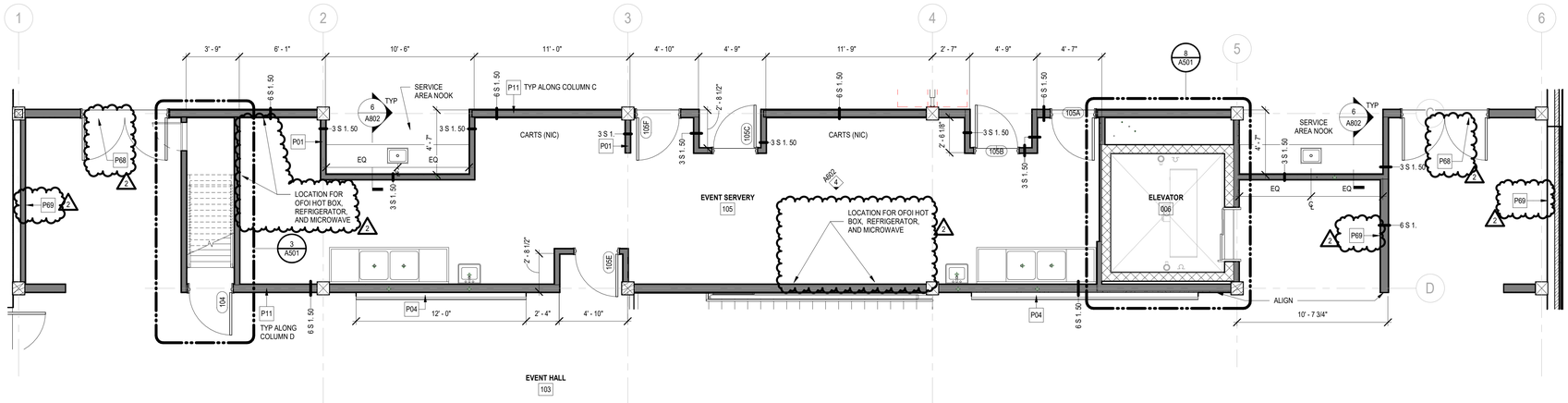
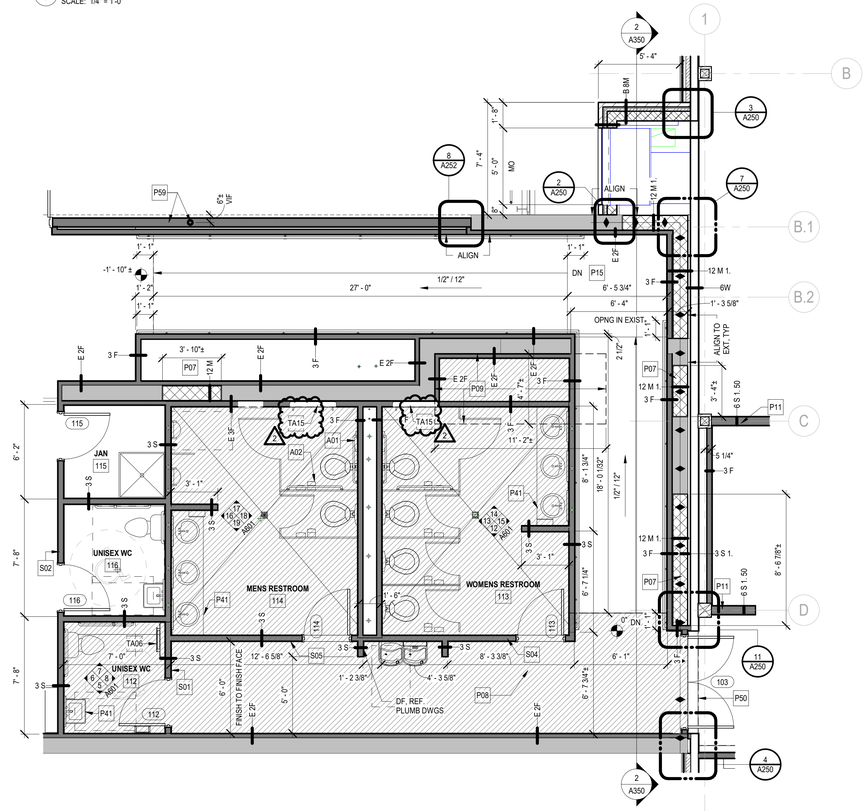
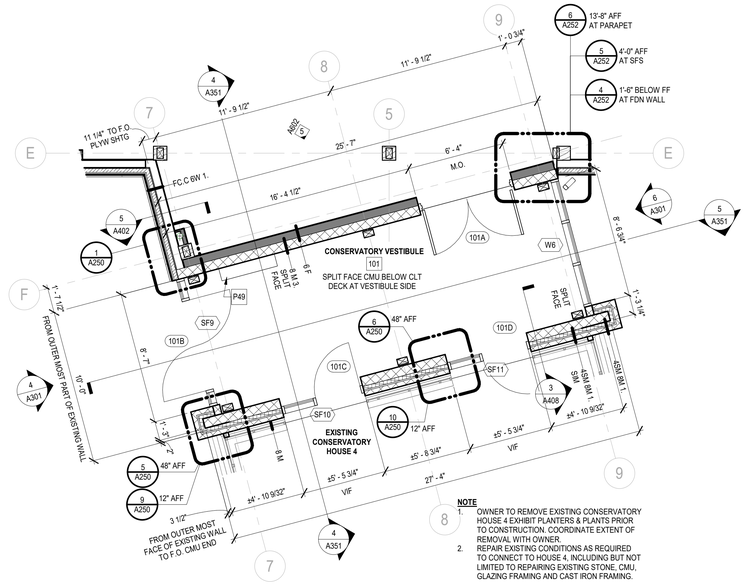


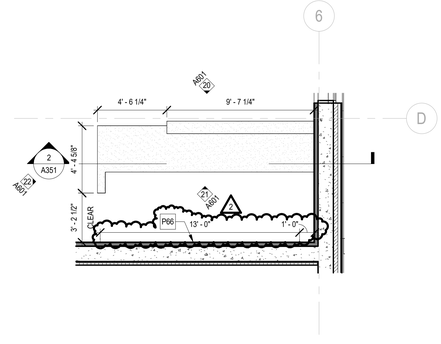
3 ENLARGED PLAN
SCALE: 1/4" = 1'-0"



4 ENLARGED PLAN
SCALE: 1/4" = 1'-0"



5 ENLARGED PLAN
SCALE: 1/4" = 1'-0"



6 ENLARGED PLAN AT VISITOR QUEUING RECEPTION DESK
SCALE: 1/4" = 1'-0"

PLAN KEYNOTES

P01	CENTER PARTITION ON COLUMN / BEAM ABOVE
P04	GREEN WALL, REFER TO INTERIOR ELEVATIONS ON SHEET A/602.
P07	INFILL EXISTING OPENING WITH CMU TO MATCH EXISTING WALL THICKNESS.
P08	RAISED FLOOR ASSEMBLY OVER GROWING RANGE EXISTING CONCRETE FLOOR. HATCH INDICATES EXTENTS OF RAISED FLOOR.
P09	EXTENTS OF CONCRETE WITH METAL DECK INFILL REQUIRED BELOW RAMP AND RAISED FLOOR AT EXISTING STAIR OPENING, REF. STRUCTURAL DRAWINGS AND FIELD VERIFY OPENING.
P11	CENTER CLT PORTION OF PARITION ON COLUMN / BEAM ABOVE
P15	RAMP CONSTRUCTION SIMILAR TO RAISED FLOOR ASSEMBLY CONSTRUCTION
P41	OFCI FLOOR MOUNTED FOLDING LAVATORY STEP BELOW. CENTER ON LAVATORY. INSTALL PER MANUFACTURER'S INSTRUCTIONS. REFER TO DETAIL 5/A803 FOR BASIS OF DESIGN.
P49	CABINET UNIT HEATER, REFER TO MECHANICAL DRAWINGS.
P50	FLOOR CONTROL JOINT TRANSITION, REFER TO DETAIL 4/A102 AND TO FINISH PLANS FOR JOINT TRANSITION TYPE.
P59	CENTER WALL ON EXISTING STEEL POST AND FILL WALL WITH 6" MINERAL WOOL INSULATION.
P66	OFCI WALL-MOUNTED TVs AT TICKETING AREA. PROVIDE BLOCKING AT 48" TO 96" AFF FOR EXTENTS SHOWN IN PLAN.
P68	OFCI TV LOCATION. PROVIDE 4'-0" WIDE BLOCKING FOR WALL MOUNTED OFCI TV ABOVE DOOR. CENTER ON DOOR. BLOCKING TO EXTEND FROM 8'0" AFF TO 10'-0" AFF. REF TO INTERIOR ELEVATION 6/A602.
P69	OFCI TV LOCATION. PROVIDE 4'-0" WIDE BLOCKING FOR WALL MOUNTED OFCI TV. CENTER ON WALL. BLOCKING TO EXTEND FROM 4'0" AFF TO 6'-0" AFF.

ACCESSORY KEYNOTES

A01	GRAB BARS, RE: TYPICAL FIXTURE MOUNTING HEIGHTS
A02	TOILET PAPER DISPENSER

SIGNAGE KEYNOTES

S01	PROVIDE WALL MOUNTED SIGN FOR ACCESSIBLE GENDER NEUTRAL TOILET ROOM AND BABY CHANGING STATION, RE: TYPICAL FIXTURE MOUNTING HEIGHTS
S02	PROVIDE WALL MOUNTED SIGN FOR ACCESSIBLE GENDER NEUTRAL TOILET ROOM, RE: TYPICAL FIXTURE MOUNTING HEIGHTS
S03	PROVIDE WALL MOUNTED SIGN FOR ACCESSIBLE NURSING MOTHERS' ROOM AND BABY CHANGING STATION, RE: TYPICAL FIXTURE MOUNTING HEIGHTS
S04	PROVIDE WALL MOUNTED SIGN FOR ACCESSIBLE WOMEN'S TOILET ROOM AND BABY CHANGING STATION, RE: TYPICAL FIXTURE MOUNTING HEIGHTS
S05	PROVIDE WALL MOUNTED SIGN FOR ACCESSIBLE MEN'S TOILET ROOM AND BABY CHANGING STATION, RE: TYPICAL FIXTURE MOUNTING HEIGHTS

FLOOR PLAN LEGEND

RAISED FLOOR ASSEMBLY OVER GROWING RANGE EXISTING CONCRETE FLOOR. HATCH INDICATES EXTENTS OF RAISED FLOOR.

BUFFALO AND ERIE COUNTY Botanical Gardens

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2	Addendum 2	03/06/2025
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DWG. TITLE

ENLARGED PLANS

GENERIC SCALE BAR
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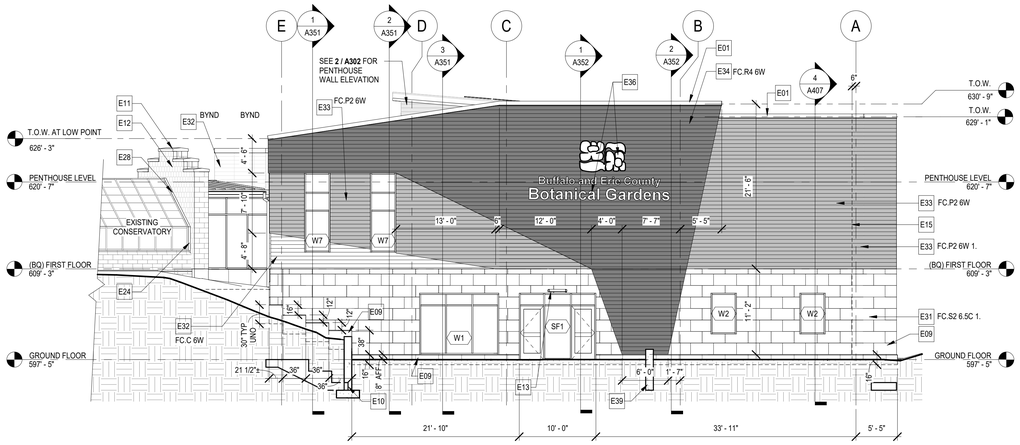
DATE	02/18/2025
SCALE	As indicated
DWN.	SSS CHK. SRN
PROJ. No.	605802
DWG. No.	**A201**

GENERAL ELEVATION NOTES:

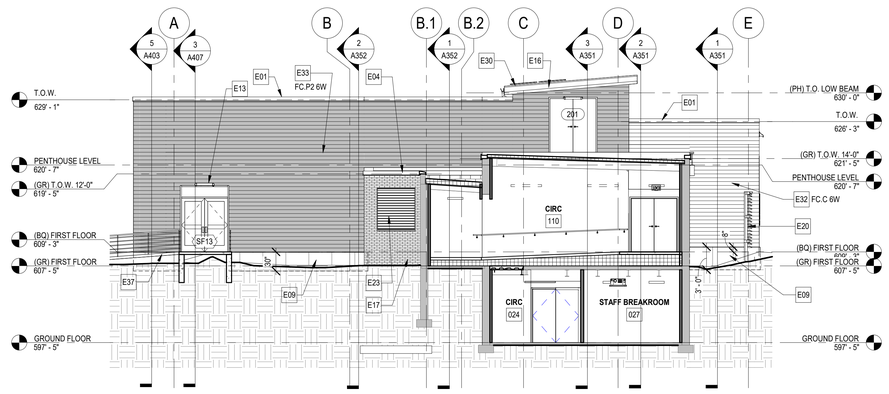
1. FIRST FLOOR ELEVATION IS REFERENCED AS 609'-3", VERIFY EXACT ELEVATION TO MATCH CONSERVATORY FINISHED FLOOR ELEVATION AT ADDITION CONNECTION TO HOUSE 4.
2. GROWING RANGE (GR) FIRST FLOOR ELEVATION IS REFERENCED AS 607'-5", VERIFY EXACT ELEVATION.
3. GROUND FLOOR ELEVATION IS REFERENCED AS 597'-5", VERIFY EXACT ELEVATION TO MATCH GROWING RANGE LOWER LEVEL FINISHED FLOOR ELEVATION AT ADDITION CONNECTION TO GROWING RANGE.

EXTERIOR ELEVATION KEYNOTES

E01	PRE-FINISHED METAL COPING (COLOR TO MATCH ADJACENT CLADDING)
E02	PRE-FINISHED ALUM TRIM COVER (BRONZE COLOR)
E03	PRE-FINISHED (BRONZE) OVERFLOW SCUPPER. COLOR TO MATCH ADJACERNT CLADDING.
E04	PRE-FINISHED ROOF EDGE/COPING, MATCH FINISH TO GROWING RANGE EXISTING ROOF EDGE.
E05	PRE-FINISHED METAL GUTTER
E06	PRE-FINISHED DOWNSPOUT
E07	PRE-FINISHED FASCIA TRIM, COLOR TO MATCH ADJACENT STOREFRONT FINISH.
E08	PRE-FINISHED ALUM TRIM, MATCH STOREFRONT FRAME FINISH.
E09	PRECAST CONCRETE BASE. TYPICAL UNIT 36" LONG BY 3" THICK. SEE EXTERIOR ELEVATIONS FOR UNIT HEIGHTS. MITER ENDS AT CORNERS.
E10	RETAINING WALL, SEE STRUCTURAL, CIVIL AND LANDSCAPE DRAWINGS. SEE ARCH DETAILS FOR SOUTHWEST RETAINING WALL AND ELEVATION FOR NORTHEAST RETAINING WALL.
E11	STEPPED PRECAST CONCRETE COPING TO MATCH EXISTING CONSERVATORY STONE BASE COLOR.
E12	SPLIT FACE CMU, COLOR TO MATCH EXISTING CONSERVATORY STONE BASE COLOR.
E13	LIGHT FIXURE, REF. ELECTRICAL DRAWINGS.
E14	SKYLIGHT
E15	LINE INDICATES WALL RATING TRANSITION TO 1 HOUR RATED CONSTRUCTION. SEE FLOOR PLANS FOR LOCATION AND EXTENTS.
E16	PRE-FINISHED METAL FASCIA, COLOR SELECTED BY ARCHITECT.
E17	BRICK, COLOR TO MATCH EXISTING GROWING RANGE BRICK.
E18	EXISTING GROWING RANGE BRICK
E20	PRIVACY FENCE, SEE LA & CIVIL DRAWINGS.
E21	GIRDER WITH CANTED END, REF. STRUCTURAL DRAWINGS.
E22	CONCRETE FOUNDATION, REF. STRUCTURAL DRAWINGS.
E23	LOUVER, REF. MECHANICAL DRAWINGS.
E24	PRECOMPRESSED EXPANSION JOINT, COLOR TO MATCH ADJACENT MATERIAL.
E28	ROOF EXPANSION JOINT WITH FLASHING, SEE DETAILS.
E29	STANDING SEAM METAL ROOF
E30	STANDING SEAM METAL ROOF EDGE
E31	FIBER CEMENT PANEL TYPE S
E32	FIBER CEMENT PANEL TYPE C
E33	FIBER CEMENT PANEL TYPE P
E34	FIBER CEMENT PANEL TYPE R
E36	OFCI EXTERIOR SIGNAGE: COORDINATE WITH OWNER FOR LOCATION, TYPE, AND SIGN DIMENSIONS. REF ELEC DWGS FOR ELECTRICAL CONNECTION.
E37	RAMP WITH HANDRAILS, REF. CIVIL DRAWINGS.
E38	BRICK CONTROL JOINT
E39	SITE CONCRETE SEAT WALLS, SEE LA & CIVIL DWGS.



1 EXTERIOR ELEVATION - NORTH
SCALE: 1/8" = 1'-0"



2 EXTERIOR ELEVATION - SOUTH
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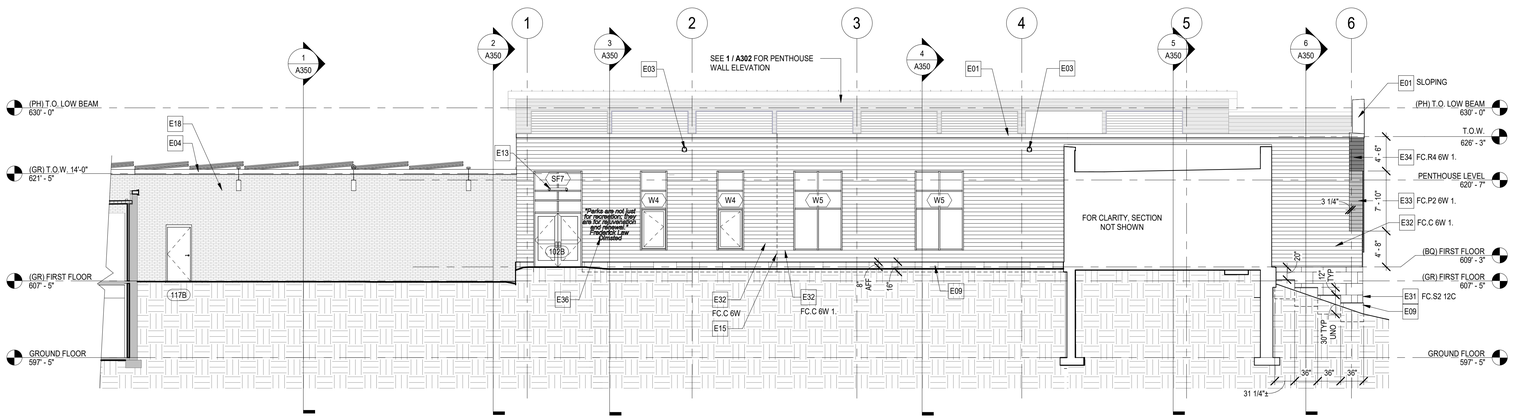

3 EXTERIOR ELEVATION - EAST
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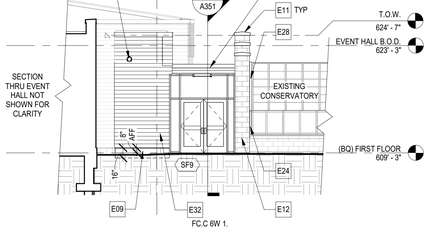
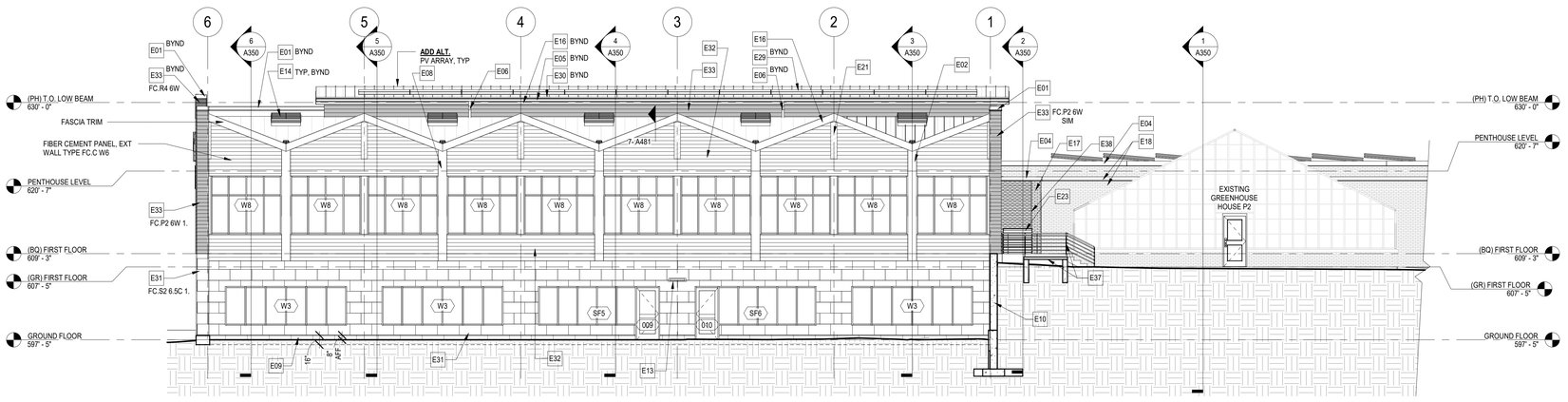
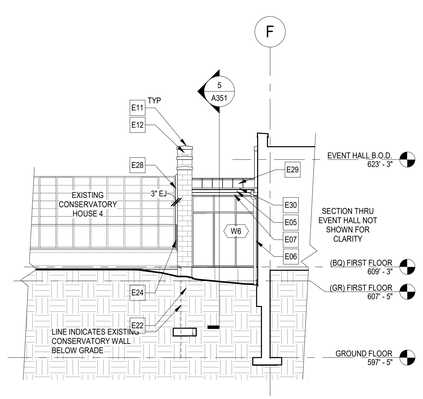


4 EXTERIOR ELEVATION - SOUTHEAST
SCALE: 1/8" = 1'-0"



5 EXTERIOR ELEVATION - WEST
SCALE: 1/8" = 1'-0"



6 EXTERIOR ELEVATION - NORTHWEST
SCALE: 1/8" = 1'-0"

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DWG. TITLE

EXTERIOR ELEVATIONS

GENERIC SCALE BAR
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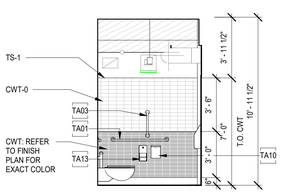
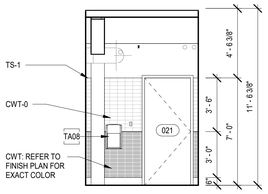
DWG. No.	**A301**



1 TOILET ELEVATION
SCALE: 1/4" = 1'-0"



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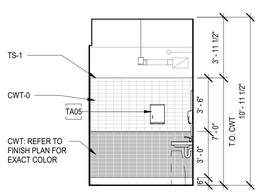

3 TOILET ELEVATION
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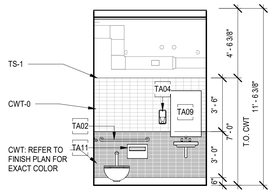

4 TOILET ELEVATION
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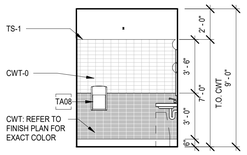

5 TOILET ELEVATION
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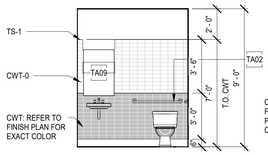
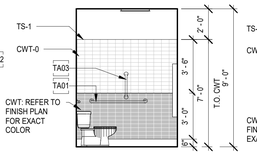
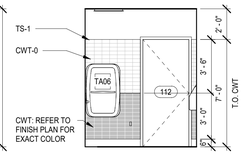


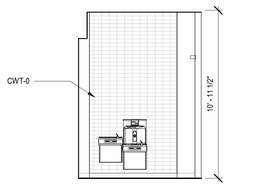
6 TOILET ELEVATION
SCALE: 1/4" = 1'-0"



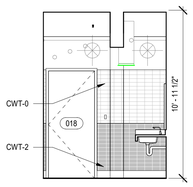
7 TOILET ELEVATION
SCALE: 1/4" = 1'-0"



8 TOILET ELEVATION
SCALE: 1/4" = 1'-0"



9 005 - CIRC
SCALE: 1/4" = 1'-0"



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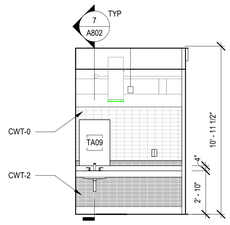

11 018 - NURSING
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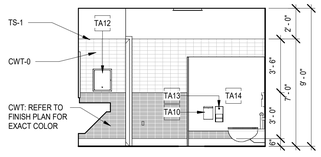
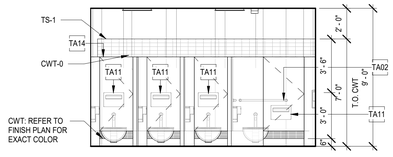
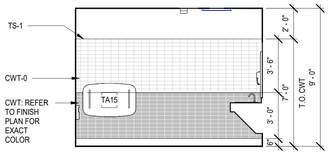


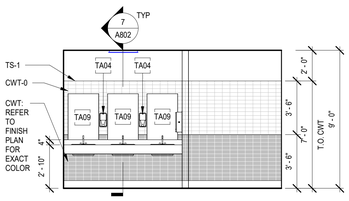
12 113 - MEN'S RESTROOM
SCALE: 1/4" = 1'-0"



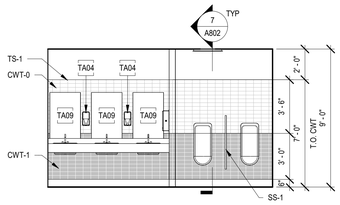
13 113 - MEN'S RESTROOM
SCALE: 1/4" = 1'-0"



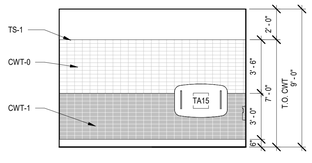
14 113 - MEN'S RESTROOM
SCALE: 1/4" = 1'-0"



15 113 - MEN'S RESTROOM
SCALE: 1/4" = 1'-0"



16 114 - WOMEN'S RESTROOM
SCALE: 1/4" = 1'-0"



17 114 - WOMEN'S RESTROOM
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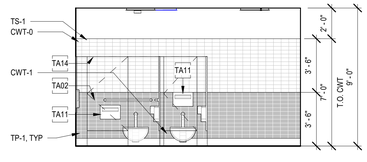
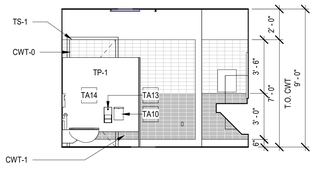
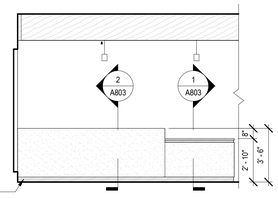


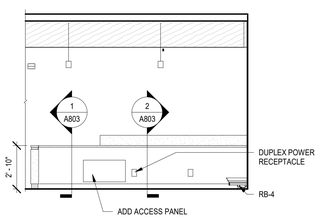
18 114 - WOMEN'S RESTROOM
SCALE: 1/4" = 1'-0"



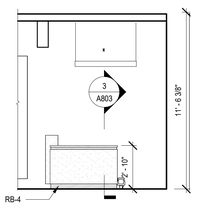
19 114 - WOMEN'S RESTROOM
SCALE: 1/4" = 1'-0"



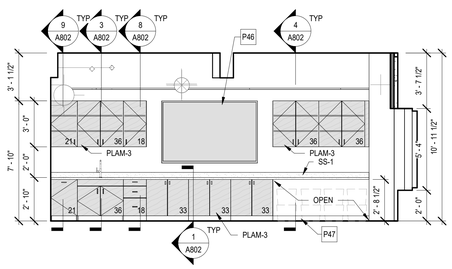
20 RECEPTION DESK - WEST ELEVATION
SCALE: 1/4" = 1'-0"



21 RECEPTION DESK - EAST ELEVATION
SCALE: 1/4" = 1'-0"



22 RECEPTION DESK - SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



23 009 - CLASSROOM
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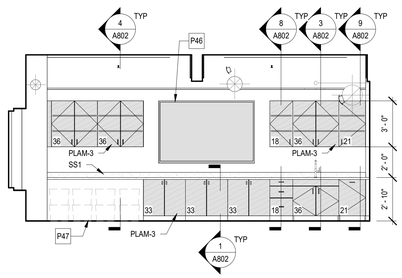
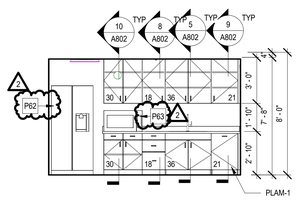
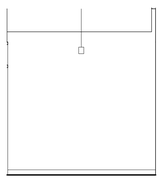


24 010 - CLASSROOM
SCALE: 1/4" = 1'-0"



25 027 - BREAKROOM SOUTH
SCALE: 1/4" = 1'-0"



26 001 - ENTRY VESTIBULE WEST
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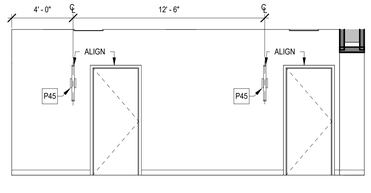
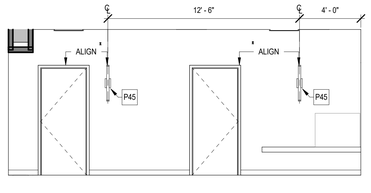


27 117B - NORTH
SCALE: 1/4" = 1'-0"



28 117B - SOUTH
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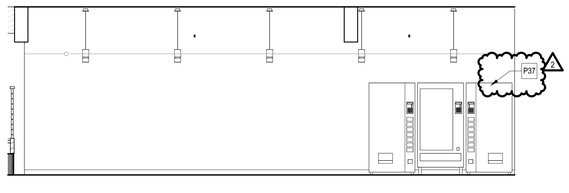

29 014 - CAFE
SCALE: 1/4" = 1'-0"

TOILET ACCESSORY KEYNOTES

TA01	42" HORIZONTAL GRAB BAR
TA02	36" HORIZONTAL GRAB BAR
TA03	18" VERTICAL GRAB BAR
TA04	SURFACE-MOUNTED SOAP DISPENSER
TA05	SURFACE-MOUNTED PAPER TOWEL DISPENSER
TA06	OFCI SURFACE-MOUNTED VERTICAL CHANGING STATION
TA08	OFCI SURFACE-MOUNTED FLIP-DOWN CHILD PROTECTION SEAT
TA09	MIRROR
TA10	SURFACE-MOUNTED SANITARY NAPKIN DISPOSAL
TA11	SURFACE-MOUNTED TOILET SEAT COVER DISPENSER
TA12	SEMI-RECESSED AUTOMATIC PAPER TOWEL DISPENSER
TA13	SURFACE-MOUNTED TOILET PAPER DISPENSER
TA14	FLOOR-MOUNTED TOILET PARTITIONS
TA15	OFCI RECESSED HORIZONTAL CHANGING STATION

NOTE: ALL TOILET ACCESSORIES IN NEW ADDITION (TYPE IV CONSTRUCTION BUILDING) MUST BE SURFACE MOUNTED TO PRESERVE THE RATED ASSEMBLY OF THE PARTITIONS. REFER TO CODE COMPLIANCE PLANS AND PARTITION TYPES FOR INFORMATION ON WALL ASSEMBLIES.

A601 ELEVATION KEYNOTES

P37	OFCI VENDING MACHINES AND CABINETRY BY OTHERS. COORDINATE EXTENTS WITH OWNER.
P45	WALL MOUNTED LIGHT FIXTURE: REFER TO ELEC DWGS.
P46	OFCI WALL MOUNTED TV. REFER TO PLANS FOR BLOCKING EXTENTS.
P47	DASHED OUTLINES: OWNER STORAGE BINS SHOWN FOR REFERENCE ONLY.
P62	OFCI REFRIGERATOR
P63	OFCI MICROWAVE

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NO.	REVISIONS	DATE
2	Addendum 2	03/06/2025
0	ISSUE FOR BID	02/18/2025

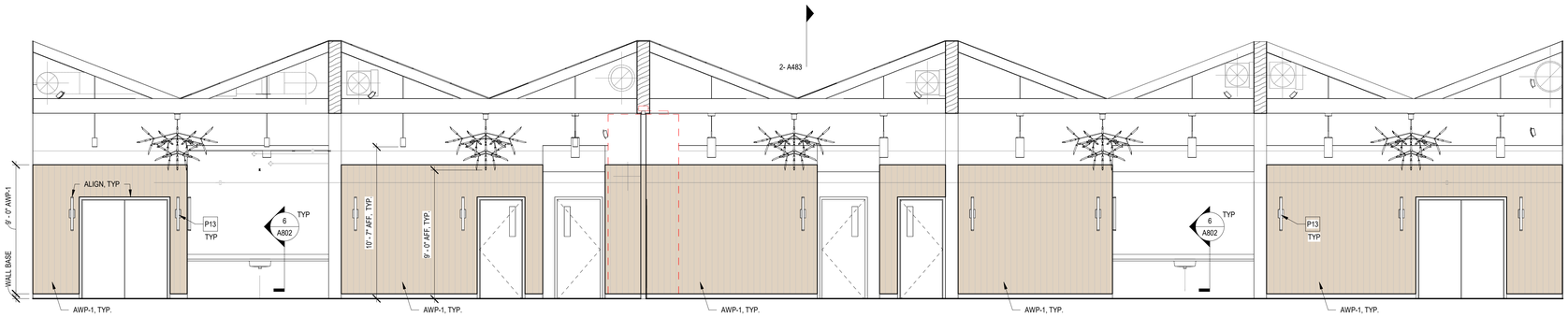
DWG. TITLE
INTERIOR ELEVATIONS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

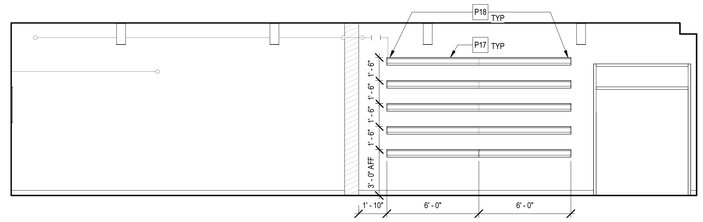
DATE	02/18/2025
SCALE	1/4" = 1'-0"
DWN.	SSS
CHK.	SRN
PROJ. No.	605802
DWG. No.	A601

A602 ELEVATION KEYNOTES

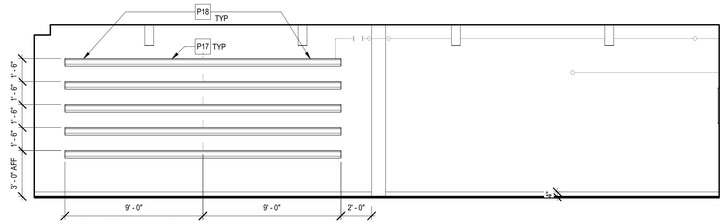
P13	SHIM WALL SCONCE OUT FROM HOST WALL SO REAR OF MOUNTING PLATE IS FLUSH WITH FRONT SURFACE OF ADJACENT ACOUSTICAL WALL PANEL. PAINT SHIM TO MATCH HOST WALL, PT-3.
P17	6" E-PROFILE GALVANIZED RAIN GUTTERS WITH END CAPS. SURFACE MOUNT GUTTERS TO SUSTAIN WEIGHT OF 30 LBS PER LINEAR FOOT
P18	PROVIDE IN-WALL BLOCKING
P46	OFCI WALL MOUNTED TV. REFER TO PLANS FOR BLOCKING EXTENTS.
P48	VENDING EQUIPMENT BY OTHERS. SHOWN FOR REFERENCE ONLY.
P67	MECHANICAL TRANSFER GRILLE. CLEANLY CUT SURROUNDING FRP WALL PANEL TO EXTEND BEHIND GRILLE FRAME. REF MECH DWGS.



1 108 - EVENT SPACE EAST
SCALE: 1/4" = 1'-0"



2 108 - EVENT SPACE SOUTH
SCALE: 1/4" = 1'-0"



3 109 - EVENT SPACE 2
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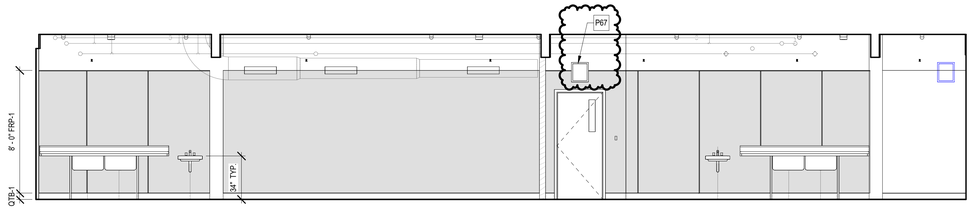

4 105 - EVENT SERVERY
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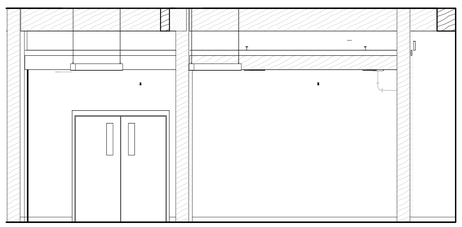

5 103 - ENTRANCE TO CONSERVATORY
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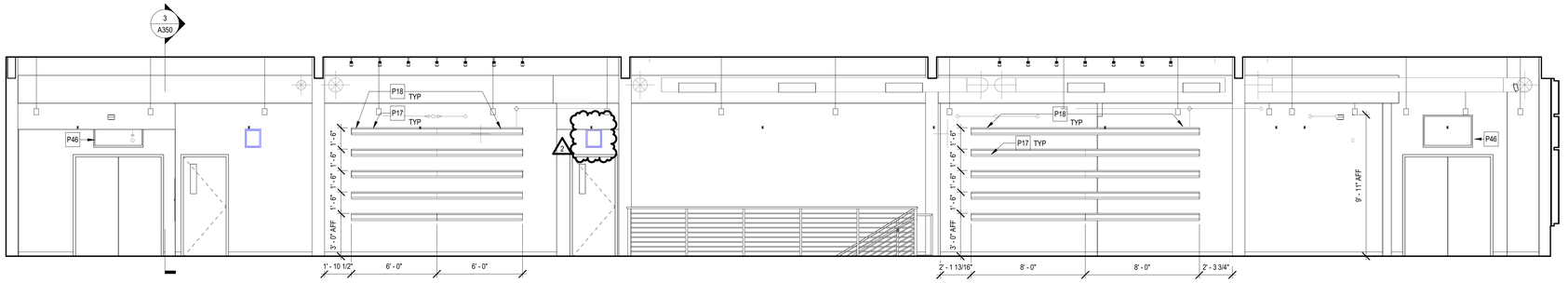

6 103 - EVENT HALL AND STAIR
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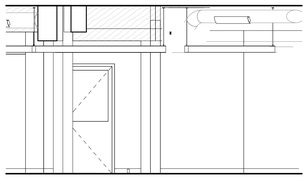

7 005 - ENTRANCE TO EDUCATION SUITE
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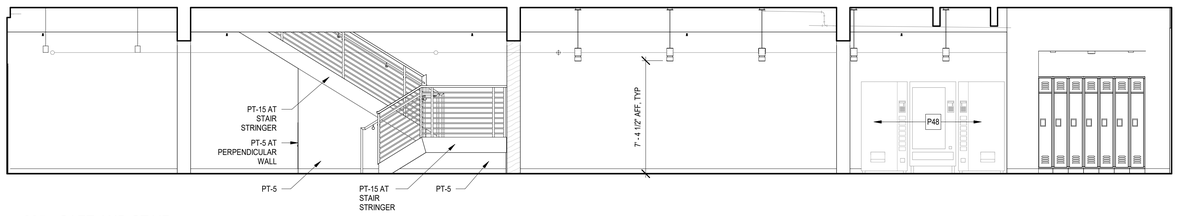

8 005 - CAFE AND STAIR
SCALE: 1/4" = 1'-0"

BUFFALO AND ERIE COUNTY Botanical Gardens

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2	Addendum 2	03/06/2025
0	ISSUE FOR BID	02/18/2025

DWG. TITLE

INTERIOR ELEVATIONS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

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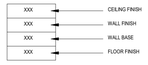
SCALE	1/4" = 1'-0"
DWN.	SSS
CHK.	SRN
PROJ. No.	605802
DWG. No.	

A602

FINISHES KEYNOTES

P16	CERAMIC WALL TILE BEHIND WATER FOUNTAIN. REFER TO INTERIOR ELEVATIONS FOR EXTENT AND TYPE
P20	OFCI EXISTING STAFF LOCKERS. COORDINATE WITH OWNER. PROVIDE NEW WALL BASE AT BASE OF LOCKERS.
P21	EXISTING EXPOSED CONCRETE FLOOR TO REMAIN. CLEAN AND REPAIR MINOR SPALLING THROUGHOUT. PREP FOR NEW WALL BASE WHERE REQUIRED.
P29	PROVIDE TRANSITION STRIP FROM VCT TO EXISTING TO REMAIN CONCRETE FLOOR. STRIP TO BE SATIN NICKEL FINISH.
P31	PROVIDE THRESHOLD FROM CONCRETE TO EXISTING TO REMAIN CONCRETE FLOOR. THRESHOLD TO BE SATIN NICKEL FINISH.
P32	GLULAM COLUMN DOES NOT RECEIVE PAINT. PROTECT COLUMN SO EXPOSED WOOD IS FINAL FINISH.
P33	CONCRETE COLUMN DOES NOT RECEIVE PAINT. PROTECT COLUMN SO EXPOSED CONCRETE IS FINAL FINISH.
P34	PROVIDE FRP-1 ON CORNER WALLS ABOVE MOP SINK. WALL-MOUNTED PANELS TO BE 4'-0" X 4'-0"
P36	FILL AND REPAIR SPALLING IN EXISTING TO REMAIN CONCRETE FLOOR.
P61	CORNER GUARD LOCATION. COORDINATE WITH OWNER.

FINISH PLAN SYMBOLS LEGEND:



NOTE: FOR ACT DETAILS, REFER TO RELECTED CEILING PLANS

GENERAL FINISH NOTES:

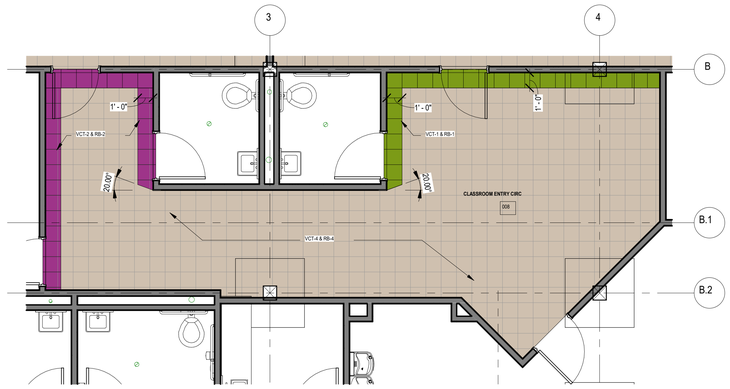
REFER TO SHEET A952 FOR BASIS OF DESIGN FINISH SPECIFICATIONS.

FLOOR FINISH NOTES:

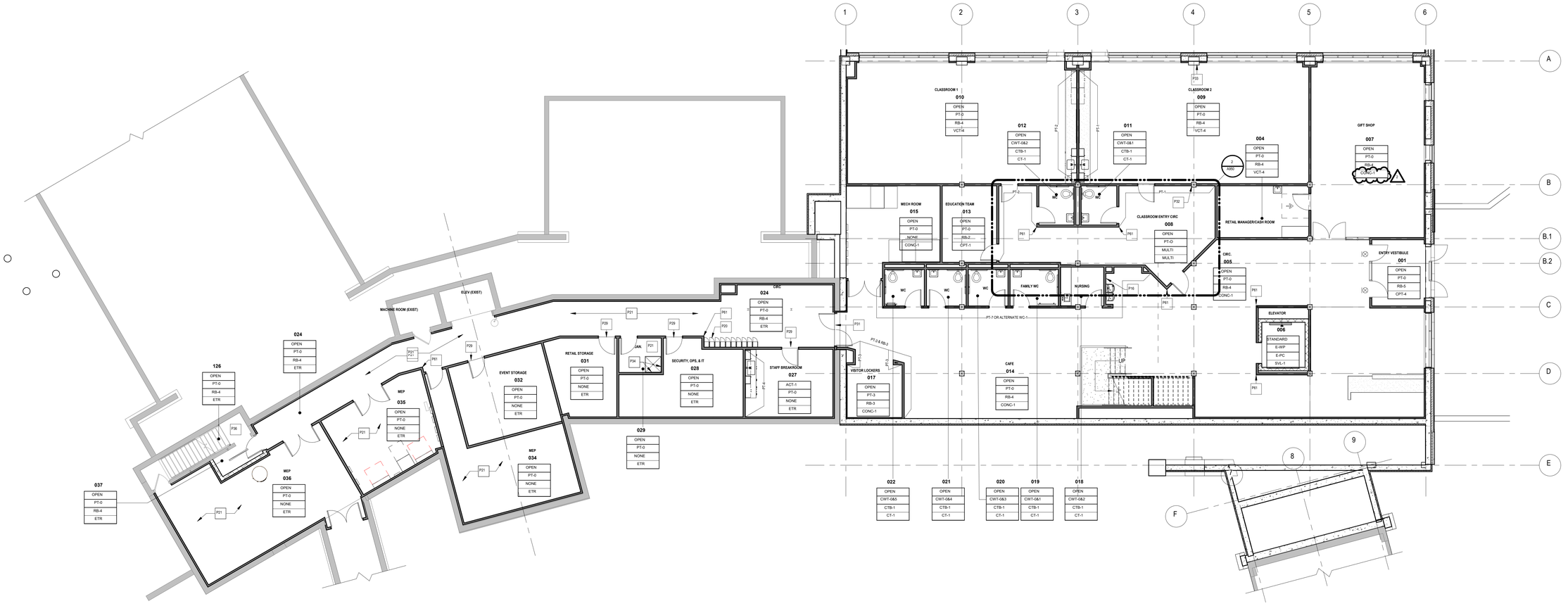
1. VCT FLOORING IS TO BE RUN IN A MONOLITHIC PATTERN.
2. ALL MATERIALS SHALL BE APPLIED IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURERS' RECOMMENDATIONS.
3. PROVIDE VINYL REDUCER STRIPS BETWEEN CARPET AND VINYL FLOORING; STRIPS SHOULD BE CENTERED UNDER DOORS; COLOR TO BE SELECTED BY ARCHITECT.
4. CARPET SEAMING TO BE COORDINATED FOR PROPER MATCHING OF CARPET PATTERNS.
5. CONTRACTOR TO CORRECTLY TREAT ALL SEAM AND EDGES ACCORDING TO MANUFACTURERS RECOMMENDED INSTALLATION METHODS AT ALL CARPET-TO-CARPET TRANSITIONS. CONTRACTOR TO SUBMIT SEAMING DIAGRAM TO ARCHITECT FOR APPROVAL; SEAMING DIAGRAM SUBJECT TO ADJUSTMENT OR CHANGE AS REQUIRED.
6. CONTRACTOR TO COORDINATE ALL DOOR SWINGS WITH FLOOR MATERIAL FOR FREE AND CLEAR SWING.
7. CONTRACTOR TO FLASH PATCH ALL FLOORS AS REQUIRED TO SATISFY ALL ASSEMBLY AND INSTALLATION REQUIREMENTS.
8. CLEAN ALL GLUE FROM VCT FLOORING INSTALLATION AND PROVIDE ONE COAT OF MANUFACTURER'S APPROVED POLISHED WAX FINISH. FLASH PATCH AT ALL TRANSITIONS.
9. CARPET TO TILE TRANSITION STRIP - SCHLUTER EDGE STRIP. TRANSITION STRIP TO MATCH TILE HEIGHT.
10. ALL GROUT TO BE EPOXY BASED (NOT CEMENT BASED) UNLESS OTHERWISE NOTED.
11. ALL VINYL WALL BASE SHALL BE PROVIDED IN CONTINUOUS RUNS.

WALL FINISH NOTES:

1. ALL MATERIALS SHALL BE APPLIED IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURERS' RECOMMENDATIONS.
2. ALL FIRE EXTINGUISHER CABINETS AND FIRE STANDPIPE CABINETS TO BE PRIMED AND PAINTED IN A SEMI-GLOSS FINISH TO MATCH THE WALL FINISH IN WHICH THEY OCCUR UNLESS OTHERWISE NOTED.
3. THERE SHALL BE A MINIMUM NUMBER OF (1) PRIMER COAT AND (2) FINISH COATS. MAXIMUM NUMBER OF COATS SHALL BE AS REQUIRED TO OBTAIN UNIFORM COLOR AND SHEEN.
4. REFER TO SIGNAGE KEYNOTES ON SHEET A201 FOR REQUIRED SIGNAGE TYPES AND LOCATIONS.



2 ENLARGED PLAN AT EDUCATION SUITE ENTRY
SCALE: 1/4" = 1'-0"



1 00 - FINISH PLAN - (GR &BQ) GROUND FLOOR
SCALE: 1/8" = 1'-0"

TRUE NORTH
N

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2	Addendum 2	03/06/2025
0	ISSUE FOR BID	02/18/2025

DWG. TITLE

FINISH PLAN - GROUND FLOOR

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
SCALE	As indicated
DWN.	SSS
CHK.	SRN
PROJ. No.	605802
DWG. No.	**A950**

FINISHES KEYNOTES

P14	PROVIDE EXPANSION JOINT COVER EJC-1. SEE SHEET A952 FOR TYPE.
P16	CERAMIC WALL TILE BEHIND WATER FOUNTAIN. REFER TO INTERIOR ELEVATIONS FOR EXTENT AND TYPE
P21	EXISTING EXPOSED CONCRETE FLOOR TO REMAIN. CLEAN AND REPAIR MINOR SPALLING THROUGHOUT. PREP FOR NEW WALL BASE WHERE REQUIRED.
P22	PROVIDE TRANSITION STRIP FROM CARPET TO VCT. STRIP TO BE SATIN NICKEL FINISH.
P23	PROVIDE TRANSITION STRIP FROM PORCELAIN TILE TO VCT. STRIP TO BE SATIN NICKEL FINISH.
P24	PROVIDE TRANSITION STRIP FROM PORCELAIN TILE TO CARPET. STRIP TO BE SATIN NICKEL FINISH.
P25	PROVIDE TRANSITION STRIP FROM QUARRY TILE TO PORCELAIN TILE. STRIP TO BE SATIN NICKEL FINISH.
P26	PROVIDE TRANSITION STRIP FROM QUARRY TILE TO CARPET. STRIP TO BE SATIN NICKEL FINISH.
P29	PROVIDE TRANSITION STRIP FROM VCT TO EXISTING TO REMAIN CONCRETE FLOOR. STRIP TO BE SATIN NICKEL FINISH.
P30	PROVIDE TRANSITION STRIP AT CHANGE IN PORCELAIN TILE. STRIP TO BE SATIN NICKEL FINISH.
P34	PROVIDE FRP-1 ON CORNER WALLS ABOVE MOP SINK. WALL-MOUNTED PANELS TO BE 4'-0" X 4'-0".
P35	PROVIDE TRANSITION STRIP FROM CARPET TO EXISTING TO REMAIN CONCRETE FLOOR. STRIP TO BE SATIN NICKEL FINISH.
P38	PROVIDE CHAIR RAIL CR-1 AT ALL WALLS. MITER AT ALL CORNERS AND BUTT INTO DOOR FRAME. FILL FINISH NAIL HOLES BEFORE PAINTING. PAINT TO MATCH HOST WALL.
P61	CORNER GUARD LOCATION. COORDINATE WITH OWNER.

FINISH PLAN SYMBOLS LEGEND:

XXX	CEILING FINISH
XXX	WALL FINISH
XXX	WALL BASE
XXX	FLOOR FINISH

NOTE: FOR ACT DETAILS, REFER TO RELECTED CEILING PLANS

GENERAL FINISH NOTES:

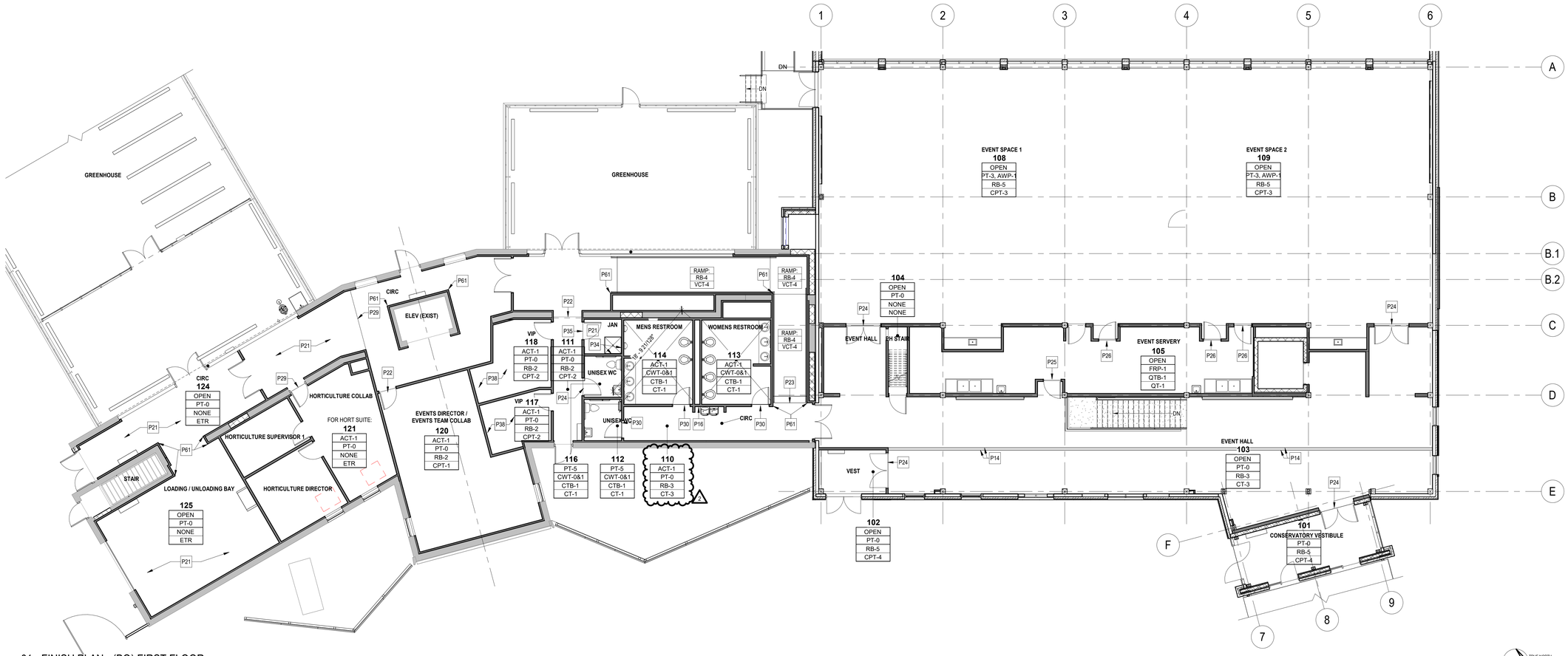
REFER TO SHEET A952 FOR BASIS OF DESIGN FINISH SPECIFICATIONS.

FLOOR FINISH NOTES:

1. VCT FLOORING IS TO BE RUN IN A MONOLITHIC PATTERN.
2. ALL MATERIALS SHALL BE APPLIED IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURERS' RECOMMENDATIONS.
3. PROVIDE VINYL REDUCER STRIPS BETWEEN CARPET AND VINYL FLOORING; STRIPS SHOULD BE CENTERED UNDER DOORS; COLOR TO BE SELECTED BY ARCHITECT.
4. CARPET SEAMING TO BE COORDINATED FOR PROPER MATCHING OF CARPET PATTERNS.
5. CONTRACTOR TO CORRECTLY TREAT ALL SEAM AND EDGES ACCORDING TO MANUFACTURERS RECOMMENDED INSTALLATION METHODS AT ALL CARPET-TO-CARPET TRANSITIONS. CONTRACTOR TO SUBMIT SEAMING DIAGRAM TO ARCHITECT FOR APPROVAL; SEAMING DIAGRAM SUBJECT TO ADJUSTMENT OR CHANGE AS REQUIRED.
6. CONTRACTOR TO COORDINATE ALL DOOR SWINGS WITH FLOOR MATERIAL FOR FREE AND CLEAR SWING.
7. CONTRACTOR TO FLASH PATCH ALL FLOORS AS REQUIRED TO SATISFY ALL ASSEMBLY AND INSTALLATION REQUIREMENTS.
8. CLEAN ALL GLUE FROM VCT FLOORING INSTALLATION AND PROVIDE ONE COAT OF MANUFACTURER'S APPROVED POLISHED WAX FINISH. FLASH PATCH AT ALL TRANSITIONS.
9. CARPET TO TILE TRANSITION STRIP - SCHLUTER EDGE STRIP. TRANSITION STRIP TO MATCH TILE HEIGHT.
10. ALL GROUT TO BE EPOXY BASED (NOT CEMENT BASED) UNLESS OTHERWISE NOTED.
11. ALL VINYL WALL BASE SHALL BE PROVIDED IN CONTINUOUS RUNS.

WALL FINISH NOTES:

1. ALL MATERIALS SHALL BE APPLIED IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURERS' RECOMMENDATIONS.
2. ALL FIRE EXTINGUISHER CABINETS AND FIRE STANDPIPE CABINETS TO BE PRIMED AND PAINTED IN A SEMI-GLOSS FINISH TO MATCH THE WALL FINISH IN WHICH THEY OCCUR UNLESS OTHERWISE NOTED.
3. THERE SHALL BE A MINIMUM NUMBER OF (1) PRIMER COAT AND (2) FINISH COATS. MAXIMUM NUMBER OF COATS SHALL BE AS REQUIRED TO OBTAIN UNIFORM COLOR AND SHEEN.
4. REFER TO SIGNAGE KEYNOTES ON SHEET A201 FOR REQUIRED SIGNAGE TYPES AND LOCATIONS.



01 - FINISH PLAN - (BQ) FIRST FLOOR

TRUE NORTH
N

0 1" 2"

GENERIC SCALE BAR

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BUFFALO AND ERIE COUNTY Botanical Gardens

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DWG. TITLE

FINISH PLAN - FIRST FLOOR

DATE	02/18/2025
SCALE	As indicated
DWN.	SSS CHK. SRN
PROJ. No.	605802
DWG. No.	

A951

BASIS OF DESIGN FINISH SPECIFICATIONS

DESIGNATION	MFR	STYLE	STYLE #	COLOR	COLOR #	INSTALL PATTERN	TYPE	FINISH	DESCRIPTION	HEIGHT	LENGTH	WIDTH
ELEVATOR FINISHES												
E-PC	BY ELEVATOR MANUF.	POWDER COAT		PRAIRIE GRASS	F-128				ELEVATOR DOOR AND FRAME FINISH			
E-WP	BY ELEVATOR MANUF.	WALL PANEL		NEUTRAL TWILL	8826	INSTALL IN VERTICAL ORIENTATION	ANTIMICROBIAL	MATTE	INTERIOR CAB PANEL			
EXTERIOR - FIBER CEMENT CLADDING												
FCP-TYPE C	NICHIHA	VINTAGEWOOD		CEDAR					REF EXTERIOR ELEVATIONS SHEETS A301-A302			
FCP-TYPE P	NICHIHA	VINTAGEWOOD		POPLAR					REF EXTERIOR ELEVATIONS SHEETS A301-A302			
FCP-TYPE R	NICHIHA	VINTAGEWOOD		REDWOOD					REF EXTERIOR ELEVATIONS SHEETS A301-A302			
FCP-TYPE S	NICHIHA	SANDSTONE		DESERT					REF EXTERIOR ELEVATIONS SHEETS A301-A302			
EXTERIOR CLADDING												
69												
FLOORING												
CONC-1		POLISHED CONCRETE							REF ARCHITECTURAL SPECS			
TS-2	SCHLUTER SYSTEMS	SCHIENE	ALUMINUM	BRONZE					TRANSITION AT STAIR TREAD	8MM (5/16 IN)		
FLOORING - CARPET												
CPT-1	INTERFACE	TOUCH OF TIMBER	-	ELM	606214	ASHLAR	-	-	OFFICES	-	-	-
CPT-2	INTERFACE	TOUCH OF TIMBER		BAMBOO	606212	ASHLAR	-	-	CELEBRATION SUITE			
CPT-3	J+J FLOORING	KINETEX TRI-PLEX II	1852	FIGURES	2596	ASHLAR	-	-	EVENT SPACE FLOORING	0.205 IN	24 IN	24 IN
CPT-4	FORBO	CORAL DUO WALKOFF CARPET SQUARES		BLACK DIAMOND	9730	STACKED BOND	-	-	VESTIBULES		20 IN	20 IN
FLOORING - CERAMIC TILE												
CT-1	DALTILE	INDOTERRA COLORBODY FLOOR TILE	-	RIVERBED	IN43	ASHLAR	PORCELAIN	-	FLOOR TILE IN TOILET ROOMS	5/16 IN THICK	12 IN	24 IN
CT-2	DALTILE	INDOTERRA COLORBODY FLOOR TILE		RIVERBED	IN43	STACKED BOND	PORCELAIN	-	RISER AT STAIR	5/16 IN THICK	6 IN	24 IN
CT-3	DALTILE	REKINDLE	-	BEIGE	RK11	ASHLAR	PORCELAIN	-	FLOOR TILE IN EVENT HALL	5/16 IN THICK	24 IN	48 IN
CTB-1	DALTILE	INDOTERRA COLORBODY FLOOR TILE COVE BASE	P36C9	RIVERBED	IN43	-	-	-	WALL BASE WITH CT-1	6 IN	12 IN	-
QT-1, QTB-1	DALTILE	QUARRY TILE	QUARRY	ARID GRAY	OQ42 (2)	STACK BOND	QUARRY		EVENT SERVERY: USE QTB-1 BASE Q3565			
FLOORING - SHEET VINYL												
SVL-1	ALTRO	ELEVATOR FLOORING	RELIANCE 25	BISCUIT	D25904		ROLL		ELEVATOR FLOORING: 6.27LBS/SQUARE YARD WEIGHT	2.5 MM THICK		
FLOORING - VINYL COMPOSITION TILE												
VCT-1	TARKETT	VCT II	-	GREEN GRAPE	526	-	-	-	TBD	1/8 IN	12 IN	12 IN
VCT-2	TARKETT	VCT II	-	DEEP PLUM	513	-	-	-	TBD	1/8 IN	12 IN	12 IN
VCT-3	TARKETT	VCT II	-	MUSHROOM	593	-	-	-	TBD	1/8 IN	12 IN	12 IN
VCT-4	TARKETT	VCT II	-	STONE TAUPE	601	-	-	-	CLASSROOMS, BREAK ROOM	1/8 IN	12 IN	12 IN
GROUT												
GT-0	MAPEI	ULTRACOLOR PLUS FA		BISCUIT	14				USE WITH CWT			
GT-1	MAPEI	ULTRACOLOR PLUS FA		PEWTER	02				USE WITH CT-1, CT-2			
GT-2	MAPEI	ULTRACOLOR PLUS FA		TBD					USE WITH QT-1			
GT-3	MAPEI	ULTRACOLOR PLUS FA		MALTA	16				USE WITH CT-3			
PAINT												
PT-0	SHERWIN WILLIAMS	-		GREEK VILLA	SW 7551	-	LATEX	EG-SHELL	FIELD PAINT ALL WALLS UNO	-		
PT-1	SHERWIN WILLIAMS	-	-	TANSY GREEN	SW 6424	-	LATEX	EG-SHELL	GREEN ACCENT WALLS	-	-	-
PT-2	SHERWIN WILLIAMS	-	-	MATURE GRAPE	SW 6286	-	LATEX	EG-SHELL	PURPLE ACCENT WALLS	-	-	-
PT-3	SHERWIN WILLIAMS	-	-	UTAUPEIA	SW 9088	-	LATEX	EG-SHELL	EVENT SPACE, ACCENT WALLS	-	-	-
PT-4	SHERWIN WILLIAMS	-	-	GOLDEN PLUMERIA	SW 9019	-	LATEX	EG-SHELL	YELLOW ACCENT WALL	-	-	-
PT-5	SHERWIN WILLIAMS			MALABAR	SW 9110		LATEX	EG-SHELL	ACCENT WALLS			
PT-6	SHERWIN WILLIAMS	-	-	MALABAR	SW 9110	-	LATEX	FLAT	MECHANICAL DUCTS	-		
PT-7	SHERWIN WILLIAMS	-	-	PARAKEET	SW 6711	-	LATEX	EG-SHELL	ACCENT WALL IN GROUND FLOOR CIRC			
PT-8	SHERWIN WILLIAMS	-	-	PARAKEET	SW 6711	-	LATEX	SEMI-GLOSS	DOOR FRAMES TO MATCH HOST WALL			
PT-9	SHERWIN WILLIAMS	-	-	SASSY GREEN	SW 6416	-	LATEX	SEMI-GLOSS	ALTERNATE: DOOR FRAMES TO GO WITH WC-1			
PT-10	SHERWIN WILLIAMS	-	-	GREEK VILLA	SW 7551	-	LATEX	SEMI-GLOSS	TRIM & DOOR FRAMES TO MATCH HOST WALL			
PT-11	SHERWIN WILLIAMS	-	-	TANSY GREEN	SW 6424	-	LATEX	SEMI-GLOSS	TRIM & DOOR FRAMES TO MATCH HOST WALL			
PT-12	SHERWIN WILLIAMS	-	-	MATURE GRAPE	SW 6286	-	LATEX	SEMI-GLOSS	TRIM & DOOR FRAMES TO MATCH HOST WALL			
PT-13	SHERWIN WILLIAMS	-	-	GREEK VILLA	SW 7551	-	LATEX	FLAT	CEILING	-	-	-
PT-14	SCUFFMASTER	METALLI-COAT 2000 AND ULTRA-CLEAR TOPCOAT	-	SOLID METAL	TBD	-		SEMI-GLOSS	STAIR GUARDRAIL. APPLY ULTRA CLEAR COAT IN STAIN AS TOPCOAT			
PT-15	SHERWIN WILLIAMS	-	-	MALABAR	SW 9110	-	ENAMEL	SEMI-GLOSS	STAIR STRINGER			
PLASTIC LAMINATE												
PLAM-3	WILSONART	STANDARD LAMINATE	-	MISSION MAPLE	7990-38	-	-	FINE VELVET FINISH	CASEWORK	-	-	-
RESILIENT BASE												
RB-1	TARKETT	BASEWORKS THERMOSET RUBBER (TYPE TS), W/TOE	-	GLENHAVEN	TH1	-	RUBBER	-	USE WITH VCT-1	4 IN	CONTINUOUS	-
RB-2	TARKETT	BASEWORKS THERMOSET RUBBER (TYPE TS), W/TOE	-	POETRY PLUM	TG9	-	RUBBER	-	USE WITH VCT-2	4 IN	CONTINUOUS	-
RB-3	TARKETT	BASEWORKS THERMOSET RUBBER (TYPE TS), W/TOE	-	FAWN CG	80		RUBBER		USE WITH VCT-3, CPT-1, CPT-2	4 IN	CONTINUOUS	
RB-4	TARKETT	BASEWORKS THERMOSET RUBBER (TYPE TS), W/TOE	-	PEBBLE WG	32		RUBBER		USE WITH TC-4, CONC-1	4 IN	CONTINUOUS	
RB-5	TARKETT	BASEWORKS THERMOSET RUBBER (TYPE TS), W/TOE	-	BURNT UMBER	63	-	RUBBER		USE WITH CPT-3, CPT-4	4 IN	CONTINUOUS	
ROLLER SUNSHADES												
RS-1	MECHOSHADE	MECHO/5X	3% OPENNESS	LIGHT GRAY	1683				SUNSHADE FOR EVENT SPACES AND EVENT HALL. REF DETAIL 6/A451, 14/A922			
SOLID SURFACE												
SSM-1	CORIAN	-	-	LINEN	-	-	-	-	ALL COUNTERTOPS UNO	1/2 IN	-	-
SSM-2	LG HAUSYS	HI-MACS CLASSIC	-	BANANA	S26	-	-	-	COUNTERTOP - BREAK ROOM	-	-	-
TOILET PARTITIONS												
TP-1	SCRANTON PRODUCTS	HINY HIDERS		SANDCASTLE				ORANGEPEEL	TOILET ROOMS	72 IN EXTRA HIGH		
TRANSITION STRIP												
TS-1	SCHLUTER SYSTEMS	RENO- FOR SLOPED TRANSITIONS		BRUSHED ANTIQUE	BRONZE ANODIZED				COORDINATE PROFILE WITH FLOORING MATERIAL HEIGHTS			
WALL FINISHES - ACOUSTIC WALL PANELS												
AWP-1	MDC	ZINTRA STICKS - BUNDLES	NARROW PORTRAIT	SPOTTED GUM					EVENT SPACE WALL	1/2 IN THICK	9 FT	4"
WALL FINISHES - CERAMIC WALL TILE												
CWT-0	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	MATTE BISCUIT	K775 (1)	ASHLAR	CERAMIC	MATTE	WALL TILE ABOVE WAINSCOT LEVEL			
CWT-1	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	GARDEN SPOT	0141 (3)	RUNNING BOND 1/3 OFFSET	CERAMIC	GLOSSY	WALL TILE - GREEN	5/16 IN	TBD	TBD
CWT-2	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	PLUM CRAZY	1178	RUNNING BOND 1/3 OFFSET	CERAMIC	GLOSSY	WALL TILE - PURPLE	5/16 IN	TBD	TBD
CWT-3	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	KEY LIME	1098	RUNNING BOND 1/3 OFFSET	CERAMIC	GLOSSY	WALL TILE - LIGHT GREEN	5/16 IN	TBD	TBD
CWT-4	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	MUSTARD	1012	RUNNING BOND 1/3 OFFSET	CERAMIC	GLOSSY	WALL TILE - YELLOW			
CWT-5	DALTILE	COLOR WHEEL CLASSIC	CLASSIC	ORANGE BURST	1097	RUNNING BOND 1/3 OFFSET	CERAMIC	GLOSSY	WALL TILE - ORANGE			
WALL FINISHES - WALL PROTECTION												
CG-1	INPRO	150 HIGH IMPACT CORNERGUARDS	RIGID VINYL	WHITE SAND	0103				USE WITH PT-0, REFER TO KEYNOTES IN FINISH PLANS FOR LOCATIONS	8'		
CR-1	WOOD	CHAIR RAIL TRIM MOULDING	EWCH19 CONTEMPORARY	POPLAR		MITER AT CORNERS		PAINT	PROVIDE IN CELEBRATION SUITE AT 32" AFF. REF SHEET A951			
FRP-1	MARLITE	FIBERGLASS REINFORCED WALL PANELS	PEBBLED	LIGHT GRAY	P151	INSTALL IN VERTICAL ORIENTATION			EVENT SERVERY. PROVIDE PVC TRIM & TOP CAP	4 FT	8 FT	
WALL FINISHES - WALLCOVERING												
WC-1	WOLF GORDON	RAMPART	GOH 33771657	RESHAM/EARTHY GREEN	-	INSTALL VERTICAL	-	-	ALTERNATE: ACCENT AT GROUND FLOOR CIRC	-	-	54"
WC-2	CARNEGIE	XOREL METEOR	6427W	703					FABRIC FOR EVENT SPACE OPERABLE PARTITION			
WOOD												
DOORS	TBD	WHITE BIRCH (PLAIN SLICE)	CLEAR STAIN						REFER TO DOOR MANUFACTURER			
WD-1	-	QUARTERSAWN RED OAK	CLEAR STAIN	-	-	-	-	-	STAIR TREAD	SEE STAIR DETAILS	-	-
WD-2	WOOD		CLEAR STAIN						STAIR GUARDRAIL TOP RAIL, STAIR HANDRAIL			

GENERAL FINISH NOTES:

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DWG. TITLE

FINISH SPECIFICATIONS

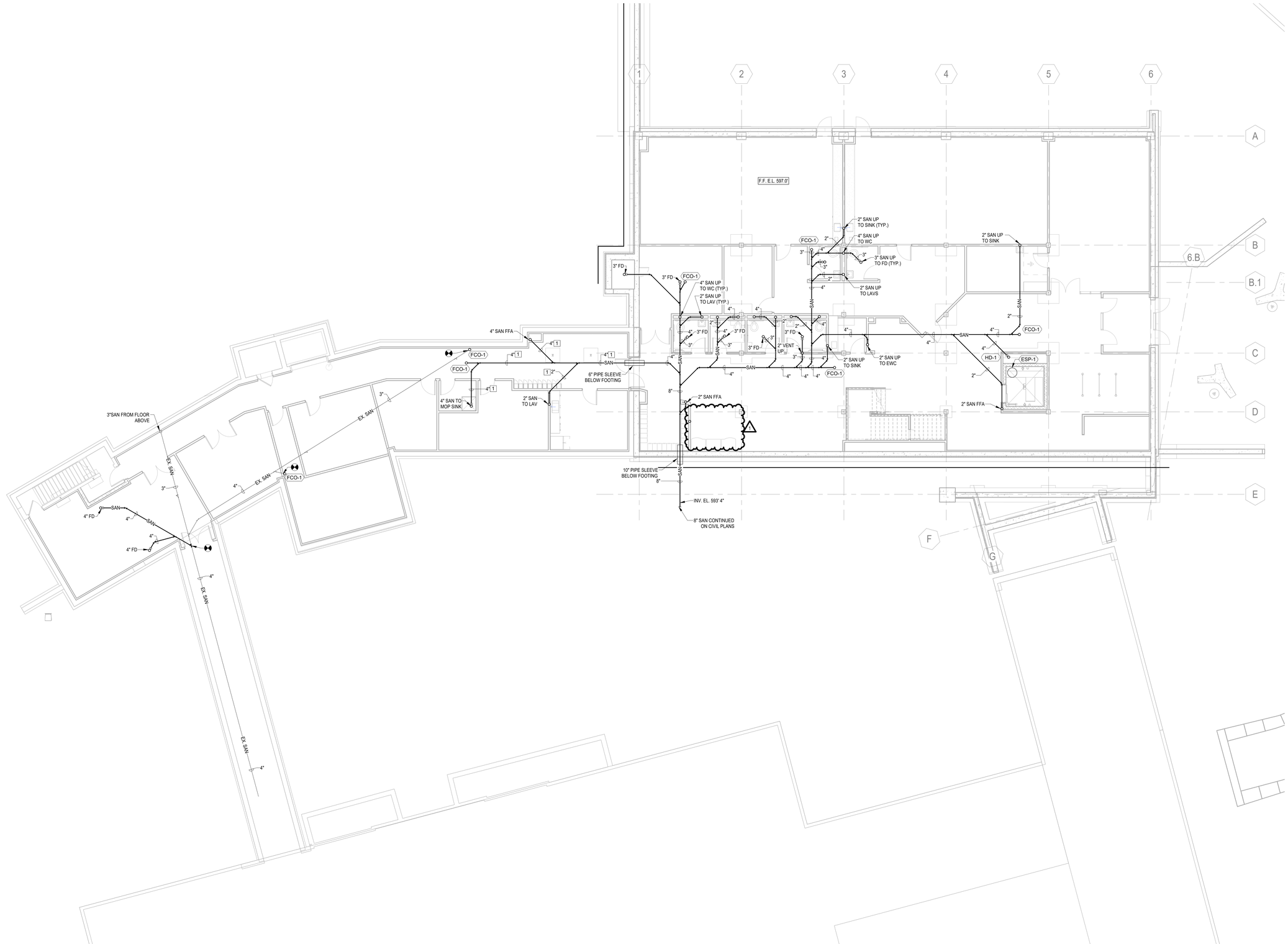
0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
SCALE	12" = 1'-0"
DWN.	SSS CHK. SRN
PROJ. No.	605802
DWG. No.	

A952

CONSTRUCTION NOTES:

1. SANITARY PIPING ROUTED BELOW EXISTING SLAB. SAW CUT SLAB TO ALLOW FOR PIPE INSTALATION. REFER TO STRUCTURAL PLANS FOR SLAB PATCHING.



1 BELOW GRADE PLUMBING PLAN
SCALE: 1/8" = 1'-0"

TRUE NORTH
N

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo And Erie County Botanical Gardens
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DWG. TITLE

BELOW GRADE PLAN

0 1" 2"
GENERIC SCALE BAR
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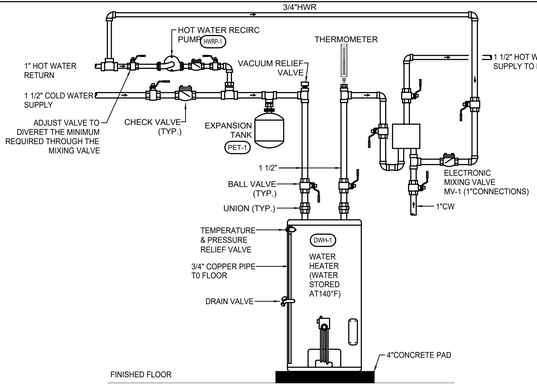
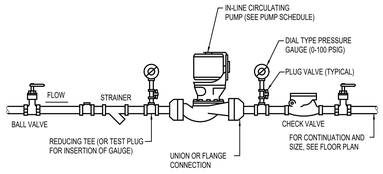
DATE	02/18/2025
SCALE	1/8" = 1'-0"
DWN.	WJH
CHK.	JTW
PROJ. No.	605802
DWG. No.	

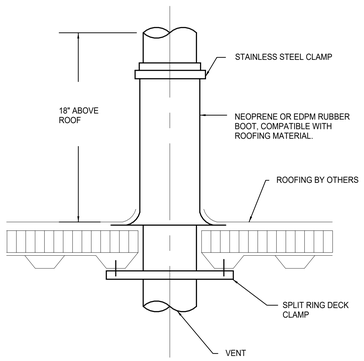
P101



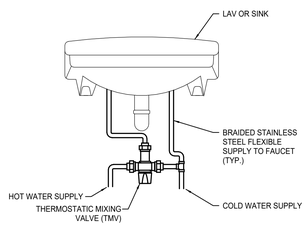
1 ELECTRIC WATER HEATER DETAIL
SCALE: NOT TO SCALE



2 IN-LINE CIRCULATING PUMP DETAIL
SCALE: NOT TO SCALE



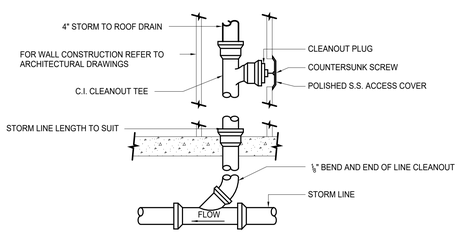
3 VENT/PIPE THRU ROOF DETAIL
SCALE: NOT TO SCALE



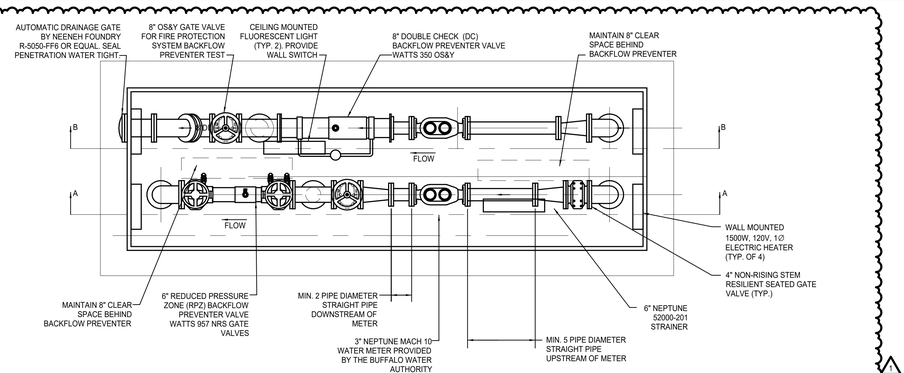
NOTES:

1. MODIFY EXISTING SUPPLY PIPING AS REQUIRED FOR THERMOSTATIC MIXING VALVE INSTALLATION.
2. MOUNT THERMOSTATIC MIXING VALVE AS TIGHT TO UNDERSIDE OF SINK OR LAVATORY AS POSSIBLE TO MAINTAIN ADA CLEARANCE.

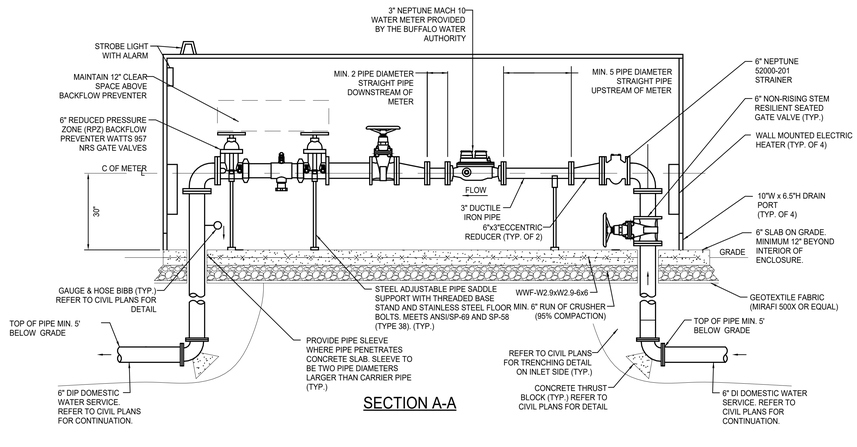
4 THERMOSTATIC MIXING VALVE AT HAND SINK DETAIL
SCALE: NOT TO SCALE



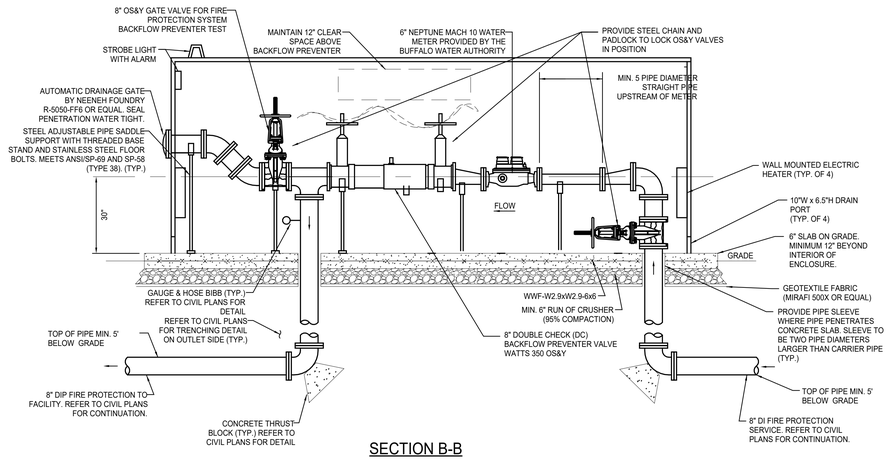
5 STORM PIPING WALL CLEANOUT DETAIL
SCALE: NOT TO SCALE



PLAN



SECTION A-A



SECTION B-B

PIPING NOTES:

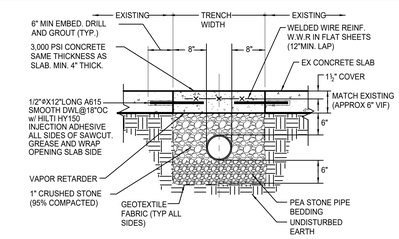
1. MECHANICAL JOINT FITTINGS SHALL BE RESTRAINED WITH BOTH CONCRETE THRUST BLOCKS AND MECHANICAL WEDGE ACTION RETAINING GLANDS.
2. ALL BOLTS AND NUTS USED FOR BURIED MECHANICAL JOINTS SHALL BE FLUOROCARBON COATED, HIGH STRENGTH, CORROSION RESISTANT, LOW ALLOY STEEL.
3. ALL BURIED PIPING AND FITTINGS SHALL BE BEDDED IN ACCORDANCE TO DETAIL ON CIVIL DRAWINGS.
4. ALL NEW PIPE AND FITTINGS SHALL BE SWABBED WITH HIGH CONCENTRATION CHLORINE SOLUTION PRIOR TO INSTALLATION AND/OR PLACING INTO SERVICE. AFTER CHLORINATION, ALL PIPING MUST BE PROTECTED FROM CONTAMINATION AND CONTACT WITH GROUND WATER.
5. ALL NEW PIPE AND FITTINGS ARE TO BE VISUALLY INSPECTED FOR LEAKAGE UNDER NORMAL LINE PRESSURE. ALL LEAKS MUST BE REPAIRED PRIOR TO PLACING INTO SERVICE.
6. A 6" SPOOL PIECE MAY BE BORROWED FOR INITIAL PIPING INSTALLATION FROM THE CITY OF BUFFALO DIVISION OF WATER PRIOR TO WATER METER INSTALLATION BY THE CITY OF BUFFALO DIVISION OF WATER. THE SPOOL PIECE WILL BE TAKEN BACK BY THE ECWA UPON METER INSTALLATION.

PROVIDE CUSTOM HUBBELL ALUMINUM HOT BOX ENCLOSURE (OR EQUAL) WITH MINIMUM INTERNAL DIMENSIONS: 60"W x 216"L x 78"H. UNIT SHALL HAVE LOCKABLE INSULATED (R=10) ALUMINUM PROTECTIVE ENCLOSURE WITH ELECTRIC UNIT HEATERS FOR FREEZE PROTECTION TO 40°F WITH AN OUTDOOR TEMPERATURE OF -30°F. PROVIDE REMOVABLE FRONT DOORS ON BOTH SIDES WITH LOCKABLE LIFTING HANDLES. PROVIDE STROBE LIGHT, ALARM, AND LIGHT WITH WALL SWITCH OPTIONS. REFER TO CIVIL PLANS FOR ENCLOSURE LOCATION. CONTRACTOR SHALL PROVIDE CONNECTIONS FOR EQUIPMENT. SECURE ENCLOSURE TO CONCRETE PAD WITH STAINLESS STEEL HARDWARE AND PER ENCLOSURE MANUFACTURER'S REQUIREMENTS. SEAL JOINTS BETWEEN WALL PANELS AND CONCRETE SLAB WATER TIGHT.

NOTE:
MAINTAIN THE FOLLOWING CLEARANCES AROUND EACH BACKFLOW PREVENTER (BFP):

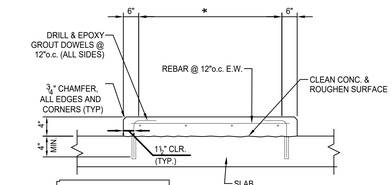
1. MIN 8" BEHIND EACH BFP.
2. MIN 12" ABOVE EACH BFP.
3. MIN 18" BELOW BFP DRAIN PORT.
4. MIN 30" IN FRONT OF EACH BFP THROUGH THE USE OF REMOVABLE DOORS.

6 HOT BOX PIPING DETAIL
SCALE: NOT TO SCALE

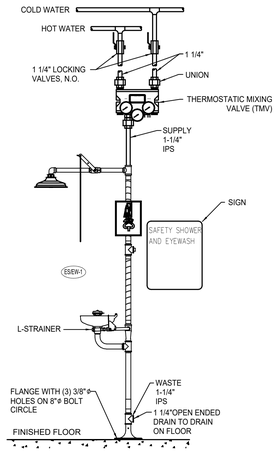


NOTE:
STABILIZE TRENCHING, DO NOT UNDER CUT OR DISTURB SLAB BEARING MATERIAL.

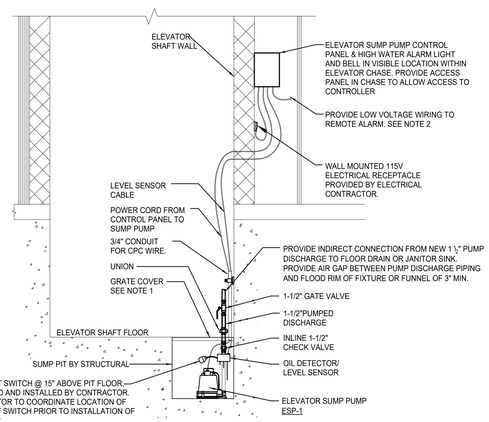
7 TYPICAL INDOOR SLAB PATCH DETAIL
SCALE: NOT TO SCALE



8 TYPICAL EQUIPMENT PAD
SCALE: NOT TO SCALE



9 EYE WASH/ EMERGENCY SHOWER DETAIL
SCALE: NOT TO SCALE



NOTES:

1. COVER SHALL BE FABRICATED OF 1/4" THICK GALVANIZED STEEL DIAMOND PLATE FLUSH WITH ELEVATOR SHAFT FLOOR. WELD 3"x3"x1/4" GALVANIZED STEEL ANGLES TO TWO SIDES OF DIAMOND PLATE. HOT DIPPED AFTER FABRICATION. NOTCH OUT COVER TO ALLOW FOR PIPE RISER ANS WATER TO ENTER PIT. CONTRACTOR SHALL FIELD VERIFY SUMP PIT DIMENSIONS.
2. PROVIDE LOW VOLTAGE WIRING FROM ELEVATOR SUMP PUMP CONTROLLER TO REMOTE ALARM IN MEP 036. PROVIDE POWER TO REMOTE ALARM FROM WALL MOUNTED 115V ELECTRICAL RECEPTACLE LOCATED IN MEP 036. PROVIDE LOW VOLTAGE WIRING FROM REMOTE ALARM TO BMS SYSTEM.

10 ELEVATOR SUMP PUMP DETAIL
SCALE: NOT TO SCALE

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NO.	REVISIONS	DATE
1	ADDENDUM 2	03/06/2025
0	ISSUED FOR BID	02/18/2025

DWG. TITLE

DETAILS & SECTIONS

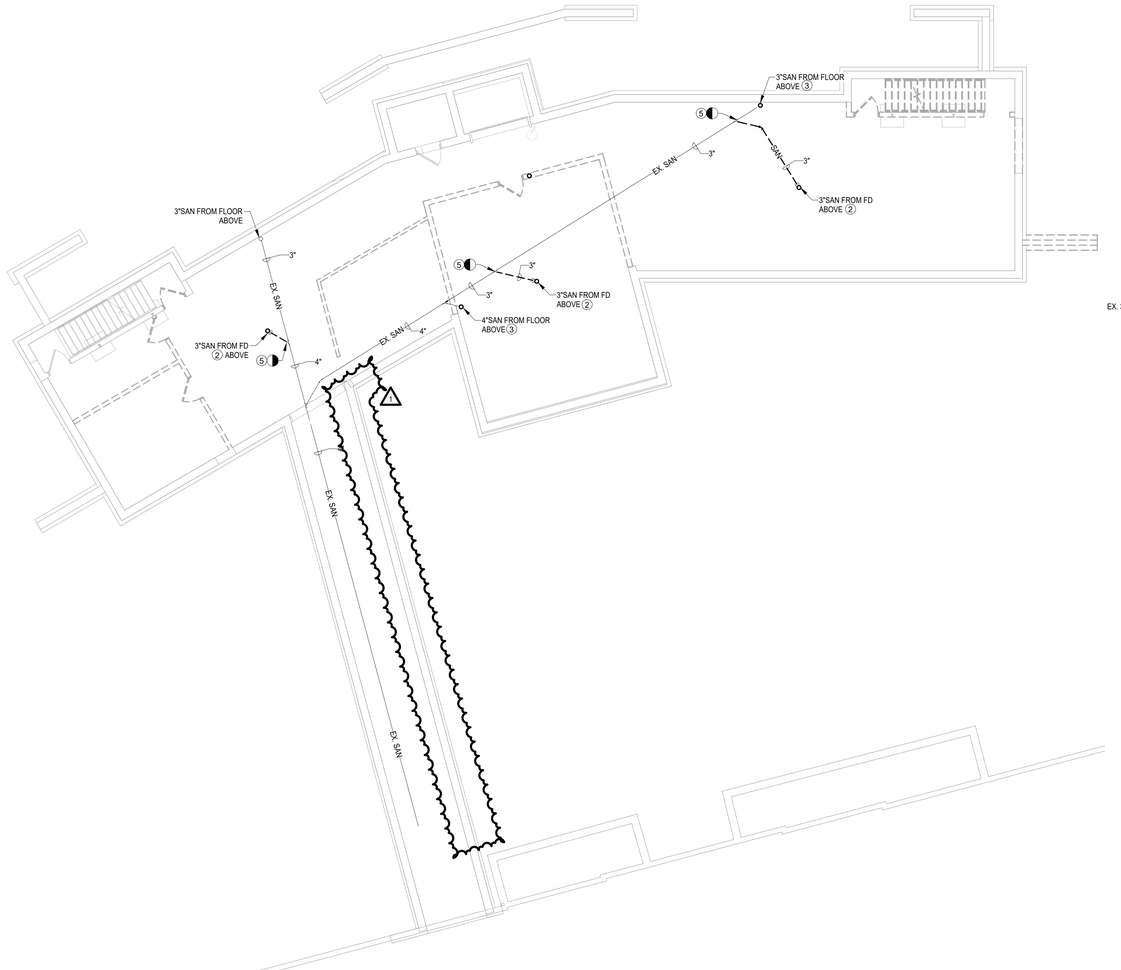
0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
SCALE	
DWN.	NBN
CHK.	JTW
PROJ. No.	605802
DWG. No.	

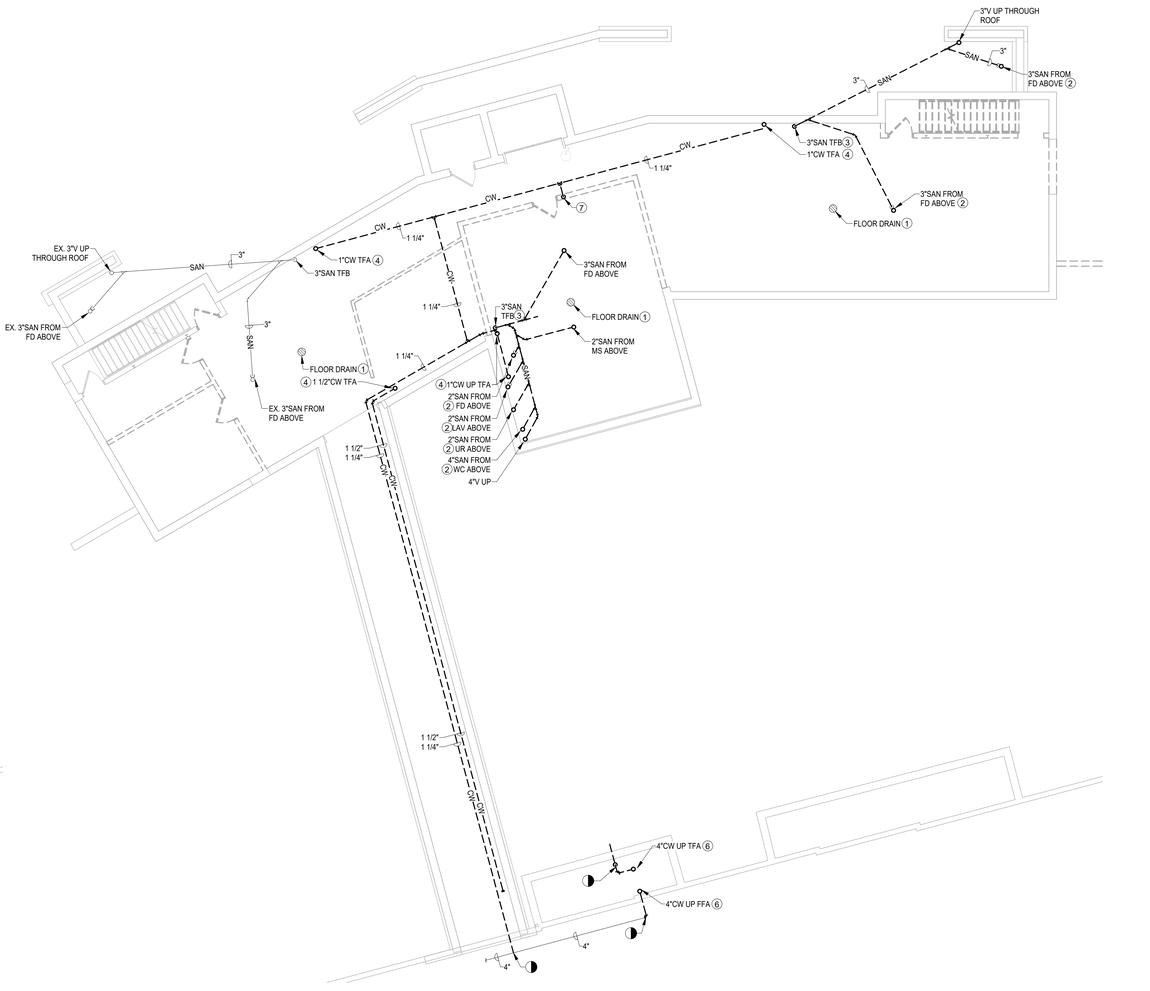
P201

(#) DEMOLITION NOTES:

1. REMOVE FLOOR DRAIN, ALL ASSOCIATED HARDWARE, AND SANITARY PIPING THROUGH FLOOR BACK TO POINT OF DISCONNECTION SHOWN ON FLOOR BELOW. PATCH FLOOR PENETRATION TO MATCH SURROUNDING.
2. REMOVE SANITARY PIPING FROM FIXTURE ON FLOOR ABOVE BACK TO POINT OF DISCONNECTION SHOWN. REMOVE ALL HANGERS AND SUPPORTS.
3. REMOVE SANITARY RISER DOWN TO BELOW BASEMENT FLOOR. PREPARE PIPING BELOW GRADE FOR CONNECTION TO NEW PIPING.
4. REMOVE COLD WATER RISER FROM FLOOR ABOVE BACK TO POINT OF DISCONNECTION SHOWN.
5. PIPING SHOWN FOR DEMOLITION SHALL BE DEMOLISHED BACK TO THIS POINT. CONTRACTOR SHALL CAP PIPING AT THIS POINT.
6. REMOVE DOMESTIC COLD WATER PIPING BETWEEN THE POINTS OF DISCONNECTION SHOWN. REMOVE PIPING FROM SHUTOFF VALVE AT BASEMENT WALL UP TO FLOOR ABOVE INCLUDING BACKFLOW PREVENTOR AND ALL ASSOCIATED SERVICE HARDWARE, BACK DOWN TO BASEMENT LEVEL. CAP PIPING IN BASEMENT FOR CONNECTION TO NEW WATER SERVICE LINE.
7. REMOVE HOSE BIB AND ALL ASSOCIATED PIPING.



1 BELOW SLAB PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 GROUND FLOOR PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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NO.	REVISIONS	DATE
1	ADDENDUM 2	03/06/2025
0	ISSUED FOR BID	02/18/2025

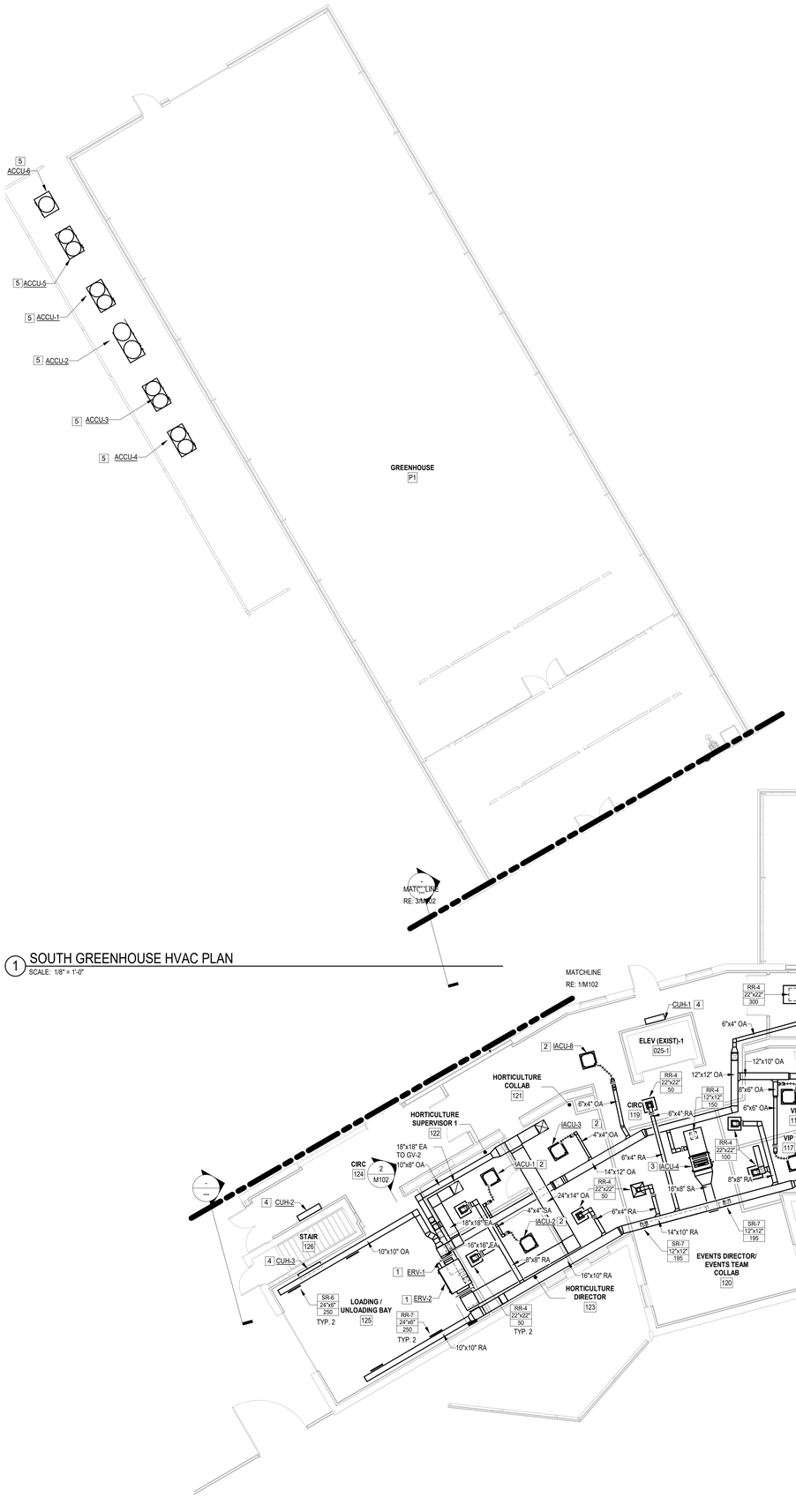
DWG. TITLE

GROUND FLOOR DEMOLITION PLAN

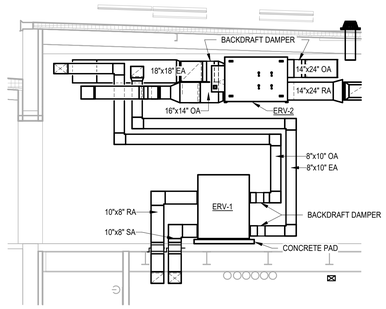
0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	02/18/2025
SCALE	1/8" = 1'-0"
DWN.	NBN CHK. JTW
PROJ. No.	605802
DWG. No.	

PD101



1 SOUTH GREENHOUSE HVAC PLAN
SCALE: 1/8" = 1'-0"



2 LOADING / UNLOADING BAY SECTION
SCALE: 1/4" = 1'-0"

3 FIRST FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

CONSTRUCTION NOTES

1. PROVIDE INDOOR ENERGRY RECOVERY UNIT (ERV). PROVIDE ALL ASSOCIATED DUCTWORK, SUPPORTS, FITTINGS, CONTROLS AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWING M301 FOR SCHEDULED CAPACITIES. INSTALL PER MANUFACTURER'S RECOMEMENDED INSTALLATION INSTRUCTIONS. TIE INTO BMS.
2. PROVIDE CEILING CASSETTE INDOOR AIR CONDITIONING UNIT (IACU) WITH INTEGRAL CONDENSATE LIFT PUMP. PROVIDE ALL ASSOCIATED SUPPORTS, CONTROLS, AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWING M301 FOR SCHEDULED CAPACITY. INSTALL PER MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS. TIE INTO BMS.
3. PROVIDE DUCTED CASSETTE INDOOR AIR CONDITIONING UNIT (IACU) AS SCHEDULED. PROVIDE ALL ASSOCIATED DUCTWORK, REFRIGERANT PIPING, SUPPORTS, FITTING, CONTROLS, AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWING M301 FOR SCHEDULED CAPACITY. INSTALL PER MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS. TIE INTO BMS.
4. PROVIDE SURFACE MOUNTED ELECTRIC UNIT HEATER (CUH). PROVIDE ALL ASSOCIATED SUPPORTS, CONTROLSM AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWING M202 FOR ASSOCIATED DETAIL AND DRAWING M301 FOR SCHEDULED CAPACITY. INSTALL PER MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS. TIE INTO BMS.
5. PROVIDE AIR-COOLED CONDENSING UNIT (ACCU) WITH EQUIPMENT RAILS. SECURE UNIT TO RAILS AND RAILS TO STRUCTURE IN ACCORDANCE WITH THE NEW YORK STATE BUILDING CODES AND ASCE7. PROVIDE ALL ASSOCIATED SUPPORTS, CONTROLS, AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWINGS M201 FOR ASSOCIATED DETAIL AND M301 FOR SCHEDULED CAPACITES. INSTALL PER PANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS. TIE INTO BMS.
6. PROVIDE VARIABLE AIR VOLUME (VAV) AS SCHEDULED. PROVIDE ALL ASSOCIATED SUPPORTS AND ANCILLARY DEVICES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. REFER TO DRAWING M201 FOR ASSOCIATED DETAIL AND DRAWING M301 FOR SCHEDULED CAPACITY
7. PROVIDE LOUVER AS SCHEDULED. PROVIDE ALL NECESSARY SUPPORTS AND HARDWARE REQUIRED FOR INSTALLATION. PROVIDE PLENUM ON BACK OF LOUVER WITH ACCESS DOOR. PLENUM TO HAVE SLOPED BOTTOM TO DRAIN OUT THE FACE OF THE LOUVER. REFER TO LOUVER DETAIL FOR SPECIFIC INSTALLATION REQUIREMENTS.
8. PROVIDE DUCT HEATER (DH) AS SCHEDULED. PROVIDE ALL NECESSARY FITTINGS, TRANSITIONS AND HARDWARE AS REQUIRED FOR INSTALLATION IN DUCTWORK.

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NO.	REVISIONS	DATE
1	ADDENDUM #2	3-7-2025
0	ISSUE FOR BID	2-18-2025

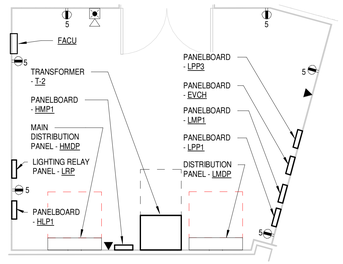
DWG. TITLE

FIRST FLOOR HVAC PLAN

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	2/18/2025
SCALE	As indicated
DWN.	CJP
CHK.	JTW
PROJ. No.	605802
DWG. No.	

M102



2 ENLARGED PLAN - ROOM MEP 035

SCALE: 1/4" = 1'-0"

CONSTRUCTION NOTES:

X

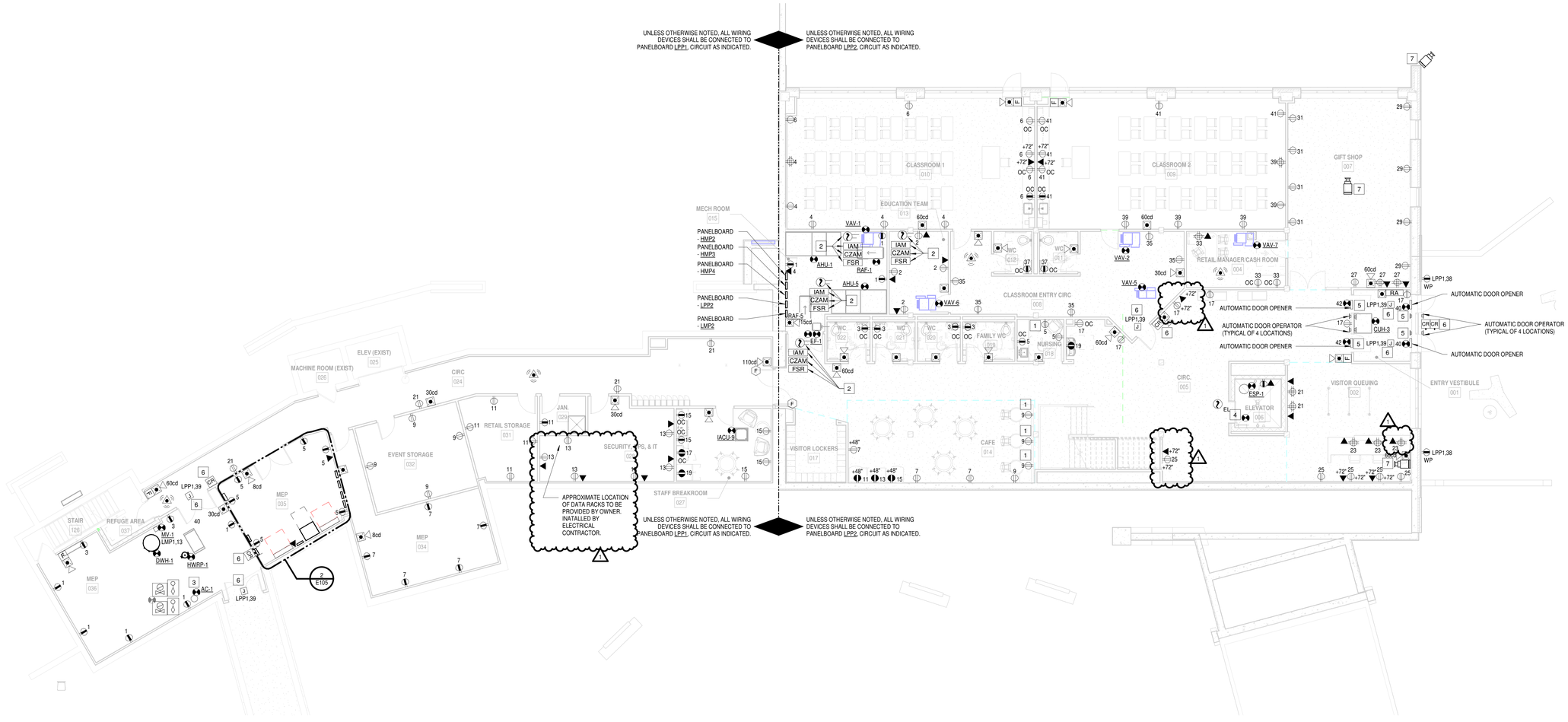
1. PROVIDE 15A TYPE A & TYPE C USB CHARGER/TAMPER RESISTANT RECEPTACLE AT THIS LOCATION.
2. PROVIDE INDIVIDUAL ADDRESSABLE MODULE (IAM) REMOTELY MOUNTED IN CONDITIONED ENVIRONMENT. THE IAM WILL BE CONNECTED TO THE FACTORY SUPPLIED / INSTALLED DUCT MOUNTED DETECTORS TO PROVIDE THE NOTIFICATION OF ALARM TO THE FIRE ALARM CONTROL PANEL. THE FIRE ALARM CONTROL PANEL WILL SIGNAL THE CONTROL ZONE ADDRESSABLE MODULE (CZAM) OF ALARM CONDITION. THE CZAM WILL CONTROL THE FAN SHUTDOWN RELAY (FSR) TO SHUTDOWN THE UNIT. COORDINATE FINAL MOUNTING LOCATION WITH MECHANICAL CONTRACTOR BEFORE INSTALLATION. FACTORY SUPPLIED AND MOUNTED DUCT DETECTORS.
3. ALARM PRESSURE SWITCH AND LOW AIR ALARM, TO BE PROVIDED WITH SPRINKLER SYSTEM AND SHALL BE INSTALLED & WIRED BY ELECTRICAL CONTRACTOR. PROVIDE WIRING AND CONDUIT AS REQUIRED. INTERCONNECT WITH FACU.
4. PROVIDE (2) DEDICATED 120V ELECTRION CONNECTION FOR ELEVATOR CAB LIGHTING AND ELEVATOR CAB CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP2. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
5. PROVIDE AUTOMATIC DOOR OPENER AND ASSOCIATED DOOR OPENER PUSH BUTTONS AT LOCATIONS SHOWN. PROVIDE 120 VOLT POWER TO EACH DOOR. PROVIDE 3/4" RACEWAY WITH 6) #14 AWG. FROM THE DOOR OPENER TO EACH PUSH BUTTON.
6. CARD READER SHOWN FOR REFERENCE ONLY. PROVIDE BACKBOX AT LOCATION. PROVIDE 3/4" RACEWAY FROM BACKBOX TO ACCESSIBLE CEILING SPACE. PROVIDE 120 VOLT POWER TO JUNCTION BOX ABOVE THE DOOR FOR ACCESS CONTROL POWER. PROVIDE 18/4 FIRE ALARM CABLE FROM FIRE ALARM CONTROL PANEL TO EACH DOOR. PROVIDE CAT. 6 DATA CABLE FROM ACCESS CONTROL HEAD END CONTROLLER TO EACH DOOR. OWNER'S VENDOR WILL PROVIDE ALL ACCESS CONTROL DEVICES AND INTEGRATION.
7. SECURITY CAMERA SHOWN FOR REFERENCE ONLY. PROVIDE BACKBOX AT LOCATION SHOWN. PROVIDE CAT. 6 DATA CABLE FROM DATA RACK IN SECURITY, OPS, & IT ROOM 028 TO CAMERA LOCATION. OWNER'S VENDOR WILL PROVIDE SECURITY CAMERA, MOUNT AND INTEGRATION.

GENERAL NOTES:

A. REFER TO DRAWING E503 & E504 FOR PANELBOARD SCHEDULES.

B. REFER TO DRAWING E502 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULES.

C. CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL DEVICE OUTLETS WITH OWNER IN FIELD PRIOR TO ROUGH-IN.



1 GROUND FLOOR PLAN - POWER & SYSTEMS

SCALE: 1/8" = 1'-0"

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NO.	REVISIONS	DATE
1	ADDENDUM 2	03/06/2025
0	ISSUE FOR BID	2/18/2025

DWG. TITLE

GROUND FLOOR PLAN - POWER & SYSTEMS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	08/16/24
SCALE	As indicated
DWN.	VB1
CHK.	JFW
PROJ. No.	605802
DWG. No.	**E105**

GENERAL NOTES:

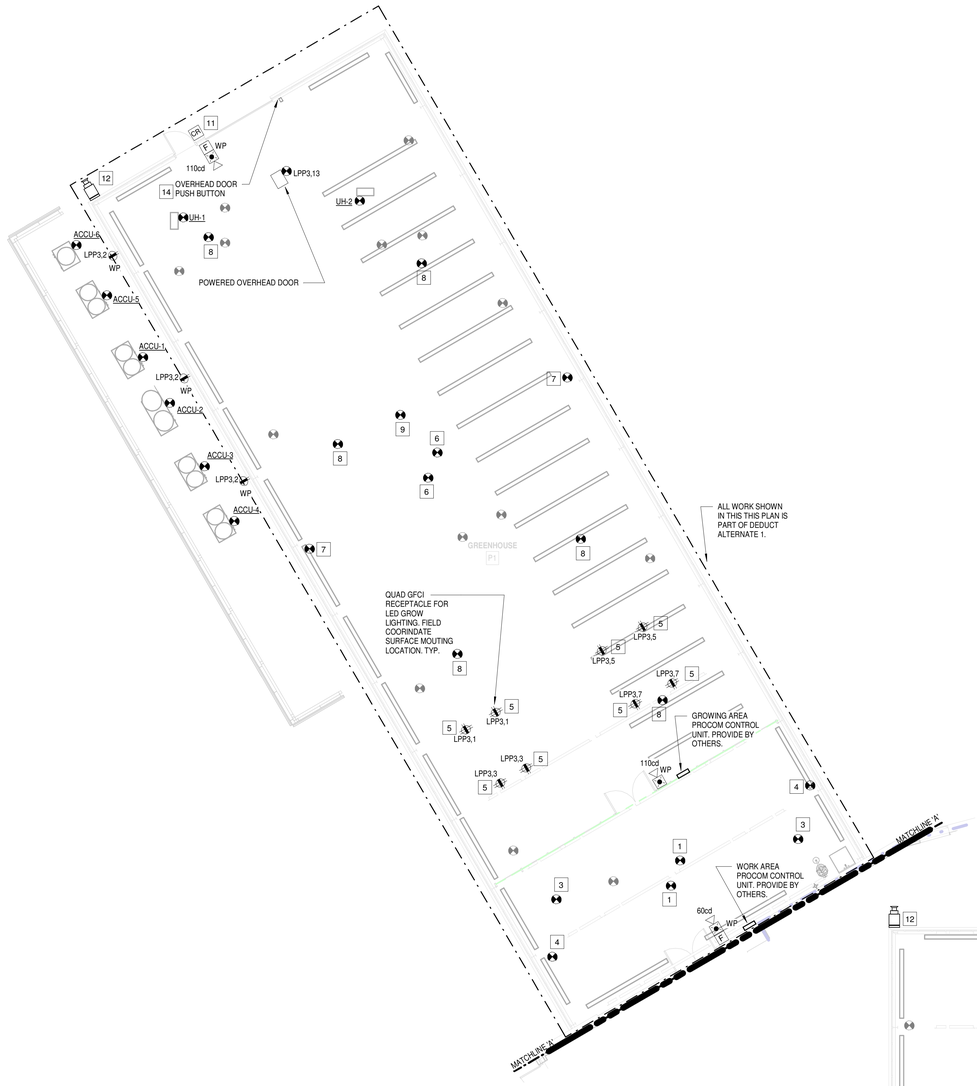
A. REFER TO DRAWING E503 & E504 FOR PANELBOARD SCHEDULES.

B. REFER TO DRAWING E502 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULES.

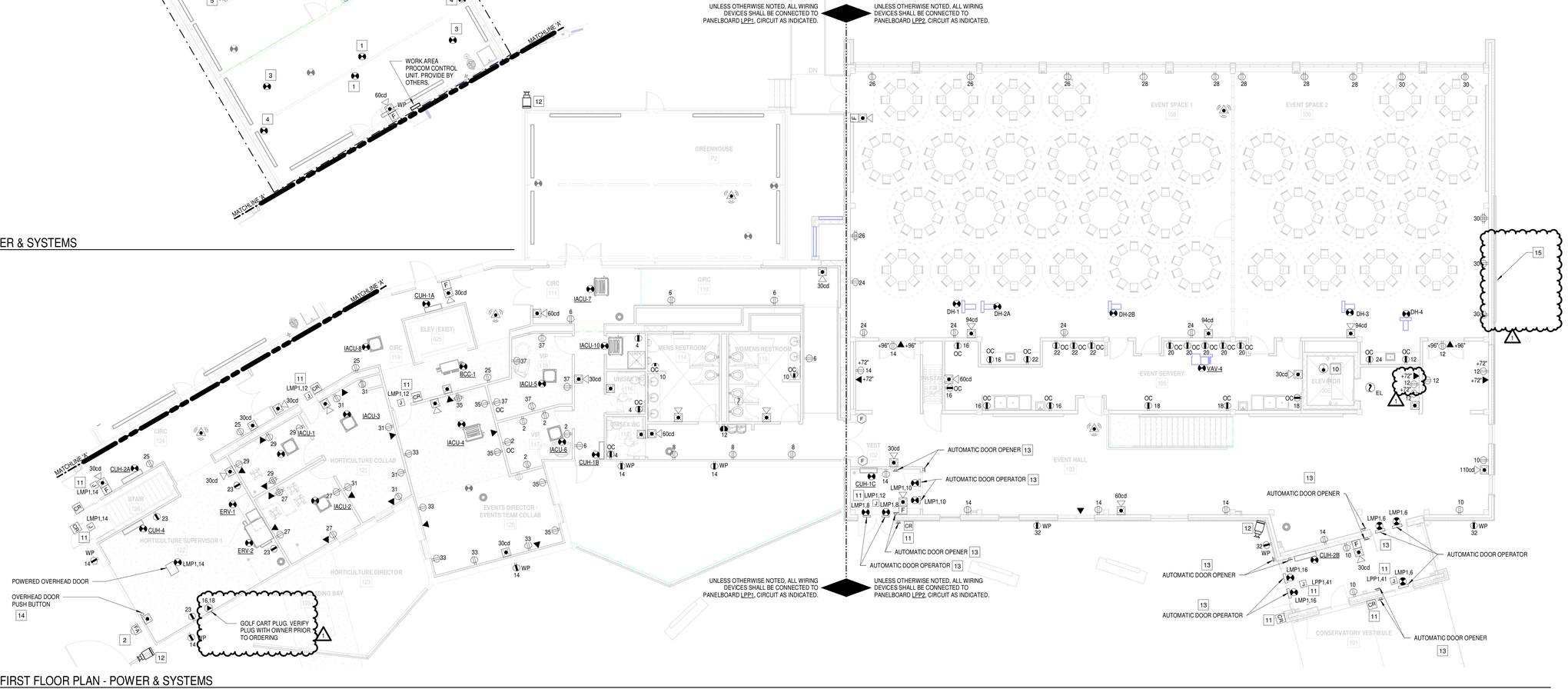
C. CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL DEVICE OUTLETS WITH OWNER IN FIELD PRIOR TO ROUGH-IN.

X CONSTRUCTION NOTES:

1. PROVIDE 120V ELECTRICAL CONNECTION TO RIDGE VENT MACHINE. CIRCUIT SHALL BE ROUTED THRU WORK AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
2. WATER FLOW ALARM BELL, TO BE PROVIDED WITH SPRINKLER SYSTEM AND SHALL BE INSTALLED & WIRED BY ELECTRICAL CONTRACTOR. PROVIDE CONDUIT AND WIRING FROM FLOW ALARM TO FIRE ALARM CONTROL PANEL.
3. PROVIDE 120V ELECTRICAL CONNECTION TO HAF FANS. CIRCUIT SHALL BE ROUTED THRU WORK AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
4. PROVIDE 120V ELECTRICAL CONNECTION TO SIDE VENT MACHINE. CIRCUIT SHALL BE ROUTED THRU WORK AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
5. BRANCH CIRCUIT SHALL BE ROUTED THRU GROWING AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. CIRCUIT AS INDICATED ON DRAWING.
6. PROVIDE 120V ELECTRICAL CONNECTION TO RIDGE VENT MACHINE. CIRCUIT SHALL BE ROUTED THRU GROWING AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
7. PROVIDE 120V ELECTRICAL CONNECTION TO SIDE VENT MACHINE. CIRCUIT SHALL BE ROUTED THRU GROWING AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
8. PROVIDE 120V ELECTRICAL CONNECTION TO HAF FANS. CIRCUIT SHALL BE ROUTED THRU GROWING AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
9. PROVIDE 120V ELECTRICAL CONNECTION TO SHADE CURTAIN MOTOR. CIRCUIT SHALL BE ROUTED THRU GROWING AREA PROCOM CONTROL UNIT TO ALLOW FOR AUTOMATIC CONTROLS. ELECTRICAL CONNECTION SHALL BE SUPPLIED FROM PANELBOARD LPP3. PROVIDE (2)#12 AWG AND #12 GND CONDUCTORS IN A 3/4" CONDUIT.
10. HEAT DETECTOR SHALL BE LOCATED WITHIN 2' - 0" OF EACH ELEVATOR PIT SPRINKLER HEAD.
11. CARD READER SHOWN FOR REFERENCE ONLY. PROVIDE BACKBOX AT LOCATION. PROVIDE 3/4" RACEWAY FROM BACKBOX TO ACCESSIBLE CEILING SPACE. PROVIDE 120 VOLT POWER TO TO JUNCTION BOX ABOVE THE DOOR FOR ACCESS CONTROL POWER. PROVIDE 18/4 FIRE ALARM CABLE FROM FIRE ALARM CONTROL PANEL TO EACH DOOR. PROVIDE CAT. 6 DATA CABLE FROM ACCESS CONTROL HEAD END CONTROLLER TO EACH DOOR. OWNER'S VENDOR WILL PROVIDE ALL ACCESS CONTROL DEVICES AND INTEGRATION.
12. SECURITY CAMERA SHOWN FOR REFERENCE ONLY. PROVIDE BACKBOX AT LOCATION SHOWN. PROVIDE CAT. 6 DATA CABLE FROM DATA RACK IN SECURITY, OPS, & IT ROOM 028 TO CAMERA LOCATION. OWNER'S VENDOR WILL PROVIDE SECURITY CAMERA, MOUNT AND INTEGRATION.
13. PROVIDE AUTOMATIC DOOR OPENER AND ASSOCIATED DOOR OPENER PUSH BUTTONS AT LOCATIONS SHOWN. PROVIDE 120 VOLT POWER TO TO EACH DOOR. PROVIDE 3/4" RACEWAY WITH 6) #14 AWG FROM THE DOOR OPENER TO EACH PUSH BUTTON. AUTOMATIC DOOR OPENER SHALL OPEN BOTH DOORS WHEN SHOWN WITH DOUBLE DOORS.
14. PROVIDE 120 VOLT BRANCH CIRCUIT TO OVERHEAD DOOR. PROVIDE 1/2" CONDUIT WITH 18/6 CABLE FROM THE OVERHEAD DOOR TO THE PUSH BUTTON STATION.
15. OWNER PROVIDED BACK LIT LETTER SIGN. CONTRACTOR TO PROVIDE POWER FEED AND (7) ELECTRICAL CONNECTIONS FOR SIGNS. ONE CONNECTION FOR EACH WORD/LOGO. PROVIDE INTERCONNECTION BETWEEN LETTERS AND LOGOS AS REQUIRED. FINAL LOCATION SHALL BE COORDINATED WITH OWNER. SIGN SHALL BE FEED FROM PANELBOARD HLP1, CKT#16. PROVIDE (2)#10 AWG AND (1)#10 GND CONDUCTORS IN A 3/4" CONDUIT. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATION.



2 P1 FLOOR PLAN - POWER & SYSTEMS
SCALE: 1/8" = 1'-0"



1 FIRST FLOOR PLAN - POWER & SYSTEMS
SCALE: 1/8" = 1'-0"

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo & Erie County Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK 14218

Buffalo And Erie County Botanical Gardens Addition
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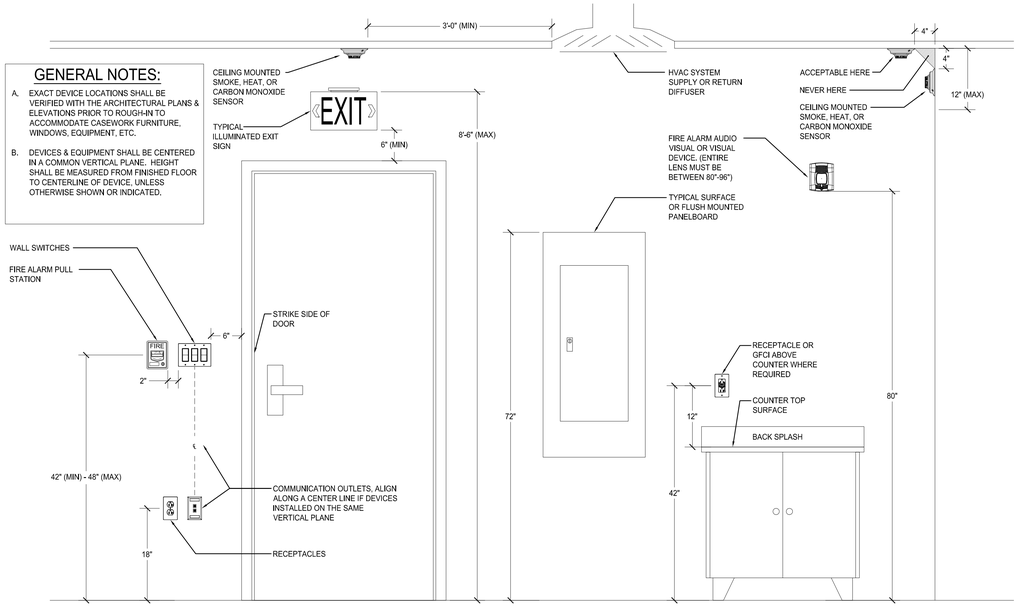
NO.	REVISIONS	DATE
1	ADDENDUM 2	03/06/2025
0	ISSUE FOR BID	2/18/2025

DWG. TITLE

FIRST FLOOR PLAN - POWER & SYSTEMS

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY

DATE	08/16/24
SCALE	As indicated
DWN.	VB1
CHK.	JFW
PROJ. No.	605802
DWG. No.	**E106**



1 TYPICAL DEVICE & EQUIPMENT INSTALLATION HEIGHTS
SCALE: NONE

SPECIFICATIONS:

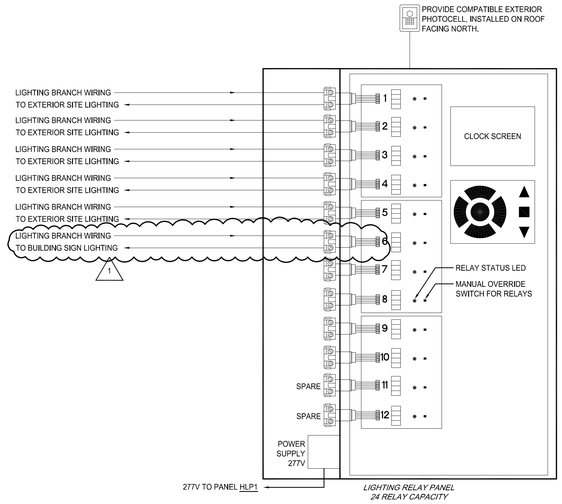
PROVIDE A SINGLE RELAY PANEL WITH UP TO 24 RELAYS OR AS REQUIRED. EACH RELAY TO BE INDIVIDUALLY SCHEDULED THROUGH AN EASY TO USE INTEGRAL CLOCK WITH A BACKLIT 8-LINE LCD DISPLAY. RELAYS ARE TO BE SPST 20 AMP RATED, MECHANICALLY HELD CONTACTORS CAPABLE OF SWITCHING EITHER 120 OR 277VAC LOADS. ADJACENT TO EACH RELAY SHOULD BE A LED TO ANNUNCIATE STATUS & A PUSHBUTTON TO TOGGLE THE RELAY'S STATE. PANEL SHALL HAVE A MULTITAP TRANSFORMER, DESIGNED & MANUFACTURED FOR 120V/277V OPERATION.

LIGHTING RELAY PANEL ENCLOSURE SHALL BE NEMA 1, RATED FOR ENVIRONMENTS FROM 32 - 139°F, 5 - 95% RH NON-CONDENSING. PANEL SHALL BE PROVIDED WITH A SPLIT COVER HINGED IN THE CENTER SUCH THAT THE HIGH VOLTAGE SIDE MUST BE UNSCREWED TO ACCESS THE RELAYS, BUT THE LOW VOLTAGE SIDE CAN BE OPENED VIA A LOCKING LATCH.

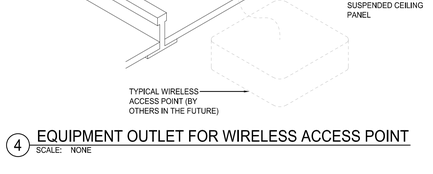
ALL PROGRAMMING TO BE ENTERED VIA A SIMPLE KEYPAD. EACH RELAY CAN BE PROGRAMMED INDEPENDENTLY, OR RELAYS CAN BE GROUPED TOGETHER IN FIRMWARE TO FOLLOW THE SAME CHANNEL SCHEDULE. ON A DAILY 7-DAY REPEATING BASIS, RELAYS CAN BE ASSIGNED TO FOLLOW ANY OF THE FOLLOWING SCENARIOS:

(1) MANUAL ON / SCHED OFF
(2) SCHEDULED ON/OFF
(3) MANUAL ON / AS SWITCH OFF (FOR USE WITH AS-100 SWITCHES)
(4) PHOTOCELL ON/OFF
(5) PHOTO & SCHED ON/OFF
(6) ASTRONOMIC ON/OFF
(7) ASTRO AND SCHED ON/OFF

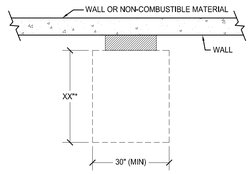
THE LCD SCREEN SHOULD NORMALLY SHOW THE CURRENT TIME & DATE, AS WELL AS SUNRISE & SUNSET TIMES FOR THAT DAY. RELAY CHANNELS CAN ALSO BE MONITORED FROM THE DISPLAY TO SEE THEIR STATUS - EITHER ON, OFF, OR MIXED. ADDITIONALLY THE RELAY GROUPS CAN BE OVERRIDEN FROM THE SCREEN. CONTEXT SENSITIVE HELP SHALL BE AVAILABLE FOR EACH SCREEN.



6 LIGHTING RELAY PANEL
SCALE: NONE



FLOOR MOUNTED DRY-TYPE TRANSFORMER



WALL MOUNTED PANELS

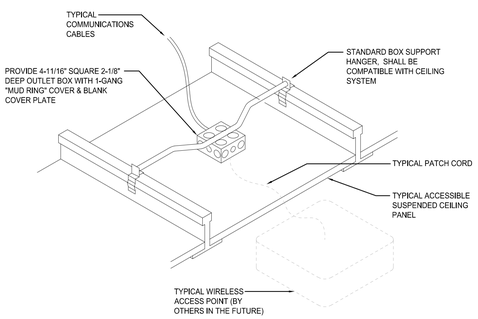
(INCLUDING POWER PANELS, CONTRACTORS, CONTROL CABINETS, DISCONNECT SWITCHES, MOTOR STARTERS, TIME CLOCK & SIMILAR ELECTRICAL EQUIPMENT)

NOTES:

A. XX** IDENTIFIES MINIMUM WORKING SPACE CLEARANCE REQUIREMENTS
[IN THE DIRECTION OF ACCESS TO LIVE PARTS AS REQUIRED PER NFPA 70, SECTION 110.26(a)]
- 36" FOR 0-150V PHASE TO GROUND ELECTRIC EQUIPMENT.
- 42" FOR 150-600V PHASE TO GROUND EQUIPMENT (CONDITION 2 "LIVE TO GROUND")
- 48" FOR 150-600V PHASE TO GROUND EQUIPMENT (CONDITION 3 "BETWEEN LIVE EQUIPMENT")

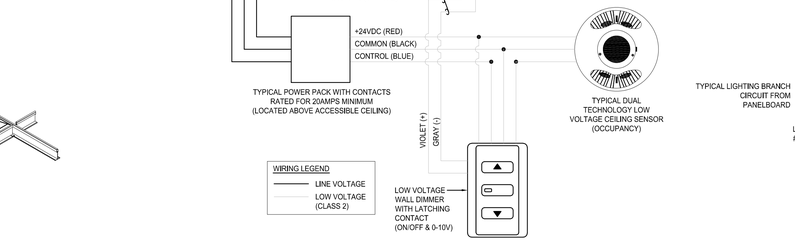
B. MINIMUM WORKING SPACE HEAD ROOM SHALL BE 78" AFF.

2 TYPICAL ELECTRICAL EQUIPMENT CLEARANCES
SCALE: NONE



4 EQUIPMENT OUTLET FOR WIRELESS ACCESS POINT
SCALE: NONE

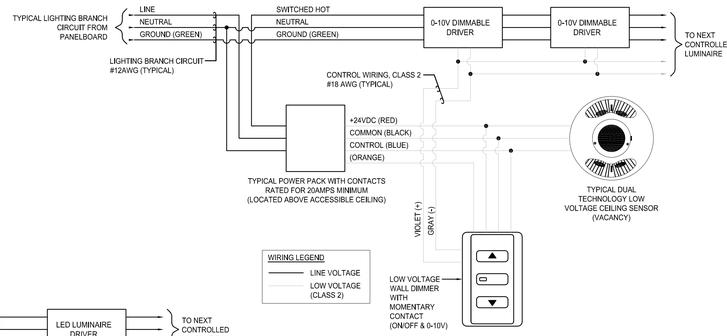
3 TYPICAL TROFFER INSTALLATION DETAIL
SCALE: NONE



DETAIL NOTES:

A. INDICATED WIRING IS SHOWN TO INDICATE GENERAL WIRING CONCEPT. CONTRACTOR SHALL VERIFY EXACT WIRING REQUIREMENTS WITH THE MANUFACTURERS REQUIREMENTS.

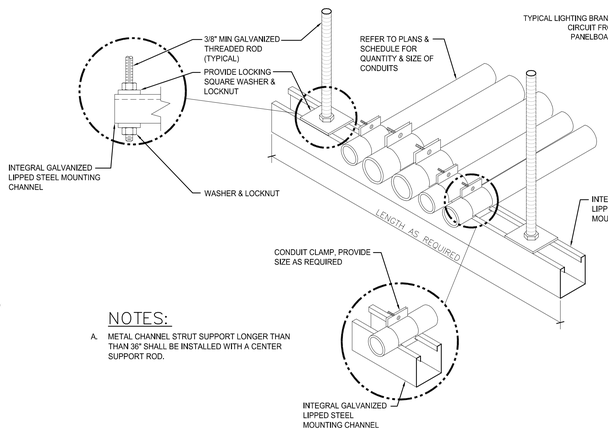
7 CEILING OCCUPANCY SENSOR WALL DIMMER LIGHTING CONTROL DETAIL
SCALE: NONE



DETAIL NOTES:

A. INDICATED WIRING IS SHOWN TO INDICATE GENERAL WIRING CONCEPTS, CONTRACTOR SHALL VERIFY EXACT WIRING REQUIREMENTS WITH THE MANUFACTURERS NEEDS & PROVIDE AS REQUIRED.

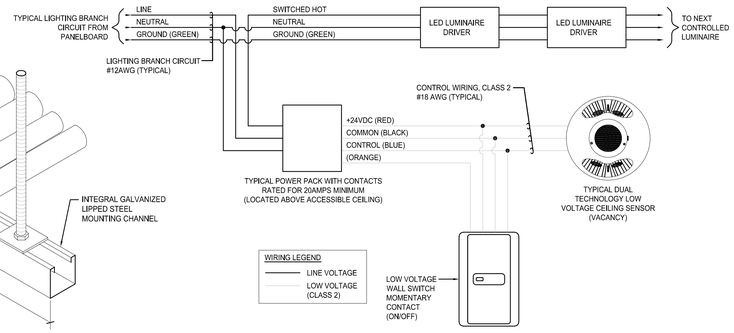
8 CEILING VACANCY SENSOR WALL DIMMER LIGHTING CONTROL DETAIL
SCALE: NONE



NOTES:

A. METAL CHANNEL STRUT SUPPORT LONGER THAN THAN 36" SHALL BE INSTALLED WITH A CENTER SUPPORT ROD.

5 TYPICAL CONDUIT TRAPEZE MOUNTING DETAIL
SCALE: NONE



DETAIL NOTES:

A. INDICATED WIRING IS SHOWN TO INDICATE GENERAL WIRING CONCEPTS, CONTRACTOR SHALL VERIFY EXACT WIRING REQUIREMENTS WITH THE MANUFACTURERS NEEDS & PROVIDE AS REQUIRED.

9 CEILING VACANCY SENSOR WALL SWITCH LIGHTING CONTROL DETAIL
SCALE: NONE

BUFFALO AND ERIE COUNTY Botanical Gardens

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NO.	REVISIONS	DATE
1	ADDENDUM 3	03-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

ELECTRICAL DETAILS

GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE	2/18/2025
SCALE	AS NOTED
DWN.	MAP
CHK.	JFW
PROJ. No.	605802
DWG. No.	E401

PANELBOARD SCHEDULE

PANELBOARD: **HMDP** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **600** A | AIC: **22kA** | MCB: | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1					3000			3000	PWR			2
3						3000		3000	PWR	MINI-POWER CENTER - MZ-P1	40A/2P	4
5							0					6
7					0							8
9						0						10
11							0					12
13	60A/3P	DWH-1	PWR	12748	12748							14
15		(CIRCUIT TO BE SUB-METERED FOR LEED)	PWR	12748		12748						16
17			PWR	12748			12748					18
19			PWR		16033			16033	PWR			20
21	100A/3P	ELEVATOR	PWR			16033		16033	PWR	PANELBOARD HMP4	225A/3P	22
23			PWR				16033	16033	PWR			24
25					35183			35183	PWR			26
27						31934		31934	PWR	DISTRIBUTION PANELBOARD - LMDP VIA XMFR T-2	225A/3P	28
29							33605	33605	PWR			30
31			PWR	55259	76797			21538	PWR			32
33	225A/3P	PANELBOARD HMP1	PWR	55259		76797		21538	PWR	PANELBOARD HMP2	225A/3P	34
35			PWR	55259			76797	21538	PWR			36
37			LTG	3749	31584			27835	PWR			38
39	100A/3P	PANELBOARD HLP1	LTG	2877		30712		27835	PWR	PANELBOARD HMP3	225A/3P	40
41			LTG	5008			32843	27835	PWR			42

PANELBOARD SCHEDULE

PANELBOARD: **EVCH** | VOLTS: **208 Y/120** | 3Ø 4-WIRE | BUS CAPACITY: **225** A | AIC: **22kA** | MCB: | MTG: **SURFACE** | MLO: **225** A | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1	40A/2P	ELECTRICAL VEHICLE CAHRGER - EVC1A	CPWR	3120	6240			3120	CPWR	ELECTRICAL VEHICLE CAHRGER - EVC1B	40A/2P	2
3			CPWR	3120		6240		3120	CPWR			4
5	40A/2P	ELECTRICAL VEHICLE CAHRGER - EVC2A	CPWR	3120			6240	3120	CPWR	ELECTRICAL VEHICLE CAHRGER - EVC2B	40A/2P	6
7			CPWR	3120	6240			3120	CPWR			8
9	40A/2P	ELECTRICAL VEHICLE CAHRGER - EVC3A	CPWR	3120		6240		3120	CPWR	ELECTRICAL VEHICLE CAHRGER - EVC3B	40A/2P	10
11			CPWR	3120			6240	3120	CPWR			12
13						0						14
15					0							16
17							0					18
19					0							20
21						0						22
23							0					24
25					0							26
27						0						28
29							0					30
31					0							32
33						0						34
35							0					36
37					0							38
39						0						40
41							0					42

PANELBOARD SCHEDULE

PANELBOARD: **HLP1** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **100** A | AIC: **65kA** | MCB: **100** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1	20A/1P	LIGHTING - RM 024	LTG	630	750			120	LTG	LIGHTING - EXTERIOR	20A/1P	2
3	20A/1P	LIGHTING - RM 033, 034, 035, 036	LTG	990		990				SPARE	20A/1P	4
5	20A/1P	LIGHTING - RM 027, 028, 029, 031, 032	LTG	748			1558	810	LTG	LIGHTING - PENTHOUSE	20A/1P	6
7	20A/1P	LTG - RM 015, 018, 019, 020, 0221, 022	LTG	360	390			30	LTG	LIGHTING - ELEVATOR PIT	20A/1P	8
9	20A/1P	LIGHTING - RM 014, 017	LTG	599		879		280	LTG	EXTERIOR WG1 & FL1 LIGHTING	20A/1P	10
11	20A/1P	LIGHTING - RM 001, 005	LTG	756			856	100	LTG	EXIT SIGNS GROUND FLOOR	20A/1P	12
13	20A/1P	LIGHTING - RM 008, 011, 012, 013	LTG	485	585			100	LTG	EXIT SIGNS FIRST FLOOR	20A/1P	14
15	20A/1P	LIGHTING - RM 004, 007	LTG			500		500	LTG	BUILDING SIGN	20A/1P	16
17	20A/1P	LIGHTING - RM 009	LTG	486			486			SPARE	20A/1P	18
19	20A/1P	LIGHTING - RM 010	LTG	486	486					SPARE	20A/1P	20
21	20A/1P	LIGHTING - RM 119, 124, 126	LTG	621		621				SPARE	20A/1P	22
23	20A/1P	LIGHTING - RM 125	LTG	540			540			SPARE	20A/1P	24
25	20A/1P	LIGHTING - RM 121, 122, 123	LTG	436	436					SPARE	20A/1P	26
27	20A/1P	LIGHTING - RM 120	LTG	387		387				SPARE	20A/1P	28
29	20A/1P	LIGHTING - RM 117, 118	LTG	218			218			SPARE	20A/1P	30
31	20A/1P	LIGHTING - RM 110, 111	LTG	472	472					SPARE	20A/1P	32
33	20A/1P	LIGHTING - RM 112, 113, 114, 115, 116	LTG			0				SPARE	20A/1P	34
35	20A/1P	LIGHTING - RM 101, 102, 103	LTG	1350			1350			SPARE	20A/1P	36
37	20A/1P	LIGHTING - RM 105	LTG	630	630					SPARE	20A/1P	38
39	20A/1P	LIGHTING - RM 109	LTG			0				SPARE	20A/1P	40
41	20A/1P	LIGHTING - RM 108	LTG				0			SPARE	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **LMPD** | VOLTS: **208 Y/120** | 3Ø 4-WIRE | BUS CAPACITY: **400** A | AIC: **22kA** | MCB: **400** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1			PWR	10020	12683			2663	PWR			2
3	225A/3P	PANELBOARD LPP1	PWR	8040		8654		614	PWR	PANELBOARD LMP1	225A/3P	4
5			PWR	8760			11225	2465	PWR			6
7	225A/3P	PANELBOARD LPP2	PWR	9000	10020			1020	PWR			8
9			PWR	10800		10800		0	PWR	PANELBOARD LMP2	225A/3P	10
11			PWR	9900			9900	0	PWR			12
13					12480			12480	PWR			14
15						12480		12480	PWR	PANELBOARD EVCH	225A/3P	16
17							12480	12480	PWR			18
19					0							20
21						0						22
23							0					24
25					0							26
27						0						28
29							0					30
31					0							32
33						0						34
35							0					36
37					0							38
39						0						40
41							0					42

PANELBOARD SCHEDULE

PANELBOARD: **HMP1** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **300** A | AIC: **65kA** | MCB: **300** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1			HVAC	5376	7593			2217	HTG			2
3	25A/3P	ACCU-1	HVAC	5376		7593		2217	HTG	CUH-2A (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	4
5			HVAC	5376			7593	2217	HTG			6
7			HVAC	7261	8924			1663	HTG			8
9	35A/3P	ACCU-3	HVAC	7261		8924		1663	HTG	CUH-1A (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	10
11			HVAC	7261			8924	1663	HTG			12
13			HVAC	5376	7039			1663	HTG			14
15	25A/3P	ACCU-4	HVAC	5376		7039		1663	HTG	CUH-1B (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	16
17			HVAC	5376			7039	1663	HTG			18
19			HVAC	5376	16461			11085	HVAC			20
21	25A/3P	ACCU-5	HVAC	5376		16461		11085	HVAC	ACCU-2A	50A/3P	22
23			HVAC	5376			16461	11085	HVAC			24
25			HVAC	4157	15242			11085	HVAC			26
27	20A/3P	ACCU-6	HVAC	4157		15242		11085	HVAC	ACCU-2B	50A/3P	28
29			HVAC	4157			15242	11085	HVAC			30
31						4434		4434	HTG			32
33							4434	4434	HTG	CUH-4 (CIRCUIT TO BE SUB-METERED FOR LEED)	20A/3P	34
35								4434	4434	HTG			36
37	20A/1P	SPARE				0				SPARE	20A/1P	38
39	20A/1P	SPARE					0			SPARE	20A/1P	40
41	20A/1P	SPARE						0		SPARE	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **HMP2** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **225** A | AIC: **65kA** | MCB: **225** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MECH ROOM 015**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1			HVAC	2106	3769			1663	HTG			2
3	15A/3P	AHU-1 (CIRCUIT TO BE SUB-METERED FOR LEED)	HVAC	2106		3769		1663	HTG	CUH-1C (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	4
5			HVAC	2106			3769	1663	HTG			6
7			HVAC	3048	5265			2217	HTG			8
9	30A/3P	AHU-2 (CIRCUIT TO BE SUB-METERED FOR LEED)	HVAC	3048		5265		2217	HTG	CUH-2B (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	10
11			HVAC	3048			5265	2217	HTG			12
13			HVAC	2106	4323			2217	HTG			14
15	15A/3P	AHU-3 (CIRCUIT TO BE SUB-METERED FOR LEED)	HVAC	2106		4323		2217	HTG	CUH-2C (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	16
17			HVAC	2106			4323	2217	HTG			18
19			HVAC	2106	2835			729	HVAC			20
21	15A/3P	AHU-4 (CIRCUIT TO BE SUB-METERED FOR LEED)	HVAC	2106		2835		729	HVAC	RAF-3	15A/3P	22
23			HVAC	2106			2835	729	HVAC			24
25			HVAC	2106	2835			729	HVAC			26
27	15A/3P	AHU-5 (CIRCUIT TO BE SUB-METERED FOR LEED)	HVAC	2106		2835		729	HVAC	RAF-4	15A/3P	28
29			HVAC	2106			2835	729	HVAC			30
31			HVAC	729	1458			729	HVAC			32
33	15A/3P	RAF-1	HVAC	729		1458		729	HVAC	RAF-5	15A/3P	34
35			HVAC	729			1458	729	HVAC			36
37			HVAC	1053	1053					SPARE	20A/1P	38
39	15A/3P	RAF-2	HVAC	1053		1053				SPARE	20A/1P	40
41			HVAC	1053			1053			SPARE	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **HMP3** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **225** A | AIC: **65kA** | MCB: **225** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MECH ROOM 015**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1			HTG	2700	4067			1367	HTG			2
3	15A/3P	VAV-1 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	2700		4067		1367	HTG	VAV-8 (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	4
5			HTG	2700			4067	1367	HTG			6
7			HTG	1800	4967			3167	HTG			8
9	15A/3P	VAV-2 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	1800		4967		3167	HTG	VAV-9A (CIRCUIT TO BE SUB-METERED FOR LEED)	20A/3P	10
11			HTG	1800			4967	3167	HTG			12
13			HTG	4833	7000			2167	HTG			14
15	25A/3P	VAV-3 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	4833		7000		2167	HTG	VAV-9B (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	16
17			HTG	4833			7000	2167	HTG			18
19			HTG	367	2534			2167	HTG			20
21	15A/3P	VAV-4 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	367		2534		2167	HTG	VAV-9C (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	22
23			HTG	367			2534	2167	HTG			24
25			HTG	600	3000			2400	HTG			26
27	15A/3P	VAV-5 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	600		3000		2400	HTG	VAV-10A (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	28
29			HTG	600			3000	2400	HTG			30
31			HTG	767	3967			3200	HTG			32
33	15A/3P	VAV-6 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	767		3967		3200	HTG	VAV-10B (CIRCUIT TO BE SUB-METERED FOR LEED)	15A/3P	34
35			HTG	767			3967	3200	HTG			36
37			HTG	2300	2300					SPARE	20A/1P	38
39	15A/3P	VAV-7 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	2300		2300				SPARE	20A/1P	40
41			HTG	2300			2300			SPARE	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **HMP4** | VOLTS: **480 Y/277** | 3Ø 4-WIRE | BUS CAPACITY: **225** A | AIC: **65kA** | MCB: **225** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MECH ROOM 015**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1			HTG	4100	4100							2
3	20A/3P	DH-1 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	4100		4100						4
5			HTG	4100			4100					6
7			HTG	2600	2600							8
9	15A/3P	DH-2A (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	2600		2600						10
11			HTG	2600			2600					12
13			HTG	2600	2600							14
15	15A/3P	DH-2B (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	2600		2600						16
17			HTG	2600			2600					18
19			HTG	3800	3800							20
21	15A/3P	DH-3 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	3800		3800						22
23			HTG	3800			3800					24
25			HTG	2933	2933							26
27	20A/3P	DH-4 (CIRCUIT TO BE SUB-METERED FOR LEED)	HTG	2933		2933						28
29			HTG	2933			2933					30
31						0						32
33							0					34
35								0				36
37						0						38
39							0					40
41								0				42

PANELBOARD SCHEDULE

PANELBOARD: **LMP1** | VOLTS: **208 Y/120** | 3Ø 4-WIRE | BUS CAPACITY: **150** A | AIC: **22kA** | MCB: **150** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | **MEP 035**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1	15A/2P	ERV-1	HVAC	406	886			480	PWR	HWRP-1		2
3			HVAC	406		934		528	PWR	AC-1		4
5	30A/2P	ERV-2	HVAC	2257			2857	600	PWR	AUTOMATIC DOOR OPENER -CONS. VEST.	20A/1P	6
7			HVAC	2257	2657			400	PWR	AUTOMATIC DOOR OPENER - .VEST. 102	20A/1P	8
9	15A/2P	BCC-1	HVAC	208		608		400	PWR	AUTOMATIC DOOR OPENER - .VEST. 102	20A/1P	10
11			HVAC	208			508	300	PWR	ACCESS CONTROL POWER -RM.102, 120	20A/1P	12
13	20A/1P	SPARE			300			300	PWR	ACCESS CONTROL POWER -RM.124, 126	20A/1P	14
15	20A/1P	SPARE				600		600	PWR	AUTOMATIC DOOR OPENER -CONS. VEST.	20A/1P	16
17	20A/1P	SPARE					0			SPARE	20A/1P	18
19	20A/1P	SPARE			0					SPARE	20A/1P	20
21	20A/1P	SPARE				0				SPARE	20A/1P	22
23	15A/2P	IA CU-1	HVAC	25			52	27	HVAC	IA CU-6	15A/2P	24
25			HVAC	25	52			27	HVAC			26
27	15A/2P	IA CU-2	HVAC	25		120		95	HVAC	IA CU-7	15A/2P	28
29			HVAC	25			120	95	HVAC			30
31	15A/2P	IA CU-3	HVAC	25	52			27	HVAC	IA CU-8	15A/2P	32
33			HVAC	25		52		27	HVAC			34
35	15A/2P	IA CU-4	HVAC	135			160	25	HVAC	IA CU-9	15A/2P	36
37			HVAC	135	160			25	HVAC			38
39	15A/2P	IA CU-5	HVAC	27		122		95	HVAC	IA CU-10	15A/2P	40
41			HVAC	27			122	95	HVAC			42

PANELBOARD SCHEDULE

PANELBOARD: **MZ-P1** | VOLTS: **240 /120** | 1Ø 3-WIRE | BUS CAPACITY: **40** A | AIC: **18kA** | MCB: **40** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 3R** | **EXTERIOR**

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	LOAD	TYPE	DESCRIPTION	BKR	No.
1	20A/1P	WALL MOUNTED ELEC HEAT	HTG	1500	1600		100	LTG	ALARM & STROBE LIGHT	20A/1P	2
3	20A/1P	WALL MOUNTED ELEC HEAT	HTG	1500		1600	100	LTG	ENCLOSURE LIGHT	20A/1P	4
5	20A/1P	WALL MOUNTED ELEC HEAT	HTG	1500	1500				SPARE	20A/1P	6
7	20A/1P	WALL MOUNTED ELEC HEAT	HTG	1500		1500			SPARE	20A/1P	8
9	20A/1P	SPARE				0			SPARE	20A/1P	10
11	20A/1P	SPARE				0			SPARE	20A/1P	12

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NO.	REVISIONS	DATE
1	ADDENDUM 2	03-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

PANELBOARD SCHEDULES

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE 2/18/2025
SCALE AS NOTED
DWN. MAP CHK. JFW
PROJ. No. 605802
DWG. No.

E503

PANELBOARD SCHEDULE

PANELBOARD: **LMP2** | VOLTS: **208 Y/120** 3Ø 4-WIRE | BUS CAPACITY: **150** A | AIC: **22kA** | MCB: **150** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | LOCATION: **MECH ROOM 015**

No.	BKR	NAME	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	NAME	BKR	No.
1	20A/1P	ESP-1	PWR	1020	1020					SPARE	20A/1P	2
3	20A/1P	EP-1	PWR	528		528				SPARE	20A/1P	4
5	20A/1P	SPARE - MECH CONTROLS CIRCUIT					0			SPARE	20A/1P	6
7	20A/1P	SPARE - MECH CONTROLS CIRCUIT			0					SPARE	20A/1P	8
9	20A/1P	SPARE - MECH CONTROLS CIRCUIT				0				SPARE	20A/1P	10
11	20A/1P	SPARE - MECH CONTROLS CIRCUIT					0			SPARE	20A/1P	12
13					0					SPARE	20A/1P	14
15						0				SPARE	20A/1P	16
17							0			SPARE	20A/1P	18
19					0					SPARE	20A/1P	20
21						0				SPARE	20A/1P	22
23							0			SPARE	20A/1P	24
25					0					SPARE	20A/1P	26
27						0				SPARE	20A/1P	28
29							0			SPARE	20A/1P	30
31					0					SPARE	20A/1P	32
33						0				SPARE	20A/1P	34
35							0			SPARE	20A/1P	36
37	20A/1P	SPARE			0					SPARE	20A/1P	38
39	20A/1P	SPARE				0				SPARE	20A/1P	40
41	20A/1P	SPARE					0			SPARE	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **LPP1** | VOLTS: **208 Y/120** 3Ø 4-WIRE | BUS CAPACITY: **150** A | AIC: **22kA** | MCB: **150** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | LOCATION: **MEP 035**

No.	BKR	NAME	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	NAME	BKR	No.
1	20A/1P	RECEPTACLE - ROOM 036	REC	900	1800			900	REC	RECEPTACLE - ROOM 117	20A/1P	2
3	20A/1P	RECEPTACLE - ROOM 036	REC	360		900		540	REC	RECEPTACLE - ROOM 112, 115, 116	20A/1P	4
5	20A/1P	RECEPTACLE - ROOM 035	REC	1080			1980	900	REC	RECEPTACLE - ROOM 110, 111	20A/1P	6
7	20A/1P	RECEPTACLE - ROOM 034	REC	900	1440			540	REC	RECEPTACLE - ROOM 110	20A/1P	8
9	20A/1P	RECEPTACLE - ROOM 032	REC	720		1080		360	REC	RECEPTACLE - ROOM 113, 114	20A/1P	10
11	20A/1P	RECEPTACLE - ROOM 031, 029	REC	900			1440	540	REC	REC- DRINKING FOUNTAIN (GFCI BREAKER)	20A/1P	12
13	20A/1P	RECEPTACLE - ROOM 028	REC	1080	1980			900	REC	RECEPTACLE - EXTERIOR	20A/1P	14
15	20A/1P	RECEPTACLE - ROOM 027	REC	900		3188		2288	REC	GOLF CART CHARGER PLUG	30A/2P	16
17	20A/1P	REC - MICROWAVE (GFCI BREAKER)	REC	180			2468	2288	REC			18
19	20A/1P	REC - REFRIDGERATOR (GFCI BREAKER)	REC	180	180					SPARE	20A/1P	20
21	20A/1P	RECEPTACLE - ROOM 024	REC	720		720				SPARE	20A/1P	22
23	20A/1P	RECEPTACLE - ROOM 125	REC	540			540			SPARE	20A/1P	24
25	20A/1P	RECEPTACLE - ROOM 124, 119	REC	720	720					SPARE	20A/1P	26
27	20A/1P	RECEPTACLE - ROOM 123	REC	900		900				SPARE	20A/1P	28
29	20A/1P	RECEPTACLE - ROOM 122	REC	900			900			SPARE	20A/1P	30
31	20A/1P	RECEPTACLE - ROOM 121	REC	1080	1080					SPARE	20A/1P	32
33	20A/1P	RECEPTACLE - ROOM 120	REC	900		900				SPARE	20A/1P	34
35	20A/1P	RECEPTACLE - ROOM 120	REC	1080			1080			SPARE	20A/1P	36
37	20A/1P	RECEPTACLE - ROOM 118	REC	900	1260			360	REC	RECEPTACLES - EXTERIOR VEST. 001	20A/1P	38
39	20A/1P	ACCESS CONTROL POWER	PWR	400		400				SPARE	20A/1P	40
41	20A/1P	ACCESS CONTROL POWER	PWR	400			800	400	PWR	AUTOMATIC DOOR OPENER - CONS. VEST.	20A/1P	42

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PANELBOARD SCHEDULE

PANELBOARD: **LPP2** | VOLTS: **208 Y/120** 3Ø 4-WIRE | BUS CAPACITY: **150** A | AIC: **22kA** | MCB: **150** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | LOCATION: **MECH ROOM 015**

No.	BKR	NAME	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	NAME	BKR	No.
1	20A/1P	RECEPTACLE - ROOM 015	REC	540	1260			720	REC	RECEPTACLE - ROOM 013	20A/1P	2
3	20A/1P	RECEPTACLE - ROOM 019, 020, 021, 022	REC	720		1800		1080	REC	RECEPTACLE - ROOM 010	20A/1P	4
5	20A/1P	RECEPTACLE - ROOM 018	REC	540			1620	1080	REC	RECEPTACLE - ROOM 010	20A/1P	6
7	20A/1P	RECEPTACLE - ROOM 014	REC	540	1260			720	REC	RECEPTACLE - ROOM 101, 103	20A/1P	8
9	20A/1P	RECEPTACLE - ROOM 014	REC	720		1440		720	REC	RECEPTACLE - ROOM 103	20A/1P	10
11	20A/1P	REC- VENDING MACHINE (GFCI BREAKER)	REC	900			1980	1080	REC	RECEPTACLE - ROOM 102, 103	20A/1P	12
13	20A/1P	REC- VENDING MACHINE (GFCI BREAKER)	REC	900	1260			360	REC	RECEPTACLE - ROOM 103	20A/1P	14
15	20A/1P	REC- VENDING MACHINE (GFCI BREAKER)	REC	900		1620		720	REC	RECEPTACLE - ROOM 105	20A/1P	16
17	20A/1P	RECEPTACLE - ROOM 001, 005	REC	1080			1620	540	REC	RECEPTACLE - ROOM 105	20A/1P	18
19	20A/1P	REC- DRINKING FOUNTAIN (GFCI BREAKER)	REC	540	1440			900	REC	RECEPTACLE - ROOM 105	20A/1P	20
21	20A/1P	RECEPTACLE - ROOM 002	REC	720		1260		540	REC	RECEPTACLE - ROOM 105	20A/1P	22
23	20A/1P	RECEPTACLE - ROOM 002	REC	1080			1980	900	REC	RECEPTACLE - ROOM 108	20A/1P	24
25	20A/1P	RECEPTACLE - ROOM 002	REC	1080	1980			900	REC	RECEPTACLE - ROOM 108	20A/1P	26
27	20A/1P	RECEPTACLE - ROOM 007	REC	900		1800		900	REC	RECEPTACLE - ROOM 106, 109	20A/1P	28
29	20A/1P	RECEPTACLE - ROOM 007	REC	720			1800	1080	REC	RECEPTACLE - ROOM 109	20A/1P	30
31	20A/1P	RECEPTACLE - ROOM 007	REC	720	1440			720	REC	RECEPTACLE - EXTERIOR	20A/1P	32
33	20A/1P	RECEPTACLE - ROOM 004	REC	720		1800		1080	REC	RECEPTACLE - PENTHOUSE	20A/1P	34
35	20A/1P	RECEPTACLE - ROOM 008	REC	900			1080	180	PWR	ELEVATOR CAB POWER	20A/1P	36
37	20A/1P	RECEPTACLE - ROOM 011, 012	REC	360	540			180	PWR	ELEVATOR CAB LIGHTING	20A/1P	38
39	20A/1P	RECEPTACLE - ROOM 009	REC	1080		1680		600	PWR	AUTOMATIC DOOR OPENER VEST. 001	20A/1P	40
41	20A/1P	RECEPTACLE - ROOM 009	REC	1080			1680	600	PWR	AUTOMATIC DOOR OPENER VEST. 001	20A/1P	42

PANELBOARD SCHEDULE

PANELBOARD: **LPP3** | VOLTS: **208 Y/120** 3Ø 4-WIRE | BUS CAPACITY: **150** A | AIC: **22kA** | MCB: **150** A | MTG: **SURFACE** | MLO: | ENCL: **NEMA 1** | LOCATION: **MEP 035**

No.	BKR	NAME	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	NAME	BKR	No.
1	20A/1P	RECEPTACLE - GROW LIGHTING	REC	720	1440			720	REC	RECEPTACLE - ROOM P1 GREENHOUSE	20A/1P	2
3	20A/1P	RECEPTACLE - GROW LIGHTING	REC	720		1320		600	PWR	RIDGE VENT (WORK AREA)	20A/1P	4
5	20A/1P	RECEPTACLE - GROW LIGHTING	REC	720			1320	600	PWR	RIDGE VENT (WORK AREA)	20A/1P	6
7	20A/1P	RECEPTACLE - GROW LIGHTING	REC	720	1320			600	PWR	SIDE VENT (WORK AREA)	20A/1P	8
9	20A/1P	LIGHTING - P1 GREENHOUSE	LTG	450		1050		600	PWR	HAF FANS (WORK AREA)	20A/1P	10
11	20A/1P	EXIT SIGNS - P1 GREENHOUSE	LTG	10			610	600	PWR	RIDGE VENT (GROWING AREA)	20A/1P	12
13	20A/1P	GARAGE OPENER	PWR	500	1100			600	PWR	SIDE VENT (GROWING AREA)	20A/1P	14
15	20A/1P	UH-1	PWR	528		1128		600	PWR	HAF FANS (GROWING AREA)	20A/1P	16
17	20A/1P	UH-2	PWR	528			528			SPARE		18
19	20A/1P	SPARE			0					SPARE	20A/1P	20
21	20A/1P	SPARE				0				SPARE	20A/1P	22
23	20A/1P	SPARE					0			SPARE	20A/1P	24
25	20A/1P	SPARE			0					SPARE	20A/1P	26
27	20A/1P	SPARE				0				SPARE	20A/1P	28
29	20A/1P	SPARE					0			SPARE	20A/1P	30
31					0							32
33						0						34
35							0					36
37					0							38
39						0						40
41							0					42

BUFFALO AND ERIE COUNTY Botanical Gardens

Buffalo & Erie County
Botanical Gardens
2655 SOUTH PARK AVENUE
BUFFALO, NEW YORK, 14218

Buffalo and Erie County Botanical Gardens Addition
ISSUED FOR BID

wendel
Centerpointe Corporate Park
375 Essjay Rd, Suite 200
Williamsville, NY 14221
www.wendelcompanies.com
p:716.688.0766 f:716.625.6825
Wendel WD Architecture, Engineering, Surveying and Landscape Architecture, P.C.

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NO.	REVISIONS	DATE
1	ADDENDUM 2	03-06-2025
0	ISSUE FOR BID	2-18-2025

DWG. TITLE

PANELBOARD SCHEDULES

0 1" 2"
GENERIC SCALE BAR
SCALE BAR SHOWN IS TWO INCHES ON THE ORIGINAL DRAWING. IF NOT TWO INCHES ON THIS SHEET, ADJUST ACCORDINGLY.

DATE 2/18/2025
SCALE AS NOTED
DWN. MAP CHK. JFW
PROJ. No. 605802
DWG. No.

E504

GENERAL DEMOLITION NOTES

A. MAINTAIN INTEGRITY OF EXISTING CIRCUIT WIRING PRESENTLY INSTALLED AND SERVING EQUIPMENT OUTSIDE THE WORK AREA. VERIFY ROUTE OF EACH FEEDER AND BRANCH CIRCUIT SCHEDULED FOR REMOVAL.

B. PROVIDE PROTECTION FOR ALL EXISTING CONSTRUCTION SYSTEMS/EQUIPMENT SCHEDULED TO REMAIN DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR RECONDITIONING OF EQUIPMENT/ITEMS DAMAGED DURING REMOVALS.

C. FIRE ALARM AND SECURITY SYSTEMS SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. PROVIDE TEMPORARY WIRING AS REQUIRED TO MAINTAIN FIRE ALARM SYSTEM DETECTION/NOTIFICATION THROUGHOUT CONSTRUCTION PHASE AND OPERATION OF SECURITY SYSTEM. NOTIFY OWNER OF AREAS TO BE SHUTDOWN WHILE WORK IS BEING PREFORMED. FIRE ALARM AND SECURITY SYSTEMS SHALL BE FULLY OPERATIONAL AT END OF EACH WORK DAY. CONTRACTOR SHALL NOTE LEAVE ANY AREAS WITHOUT FIRE ALARM SYSTEM BEING FULLY FUNCTIONAL AND SECURITY SYSTEM FULLY OPERATIONAL .

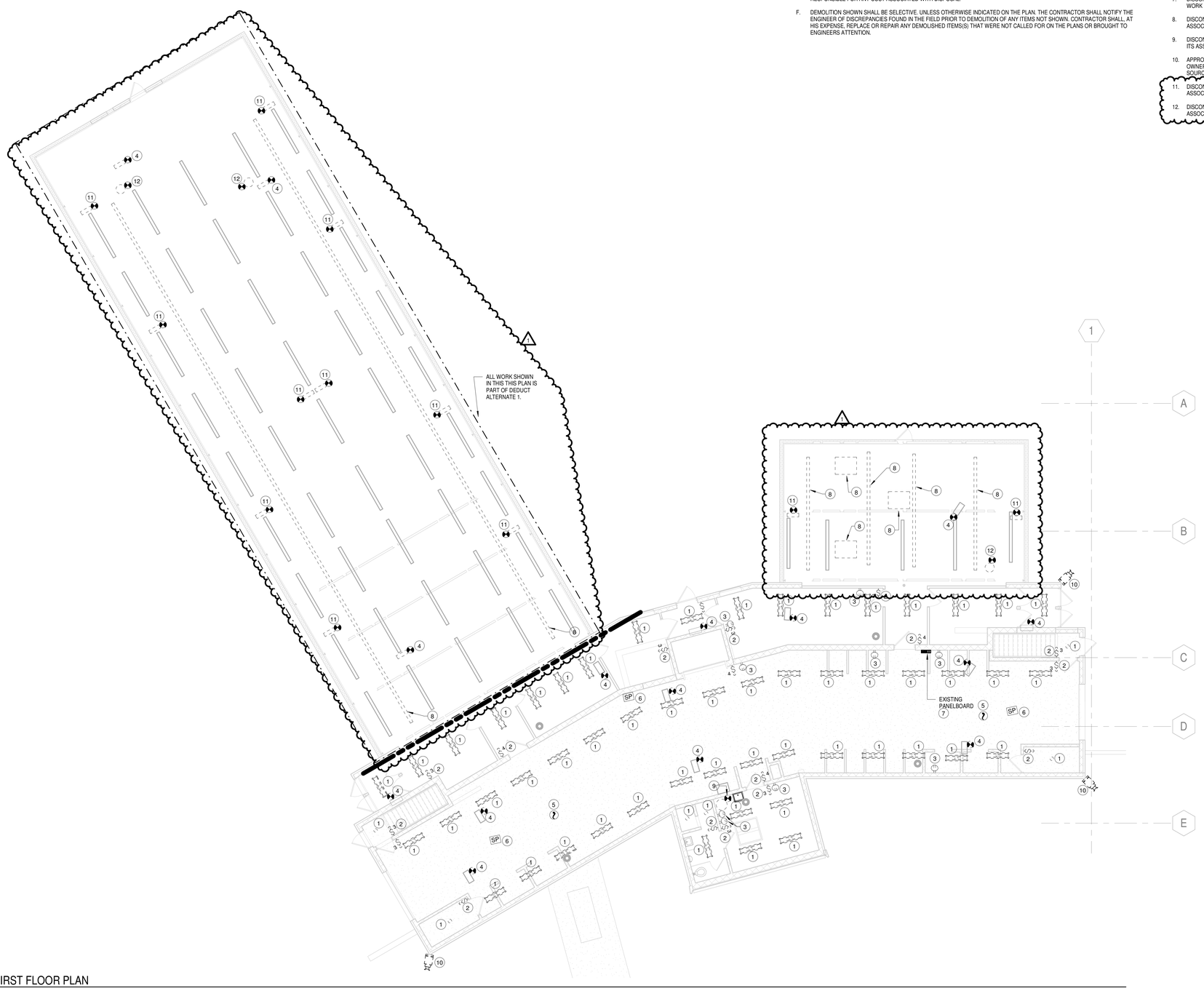
D. UNLESS OTHERWISE NOTED, DISCONNECT AND REMOVE ALL ELECTRICAL WORK ASSOCIATED WITH DEVICE/FIXTURE SCHEDULED FOR REMOVAL. ASSOCIATED ELECTRICAL WORK SHALL INCLUDE BUT NOT LIMITED TO CONDUCTORS, CONDUIT, BOXES, CONNECTORS, HANGERS, CONTROL EQUIPMENT, ETC. BACK TO SOURCE PANEL.

E. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL ELECTRICAL DEVICES AND MISC. ITEMS AS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR ANY COST ASSOCIATED WITH DISPOSAL.

F. DEMOLITION SHOWN SHALL BE SELECTIVE. UNLESS OTHERWISE INDICATED ON THE PLAN. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF DISCREPANCIES FOUND IN THE FIELD PRIOR TO DEMOLITION OF ANY ITEMS NOT SHOWN. CONTRACTOR SHALL, AT HIS EXPENSE, REPLACE OR REPAIR ANY DEMOLISHED ITEMS(S) THAT WERE NOT CALLED FOR ON THE PLANS OR BROUGHT TO ENGINEERS ATTENTION.

(X) DEMOLITION NOTES:

1. DISCONNECT AND REMOVE EXISTING LUMINAIRE AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO EXISTING PANELBOARD BA.
2. DISCONNECT AND REMOVE EXISTING LIGHT SWITCH AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO EXISTING PANELBOARD BA.
3. DISCONNECT AND REMOVE EXISTING RECEPTACLE AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO EXISTING PANELBOARD BA.
4. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO UNIT HEATER AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO EXISTING PANELBOARD BA.
5. DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICE AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO EXISTING FIRE ALARM CONTROL PANEL.
6. DISCONNECT AND REMOVE EXISTING SPEAKER AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.
7. DISCONNECT AND REMOVE EXISTING PANELBOARD AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.
8. DISCONNECT AND REMOVE EXISTING LIGHTING SYSTEM IN THE GREENHOUSE AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.
9. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO WATER HEATER AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.
10. APPROXIMATE LOCATION OF EXISTING CAMERA THAT IS SCHEDULED TO BE DEMOED BY OWNER. EXISTING WIRING AND CONDUIT FOR EXISTING CAMERA SHALL BE REMOVED BACK TO SOURCE NEAR EXISTING TELECOMMUNICATIONS EQUIPMENT BY ELECTRICAL CONTRACTOR.
11. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO SASH MOTOR AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.
12. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO HVAC FAN AND ALL ITS ASSOCIATED ELECTRICAL WORK BACK TO SOURCE.



1 DEMO - FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

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DWG. TITLE

FIRST FLOOR PLAN - DEMOLITION

0 1" 2"
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DATE	08/16/24
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