URBAN DESIGN COMMISSION APPLICATION

UDC

City of Madison
Planning Division
126 S. Hamilton St.
P.O. Box 2985
Madison, WI 53701-2985
(608) 266-4635

FOR OFFICE USE ONLY:

Paid _____ Receipt # _____

Date received _____

Received by _____

Aldermanic District _____

Zoning District _____

Urban Design District _____

Submittal reviewed by _____

Complete all sections of this application, including the desired meeting date and the action requested.

If you need an interpreter, translator, materials in alternate formats or other accommodations to access these forms, please call the phone number above immediately.

1. Project Information

Address: 3330 Atwood Ave, Madison, WI 53704

Title: Olbrich Botanical Gardens, Expansion Phase 1

2. Application Type (check all that apply) and Requested Date

UDC meeting date requested February 7, 2018.

- ☐ New development
- ■ Alteration to an existing or previously-approved development
- ☐ Informational
- ■ Initial approval
- ■ Final approval

3. Project Type

- ☐ Project in an Urban Design District
- ☐ Project in the Downtown Core District (DC), Urban Mixed-Use District (UMX), or Mixed-Use Center District (MXC)
- ☐ Project in the Suburban Employment Center District (SEC), Campus Institutional District (CI), or Employment Campus District (EC)
- ☐ Planned Development (PD)
  - ☐ General Development Plan (GDP)
  - ☐ Specific Implementation Plan (SIP)
- ☐ Planned Multi-Use Site or Residential Building Complex

Signage

- ☐ Comprehensive Design Review (CDR)
- ☐ Signage Variance (i.e. modification of signage height, area, and setback)

Other

- ■ Please specify Public Building

4. Applicant, Agent, and Property Owner Information

Applicant name Eric Knepp, Parks Superintendent Company City of Madison Parks Division

Street address 210 Martin Luther King Jr. Blvd, Rm104 City/State/Zip Madison, WI 53703

Telephone 608-266-4207 Email eknepp@cityofmadison.com

Project contact person Stephen Bellairs Company MSR Design

Street address 710 S. 2nd St, 8th Floor City/State/Zip Minneapolis, MN 55401

Telephone 612-315-0246 Email stephen@msrdesign.com

Property owner (if not applicant) _____

Street address _____ City/State/Zip _____

Telephone _____ Email _____

5. Required Submittal Materials

- ☐ **Application Form**
- ☐ **Letter of Intent**
  - If the project is within an Urban Design District, a summary of how the development proposal addresses the district criteria is required
  - For signage applications, a summary of how the proposed signage is consistent with the applicable CDR or Signage Variance review criteria is required.
- ☐ **Development plans** (Refer to checklist provided below for plan details)
- ☐ **Filing fee**

Each submittal must include fourteen (14) 11" x 17" collated paper copies. Landscape and Lighting plans (if required) must be full-sized. Please refrain from using plastic covers or spiral binding.

- ■ **Electronic Submittal***

Both the paper copies and electronic copies must be submitted prior to the application deadline before an application will be scheduled for a UDC meeting. Late materials will not be accepted. A completed application form is required for each UDC appearance.

For projects also requiring Plan Commission approval, applicants must also have submitted an accepted application for Plan Commission consideration prior to obtaining any formal action (initial or final approval) from the UDC. All plans must be legible when reduced.

**Electronic copies of all items submitted in hard copy are required. Individual PDF files of each item submitted should be compiled on a CD or flash drive, or submitted via email to udcapplications@cityofmadison.com. The email must include the project address, project name, and applicant name. Electronic submittals via file hosting services (such as Dropbox.com) are not allowed. Applicants who are unable to provide the materials electronically should contact the Planning Division at (608) 266-4635 for assistance.*

6. Applicant Declarations

1. Prior to submitting this application, the applicant is required to discuss the proposed project with Urban Design Commission staff. This application was discussed with Janine Glaeser, Urban Design Commission Secretary on October 19, 2017.

2. The applicant attests that all required materials are included in this submittal and understands that if any required information is not provided by the application deadline, the application will not be placed on an Urban Design Commission agenda for consideration.

Applicant name Eric Knepp, Parks Superintendent Relationship to property City of Madison Parks Division

Authorized signature of **Property Owner** _____ Date 4/16/18

7. Application Filing Fees

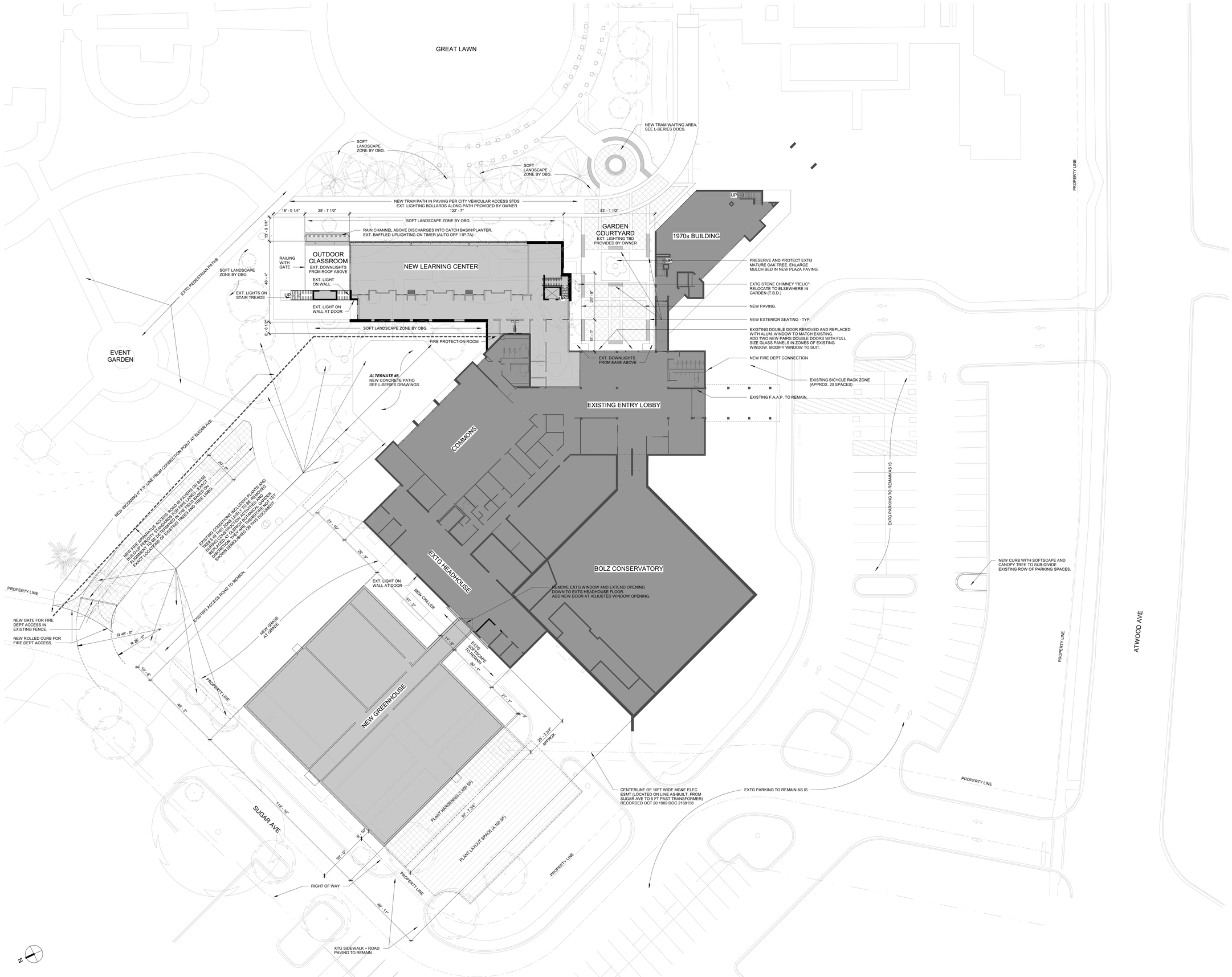
Fees are required to be paid with the first application for either initial or final approval of a project, unless the project is part of the combined application process involving the Urban Design Commission in conjunction with Plan Commission and/or Common Council consideration. Make checks payable to City Treasurer. Credit cards may be used for application fees of less than $1,000.

Please consult the schedule below for the appropriate fee for your request:

- ☐ Urban Design Districts: $350 *(per §35.24(6) MGO)*.
- ☐ Minor Alteration in the Downtown Core District (DC) or Urban Mixed-Use District (UMX) : $150 *(per §33.24(6)(b) MGO)*
- ☐ Comprehensive Design Review: $500 *(per §31.041(3)(d)(1)(a) MGO)*
- ☐ Minor Alteration to a Comprehensive Sign Plan: $100 *(per §31.041(3)(d)(1)(c) MGO)*
- ☐ All other sign requests to the Urban Design Commission, including, but not limited to: appeals from the decisions of the Zoning Administrator, requests for signage variances (i.e. modifications of signage height, area, and setback), and additional sign code approvals: $300 *(per §31.041(3)(d)(2) MGO)*

A filing fee is not required for the following project applications if part of the combined application process involving both Urban Design Commission and Plan Commission:

- Project in the Downtown Core District (DC), Urban Mixed-Use District (UMX), or Mixed-Use Center District (MXC)
- Project in the Suburban Employment Center District (SEC), Campus Institutional District (CI), or Employment Campus District (EC)
- Planned Development (PD): General Development Plan (GDP) and/or Specific Implementation Plan (SIP)
- Planned Multi-Use Site or Residential Building Complex



1 SITE PLAN - ARCHITECTURAL

A001 1" = 20'-0"

MSR
710 South 2nd Street, 8th Floor
Minneapolis, Minnesota 55401–2282

Architecture
Interiors and
Urban Design

612 375 0336 tel
612 342 2216 fax
www.msrdesign.com

Civil Engineer
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999 Fourier Drive, Suite 201
Madison, WI 53717
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Landscape Architect
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Summit Fire Consulting
575 Minnehaha Ave West
St. Paul, MN 55103
651.251.1880 tel

Greenhouse Design
Rough Brothers, Inc.
5513 Vine Street
Cincinnati, OH 45217
513.242.0310 tel

Olbrich Botanical Gardens Expansion Phase 1

3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin.
ARCHITECT SEAL

Signature: _____

Print Names: _____

Date: _____ License No:_____

ISSUE

MARK	DATE	DESCRIPTION
	09.29.2017	SCHEMATIC DESIGN SUBMISSION
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

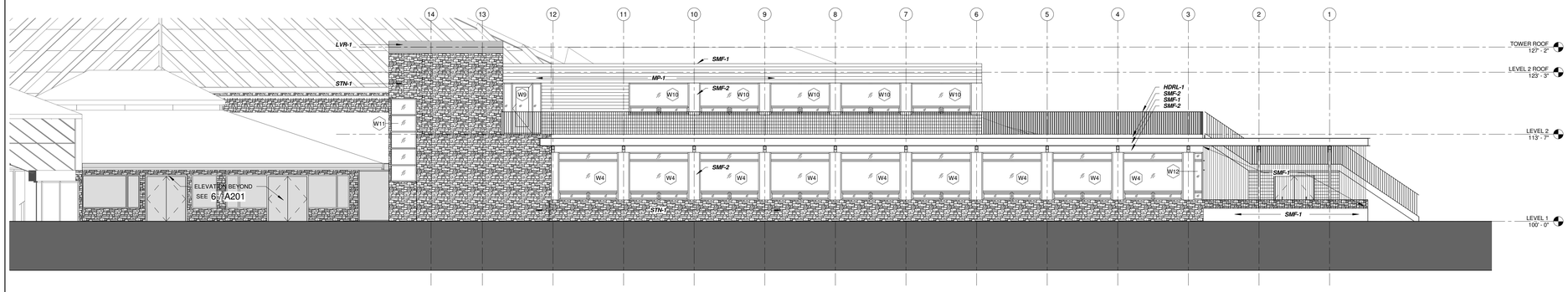
PROJECT NO. 2017016

PROJECT PHASE DESIGN DEVELOPMENT

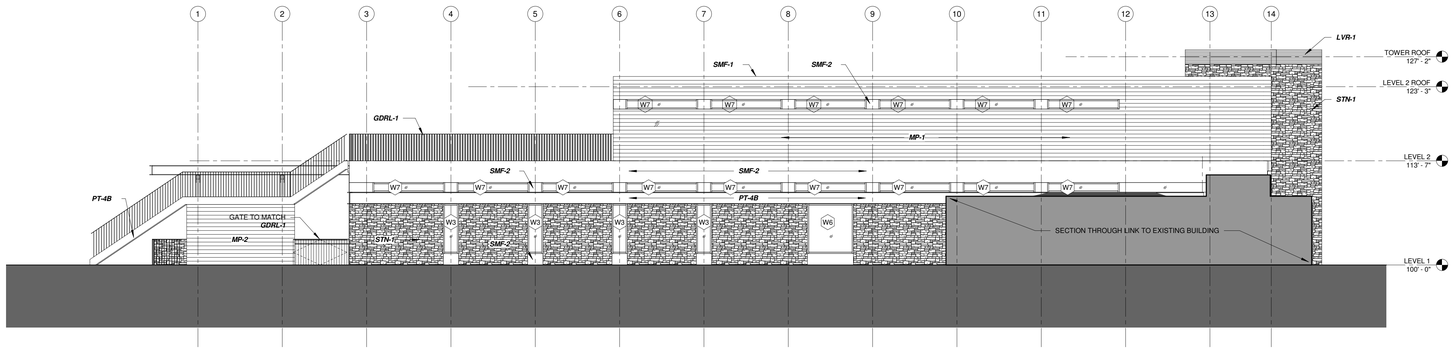
DRAWN BY: MSR CHECKED BY: MSR

ARCHITECTURAL SITE PLAN

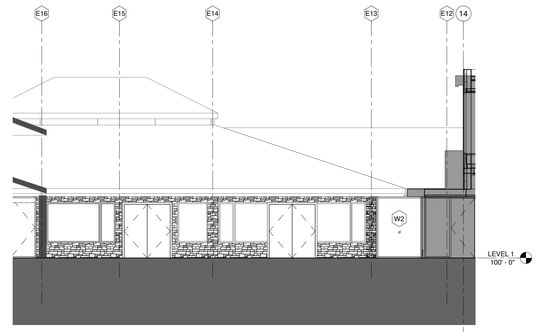
A001



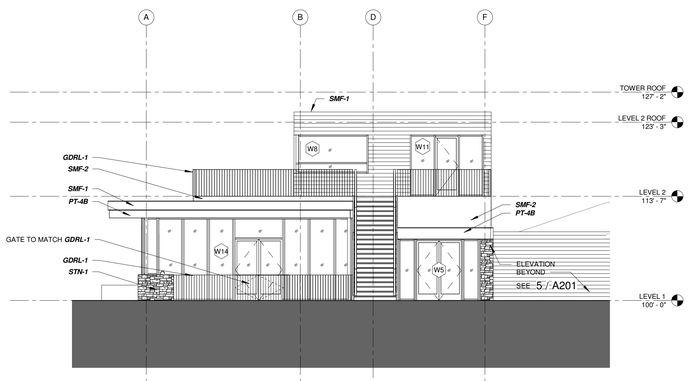
1 ELEVATION EAST
A201 1/8" = 1'-0"



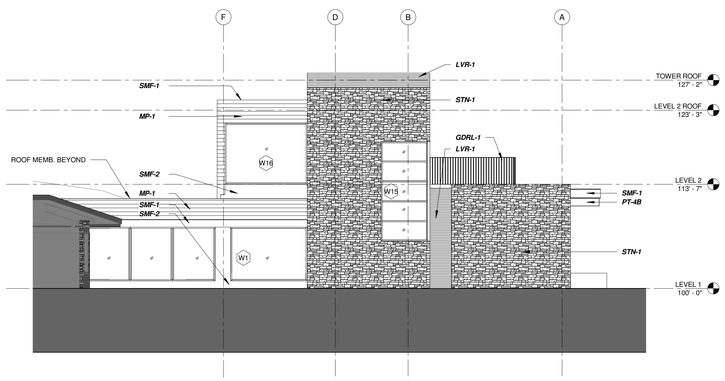
2 ELEVATION WEST
A201 1/8" = 1'-0"



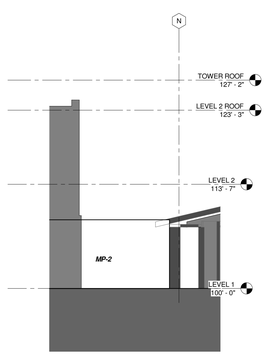
6 EAST ELEVATION EXISTING LOBBY
A201 1/8" = 1'-0"



3 ELEVATION NORTH
A201 1/8" = 1'-0"



4 ELEVATION SOUTH
A201 1/8" = 1'-0"



5 EXTERIOR SOUTH ELEVATION WALL
A201 1/8" = 1'-0"

NOTE: NOT ALL MATERIALS APPLICABLE TO ELEVATIONS

MATERIAL / PRODUCT ID LIST — FOR UDC SUBMISSION

ID	DESCRIPTION	SPEC SECTION
ACCL-1	ACOUSTICAL CEILING SYSTEM	09 5113
ACCL-2	ACOUSTICAL CEILING SYSTEM	09 5113
ACP-1	ACOUSTICAL PANEL SYSTEM	09 8433
AXFL	ACCESS FLOORING	09 6900
AXP	ACCESS PANEL	08 3113
CFMF	COLD-FORMED METAL FRAMING	05 4000
CMU	CONCRETE MASONRY UNIT	04 2200
CONC-1	SEALED CONCRETE FINISH	03 3000
CONC-2	POLISHED CONCRETE FINISH	03 3543
CPT-1	CARPET TILE FLOORING - PLANK	09 6813
CPT-2	CARPET TILE FLOORING - PLANK	09 6813
CPT-3	CARPET TILE FLOORING - PLANK	09 6813
CT-1		
ELEV-1	HYDRAULIC MRL ELEVATOR	14 2410
FEC	FIRE EXTINGUISHER CABINET	10 4416
GBD	GYPSUM BOARD	09 2900
GDRL-1	METAL GUARDRAIL	05 7300
GL-1	CLEAR ANNEALED GLASS	08 8000
GLBD-1A	GLASS MARKERBOARD - WHITE	10 1100
GLBD-1B	GLASS MARKERBOARD - BLACK	10 1100
GM-1	MONOLITHIC GLASS MIRROR	08 8300
HDRL-1	METAL HANDRAIL	05 7300
IGU-1	INSULATED GLASS UNIT	08 8000
INSUL-1	BELOW GRADE INSULATION	07 2100
INSUL-2	CONTINUOUS WALL INSULATION	07 2100
INSUL-3	BATT INSULATION	07 2100
LNFL-1	LINOLEUM FLOORING	09 6516
LVR-1	LOUVER	08 9119
MP-1	METAL PANEL	07 4213.13
MP-2	METAL PANEL - BLACKENED STEEL	05 7000 (?)
NSMF	NON-STRUCTURAL METAL FRAMING	09 2216
OP-1	OPERABLE PARTITION	10 2239
PLAM-1	PLASTIC LAMINATE	06 4116
PLAM-2	PLASTIC LAMINATE	06 4116
PT-1	INTERIOR PAINT - FLAT	09 9123
PT-2_	INTERIOR PAINT - EGGSHELL	09 9123
PT-3_	HIGH-PERFORMANCE INTERIOR PAINT - SEMI-GLOSS	09 9123
PT-3B	HIGH-PERFORMANCE INTERIOR PAINT - SEMI-GLOSS	09 9123
PT-4	HIGH-PERFORMANCE EXTERIOR PAINT - SEMI-GLOSS	09 9123
PT- A	PAINT COLOR - WHITE	09 9123
PT- B	PAINT COLOR - CHARCOAL	09 9123
PT- C	PAINT COLOR -	09 9123
PT- D	PAINT COLOR -	09 9123
PVR-1	PEDESTAL PAVER SYSTEM	07 7600
PVR-2	PEDESTAL PAVER SYSTEM	07 7600
RFNG-1	EPDM ROOFING SYSTEM	07 5323
SHTG	GYPSUM SHEATHING	06 1600
SMF-1	SHEET METAL FLASHING	07 6200
SMF-2	SHEET METAL FLASHING	07 6200
SSF-1	SOLID SURFACE	12 3661
SSF-2	SOLID SURFACE	12 3661
STN-1	STONE VENEER	04 4313.13
TA-04	TOILET TISSUE DISPENSER JUMBO-ROLL	102800
TA-07	WASTE RECEPTACLE	102800
TA-11	LIQUID-SOAP DISPENSER	102800
TA-12	GRAB BAR	102800
TA-14	SANITARY-NAPKIN DISPOSAL UNIT	102800
TA-17	MIRROR UNIT (FRAMED)	102800
TLBD	TILE BACKER BOARD	09 2900
TLFL-1	TILE FLOORING	09 3013
TLFL-2	TILE FLOORING	09 3013
TS-1	STAINLESS STEEL TRELLIS SYSTEM	05 9443
TWF	THRU-WALL FLASHING AND DRIP EDGE	(?)
VB	UNDERSLAB VAPOR BARRIER	03 3000
WAVB	WATER-AIR-VAPOR BARRIER MEMBRANE	07 2726
WB-1	RUBBER WALL BASE	09 6513
WB-2	STEEL WALL BASE	05 7000 (?)
WD-1	ACETYLATED WOOD	06 2013
WD-2	INTERIOR FINISH WOOD	
WDCL-1	WOOD CEILING SYSTEM	09 5426
WDW-1	ALUMINUM/WOOD WINDOW	08 5200
WP-1	WATERPROOFING MEMBRANE	07 1416
WT-1	ROLLER WINDOW SHADE	12 2413

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Olbrich Botanical Gardens Expansion Phase 1

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin.
ARCHITECT SEAL

Signature: _____
Print Names: _____
Date: _____ License No.: _____

ISSUE MARK	DATE	DESCRIPTION
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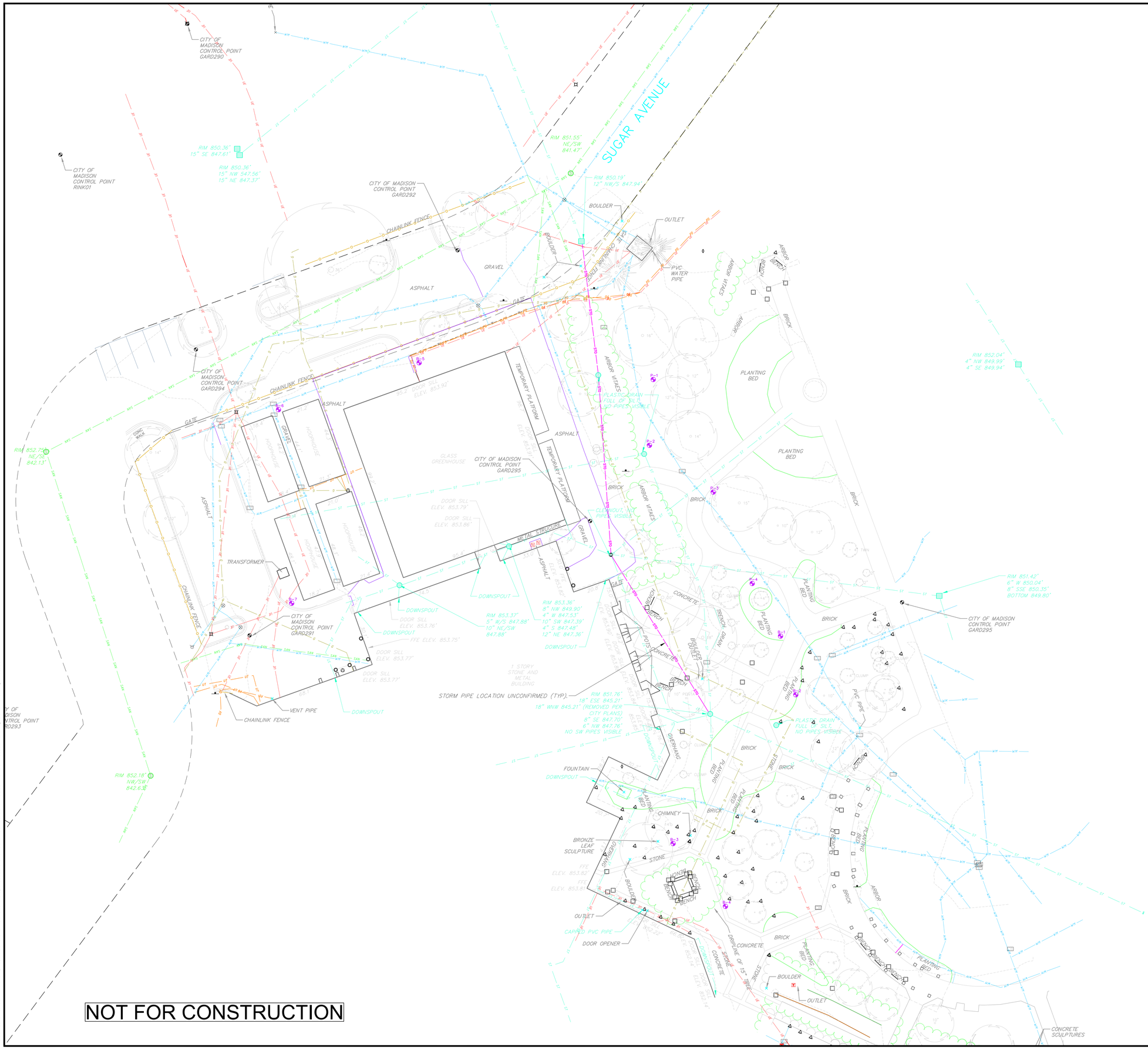
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

PROJECT NO. 2017016
PROJECT PHASE DESIGN DEVELOPMENT
DRAWN BY: MSR
CHECKED BY: MSR

EXTERIOR ELEVATIONS

A201



NOT FOR CONSTRUCTION

GRAPHIC SCALE FEET
0 10 20 40

TOPOGRAPHIC LINEWORK LEGEND

- EXISTING UNDERGROUND CABLE TV
- EXISTING OVERHEAD CABLE TV
- EXISTING FIBER OPTIC LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING UNDERGROUND TELEPHONE
- EXISTING RETAINING WALL
- EXISTING CHAIN LINK FENCE
- EXISTING GENERAL FENCE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING GAS LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING GUY LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING OVERHEAD GENERAL UTILITIES
- EXISTING SANITARY FORCE MAIN (SIZE NOTED)
- EXISTING SANITARY SEWER LINE (SIZE NOTED)
- EXISTING STORM SEWER LINE (SIZE NOTED)
- EXISTING EDGE OF TREES
- EXISTING WATER MAIN (SIZE NOTED)
- EXISTING WETLAND DELINEATION
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

TOPOGRAPHIC SYMBOL LEGEND

- EXISTING BOLLARD
- EXISTING POST
- EXISTING SIGN (TYPE NOTED)
- EXISTING ENDWALL
- EXISTING FIELD INLET RECTANGULAR
- EXISTING FIELD INLET
- EXISTING ROOF DRAIN CLEANOUT
- EXISTING STORM MANHOLE
- EXISTING STORM MANHOLE RECTANGULAR
- EXISTING SANITARY CLEANOUT
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING FIRE DEPARTMENT CONNECTION
- EXISTING WATER MAIN VALVE
- EXISTING CURB STOP
- EXISTING WELL
- EXISTING WATER MANHOLE
- EXISTING GAS VALVE
- EXISTING GAS METER
- EXISTING AIR CONDITIONING PEDESTAL
- EXISTING DOWN GUY
- EXISTING ELECTRIC MANHOLE
- EXISTING ELECTRIC RECTANGULAR MANHOLE
- EXISTING ELECTRIC PEDESTAL
- EXISTING TRANSFORMER
- EXISTING ELECTRIC METER
- EXISTING GUY POLE
- EXISTING LIGHT POLE
- EXISTING GENERIC LIGHT
- EXISTING UTILITY POLE
- EXISTING TV MANHOLE
- EXISTING TV RECTANGULAR MANHOLE
- EXISTING TV PEDESTAL
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE PEDESTAL
- EXISTING UNIDENTIFIED MANHOLE
- EXISTING UNIDENTIFIED UTILITY VAULT
- EXISTING HANDICAP PARKING

- EXISTING PLANTER
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING BORING

NOTES:
1). TOPOGRAPHIC MAP PREPARED SEPTEMBER 15, 2017 BY R.A. SMITH NATIONAL, INC FOR THE CITY OF MADISON. SURVEY NO. 5167238-SMC.

vierbicher
planners | engineers | advisors
Phone: (800) 261-3898

Existing Conditions Plan

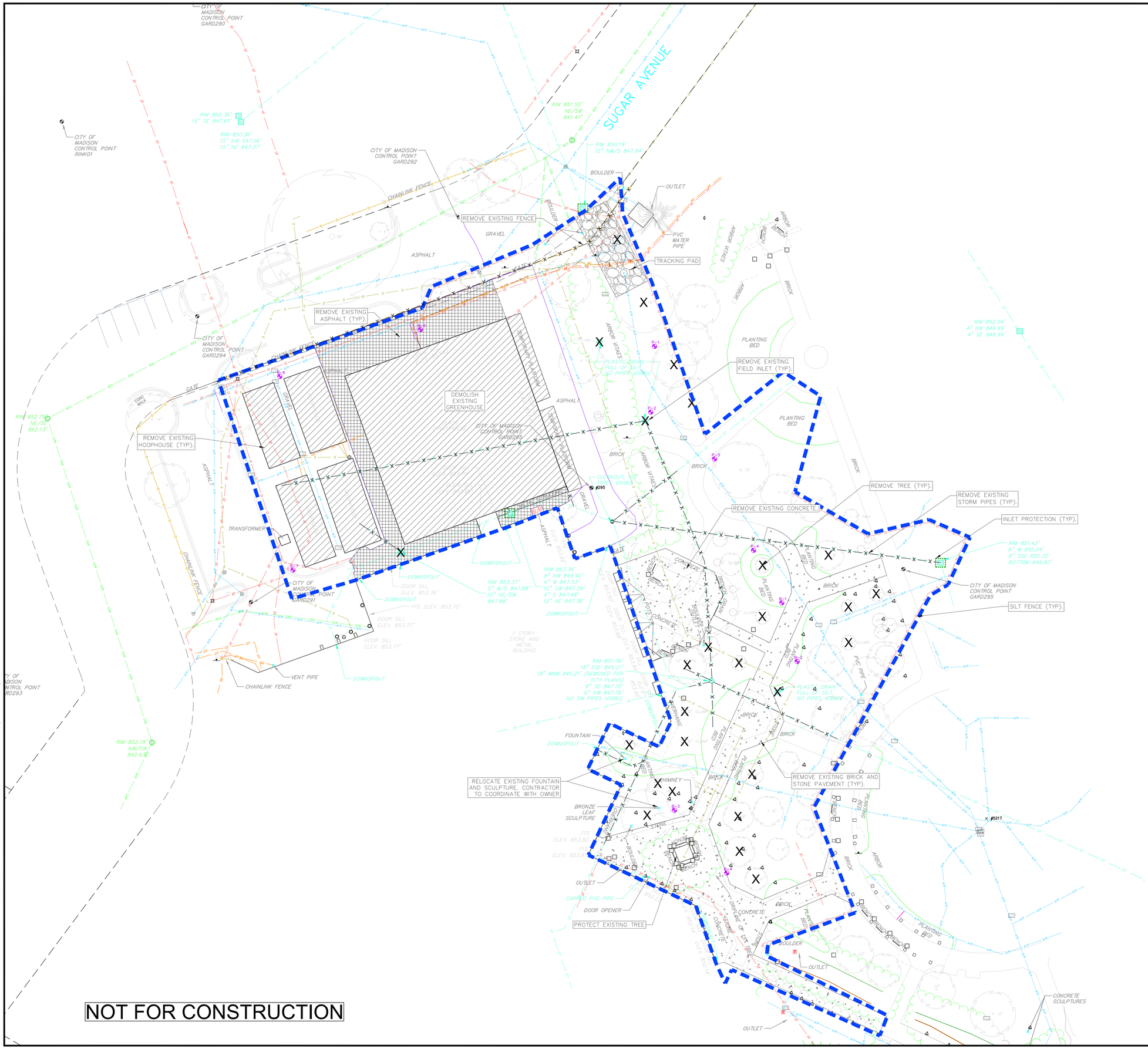
Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

REVISIONS		
NO.	DATE	REMARKS

REVISIONS		
NO.	DATE	REMARKS

SCALE: AS SHOWN
DATE: 01-17-2018
DRAFTER: SCHR
CHECKED: MSCH
PROJECT NO.: 160322
SHEET: C
1

16 Jan 2018 - 8:13a M:\MSR (Meyer, Scherer & Rockcastle Ltd)\160322 Olbrich Botanical Gardens Madison\CADD\160322 - Existing Conditions.dwg by: schr



GRAPHIC SCALE FEET
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DEMOLITION PLAN LEGEND

- CURB AND GUTTER REMOVAL
- ASPHALT REMOVAL
- CONCRETE, BRICK, AND STONE REMOVAL
- BUILDING REMOVAL
- TREE REMOVAL
- SAWCUT
- UTILITY STRUCTURE REMOVAL
- UTILITY LINE REMOVAL
- SILT FENCE
- DISTURBED LIMITS
- INLET PROTECTION
- TRACKING PAD

NOTES:

1. CONTRACTOR SHALL KEEP ALL CITY STREETS FREE AND CLEAR OF CONSTRUCTION RELATED DIRT/DUST/DEBRIS.
2. COORDINATE EXISTING UTILITY REMOVAL/ABANDONMENT WITH LOCAL AUTHORITIES AND UTILITY COMPANIES HAVING JURISDICTION.
3. ALL SAWCUTTING SHALL BE FULL DEPTH TO PROVIDE A CLEAN EDGE TO MATCH NEW CONSTRUCTION. MATCH EXISTING ELEVATIONS AT POINTS OF CONNECTION FOR NEW AND EXISTING PAVEMENT, CURB, SIDEWALKS, ETC. ALL SAWCUT LOCATIONS SHOWN ARE APPROXIMATE AND MAY BE FIELD ADJUSTED TO ACCOMMODATE CONDITIONS, JOINTS, MATERIAL TYPE, ETC. REMOVE MINIMUM AMOUNT NECESSARY FOR INSTALLATION OF PROPOSED IMPROVEMENTS.
4. CONTRACTOR SHALL PROVIDE AND SHALL BE RESPONSIBLE FOR ANY NECESSARY TRAFFIC CONTROL SIGNAGE AND SAFETY MEASURES DURING DEMOLITION AND CONSTRUCTION OPERATIONS WITHIN OR NEAR THE PUBLIC ROADWAY.
5. COORDINATE TREE REMOVAL WITH LANDSCAPE ARCHITECT. ALL TREES TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY AND STUMPS SHALL BE GROUND TO 12" BELOW PROPOSED SUBGRADE. ALL BRUSH SHALL BE CLEARED/REMOVED WITHIN DISTURBANCE LIMITS.
6. IF APPLICABLE, PROVIDE TREE PROTECTION FENCING PRIOR TO CONSTRUCTION OPERATIONS. MAINTAIN THROUGHOUT CONSTRUCTION.
7. ALL LIGHT POLES TO BE REMOVED FROM PRIVATE PROPERTY SHALL BE REMOVED IN THEIR ENTIRETY, INCLUDING BASE AND ALL APPURTENANCES. COORDINATE ABANDONMENT OF ELECTRICAL LINES WITH ELECTRICAL ENGINEER AND OWNER PRIOR TO DEMOLITION.
8. CONTRACTOR SHALL OBTAIN ANY NECESSARY DEMOLITION AND UTILITY ABANDONMENT/PLUGGING PERMITS FROM THE LOCAL MUNICIPALITY/UTILITY AGENCY.
9. ANY DAMAGE TO THE CITY PAVEMENT, INCLUDING DAMAGE RESULTING FROM CURB REPLACEMENT, WILL REQUIRE RESTORATION IN ACCORDANCE WITH THE CITY ENGINEERING PATCHING CRITERIA.
10. PRIOR TO ANY EXISTING GAS, ELECTRIC OR WATER UTILITY REMOVALS OR ABANDONMENT, CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY.
11. CONTRACTOR TO PROTECT ADJACENT BUILDINGS, PAVEMENT, SIDEWALK, AND ALL OTHER STRUCTURES TO REMAIN DURING DEMOLITION AND CONSTRUCTION AS REQUIRED TO PREVENT DAMAGE. CONTRACTOR TO REPAIR ALL DAMAGES.

vierbicher
planners | engineers | advisors
Phone: (800) 261-3898

Demolition Plan

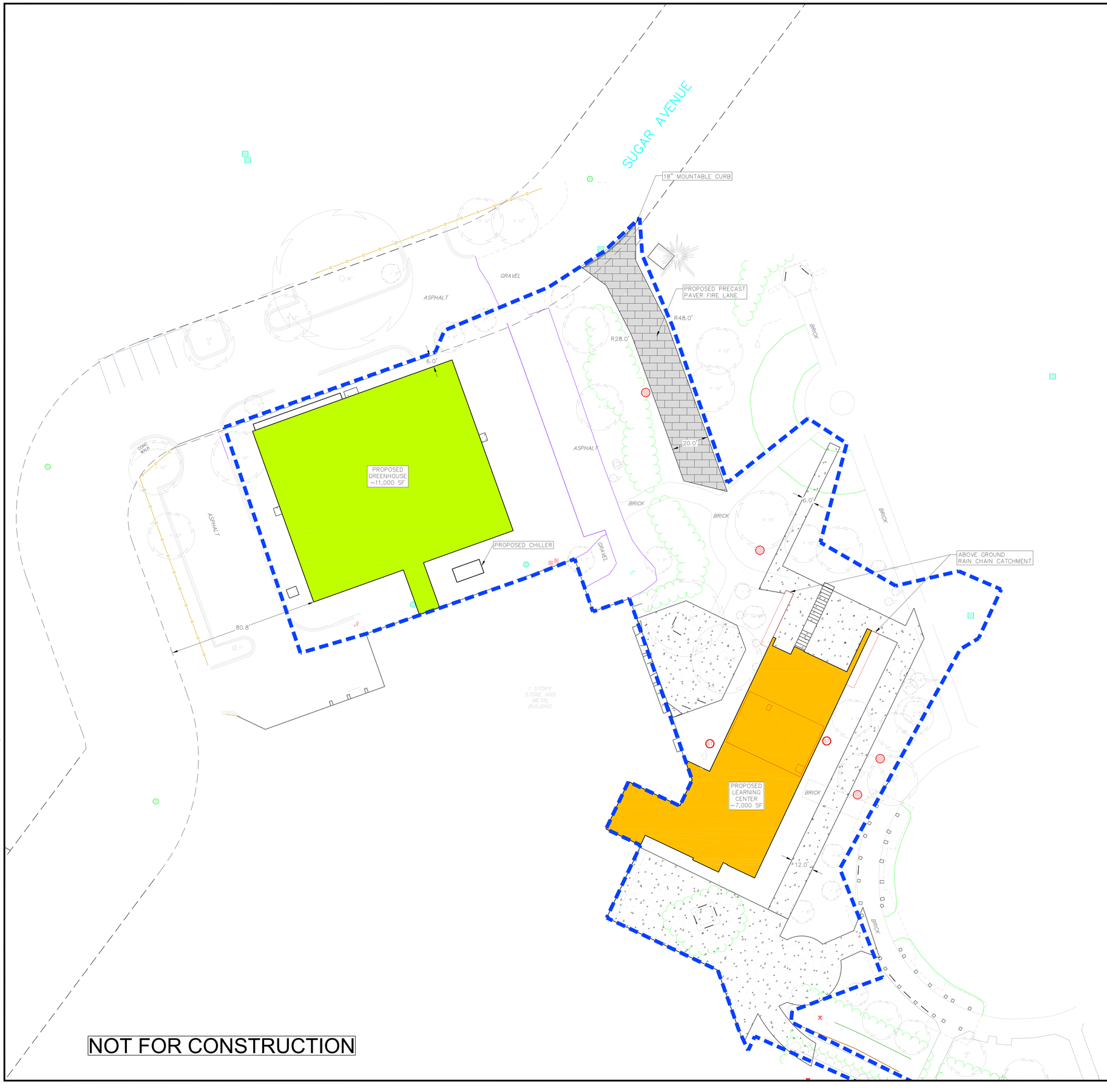
Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

REVISIONS		
NO.	DATE	REMARKS

REVISIONS		
NO.	DATE	REMARKS

SCALE: AS SHOWN
DATE: 01-17-2018
DRAFTER: SCHR
CHECKED: MSCH
PROJECT NO.: 160322
SHEET: C 2

16 Jan 2018 - 8:19a M:\MSR (Meyer, Scherer & Rockcastle Ltd)\160322 Olbrich Botanical Gardens Madison\CADD\160322 - Existing Conditions.dwg by: schr



NOT FOR CONSTRUCTION

GRAPHIC SCALE FEET
0 10 20 40

SITE PLAN LEGEND

- PROPERTY BOUNDARY
- CURB AND GUTTER (REVERSE CURB HATCHED)
- PROPOSED CHAIN LINK FENCE
- PROPOSED WOOD FENCE
- PROPOSED CONCRETE
- PROPOSED PRECAST PAVERS
- PROPOSED ASPHALT
- PROPOSED SIGN
- PROPOSED LIGHT POLE
- PROPOSED BOLLARD
- PROPOSED ADA DETECTABLE WARNING FIELD
- PROPOSED HANDICAP PARKING

NOTES:

1. ALL DIMENSIONS GIVEN ARE TO FACE OF CURB WHEN APPLICABLE.
2. CONSTRUCTION SHALL CONFORM TO CITY OF MADISON STANDARD SPECIFICATIONS, DETAILS ON THE PLANS, AND THE LATEST EDITION OF THE DOT SPECIFICATIONS.
3. EXISTING CURB REMOVAL AND ASPHALT REPLACEMENT LIMITS ARE APPROXIMATE. ADDITIONAL REMOVAL AND REPLACEMENT MAY BE REQUIRED.
4. ALL WORK IN THE PUBLIC RIGHT-OF-WAY AND ALL PUBLIC IMPROVEMENTS SHALL BE CONSTRUCTED PER THE CITY OF MADISON SPECIFICATIONS.

vierbicher
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Phone: (800) 261-3898

Site Plan

Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

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NO.	DATE	REMARKS

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SCALE: AS SHOWN
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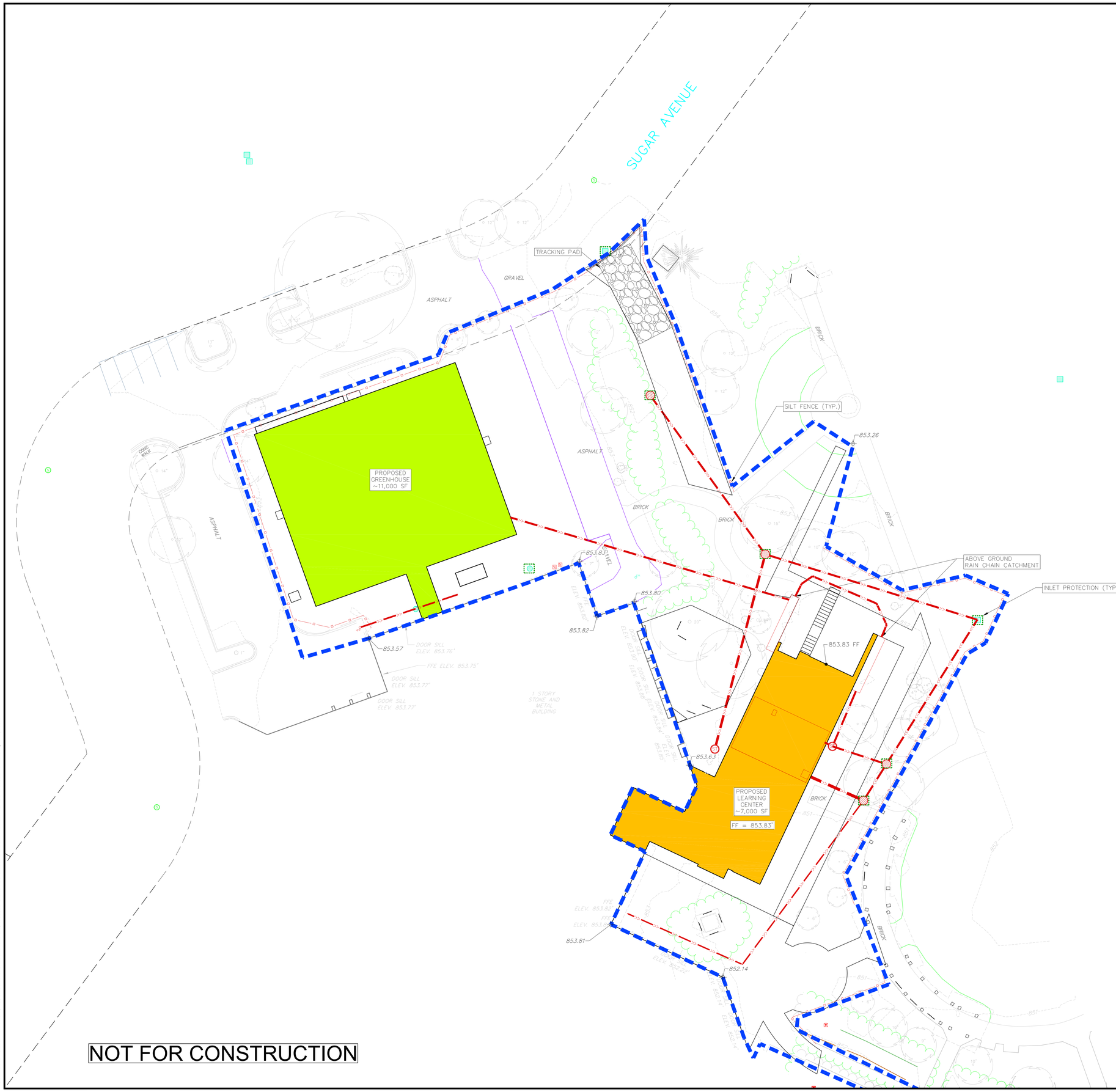
SHEET: C 3

16 Jan 2018 - 8:12a M:\VASE (Meyer, Scherer & Rockcastle Ltd)\160322 Olbrich Botanical Gardens Madison\CADD\160322 - Base.dwg by: schr



NOT FOR CONSTRUCTION

GRAPHIC SCALE FEET

0 10 20 40

GRADING LEGEND

- 820 — EXISTING MAJOR CONTOURS
- 818 — EXISTING MINOR CONTOURS
- 820 — PROPOSED MAJOR CONTOURS
- 818 — PROPOSED MINOR CONTOURS
- DITCH CENTERLINE
- SILT FENCE
- DISTURBED LIMITS
- BERM
- DRAINAGE DIRECTION
- 2.92% PROPOSED SLOPE ARROWS
- 1048.61 EXISTING SPOT ELEVATIONS
- 1C48.61 PROPOSED SPOT ELEVATIONS
- STONE WEEPER
- VELOCITY CHECK
- INLET PROTECTION
- TRACKING PAD
- RIP RAP

ABBREVIATIONS

TC – TOP OF CURB
FF – FINISHED FLOOR
FL – FLOW LINE
SW – TOP OF WALK
TW – TOP OF WALL
BW – BOTTOM OF WALL

NOTES:

1. FINAL GRADE SHALL BE ESTABLISHED ON PAVED SURFACES BY USING SPOT GRADES ONLY.

2. SEE DETAIL SHEETS FOR EROSION CONTROL NOTES AND CONSTRUCTION SEQUENCE.

vierbicher
planners | engineers | advisors
Phone: (800) 261-3898

Grading & Erosion Control Plan

Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

REVISIONS			
NO.	DATE	REMARKS	

REVISIONS			
NO.	DATE	REMARKS	

SCALE: AS SHOWN

DATE: 01-17-2018

DRAFTER: SCHR

CHECKED: MSCH

PROJECT NO. 160322

SHEET C

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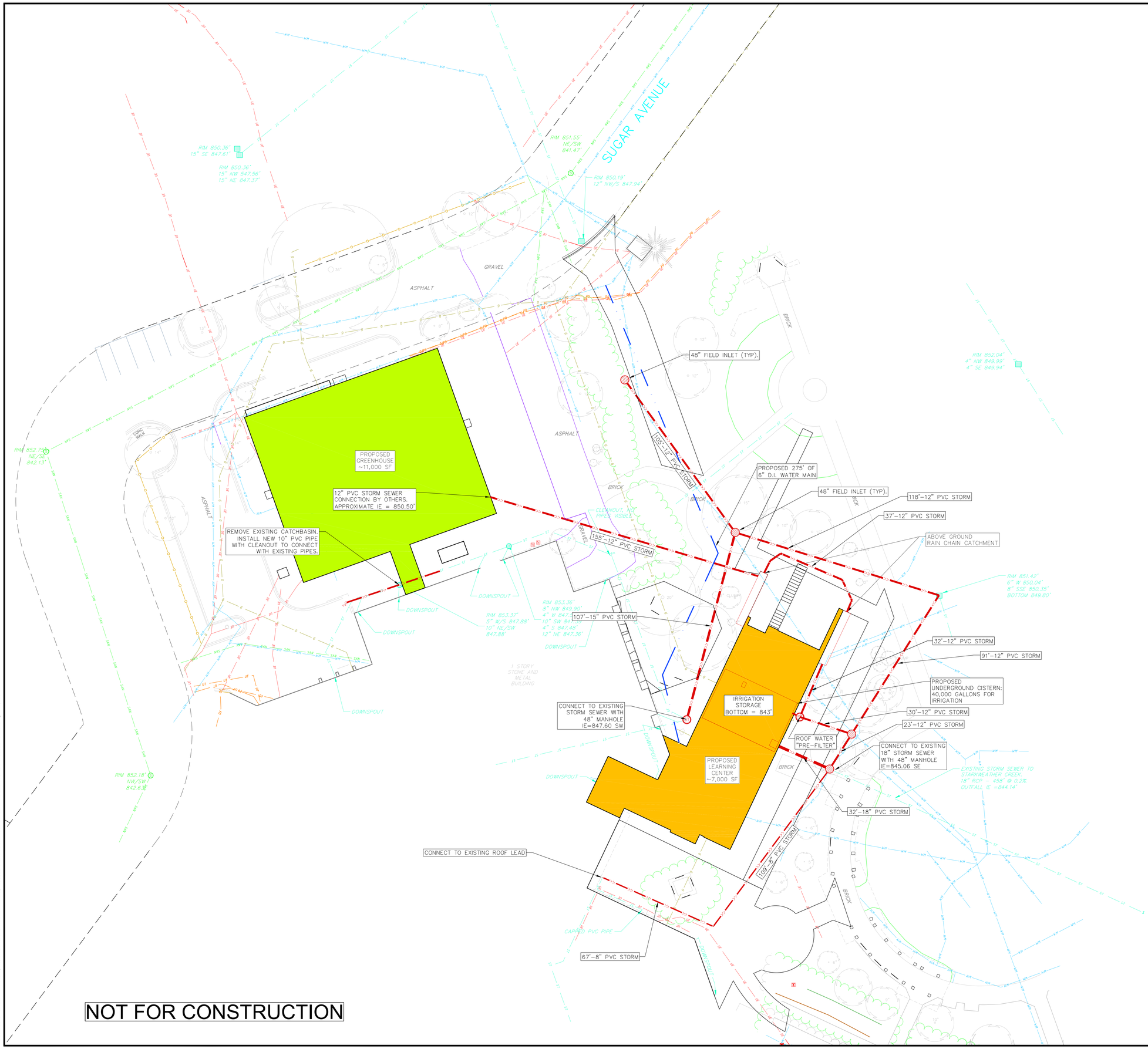
16 Jan 2018 - 8:20a M:\MSR (Meyer, Scherer & Rockcastle Ltd)\160322 Olbrich Botanical Gardens Madison\CADD\160322 - Base.dwg by: schr



GRAPHIC SCALE FEET
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PROPOSED UTILITY LEGEND

- STORM SEWER PIPE
- STORM SEWER MANHOLE
- STORM SEWER ENDWALL
- STORM SEWER CURB INLET
- STORM SEWER CURB INLET W/MANHOLE
- STORM SEWER FIELD INLET
- ROOF DRAIN CLEANOUT
- SANITARY SEWER PIPE (GRAVITY)
- SANITARY SEWER LATERAL PIPE
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- WATER MAIN
- WATER SERVICE LATERAL PIPE
- FIRE HYDRANT
- WATER VALVE
- CURB STOP
- WATER VALVE MANHOLE
- PROPOSED PIPE INSULATION
- GAS MAIN
- ELECTRIC SERVICE

ABBREVIATIONS

STMH – STORM MANHOLE
FI – FIELD INLET
CI – CURB INLET
CB – CATCH BASIN
EW – ENDWALL
SMH – SANITARY MANHOLE

NOTES:

1. SANITARY & STORM SEWER LENGTHS SHOWN ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE. STORM SEWER END SECTIONS ARE INCLUDED IN THE LENGTH AND SLOPE OF THE PIPE.
2. CONTRACTOR SHALL INVESTIGATE ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY CONFLICTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL UTILITY STRUCTURES (MANHOLE RIMS, WATER VALVES, AND CURB STOPS), IF NECESSARY.
4. CONTRACTOR SHALL OBTAIN ANY NECESSARY WORK IN RIGHT-OF WAY, EXCAVATION, UTILITY CONNECTION, PLUGGING, ABANDONMENT, AND DRIVEWAY CONNECTION PERMITS PRIOR TO CONSTRUCTION.
5. FOR ALL SEWER AND WATER MAIN CROSSINGS: PROVIDE MINIMUM 18" SEPARATION WHEN WATER MAIN CROSSES BELOW SEWER AND MINIMUM 6" SEPARATION WHEN WATER MAIN CROSSES ABOVE SEWER.
6. IF DEWATERING OPERATIONS EXCEED 70 GALLONS PER MINUTE OF PUMPING CAPACITY, A DEWATERING WELL PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT PRIOR TO STARTING ANY DEWATERING ACTIVITIES.
7. A COPY OF THE APPROVED UTILITY PLANS, SPECIFICATIONS AND PLUMBING PERMIT APPROVAL LETTER SHALL BE ON-SITE DURING CONSTRUCTION AND OPEN TO INSPECTION BY AUTHORIZED REPRESENTATIVES OF THE DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES AND OTHER LOCAL INSPECTORS.
8. STORM BUILDING SEWER PIPE SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 384.30–6 OF SPS 384.30(3)(c).
9. PRIVATE WATER SERVICES AND PRIVATE WATER MAINS SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 384.30–7 OF SPS 384.30(4)(d).
10. PRIVATE WATER HYDRANTS SHALL BE RED IN COLOR.
11. PRIVATE SANITARY SEWER AND LATERALS SHALL BE POLYVINYL CHLORIDE (PVC) ASTM D3034 – SDR 35 OR APPROVED EQUAL MATERIAL THAT CONFORMS TO ONE OF THE STANDARDS LISTED IN TABLE 384.30–3 OF SPS 384.30(2)(c).
12. A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS AND WATER SERVICES/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED PER SPS 382.10(11)(h) AND SPS 382.40(8)(k).
13. EXTERIOR WATER SUPPLY PIPING SETBACKS AND CROSSINGS SHALL BE IN ACCORDANCE WITH SPS 382.40(8)(b.).
14. NO PERSON MAY ENGAGE IN PLUMBING WORK IN THE STATE UNLESS LICENSED TO DO SO BY THE DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES PER S.145.06.
15. SITE CONTRACTOR SHALL LEAVE SANITARY AND WATER LATERALS FIVE (5) FEET SHORT (HORIZONTALLY) FROM THE BUILDING. BUILDING PLUMBER SHALL VERIFY SIZE, LOCATION, AND INVERT ELEVATION OF PROPOSED SANITARY AND WATER LATERALS.
16. CONTRACTOR SHALL FIELD VERIFY THE SIZE, TYPE, LOCATION, AND ELEVATION OF EXISTING UTILITIES PRIOR TO INSTALLING ANY ON-SITE UTILITIES OR STRUCTURES. CONTACT ENGINEER PRIOR TO INSTALLATION IF DISCREPANCY EXISTS WITHIN THESE PLANS.
17. PROPOSED UTILITY SERVICE LINES SHOWN ARE APPROXIMATE. COORDINATE THE EXACT LOCATIONS WITH THE PLUMBING DRAWINGS. COORDINATE THE SIZE, INVERTS, AND LOCATIONS WITH THE PLUMBING CONTRACTOR AND/OR OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO INSTALLATION OF ANY NEW UTILITIES.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE RELOCATION OF ANY UTILITIES ENCOUNTERED AND REPLACEMENT OF ANY UTILITIES DAMAGED WITHIN INFLUENCE ZONE OF NEW CONSTRUCTION. CONTACT ENGINEER IF THE EXISTING UTILITIES VARY APPRECIABLY FROM THE PLANS.
19. ALL WATER MAIN AND SERVICES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 6.5' FROM TOP OF FINISHED GROUND ELEVATION TO TOP OF MAIN.
20. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE EXISTING VALVES WILL HOLD THE PRESSURE TEST PRIOR TO CONNECTION. THE CITY IS NOT RESPONSIBLE FOR ANY COSTS INCURRED DUE TO THE CONTRACTOR NOT VERIFYING THAT THE EXISTING VALVE WILL HOLD THE PRESSURE TEST PRIOR TO CONNECTION. IF A NEW VALVE IS REQUIRED, THE APPLICANT WILL BE REQUIRED TO INSTALL ONE AT THEIR EXPENSE, AT THE POINT OF CONNECTION.
21. CLEAN OUT ALL EXISTING AND PROPOSED STORM INLETS AND CATCH BASINS AT THE COMPLETION OF CONSTRUCTION.

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Utility Plan

Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

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EROSION CONTROL MEASURES

1. EROSION CONTROL SHALL BE IN ACCORDANCE WITH THE CITY OF MADISON EROSION CONTROL ORDINANCE AND CHAPTER NR 216 OF THE WISCONSIN ADMINISTRATIVE CODE.

2. CONSTRUCT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARDS (http://dnr.wi.gov/runoff/stormwater/techstds.htm) AND WISCONSIN CONSTRUCTION SITE BEST MANAGEMENT PRACTICE HANDBOOK.

3. INSTALL SEDIMENT CONTROL PRACTICES (TRACKING PAD, PERIMETER SILT FENCE, SEDIMENT BASINS, ETC.) PRIOR TO INITIATING OTHER LAND DISTURBING CONSTRUCTION ACTIVITIES.

4. THE CONTRACTOR IS REQUIRED TO MAKE EROSION CONTROL INSPECTIONS AT THE END OF EACH WEEK AND WHEN 0.5 INCHES OF RAIN FALLS WITHIN 24 HOURS. INSPECTION REPORTS SHALL BE PREPARED AND FILED AS REQUIRED BY THE DNR AND/OR CITY. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

5. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

6. A 3" CLEAR STONE TRACKING PAD SHALL BE INSTALLED AT THE END OF ROAD CONSTRUCTION LIMITS TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE ADJACENT PAVED PUBLIC ROADWAY. SEDIMENT TRACKING PAD SHALL CONFORM TO WisDNR TECHNICAL STANDARD 1057. SEDIMENT REACHING THE PUBLIC ROAD SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORK DAY.

7. CHANNELIZED RUNOFF: FROM ADJACENT AREAS PASSING THROUGH THE SITE SHALL BE DIVERTED AROUND DISTURBED AREAS.

8. STABILIZED DISTURBED GROUND: ANY SOIL OR DIRT PILES WHICH WILL REMAIN IN EXISTENCE FOR MORE THAN 7-CONSECUTIVE DAYS, WHETHER TO BE WORKED DURING THAT PERIOD OR NOT, SHALL NOT BE LOCATED WITHIN 25-FEET OF ANY ROADWAY, PARKING LOT, PAVED AREA, OR DRAINAGE STRUCTURE OR CHANNEL (UNLESS INTENDED TO BE USED AS PART OF THE EROSION CONTROL MEASURES). TEMPORARY STABILIZATION AND CONTROL MEASURES (SEEDING, MULCHING, TARPING, EROSION MATTING, BARRIER FENCING, ETC.) ARE REQUIRED FOR THE PROTECTION OF DISTURBED AREAS AND SOIL PILES, WHICH WILL REMAIN UN-WORKED FOR A PERIOD OF MORE THAN 14-CONSECUTIVE CALENDAR DAYS. THESE MEASURES SHALL REMAIN IN PLACE UNTIL SITE HAS STABILIZED.

9. SITE DE-WATERING: WATER PUMPED FROM THE SITE SHALL BE TREATED BY TEMPORARY SEDIMENTATION BASINS OR OTHER APPROPRIATE CONTROL MEASURES. SEDIMENTATION BASINS SHALL HAVE A DEPTH OF AT LEAST 3 FEET, BE SURROUNDED BY SNOWFENCE OR EQUIVALENT BARRIER AND HAVE SUFFICIENT SURFACE AREA TO PROVIDE A SURFACE SETTLING RATE OF NO MORE THAN 750 GALLONS PER SQUARE FOOT PER DAY AT THE HIGHEST DEWATERING PUMPING RATE. WATER MAY NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION OF THE SITE, A NEIGHBORING SITE, OR THE BED OR BANKS OF THE RECEIVING WATER. POLYMERS MAY BE USED AS DIRECTED BY DNR TECHNICAL STANDARD 1061 (DE-WATERING).

10. WASHED STONE WEEPERS SHALL BE BUILT PER PLAN BY CONTRACTOR TO TRAP SEDIMENT OR SLOW THE VELOCITY OF STORM WATER.

11. IN NO CASE WILL RIP-RAP BE SMALLER THAN 3" TO 6".

12. INLET FILTERS ARE TO BE PLACED IN STORMWATER INLET STRUCTURES AS SOON AS THEY ARE INSTALLED. ALL PROJECT AREA STORM INLETS NEED WISCONSIN D.O.T. TYPE D INLET PROTECTION. THE FILTERS SHALL BE MAINTAINED UNTIL THE CITY HAS ACCEPTED THE BINDER COURSE OF ASPHALT.

13. RESTORATION (SEED, FERTILIZE AND MULCH) SHALL BE PER SPECIFICATIONS ON THIS SHEET UNLESS SPECIAL RESTORATION IS CALLED FOR ON THE LANDSCAPE PLAN.

14. TERRACES SHALL BE RESTORED WITH 6" TOPSOIL, PERMANENT SEED, FERTILIZER AND MULCH. LOTS SHALL BE RESTORED WITH 6" TOPSOIL, TEMPORARY SEED, FERTILIZER AND MULCH.

15. SEED, FERTILIZER AND MULCH SHALL BE APPLIED WITHIN 7 DAYS AFTER FINAL GRADE HAS BEEN ESTABLISHED. IF DISTURBED AREAS WILL NOT BE RESTORED IMMEDIATELY AFTER ROUGH GRADING, TEMPORARY SEED SHALL BE PLACED.

16. FOR THE FIRST SIX WEEKS AFTER RESTORATION (E.G. SEED & MULCH, EROSION MAT, SOD) OF A DISTURBED AREA, INCLUDE SUMMER WATERING PROVISIONS OF ALL NEWLY SEEDED AND MULCHED AREAS WHENEVER 7 DAYS ELAPSE WITHOUT A RAIN EVENT.

17. EROSION MAT (CLASS I, TYPE A URBAN PER WISCONSIN D.O.T. P.A.L.) SHALL BE INSTALLED ON ALL SLOPES 3:1 OR GREATER BUT LESS THAN 1:1.

18. EROSION MAT (CLASS I, TYPE B URBAN PER WISCONSIN D.O.T. P.A.L.) SHALL BE INSTALLED ON THE BOTTOM (INVERT) OF ROADSIDE DITCHES/SWALES AS SHOWN ON THIS PLAN, 1 ROLL WIDTH.

19. SILT FENCE OR EROSION MAT SHALL BE INSTALLED ALONG THE CONTOURS AT 100 FOOT INTERVALS DOWN THE SLOPE ON THE DISTURBED SLOPES STEEPER THAN 5% AND MORE THAN 100 FEET LONG THAT SHEET FLOW TO THE ROADWAY UNLESS SOIL STABILIZERS ARE USED.

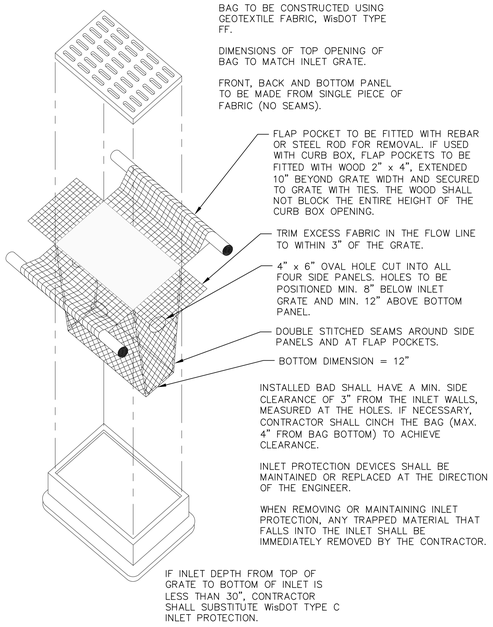
20. SILT FENCE TO BE USED ACROSS AREAS OF THE LOT THAT SLOPE TOWARDS A PUBLIC STREET OR WATERWAY. SEE DETAILS.

21. SEDIMENT SHALL BE CLEANED FROM CURB AND GUTTER AFTER EACH RAINFALL AND PRIOR TO PROJECT ACCEPTANCE.

22. ACCUMULATED CONSTRUCTION SEDIMENT SHALL BE REMOVED FROM ALL PERMANENT BASINS TO THE ELEVATION SHOWN ON THE GRADING PLAN FOLLOWING THE STABILIZATION OF DRAINAGE AREAS.

23. ANY PROPOSED CHANGES TO THE EROSION CONTROL PLAN MUST BE SUBMITTED AND APPROVED BY THE CITY OF MADISON AND DNR.

24. THE CITY, OWNER AND/OR ENGINEER MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES AT ANY TIME DURING CONSTRUCTION.



1/1 INLET PROTECTION TYPE D
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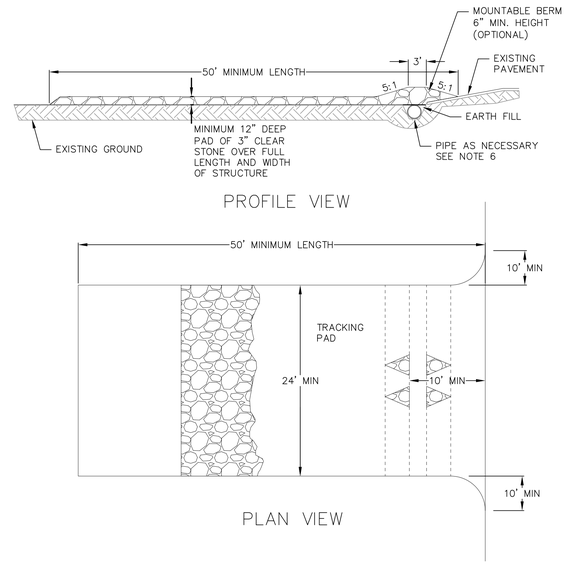


1. FOLLOW WISCONSIN DNR TECHNICAL STANDARD 1057 FOR FURTHER DETAILS AND INSTALLATION.

2. LENGTH - MINIMUM OF 50'.

3. WIDTH - 24' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.

4. ON SITES WITH A HIGH GROUNDWATER TABLE OR WHERE SATURATED CONDITIONS EXIST, GEOTEXTILE FABRIC SHALL BE PLACED OVER EXISTING GROUND PRIOR TO PLACING STONE. FABRIC SHALL BE WISDOT TYPE-HR GEOTEXTILE FABRIC.

5. STONE - CRUSHED 3" CLEAR STONE SHALL BE PLACED AT LEAST 12" DEEP OVER THE ENTIRE LENGTH AND WIDTH OF ENTRANCE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARDS CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE. MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND MINIMUM OF 6" STONE OVER THE PIPE. PIPE SHALL BE SIZED ACCORDING TO THE DRAINAGE REQUIREMENTS. WHEN THE ENTRANCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE SHALL NOT BE NECESSARY. THE MINIMUM PIPE DIAMETER SHALL BE 6". CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF SAID PIPE.

7. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED WHERE CONSTRUCTION TRAFFIC ENTERS AND/OR LEAVES THE CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE TRACKING PAD.

1/1 TRACKING PAD
NOT TO SCALE

SEEDING RATES:

TEMPORARY:
1. USE ANNUAL OATS AT 3.0 LB./1,000 S.F. FOR SPRING AND SUMMER PLANTINGS.
2. USE WINTER WHEAT OR RYE AT 3.0 LB./1,000 SF FOR FALL PLANTINGS STARTED AFTER SEPTEMBER 15.

PERMANENT:
1. USE WISCONSIN D.O.T. SEED MIX #40 AT 2 LB./1,000 S.F.

FERTILIZING RATES:

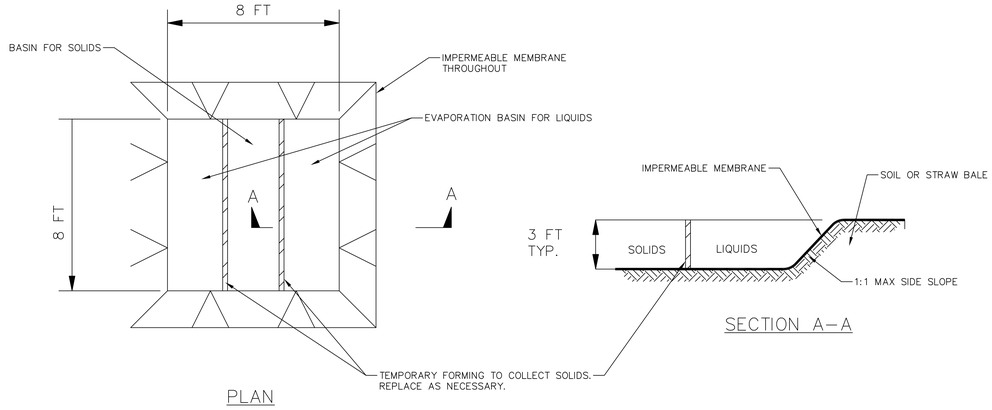
TEMPORARY AND PERMANENT:
USE WISCONSIN D.O.T. TYPE A OR B AT 7 LB./1,000 S.F.

MULCHING RATES:

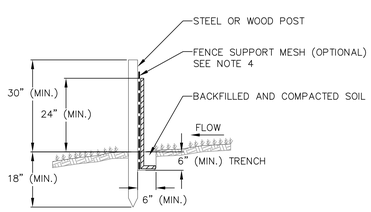
TEMPORARY AND PERMANENT:
USE ½" TO 1-½" STRAW OR HAY MULCH, CRIMPED PER SECTION 607.3.2.3, OR OTHER RATE AND METHOD PER SECTION 627, WISCONSIN D.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION

CONSTRUCTION SEQUENCE:

1. INSTALL EROSION CONTROL MEASURES
2. CONDUCT DEMOLITION
3. STRIP TOPSOIL
4. ROUGH GRADE SITE
5. CONSTRUCT UNDERGROUND UTILITIES
6. CONSTRUCT BUILDING
7. CONSTRUCT LOT (STONE BASE, CURB & CUTTER, AND SIDEWALK)
8. RESTORE DISTURBED AREAS
9. REMOVE EROSION CONTROL MEASURES AFTER DISTURBED AREAS ARE RESTORED
10. INSTALL FLOGARD STORM INLET FILTERS IN ALL INLETS TAKING PAVEMENT DRAINAGE



EXCAVATED WASHOUT STRUCTURE



NOTES:

1. INSTALL SILT FENCE TO FOLLOW THE GROUND CONTOURS AS CLOSELY AS POSSIBLE.
2. CURVE THE SILT FENCE UP THE SLOPE TO PREVENT WATER FROM RUNNING AROUND THE ENDS.
3. POST SPACING WITH FENCE SUPPORT MESH = 10 FT. (MAX.)
   POST SPACING WITHOUT FENCE SUPPORT MESH = 6 FT. (MAX.)
4. SILT FENCE SUPPORT MESH CONSISTS OF 14-GAUGE STEEL WIRE WITH A MESH SPACING OF 6 IN. X 6 IN. OR PREFABRICATED POLYMERIC MESH OF EQUIVALENT STRENGTH

1/1 SILT FENCE
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.

2. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.

3. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

1/1 TEMPORARY CONCRETE WASHOUT
NOT TO SCALE

NOT FOR CONSTRUCTION

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Construction Details - 1
Olbrich Botanical Gardens: Expansion Phase 1
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Dane County, WI

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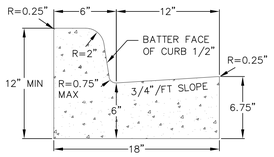
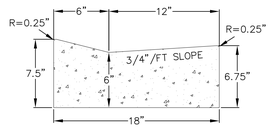
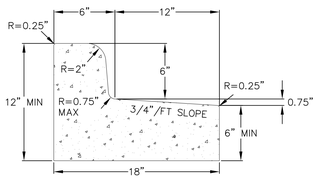


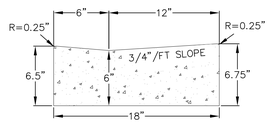
CURB AND GUTTER CROSS SECTION



DRIVEWAY GUTTER CROSS SECTION

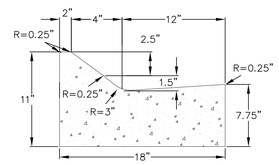


CURB AND GUTTER REJECT SECTION



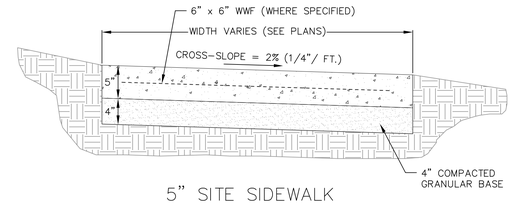
HANDICAP RAMP GUTTER CROSS SECTION

1/1 18" CONCRETE CURB AND GUTTER
NOT TO SCALE

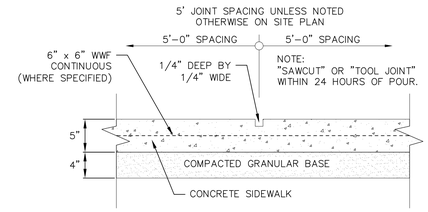


MOUNTABLE CURB AND GUTTER CROSS SECTION

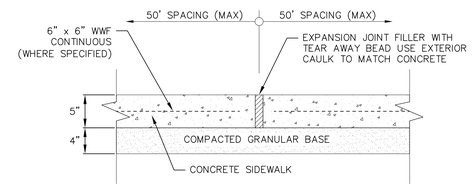
1/1 18" MOUNTABLE CURB & GUTTER
NOT TO SCALE



5" SITE SIDEWALK

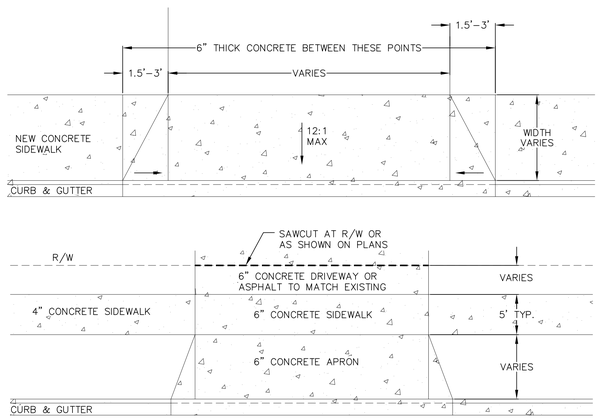


SIDEWALK CONTROL JOINT



SIDEWALK EXPANSION JOINT

1/1 5" SIDEWALK
NOT TO SCALE



1/1 DRIVEWAY DETAIL
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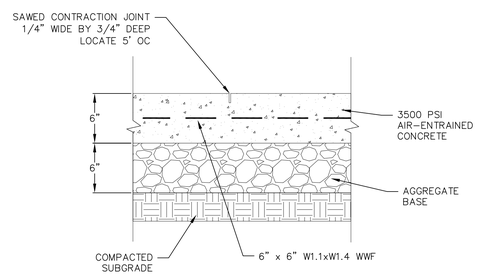

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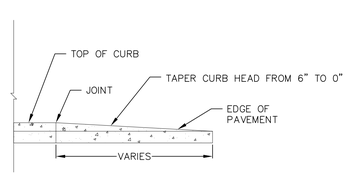
BITUMINOUS PAVEMENT DRIVES



PROFILE VIEW

1/1 CURB & GUTTER TERMINATION
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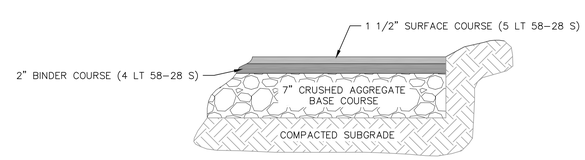

BITUMINOUS PAVEMENT PARKING LOT

1/1 SITE PAVEMENT
NOT TO SCALE

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vierbicher
planners | engineers | advisors
REDISCOVER MADISON • FRAME DU CHEN
999 Fourier Drive, Madison, WI 53717
Phone: (608) 826-0532 Fax: (608) 826-0530

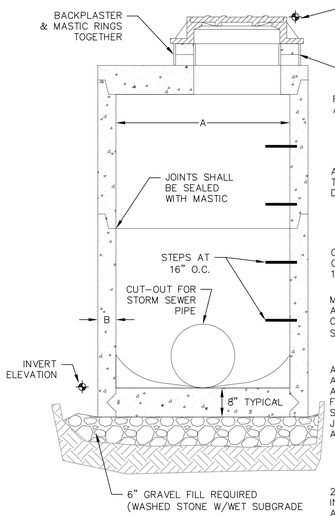
Construction Details - 2
Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

REVISIONS		
NO.	DATE	REMARKS

REVISIONS		
NO.	DATE	REMARKS

SCALE: AS SHOWN
DATE: 01-17-2018
DRAFTER: SCHR
CHECKED: MSCH
PROJECT NO. 160322
SHEET C
7

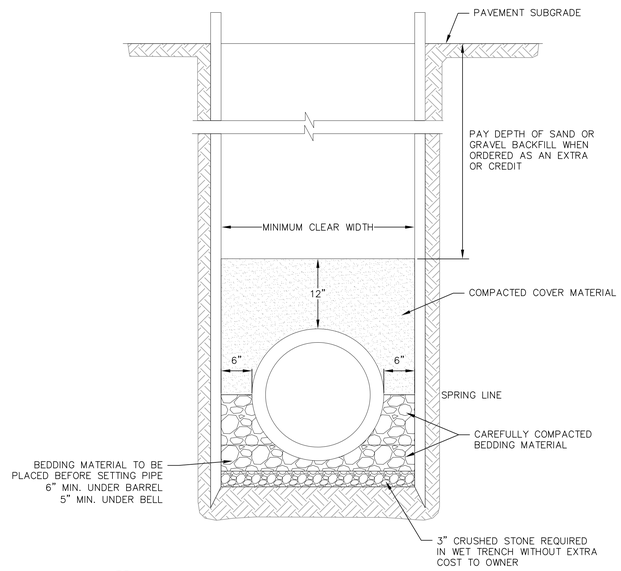
16 Jan 2018 - 8:12a M:\MSR (Meyer, Scherer & Rockcastle Ltd)\160322 Olbrich Botanical Gardens Madison\CADD\160322 - Construction Details.dwg by: schr



STORM MANHOLE DIMENSIONS

MANHOLE SIZE	DIMENSION	
	A	B (MIN.)
48"	48"	5"
60"	60"	6"
72"	72"	7"
84"	84"	7"
96"	96"	9"

1/1 STORM SEWER MANHOLE
NOT TO SCALE



1/1 CLASS B BEDDING COMPACTED SECTION
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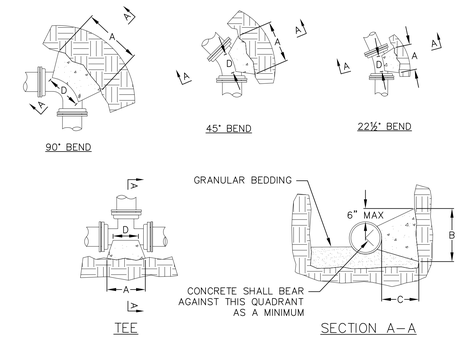


DIMENSION "D" SHALL BE AS LARGE AS POSSIBLE, BUT THE CONCRETE SHALL NOT INTERFERE WITH THE MECHANICAL JOINTS.

DIMENSION "C" SHALL BE AT LEAST 6 INCHES, AND LARGE ENOUGH TO MAKE THE "Q" ANGLE EQUAL TO OR GREATER THAN 45 DEGREES WITH THE DIMENSION "A" AS SHOWN ON THE TABLE, OR GREATER, AND WITH DIMENSION "D" AS LARGE AS POSSIBLE.

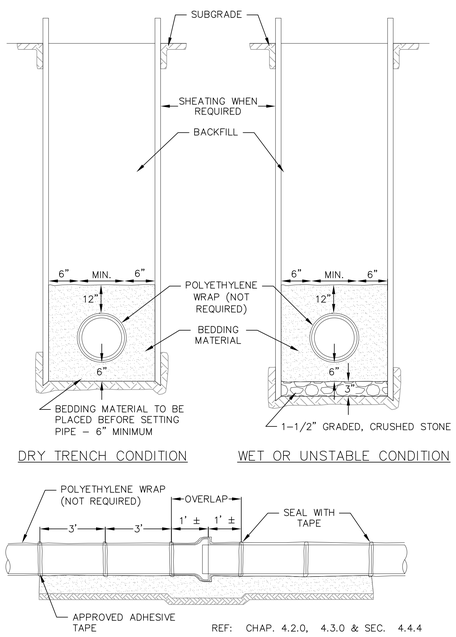
CONCRETE SHALL BE CLASS "C", SEE SECTION 03301

BUTTRESS DIMENSIONS								
PIPE SIZE*	TEES		22.5° BEND		45° BEND		90° BEND	
	A	B	A	B	A	B	A	B
4	0'-10"	1'-6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-2"
6	1'-6"	1'-8"	1'-0"	1'-0"	1'-4"	1'-2"	1'-10"	1'-6"
8	1'-9"	2'-4"	1'-4"	1'-4"	1'-10"	1'-10"	2'-8"	2'-3"
10	1'-9"	2'-4"	1'-10"	1'-8"	2'-6"	2'-4"	3'-10"	2'-10"
12	2'-3"	1'-7"	2'-4"	2'-0"	3'-3"	2'-10"	5'-0"	3'-4"
16	3'-8"	2'-10"	2'-10"	2'-4"	4'-0"	3'-3"	6'-4"	3'-10"
20	5'-0"	3'-10"	3'-6"	3'-0"	5'-4"	3'-10"	8'-0"	4'-8"
24	5'-4"	4'-8"						

DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND SOIL RESISTANCE OF 2000 LBS/SQ FT

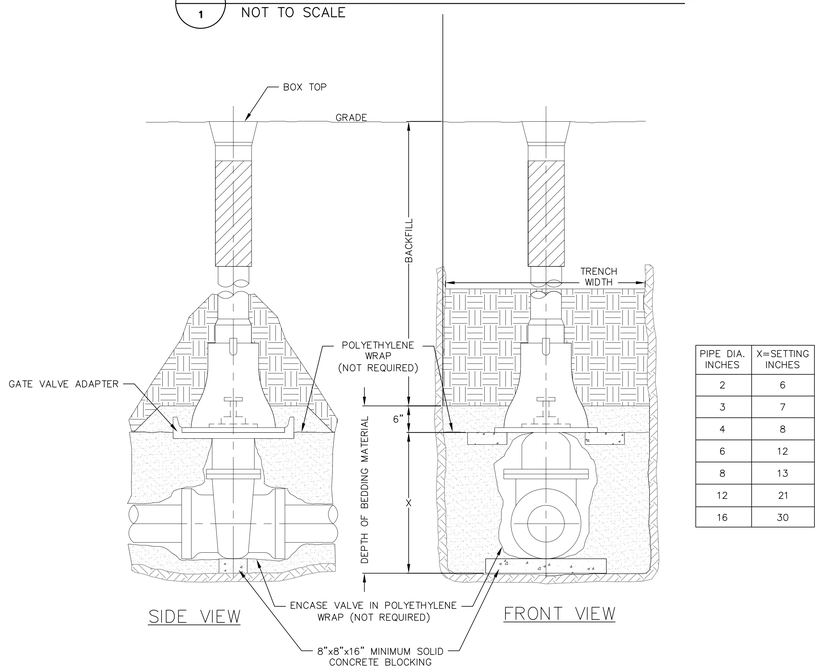
* = FOR TEE THIS WILL BE THE BRANCH PIPE

1/1 BUTTRESS FOR BENDS
NOT TO SCALE



REF: CHAP. 4.2.0, 4.3.0 & SEC. 4.4.4

1/1 STANDARD WATER MAIN TRENCH SECTION
NOT TO SCALE



PIPE DIA. INCHES	X=SETTING INCHES
2	6
3	7
4	8
6	12
8	13
12	21
16	30

1/1 STANDARD GATE VALVE BOX SETTING
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Construction Details - 3
Olbrich Botanical Gardens: Expansion Phase 1
City of Madison
Dane County, WI

REVISIONS		
NO.	DATE	REMARKS

REVISIONS		
NO.	DATE	REMARKS

SCALE AS SHOWN
DATE 01-17-2018
DRAFTER SCHR
CHECKED MSCH
PROJECT NO. 160322
SHEET C
8

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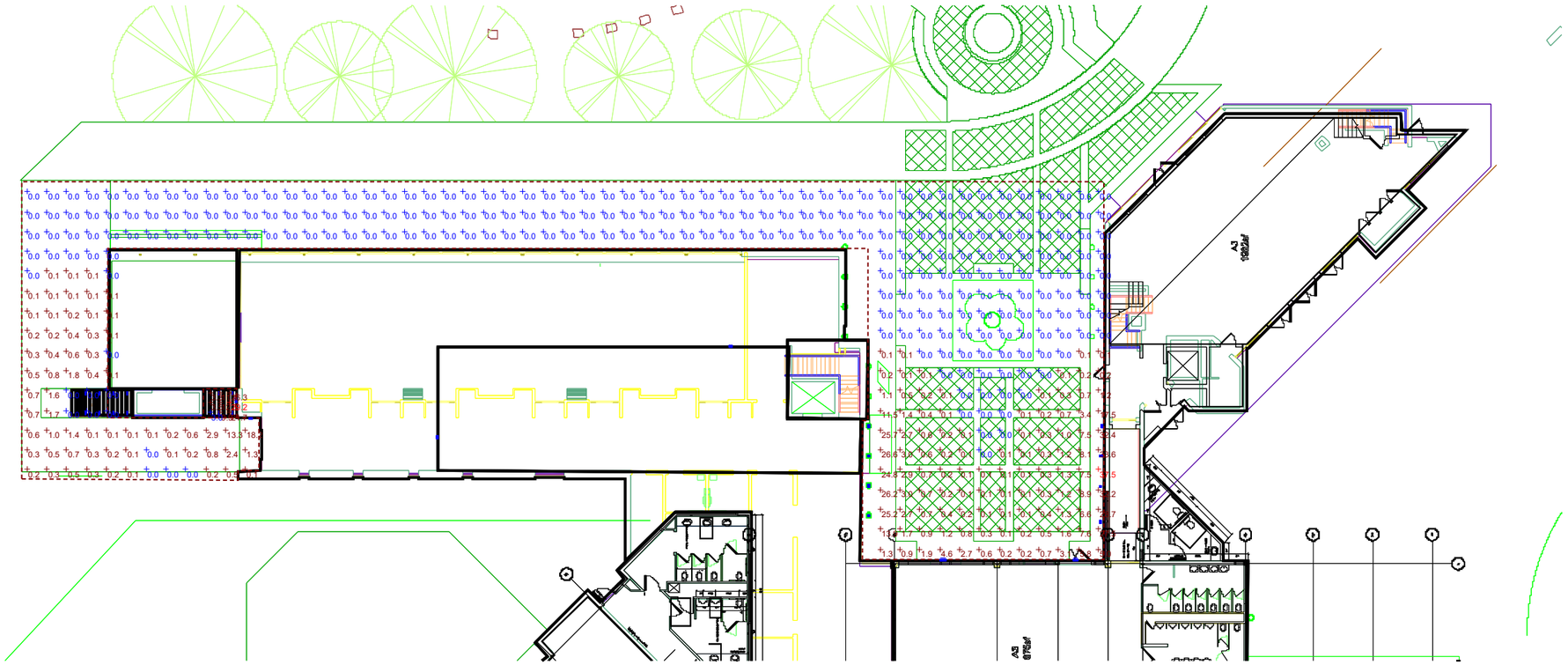
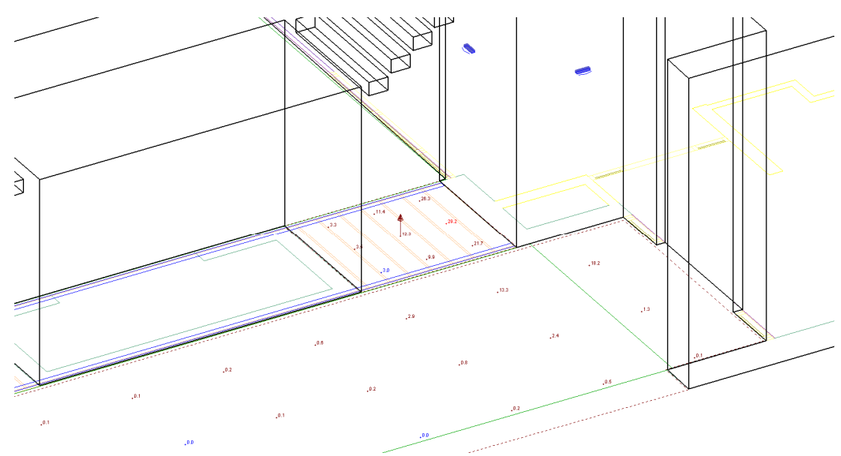


Plan View

Plan View



View #2

VISUAL

OLBRICH BOTANICAL GARDENS SITE PLAN

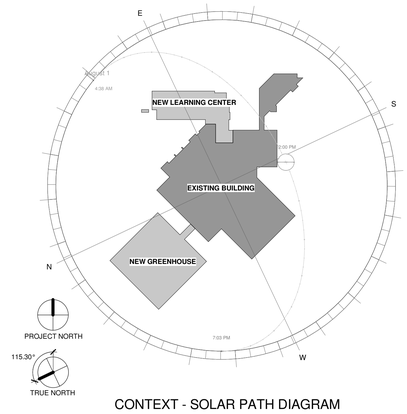
Designer

Date
1/16/2018
Scale
Not to Scale
Drawing No.

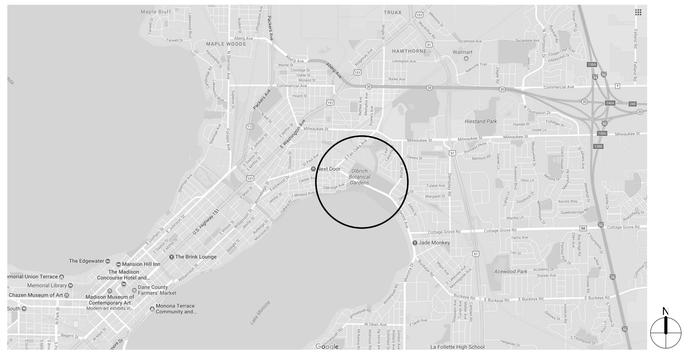
SITE PHOTOMETRICS

1 CONTEXT - SITE CONTEXT PLAN

G001 1" = 80'-0"



CONTEXT - SOLAR PATH DIAGRAM



OLBRICH BOTANICAL GARDENS - LOCATION PLAN

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Minneapolis, Minnesota 55401–2282

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Interiors and
Urban Design

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513.242.0310 tel

Olbrich Botanical Gardens Expansion Phase 1

3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin.
ARCHITECT SEAL

Signature: _____

Print Names: _____

Date: _____ License No: _____

ISSUE

MARK	DATE	DESCRIPTION
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	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

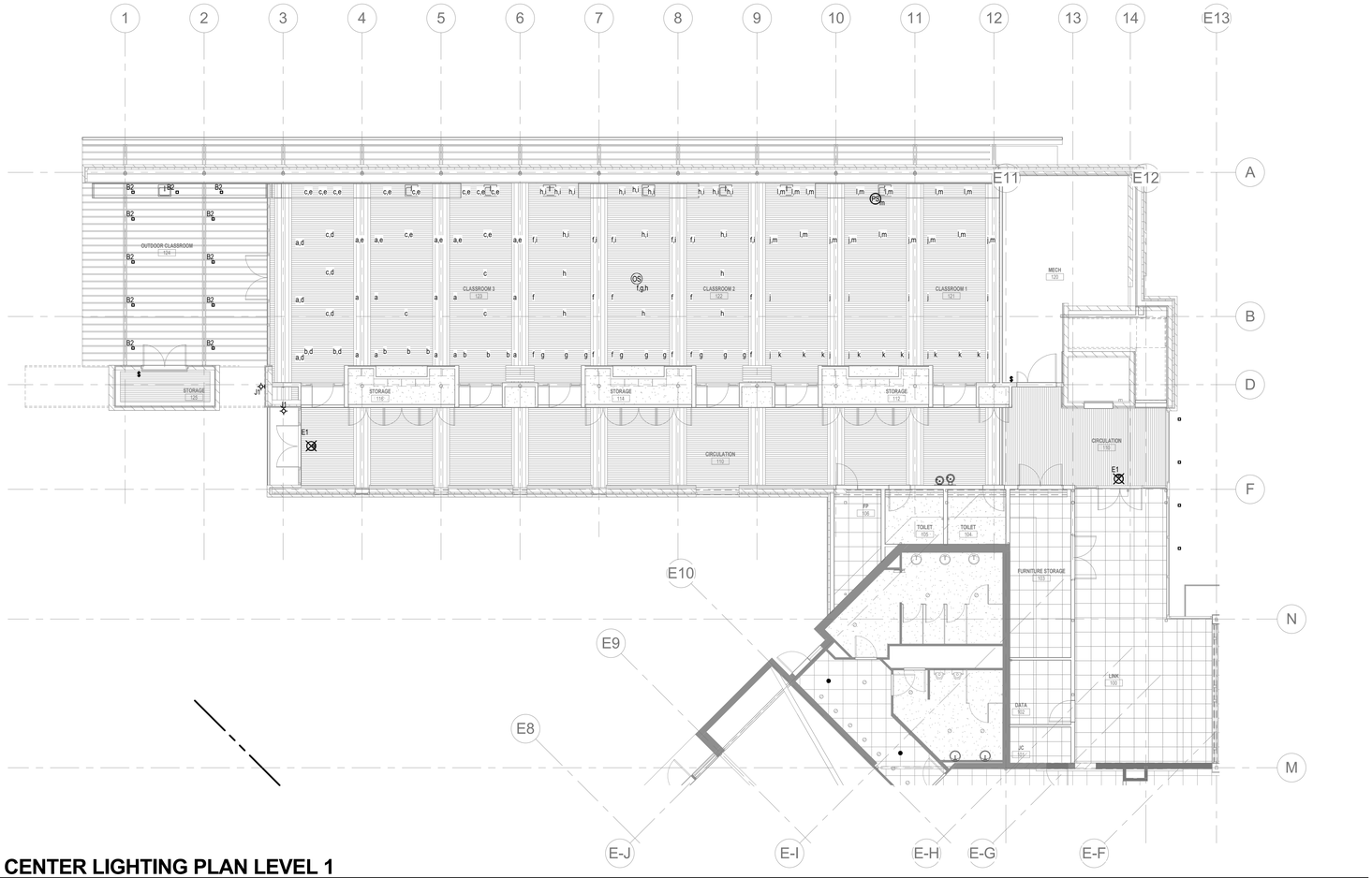
PROJECT NO.
2017016

PROJECT PHASE
DESIGN DEVELOPMENT

DRAWN BY: MSR
CHECKED BY: MSR

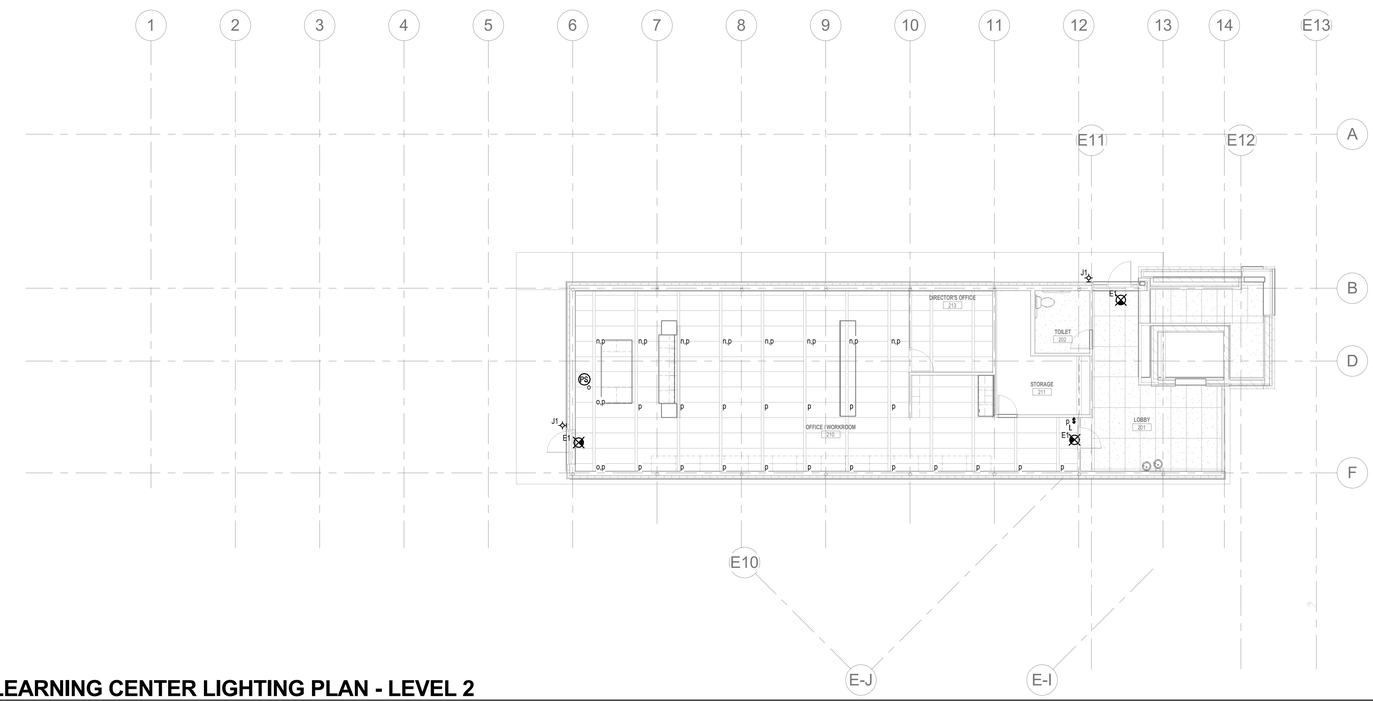
SITE CONTEXT

G001



1 LEARNING CENTER LIGHTING PLAN LEVEL 1

1/8" = 1'-0"



2 LEARNING CENTER LIGHTING PLAN - LEVEL 2

1/8" = 1'-0"

GENERAL LIGHTING NOTES

A. SEE ARCHITECTURE DRAWINGS FOR LUMINAIRE SCHEDULE AND INSTALLATION DETAILS.

B. INSTALL IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. PROVIDE SUPPORTING DEVICES FOR ADEQUATE SUPPORT OF LUMINAIRES FROM THE STRUCTURE.

C. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH CIRCUIT, MULTIWIRE BRANCH CIRCUITS SHALL NOT BE UTILIZED.

D. SWITCHES/LIGHTING CONROL DEVICES SHOWN ADJACENT TO EACH OTHER SHALL BE MOUNTED UNDER A COMMON FACEPLATE, UNLESS NOTED OTHERWISE.

E. LUMINAIRES THAT DO NOT INCLUDE A SWITCH LEG OR OTHER CONTROL DESIGNATION SHALL BE CONTROLLED FROM THE SWITCH/LIGHTING CONTROL DEVICE SHOWN WITHIN THE ROOM INCLUDING THE LUMINAIRE.

KEYED NOTES

1. CLASSROOM LIGHTING SHALL BE IN DAYLIGHTING ZONES WITH DIMMABLE CONTROLS - LIGHT FIXTURES IN EACH ZONE AS NOTED BY PHOTOSENSOR SWITCH TAG.
2. LED SLOT LIGHTS (A) TO BE MOUNTED IN COVE NEXT TO GLULAM BEAM WITH BOTTOM OF FIXTURE AT 11' 2" AFF.
3. BATTERY BACK-UP POWER EMERGENCY LIGHT FIXTURE.
4. OCCUPANCY SENSOR SWITCH SHALL HAVE DUAL INPUTS WIRED TO LIGHT FIXTURES AND EXHAUST FAN.
5. OUTDOOR CLASSROOM LIGHT SWITCH SHALL HAVE VACANCY SENSOR.
6. INDIVIDUAL TASK LIGHTING, INCORPORATED INTO THE OFFICE FURNITURE, SHALL BE LOCATED AT EACH WORKSTATION.

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	Mounting	MANUFACTURER	MODEL	LAMP	VOLTS	NOTES
	ABL Recessed 2x4		Acuity Brands Lighting		T5		
A2	4" LED Recessed Slot 2' Long, Flush Clear Diffuser	Recessed	Acuity Brands Lighting	MARK SLOT4	3000K, 80 CRI, 4 LM/FT	120 V	
A6	4" LED Recessed Slot 6' Long, Flush Clear Diffuser	Recessed	Acuity Brands Lighting	MARK SLOT4	3000K, 80 CRI, 4 LM/FT	120 V	
A8	4" LED Recessed Slot 8' Long,Flush Clear Diffuser	Recessed	Acuity Brands Lighting	MARK SLOT4	3000K, 80 CRI, 4 LM/FT	120 V	
A8E	4" LED Recessed Slot 8' Long, Battery Backup, Flush Clear Diffuser	Recessed	Acuity Brands Lighting	MARK SLOT4	3000K, 80 CRI, 4 LM/FT	120 V	Integral Battery
B1	4" Square LED Downlight, Black Housing, Clear Reflector	Recessed	Indy	SDSQ4BBD	2700K, 80+ CRI, 1250 LM	120 V	
B2	4" Square LED Downlight, Black Housing, Wet/Outdoor Rated		Indy	SDSQ4BBD	2700K, 80+ CRI, 1250 LM		
D1	2' x 4' LED Troffer, Clear Diffuser	Recessed	Lithonia Lighting	ALL	3000K, 80 CRI, 4000 LM	120 V	
D1E	2' x 4' LED Troffer, Battery Backup, Clear Diffuser	Recessed	Lithonia Lighting	ALL	3000K, 80 CRI, 4000 LM	120 V	Integral Battery
E1	1-Sided EXIT Light, LED, Battery Backup	Recessed	Lithonia Lighting	LRP	LED	120 V	Battery Backup
EM1	Emergency Lighting Unit, Battery Backup		Lithonia Lighting	ELM2	LED	120 V	Battery Backup
F1	4' LED Strip Light	Surface	Lithonia Lighting	ZL SERIES	3500K, 5000 LM	120 V	
F2	2' LED Strip Light	Surface	Lithonia Lighting	ZL SERIES	3500K, 2500 LM	120 V	
G1	LED Wall-Mounted Rectangular Sconce, Black	Wall Surface	BEGA	STUDIO LINE	3000k, 80+ CRI,	120 V	
H1	LED Recessed Can Down Light	Recessed	Lithonia Lighting	LDN SERIES	3000K, 80 CRI, 1000 LM	120 V	
I1	4' LED Under Cabinet Strip Light w. Integrated Power Cord	Under Cabinet Surface	Lithonia Lighting	UCLD	3000K, 80+ CRI, 740 LM	120 V	
J1	Exterior Rectangular Wall Pack, Black	Wall Surface	BEGA	33 242	3000k, 80+ CRI,	120 V	
J2	Exterior Rectangular Wall Pack, Black	Wall Surface	BEGA	22 380	3000k, 80+ CRI,	120 V	
K1	LED Plant Growth Strip Light	Suspended	Hubbell Lighting	Nutri/LED SERIES	3500K, 5000 LM	120 V	
N1	IN-GROUND FLOOD W. GRILL AND GLARE BEZEL		AURORALIGHT	HWL11 LIGHTHAUS	2700K, flood		

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Olbrich Botanical Gardens Expansion Phase 1
3330 Atwood Avenue
Madison, WI 53704

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ISSUE

MARK	DATE	DESCRIPTION
	09.09.2017	SCHEMATIC DESIGN SUBMISSION
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

PROJECT NO. 2017016

PROJECT PHASE Design Development

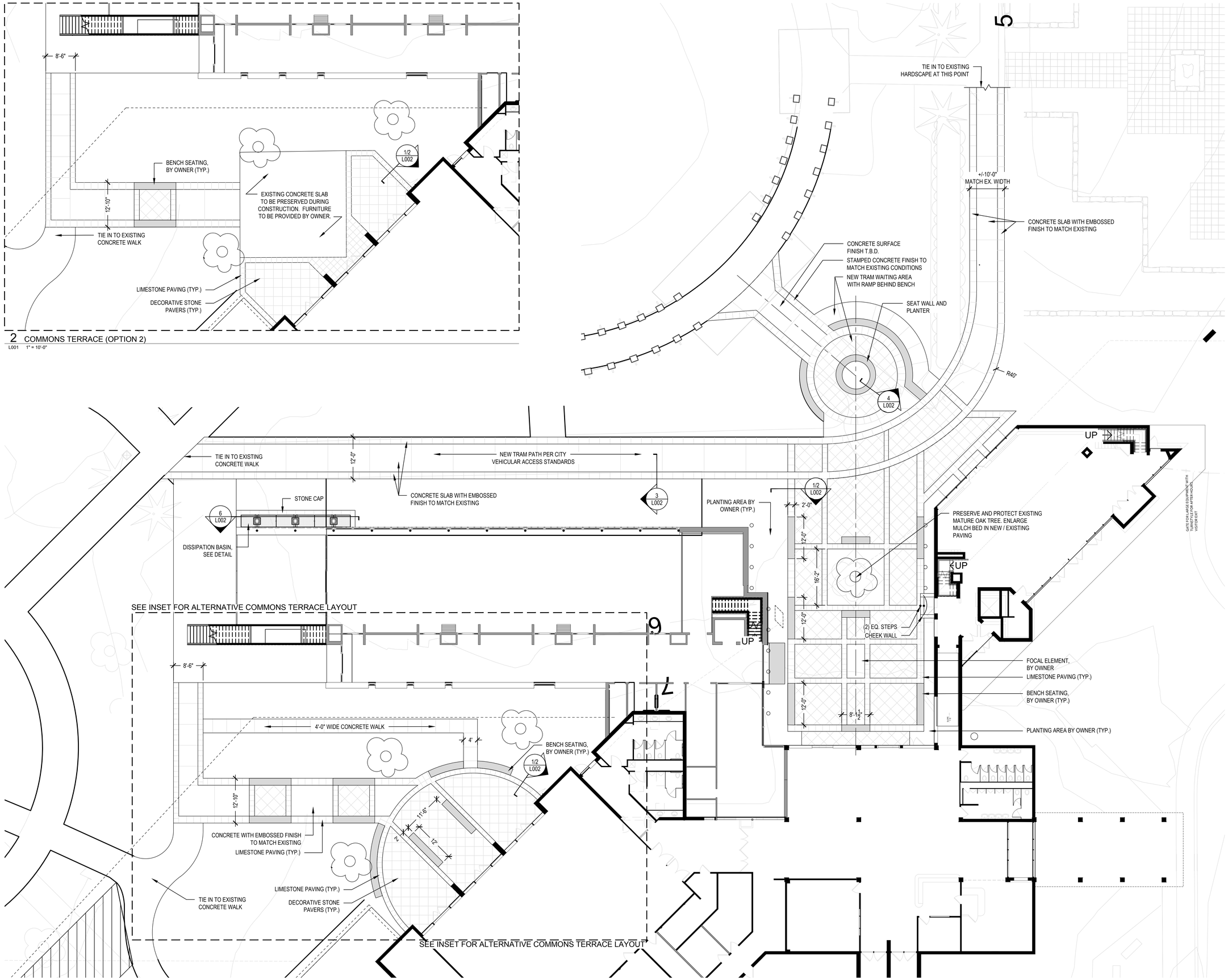
DRAWN BY: MJG

CHECKED BY: RAJ

LEARNING CENTER LIGHTING PLAN

E101

2 COMMONS TERRACE (OPTION 2)
L001 1" = 10'-0"



1 HARDSCAPE PLAN
L001 1" = 10'-0"

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ARCHITECT SEAL

Signature: _____
Print Name: _____
Date: _____ License No: _____

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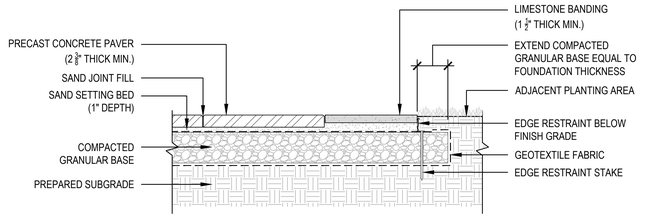
PROJECT NO. 2017016

PROJECT PHASE DESIGN DEVELOPMENT

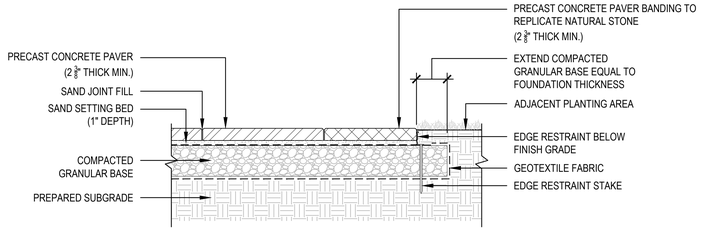
DRAWN BY: KSD
CHECKED BY: KSD

HARDSCAPE PLAN

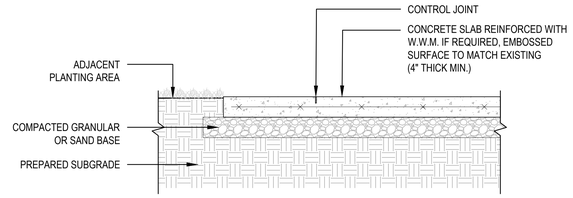
L001



1 COURTYARD PAVING DETAIL (OPTION 1)
L002 1" = 1'-0"



2 COURTYARD PAVING DETAIL (OPTION 2)
L002 1" = 1'-0"



3 TRAM PATH PAVING DETAIL
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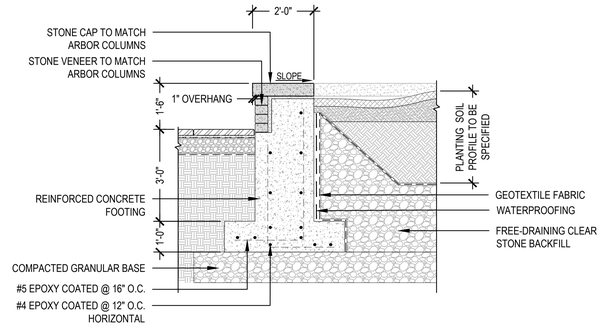
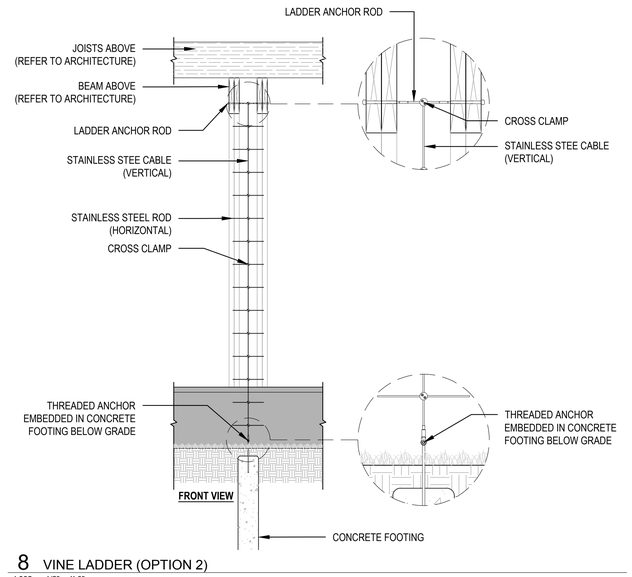


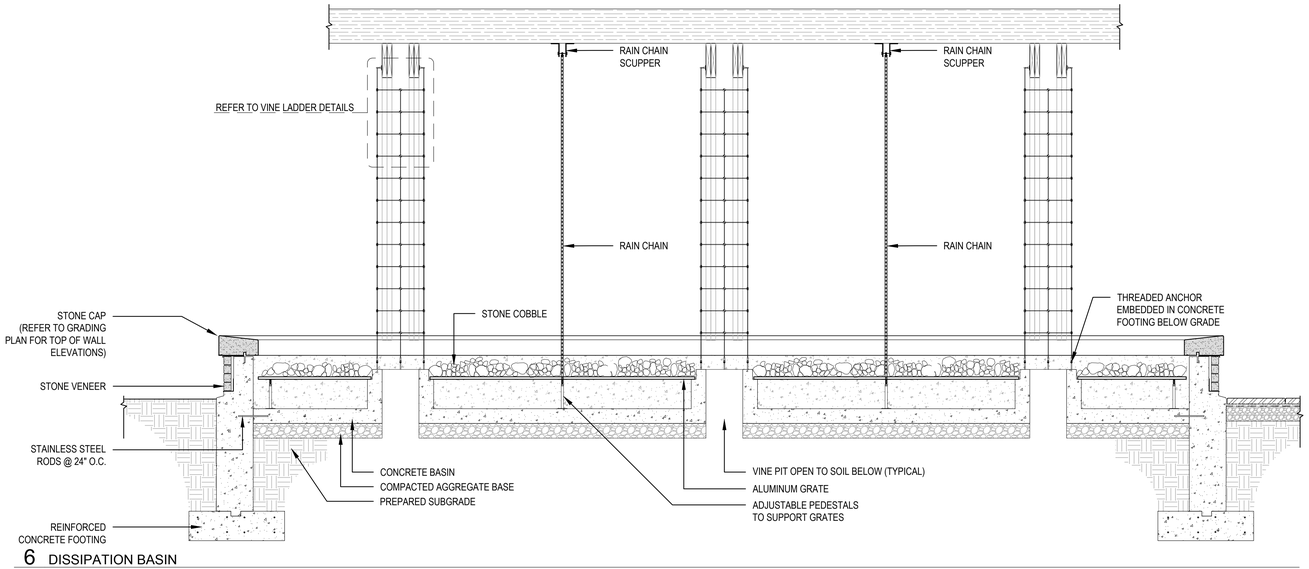
4 SEAT WALL AND PLANTER DETAIL
L002 1/2" = 1'-0"

DETAIL OMITTED

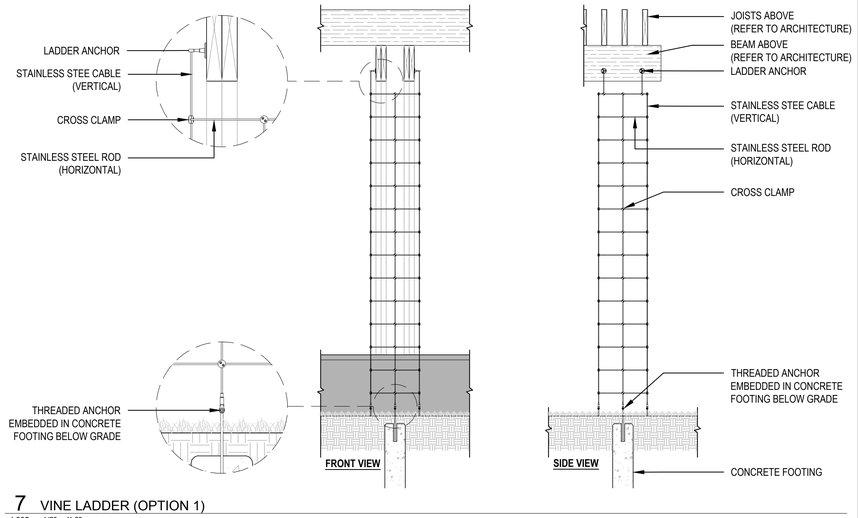
5 DISSIPATION BASIN
L002 1/2" = 1'-0"



8 VINE LADDER (OPTION 2)
L002 1/2" = 1'-0"



6 DISSIPATION BASIN
L002 1/2" = 1'-0"



7 VINE LADDER (OPTION 1)
L002 1/2" = 1'-0"

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PROJECT NO.
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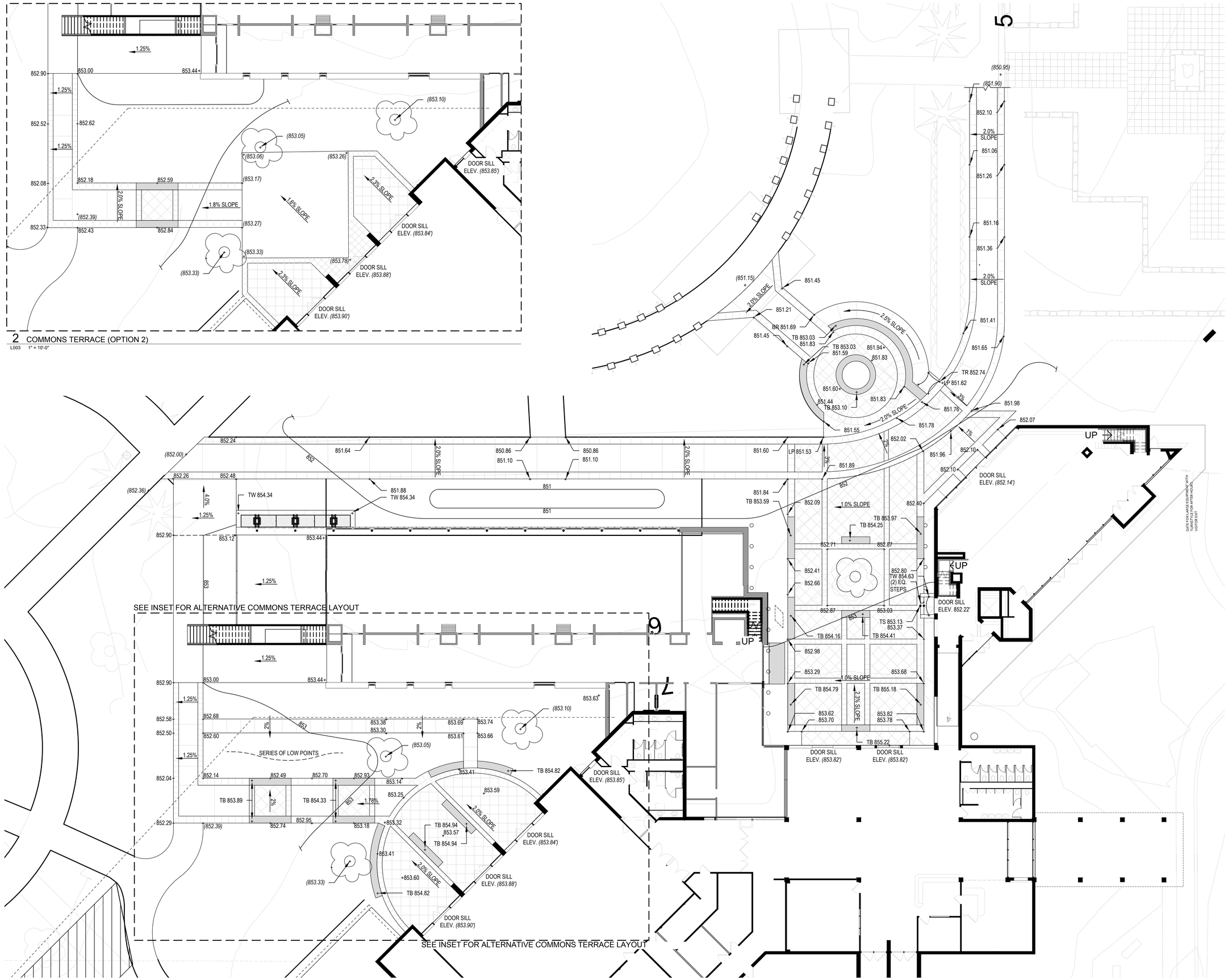
PROJECT PHASE
DESIGN DEVELOPMENT

DRAWN BY: KSD
CHECKED BY: KSD

HARDSCAPE DETAILS

L002

2 COMMONS TERRACE (OPTION 2)
L003 1" = 10'-0"



1 GRADING PLAN
L003 1" = 10'-0"

MSR
Architecture Interiors and Urban Design
710 South 2nd Street, 8th Floor
Minneapolis, Minnesota 55401–2282
612 375 0336 tel
612 342 2216 fax
www.msrdesign.com

Civil Engineer
Vierbicher Associates, Inc.
999 Fourier Drive, Suite 201
Madison, WI 53717
608.826.0532 tel

Landscape Architect
Ken Saiki Design, Inc.
1110 South Park
Madison, WI 53715
608.251.3600 tel

Structural Engineer, Technology and A/V
IMEG Corp.
1800 Deming Way, Suite 200
Middleton, WI 53562
608.223.9600 tel

MEP Engineer
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Eagan, MN 55121
651.379.9120 tel

Fire Protection Engineer and Code Consultant
Summit Fire Consulting
575 Minnehaha Ave West
St. Paul, MN 55103
651.251.1880 tel

Greenhouse Design
Rough Brothers, Inc.
5513 Vine Street
Cincinnati, OH 45217
513.242.0310 tel

Olbrich Botanical Gardens Expansion Phase 1

3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Minnesota.
ARCHITECT SEAL

Signature: _____
Print Names: _____
Date: _____ License No: _____

ISSUE

MARK	DATE	DESCRIPTION
	09.29.2017	SCHEMATIC DESIGN SUBMISSION
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

PROJECT NO. 2017016

PROJECT PHASE DESIGN DEVELOPMENT

DRAWN BY: KSD
CHECKED BY: KSD

GRADING PLAN

L003

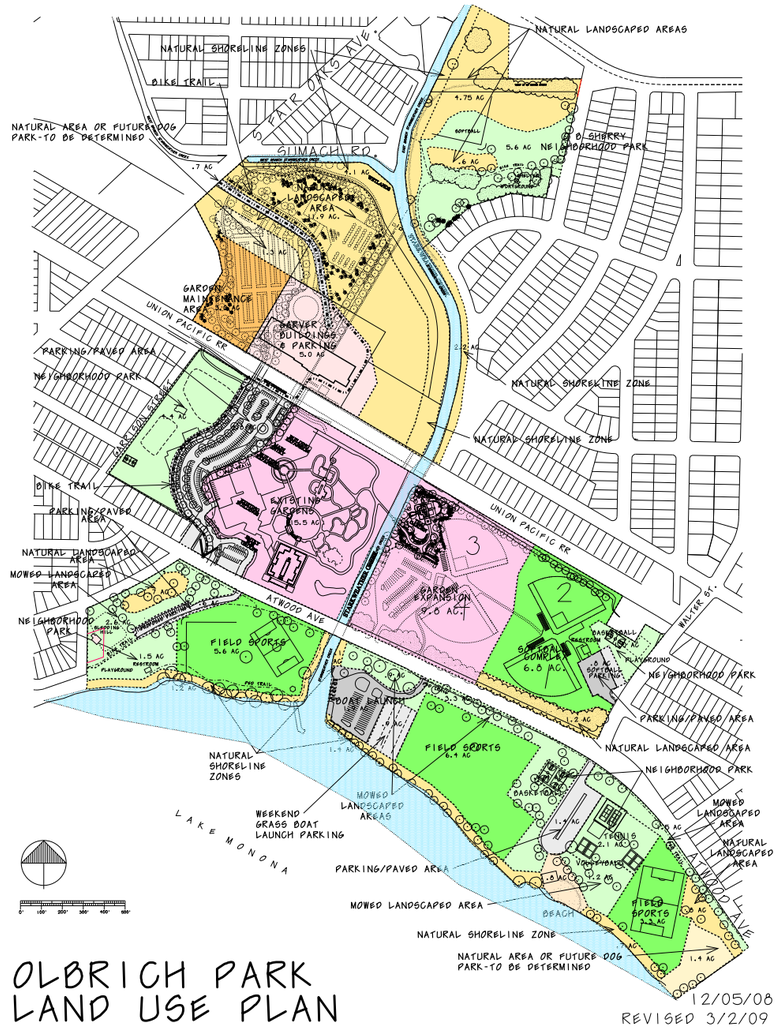
MSR

Olbrich Botanical Gardens
Expansion Phase 1
Urban Design Commission Final Submission
17 January 2018

context

greater site context

neighboring land use plan



transit links

Aspects of the site context emphasized during the preliminary planning phases include the following:

- The subsurface conditions will be unpredictable and likely poor for foundation bearing based on previous site uses. The City is in the process of carrying out ground investigations and borings in the zones of expansion to provide more data for the design team to use from schematic design onwards.
- The existing water table is high, being just a few feet below existing grade.
- The site currently manages most roof stormwater by directing it into Starkweather Creek, which leads to Lake Monona. This will need to be changed to meet current City of Madison storm water management ordinances from facility expansion phases beyond Phase 1. Most surface stormwater is managed on site with rain gardens – new or renovated places in the outdoor gardens has managed hard surface runoff into rain gardens since 2005.
- The local residents have a high regard for the important role OBG fulfills as a feature amenity in the green zone it occupies.
- The transit opportunities for accessing OBG are diverse and frequent. However, there is no weekend bus service without walking from Fair Oaks Avenue, so current transit service is not adequate for weekend visitors.

design team and existing facilities plan

design team

Olbrich Botanical Gardens
Olbrich Botanical Society
City of Madison Engineering
City of Madison Parks Department

Consultant Team

Architect and Interiors: MSR Design
- Traci Engel Lesneski, Principal in Charge
- Tom Meyer, Design Architect
- Stephen Bellairs, Project Manager
- Greta Foster, Interior Designer
- Chris Wingate, Design/Sustainability
- Brendan Sapienza, Architect
- Lauren Gardner, Interior Designer.

Landscape Design: Ken Saiki Design
- Ken Saiki, Landscape Architect

Civil: Viebicher Associates, Inc.
- Matt Schreiner, Civil Engineer
- Spencer Christiansen, Civil Engineer

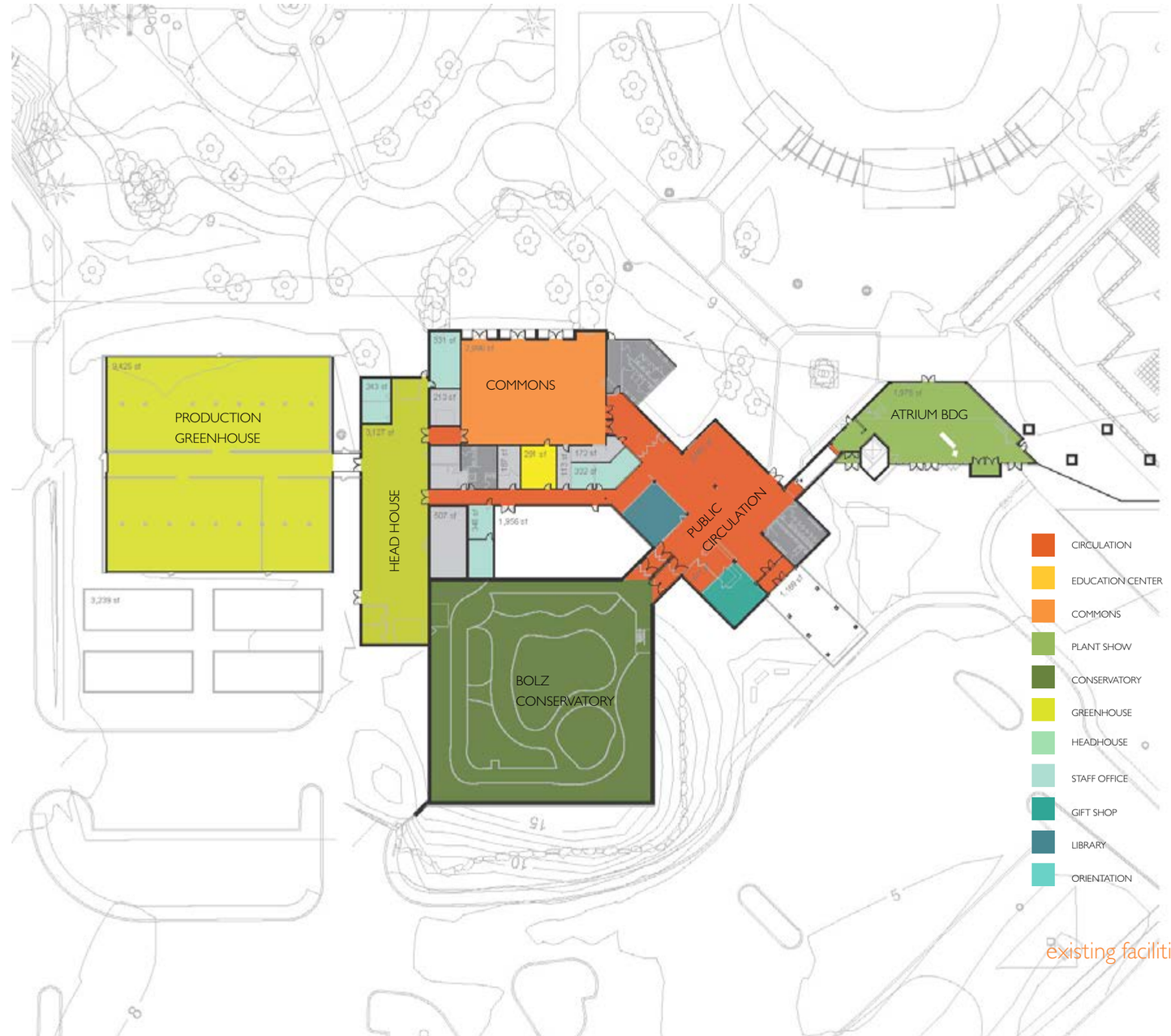
Structural and AV: IMEG Corp
- Abby Pertzborn, PE, Structural Engineer
- Marty Witt, Don Paul, Technology Designers

Mechanical, Electrical, Plumbing: MEP Associates, LLC
- Larry Nemer, Robert Aschenbrenner, PE, Sr. Mechanical Engineers
- Randy Jacobs, Sr. Electrical Engineer

Fire Protection: Summit Fire and Code Consulting., Inc.
- Chris Leaver, Fire Protection Engineer
- Natalie Buckman.

Greenhouse Design: Rough Brothers, Inc.
- Sofia Wick, Greenhouse Consultant

Cost Estimator: Middleton Construction Consulting, Inc.
- Josh Houston, Cost Estimator



existing facilities

existing site and facilities


exterior


exterior


exterior & back of house


courtyard


exterior


exterior

existing site and facilities


exterior entry


public gardens


gardens


exterior


public gardens


bolz conservatory

existing site and facilities


garden


exterior & back of house


headhouse


greenhouse


exterior & back of house


staff area

existing site and facilities


library


catering kitchen


commons


education offices


entry foyer


atrium

02 | project description

phase 1 scope:

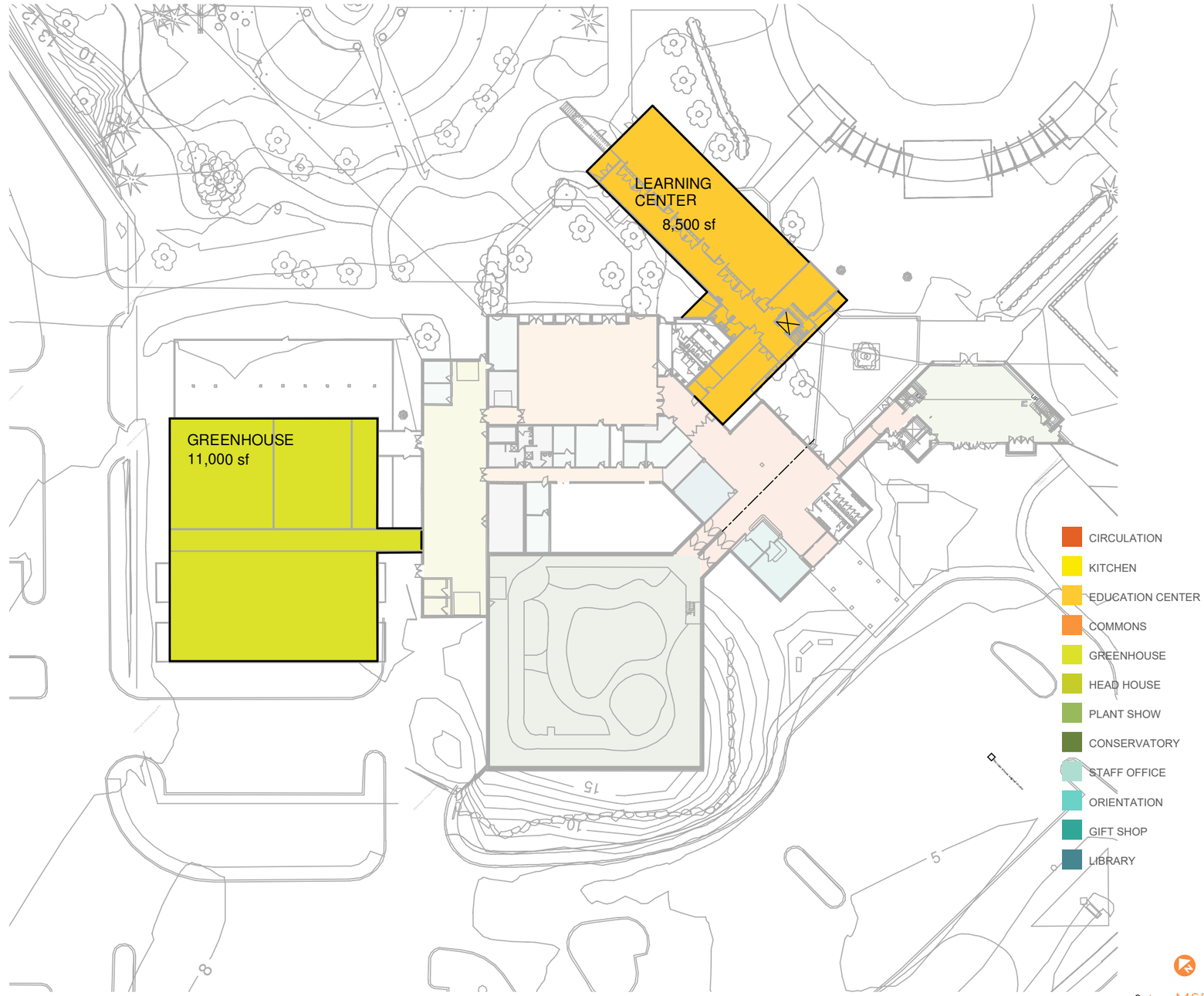
The scope of this project includes a new Learning Center, and replacement of the existing greenhouse with a new greenhouse of similar size. The new greenhouse will be almost identical in size as the existing greenhouse, and located in a similar place (shifted slightly west).

After detailed discussions with all stakeholders involved in the early design process regarding placement of the Learning Center, OBG recommended the location of the Learning Center, per the diagram adjacent, and as a two-story version, for the Design Team to use as a basis for the design for Phase 1.

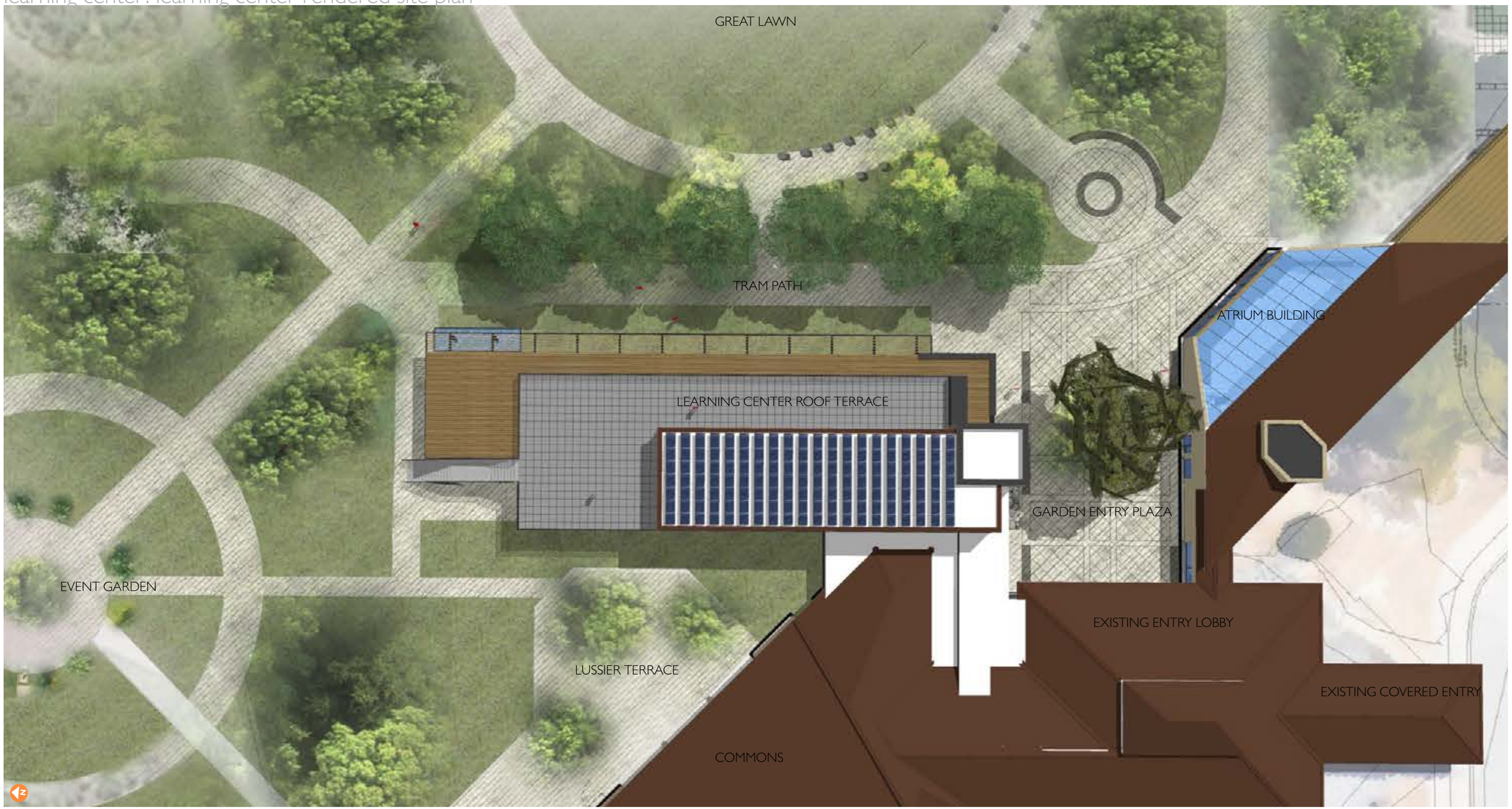
The reasons for this recommendation are as follows:

- Clear circulation to Learning Center from Phase 1.
- Learning Center location close to center of garden showcases OBG's educational mission.
- Learning Center is expandable in the future.
- There is a desire to reduce the footprint by exploring a two-story option.
- Components of the rest of the facility used by Education (Conservatory, Commons, Library) are close to Learning Center.

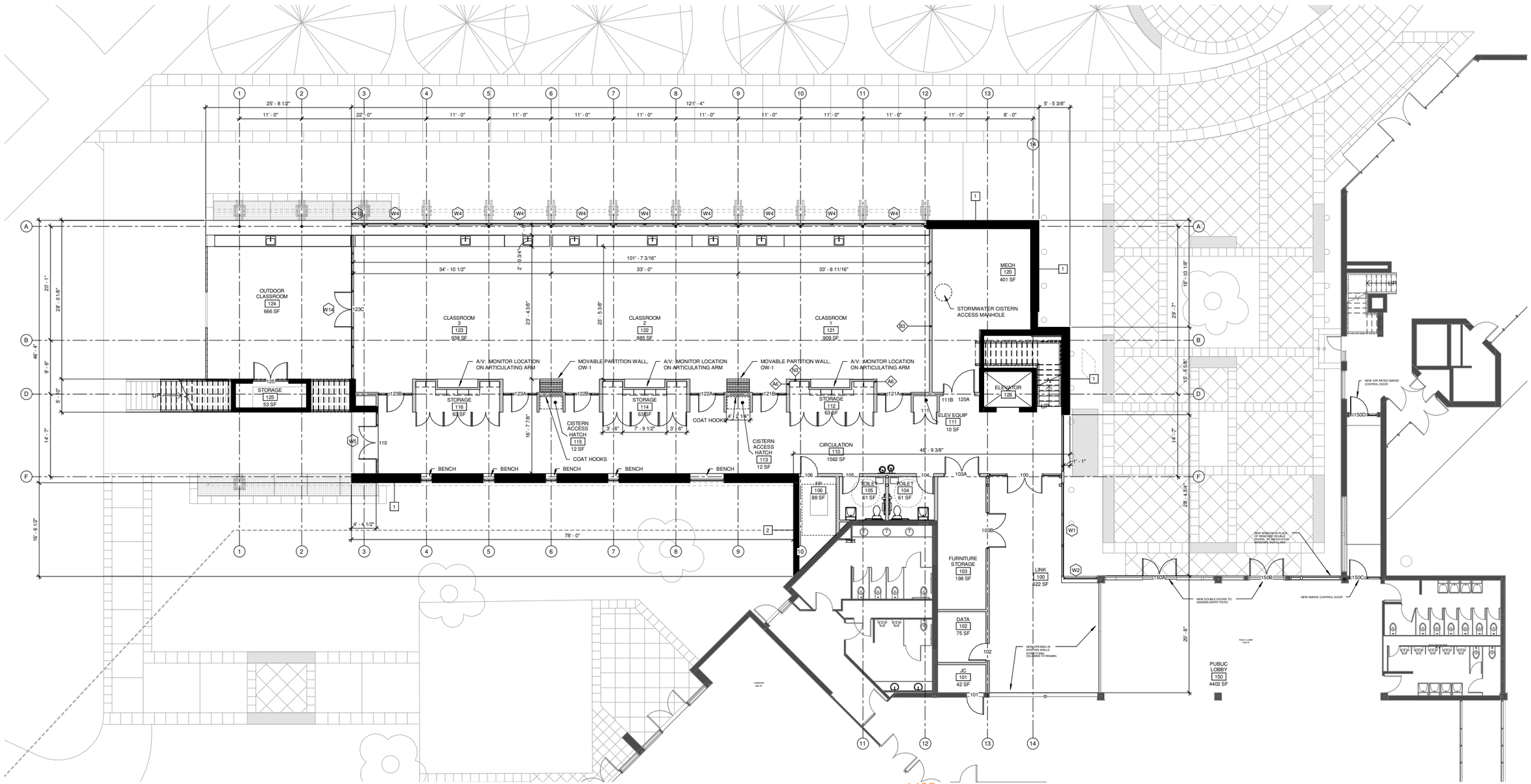
Rough Brothers, Inc., in their role as Greenhouse Design Consultant, took part in detailed discussions with Conservatory and Horticultural staff leadership to develop Options for the size and plan layout of the new Greenhouse for production, tropical plants, and orchids.



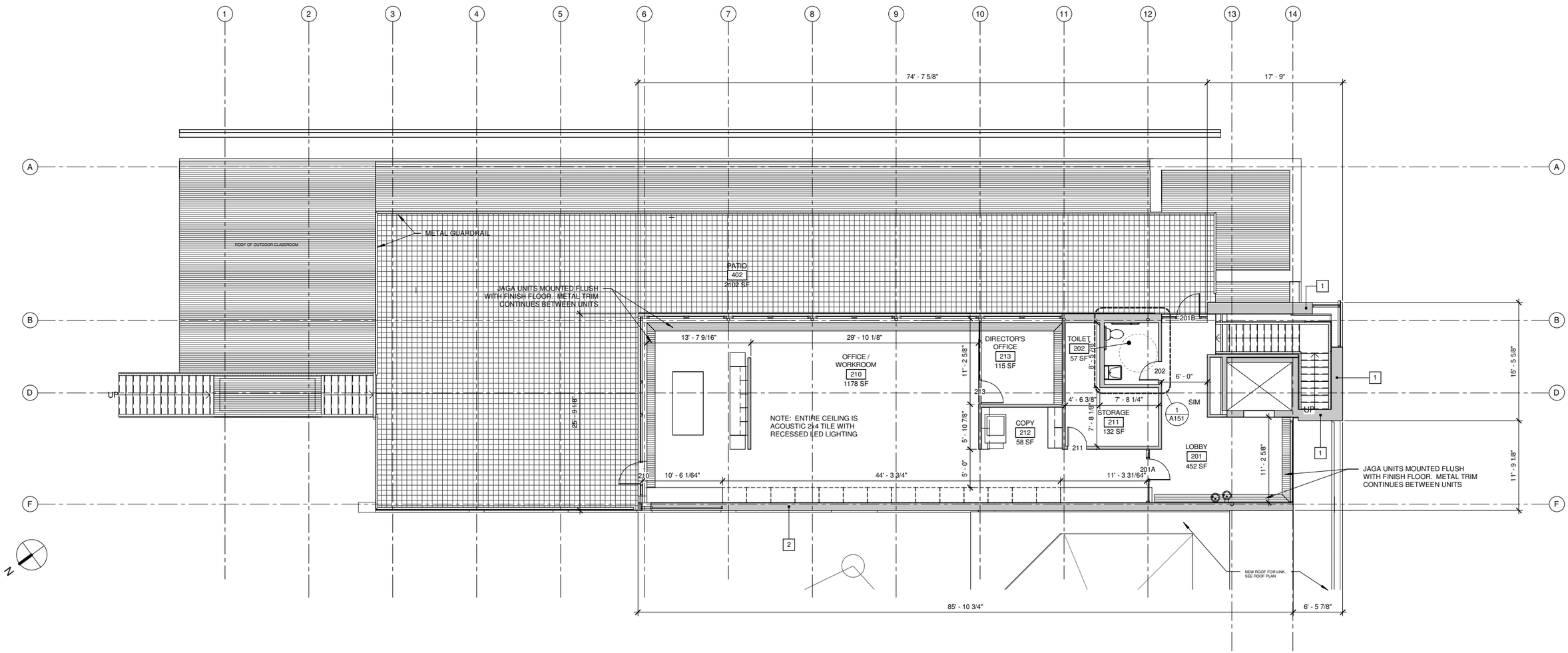
learning center: learning center rendered site plan



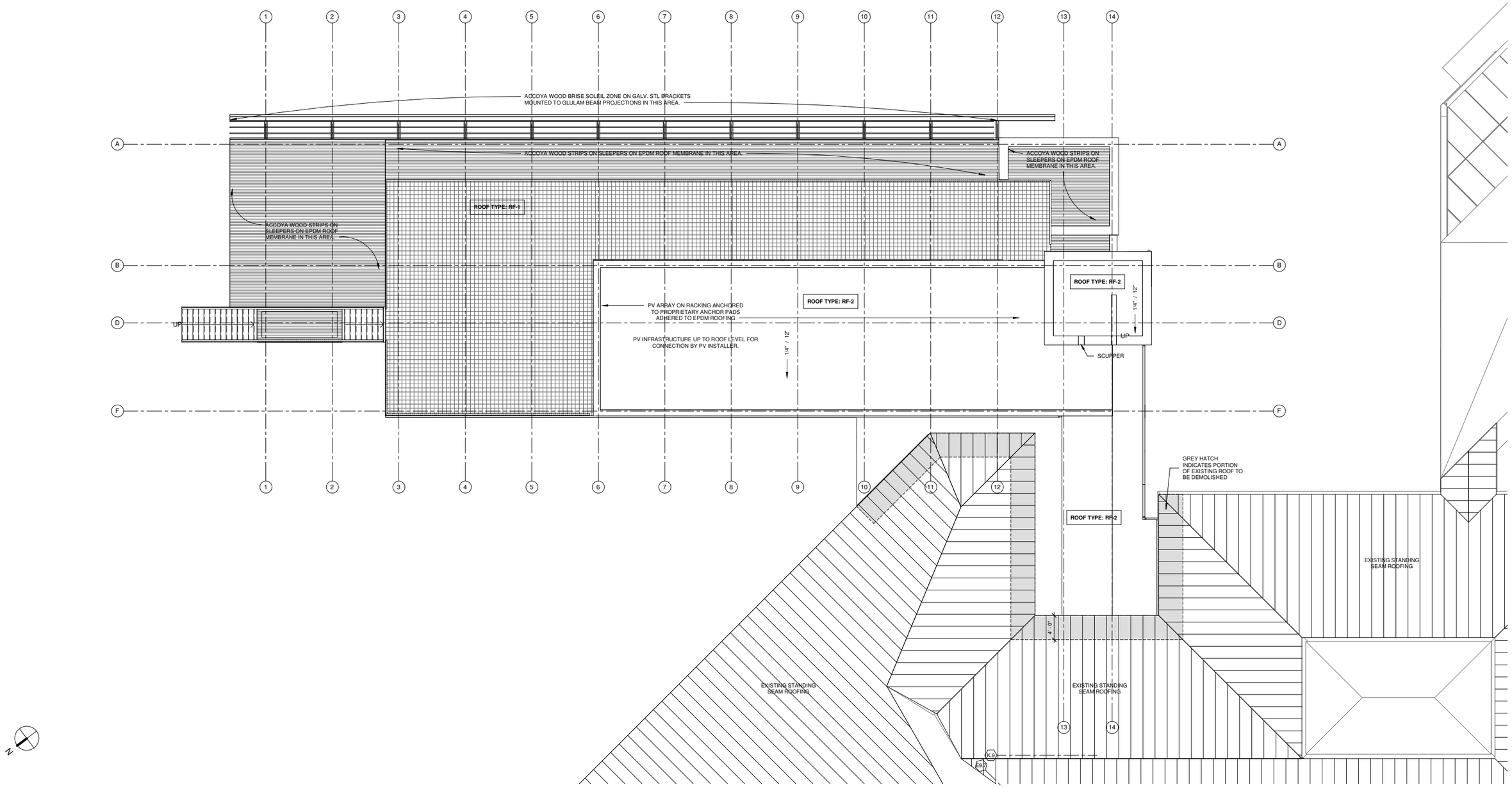
learning center: level 1 plan



learning center: level 2 plan



learning center: roof plan



learning center: east elevation

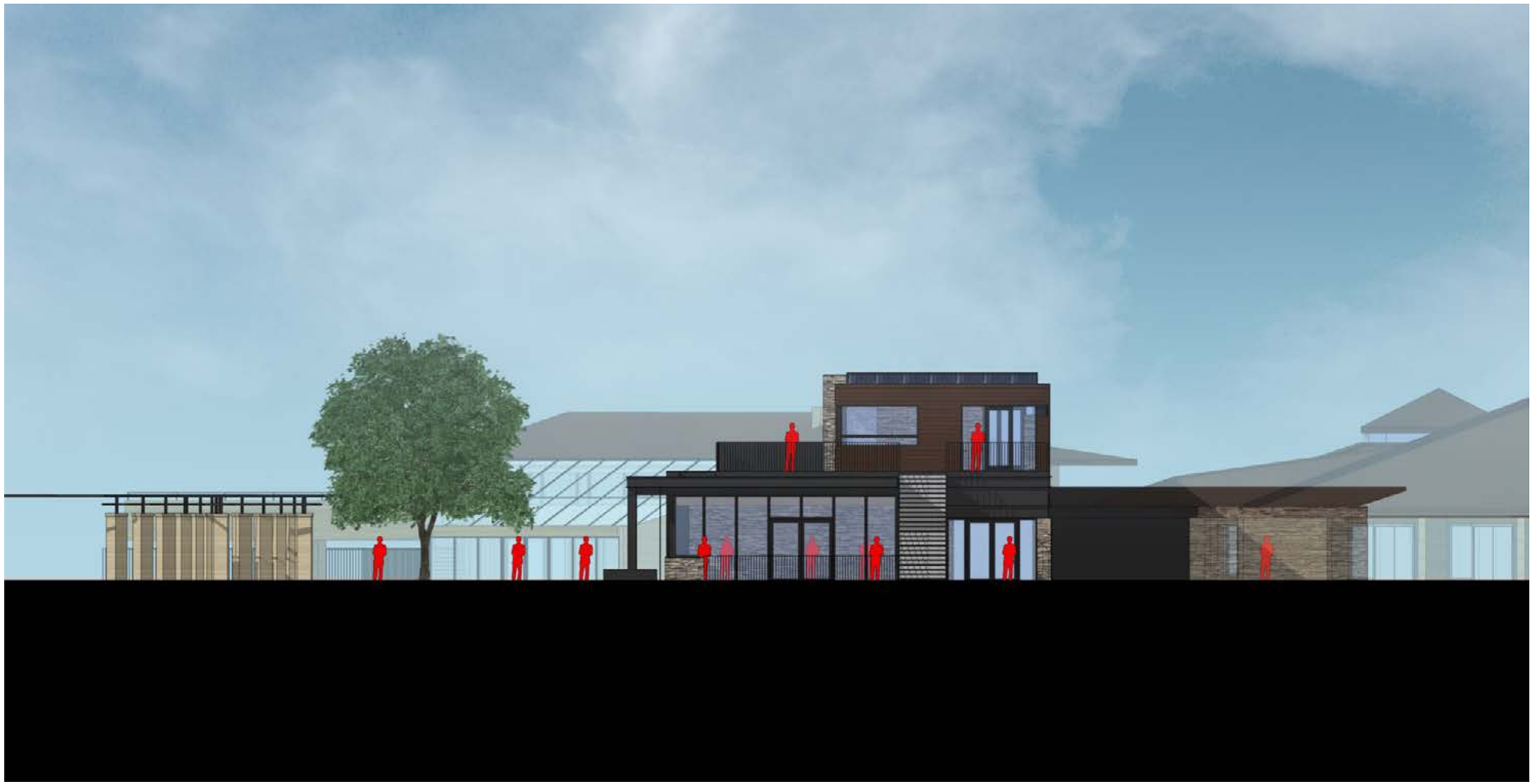
refer to black and white elevations for material codes

learning center: west elevation

refer to black and white elevations for material codes

learning center: north elevation

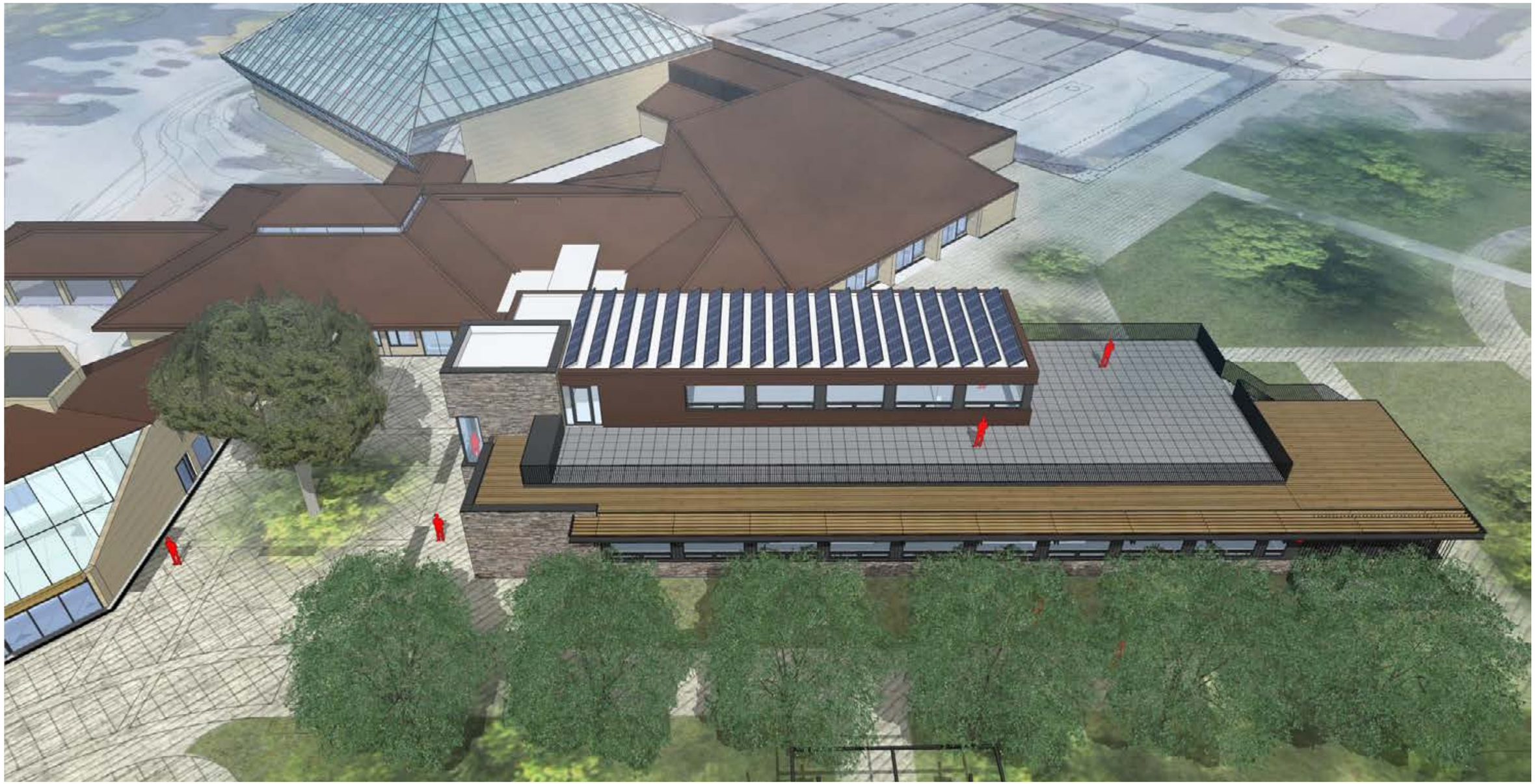
refer to black and white elevations for material codes

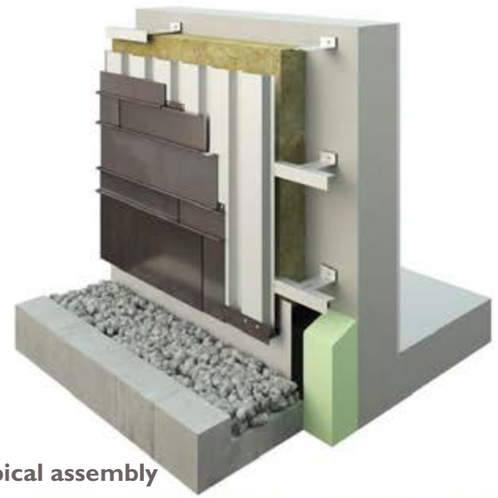


learning center: south elevation

refer to black and white elevations for material codes

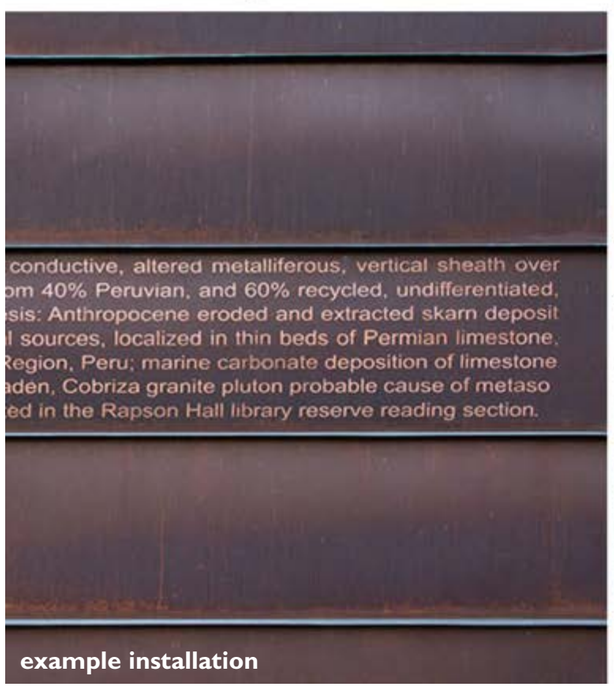
learning center: aerial view from east





typical assembly

example installation



example installation

west elevation excerpt

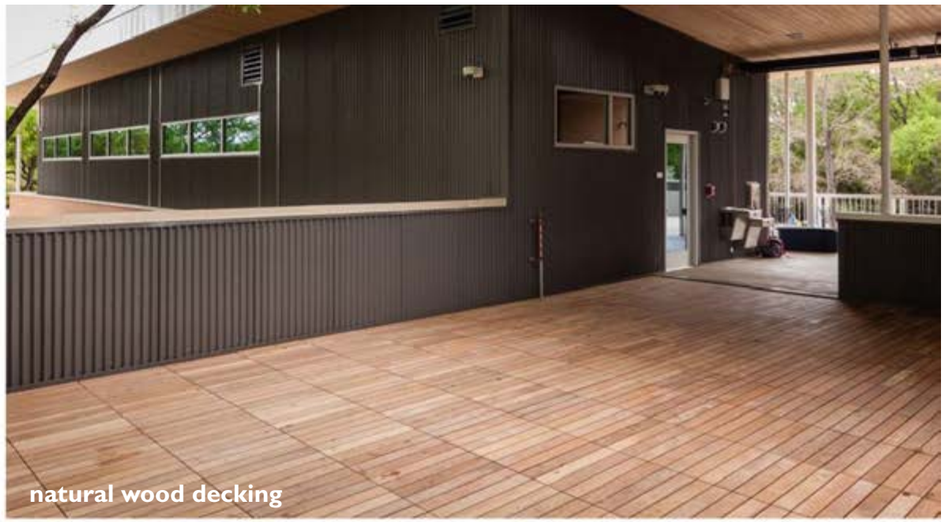

example installation


example installation

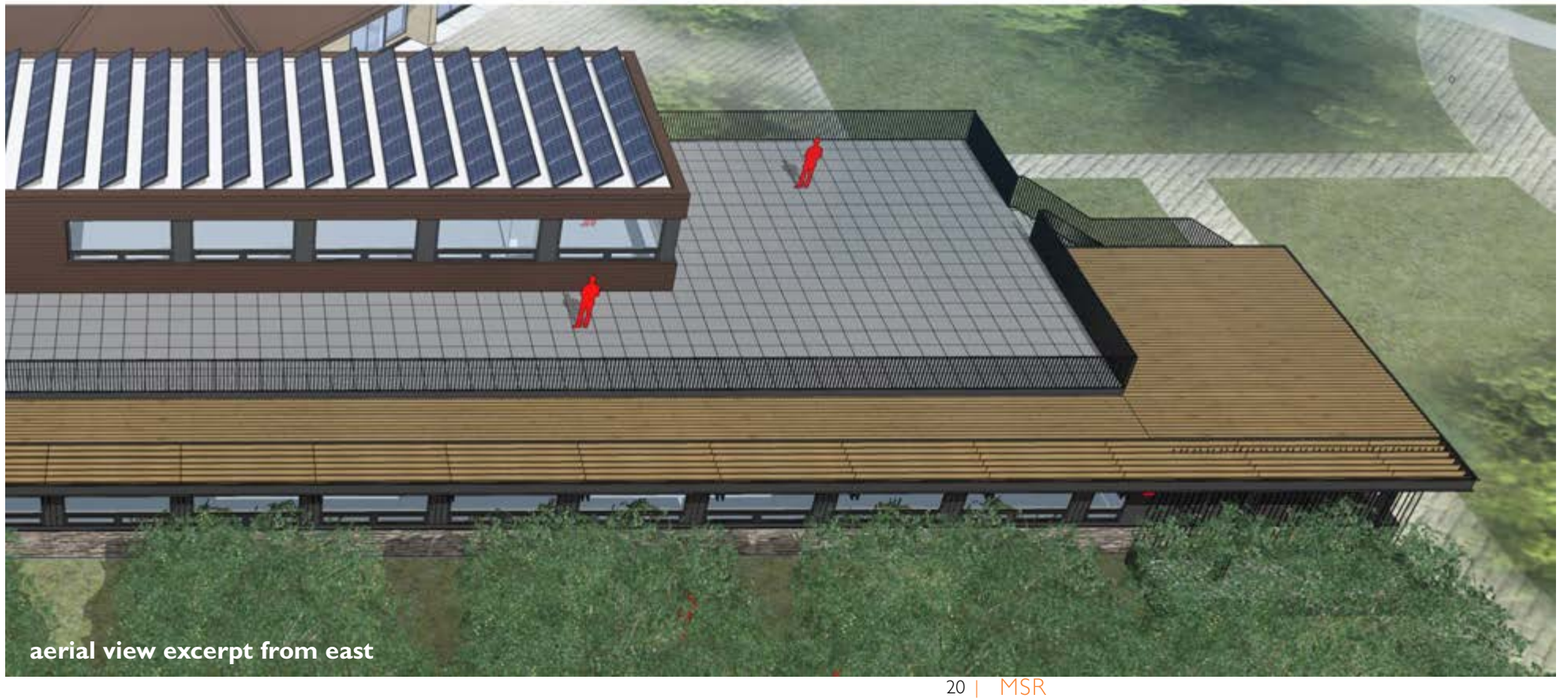

example installation


west elevation excerpt

concrete paver

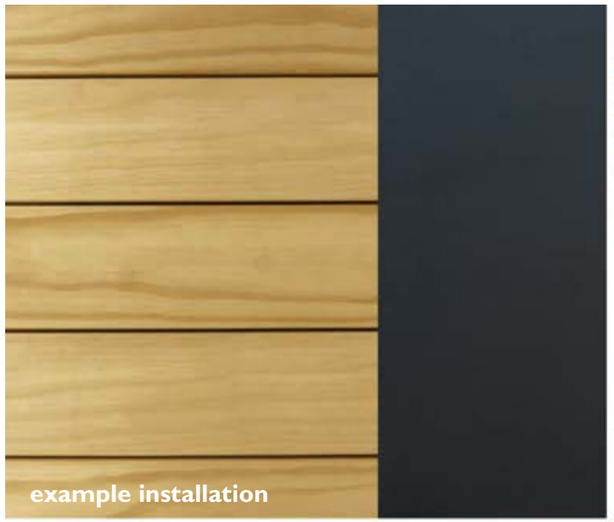


natural wood decking



aerial view excerpt from east

learning center: exterior materials: treated solid accoya wood ceiling to outdoor classroom and to roof edges

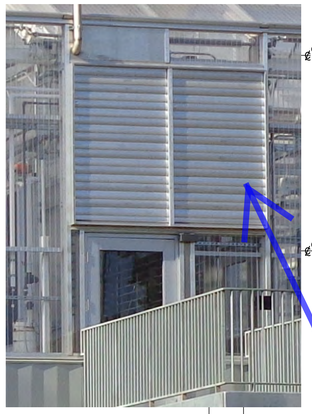


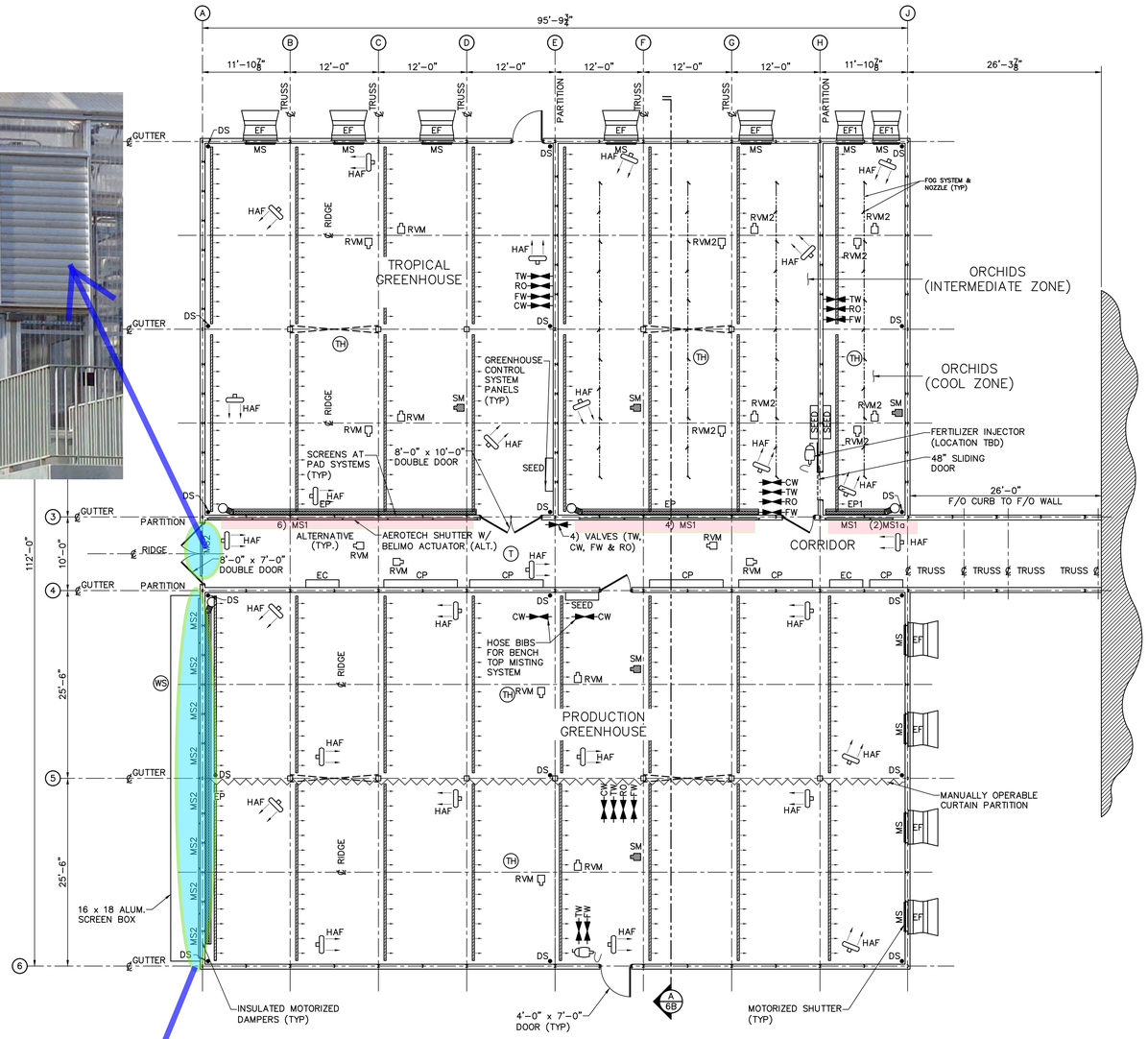
example installation

example installation

north elevation excerpt

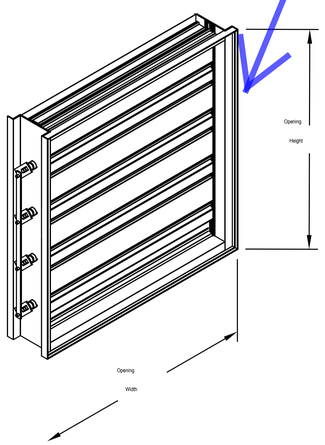
MOTORIZED INSULATED DAMPERS AND ALTERNATE MOTORIZED SHUTTERS

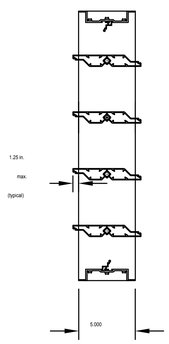




EQUIPMENT PLAN LAYOUT A
SCALE: 1/8"=1'-0"

TRUE PLAN





MS2	9	72" X 72" GREENHECK INSULATED MOTORIZED ALUMINUM SHUTTERS WITH BELIMO ACTUATORS FOR PRODUCTION EVAPORATIVE COOLING PAD SYSTEM AND OVER THE WEST GABLE DOOR	–	120	1	0.28	–

EQUIPMENT ALTERNATES

SYMBOL	QTY.	DESCRIPTION	HP	VOLT	PH	AMP	RPM
MS1	11	72" X 72" MOTORIZED ALUMINUM SHUTTERS EVAP PADS IN COORIDOR WITH BELIMO ACTUATORS	–	120	1	0.28	–
MS1a	2	36" X 36" MOTORIZED ALUMINUM SHUTTERS EVAP PADS IN COORIDOR WITH BELIMO ACTUATORS	–	120	1	0.28	–

Civil Engineer
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Landscape Architect
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608.251.3600 tel

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513.242.0310 tel

Olbrich Botanical Gardens
3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin.
ARCHITECT SEAL

Signature:
Print Names:
Date: License No:

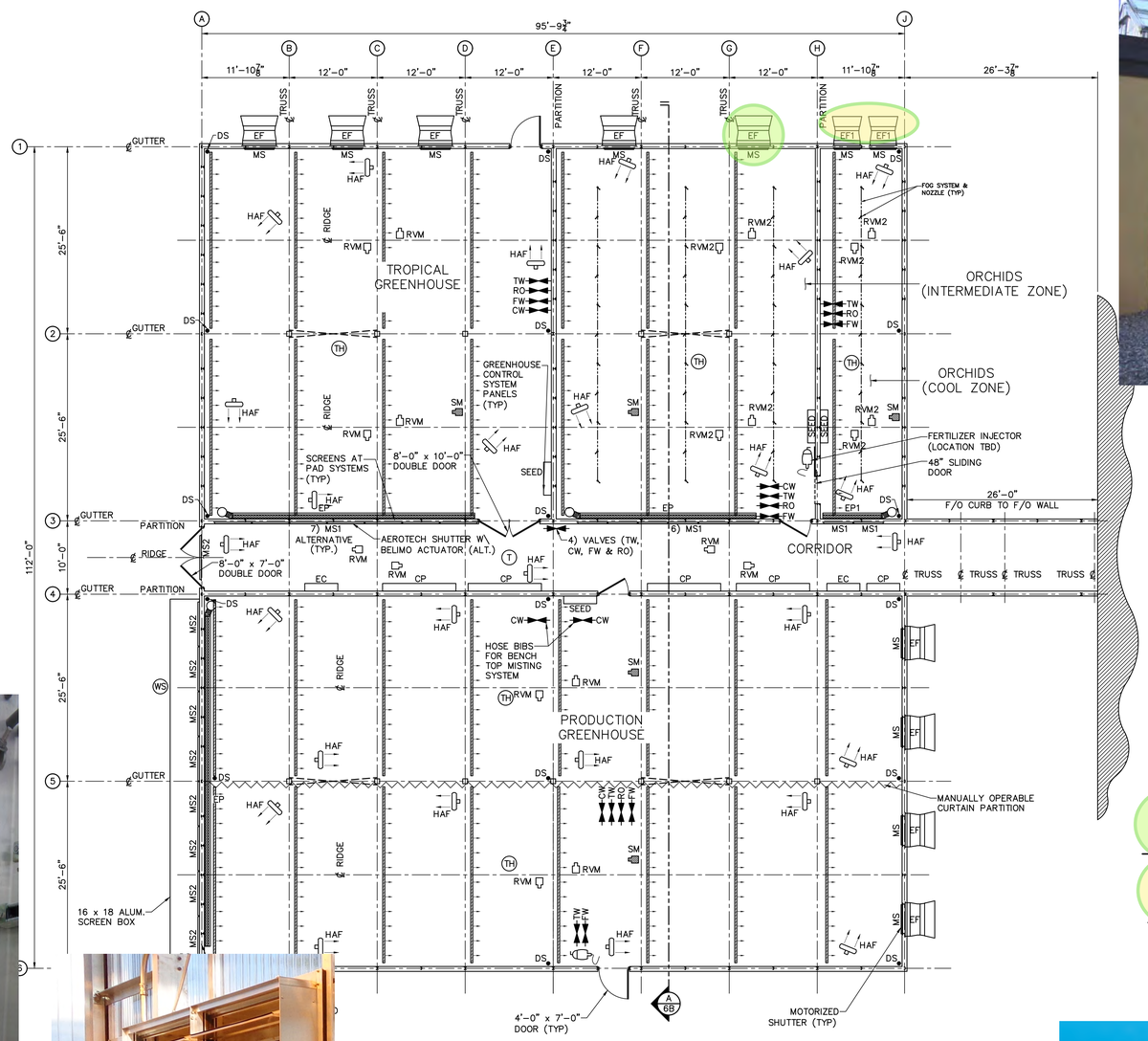
ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 2017016
PROJECT PHASE: SCHEMATIC DESIGN
DRAWN BY: RPE
CHECKED BY: SW

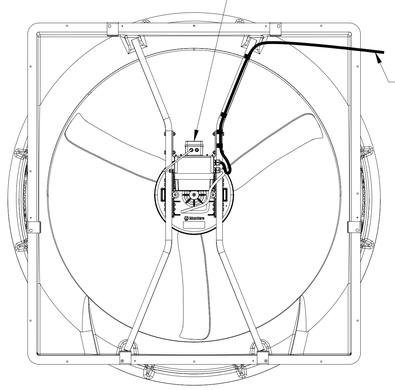
SCHEMATIC GREENHOUSE DESIGN

EXHAUST FANS & SHUTTERS

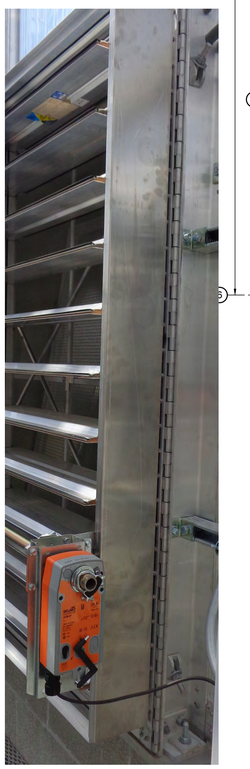


EQUIPMENT PLAN LAYOUT A
SCALE: 1/8"=1'-0"

TRUE PLAN



EF	9	48" MUNTERS DRIVE EXHAUST FAN WITH FIBERGLASS HOUSING, WITH MUNTERS MOTORIZED SHUTTERS; VX48DF21C-224-HR	1½	120	1	0.28	649
EF1	2	36" MUNTERS DRIVE EXHAUST FAN WITH FIBERGLASS HOUSING, WITH MUNTERS MOTORIZED SHUTTERS, VX36DF21C-224-HR	½	120	1	0.28	796
MS	11	AEROTECH MOTORIZED ALUMINUM SHUTTERS AT EXHAUST FANS, SEE EQUIPMENT ALTERNATES TABLE	–	120	1	0.28	–

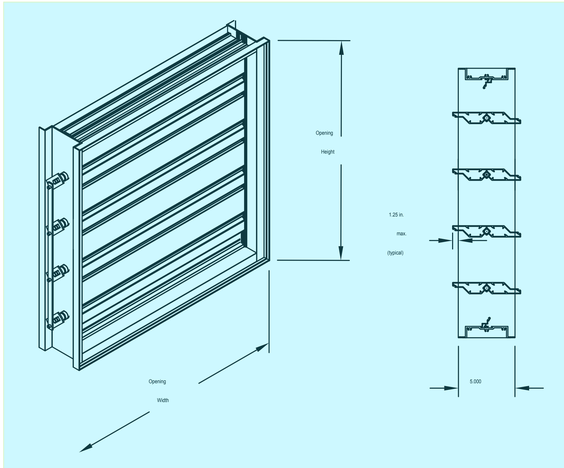


HINGES FOR INSULATED SHUTTERS

EQUIPMENT ALTERNATES

SYMBOL	QTY.	DESCRIPTION	HP	VOLT	PH	AMP	RPM
MS	11	GREENHECK INSULATED MOTORIZED ALUMINUM SHUTTERS WITH HINGES AT EXHAUST FANS	–	120	1	0.28	–
MS1	15	72" X 72" MOTORIZED ALUMINUM SHUTTERS EVAP PADS IN COORIDOR WITH BELIMO ACTUATORS	–	120	1	0.28	–

MUNTERS ALUMINUM SHUTTER



ALTERNATE GREENHECK INSULATED DAMPER

Civil Engineer
Vierbicher Associates, Inc.
999 Fourier Drive, Suite 201
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Landscape Architect
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Signature:
Print Names:
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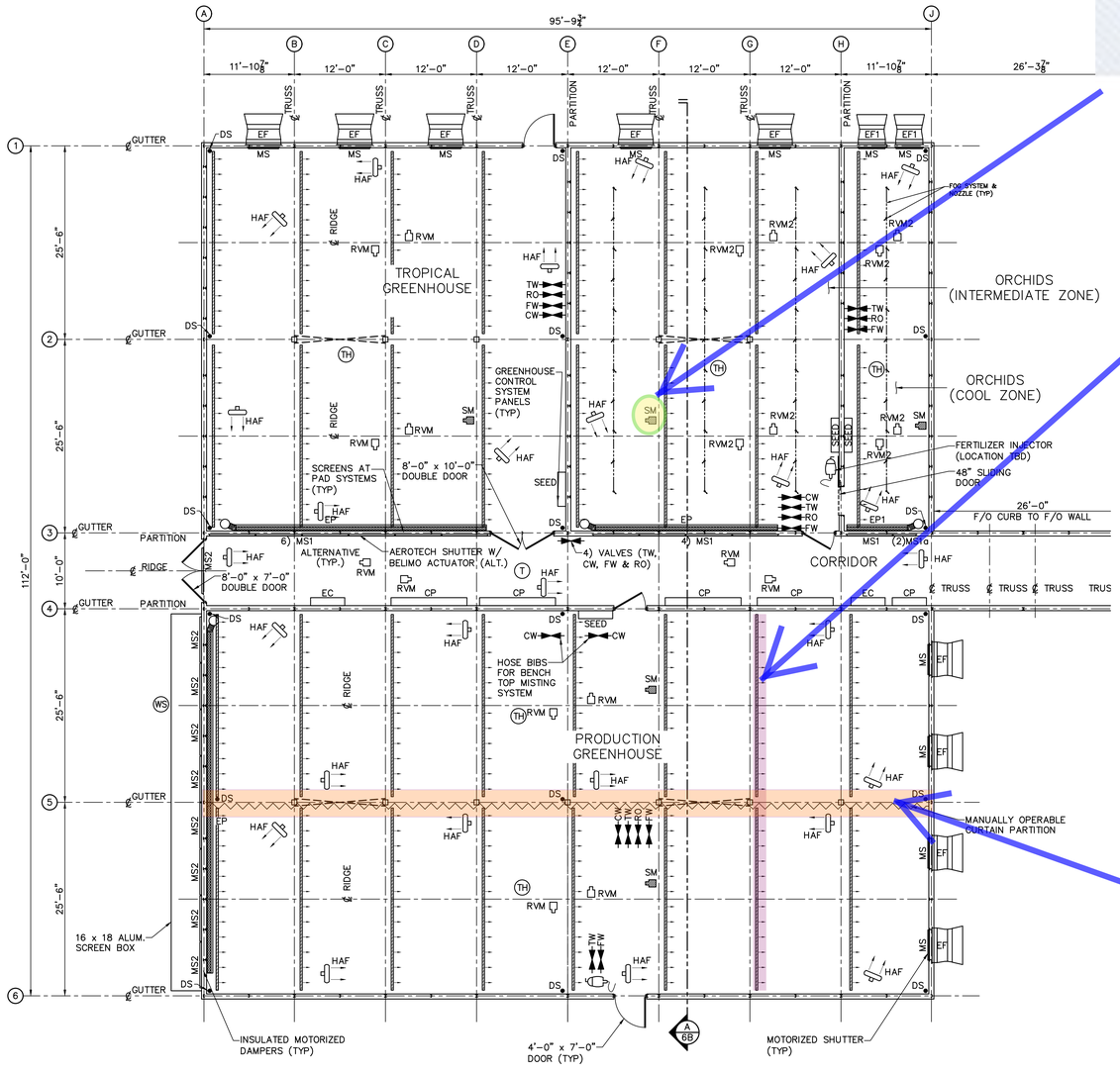
ISSUE

MARK	DATE	DESCRIPTION

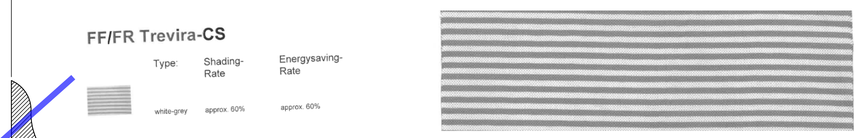
PROJECT NO. 2017016
PROJECT PHASE SCHEMATIC DESIGN
DRAWN BY: RPE CHECKED BY: SW

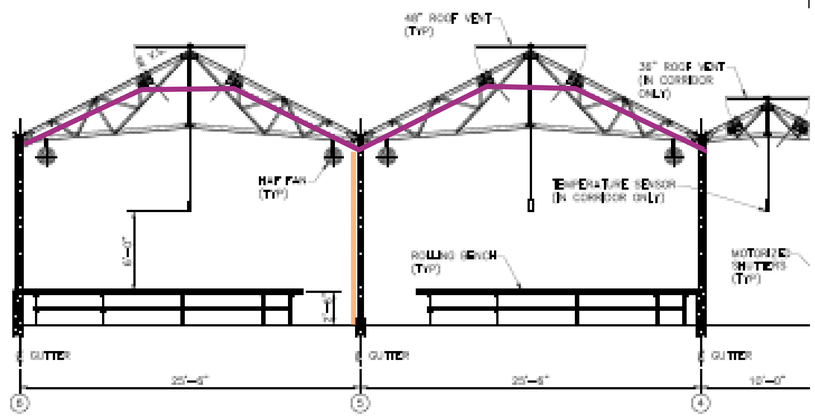
SCHEMATIC GREENHOUSE DESIGN

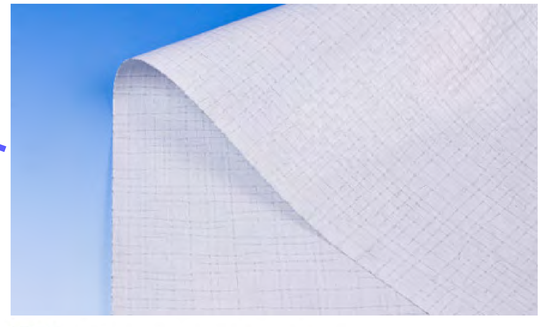
SHADE SYSTEM



SM	5	ROOF SHADE MOTOR, LOCK EWA 10	0.15	120	1	2.4	4.6
	8	MOTORIZED SUSPENDED ROOF SHADE/HEAT RETENTION CURTAIN SYSTEM. FLAME RETARDANT SHADE FABRIC WITH 50%-60% LIGHT REDUCTION FACTOR.	–	–	–	–	–







OBSCURA 10070 R FR W

Product information

Main Function	From light restriction to total blackout
System	Rolling
Material composition	100% Polyolefin
Pattern	Laminated
Flame retardant	Yes
Warranty	Please contact your Svensson representative for warranty information.

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ARCHITECT SEAL

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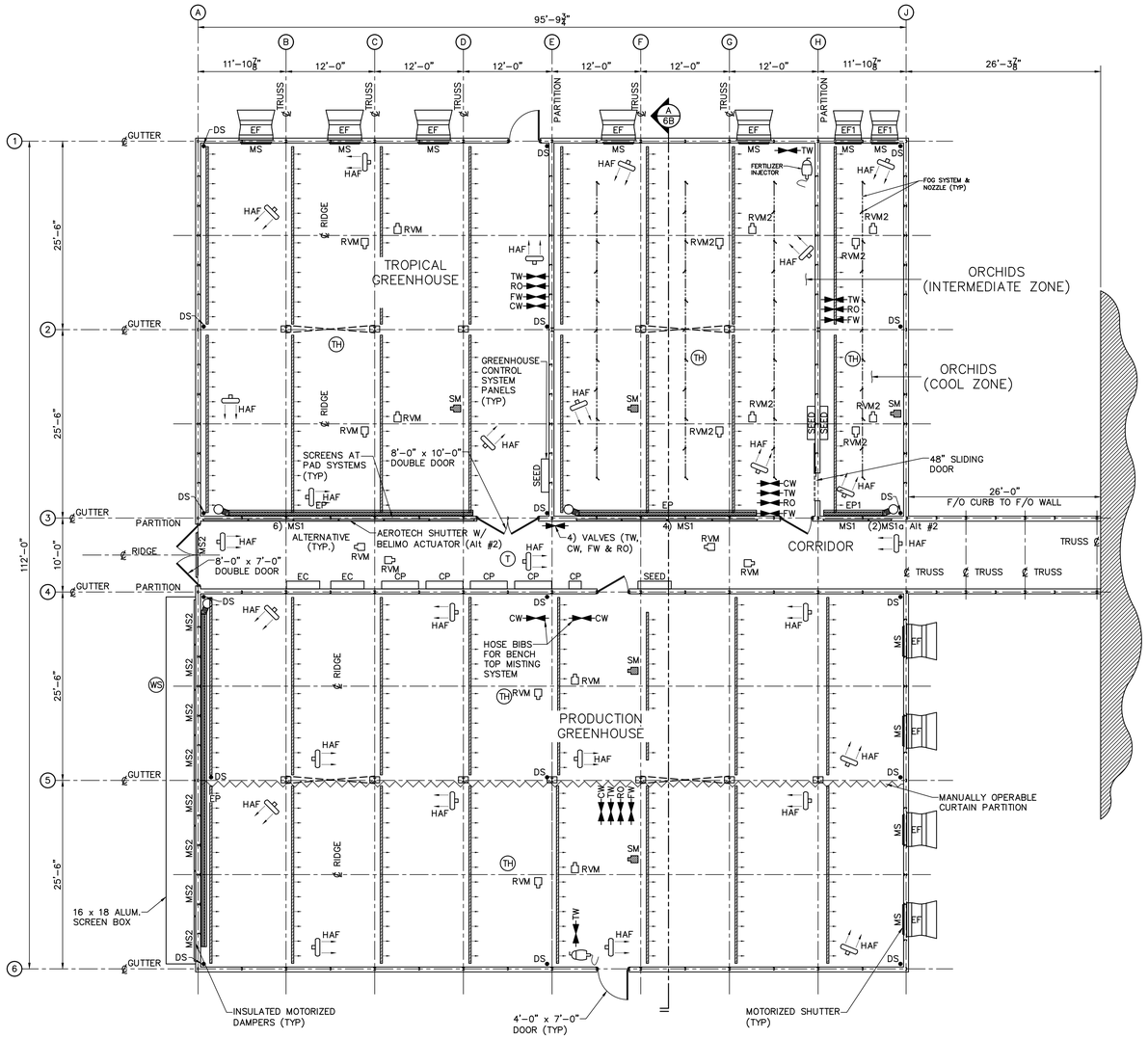
ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO. 2017016
PROJECT PHASE SCHEMATIC DESIGN
DRAWN BY: RPE
CHECKED BY: SW

SCHEMATIC GREENHOUSE DESIGN



EQUIPMENT PLAN LAYOUT A

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

TRUE PLAN

EQUIPMENT SCHEDULE – BASIS OF DESIGN							
SYMBOL	QTY.	DESCRIPTION	HP	VOLT	PH	AMP	RPM
RVM	12	ROOF VENT MOTOR, LOCK EWA 12, WITH OPEN/CLOSE LIMIT SWITCH	0.3	120	1	8.1	3.8
RVM2	8	ROOF VENT MOTOR, LOCK EWA 10, 50 Nm, WITH OPEN/CLOSE LIMIT SWITCH	0.15	120	1	2.4	4.6
SM	5	ROOF SHADE MOTOR, LOCK EWA 10	0.15	120	1	2.4	4.6
	8	MOTORIZED SUSPENDED ROOF SHADE/HEAT RETENTION CURTAIN SYSTEM. FLAME RETARDANT SHADE FABRIC WITH 50%–60% LIGHT REDUCTION FACTOR.	–	–	–	–	–
HAF	27	12" VK12 SCHAEFER HAF FAN	1/10	115	1	1.3	1725
EF	9	48" MUNTERS DRIVE EXHAUST FAN WITH FIBERGLASS HOUSING, WITH MUNTERS MOTORIZED SHUTTERS; VX48DF21C–224–HR	1½	120	1	0.28	649
EF1	2	36" MUNTERS DRIVE EXHAUST FAN WITH FIBERGLASS HOUSING, WITH MUNTERS MOTORIZED SHUTTERS, VX36DF21C–224–HR	½	120	1	0.28	796
MS	11	MOTORIZED ALUMINUM SHUTTERS AT EXHAUST FANS, SEE EQUIPMENT ALTERNATES TABLE (Alt. #1)	–	120	1	0.28	–
MS2	9	72" X 72" GREENHECK INSULATED MOTORIZED ALUMINUM SHUTTERS WITH BELIMO ACTUATORS FOR PRODUCTION EVAPORATIVE COOLING PAD SYSTEM AND OVER THE WEST GABLE DOOR	–	120	1	0.28	–
EP	3	6'–0" TALL EVAPORATIVE COOLING PAD SYSTEM W/ PVC RETURN GUTTER, PLUMBING KIT, RESERVOIR TANK AND SUBMERSIBLE PUMP, TROPICAL AND PRODUCTION SYSTEMS EC:1122 PUMP, SUBMERS (LITTLE GIANT 509207)	4/10	115	1	13.0	–
EP1	1	6'–0" TALL EVAPORATIVE COOLING PAD SYSTEM W/ PVC RETURN GUTTER, PLUMBING KIT, RESERVOIR TANK AND SUBMERSIBLE PUMP, ORCHID SYSTEMS: EC1319; PUMP, SUMBERS (LITTLE GIANT 506610/506801)	⅓	115	1	5.0	–
TH	5	ENVIRONMENTAL CONTROL SYSTEM – ASPIRATED TEMPERATURE/HUMIDITY SENSOR	–	–	–	–	–
T	1	ENVIRONMENTAL CONTROL SYSTEM – TEMPERATURE SENSOR	–	–	–	–	–
WS	1	WEATHER STATION, W/ MAST	–	24	–	–	–
• DS	18	4" DOWNSPOUT PIPING (BY GENERAL CONTRACTOR) ESTIMATED LOCATIONS SHOWN	–	–	–	–	–
	1	MANUALLY OPERABLE CURTAIN PARTITION	–	–	–	–	–
	5	IN SLAB HEATING SYSTEMS – HEAT SUPPLY BY OTHERS. (NOT SHOWN FOR CLARITY)	–	–	–	–	–
F	6	FIN TUBE HEATING SYSTEMS – HEAT SUPPLY BY OTHERS. (NOT SHOWN FOR CLARITY)	–	–	–	–	–
CP	5	GREENHOUSE CONTROL PANELS	–	–	–	–	–
EC	2	ELECTRICAL PANEL (BY ELECTRICIAN)	–	–	–	–	–
SEED	4	SEED INTERFACE PANEL ONLY FOR WADSWORTH SYSTEM	–	–	–	–	–
P	1	FOG PUMP, 0.75 GPM, 1000 psi, LOCATION TBD	¾	120	3	–	1725
	2	FOG ZONE VALVE WITH ZONE CONTROL PANEL, LOCATION TBD	–	24	–	–	–
	––	FOG SYSTEM LINES AND NOZZLES	–	–	–	–	–
	2	FERTILIZER INJECTOR WITH MONITER SYSTEM	–	115	–	–	–

EQUIPMENT NOTES:

1. ALL ELECTRICAL WIRING (LINE & LOW VOLTAGE), CONDUIT, CIRCUIT PANELS, OUTLETS, LIGHTING (NON–HPS) SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. CONDUIT & WIRING TO SUPPLEMENTAL LIGHTING TO BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. ALL PLUMBING WORK SHALL BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR SUCH AS DOWNSPOUTS, FLOOR DRAINS, AND HOSE BIBS.
3. ALL FIRE PROTECTION SHALL BE PROVIDED AND INSTALLED BY OTHERS & ALLOW FOR RIGHT OF WAY FOR SHADE SYSTEM.
4. ROOF SHADE SYSTEM MUST HAVE TRAVEL RIGHT OF WAY. DO NOT MOUNT OR INSTALL LIGHTS, CONDUIT, PIPING, J–BOXES, DISCONNECT SWITCHES OR ANY PIECE OF EQUIPMENT IN ANY WAY THAT WILL INTERFERE WITH THE TRAVEL OF EACH SHADE CURTAIN SYSTEM.
5. SEE SHEET GH6.1 FOR BENCH PLAN.
6. SEED PANEL ONLY REQUIRED FOR WADSWORTH SYSTEM. ARGUS DOES NOT HAVE AN INTERFACE PANEL. SEED PANEL FOR PRODUCTION WILL BE IN CORRIDOR DUE TO HIGH TEMPERATURES DURING "COOKING" OF GREENHOUSE FOR PESTICIDE CONTROL.
7. HWR/HWS TEMP SENSORS AT MAIN CONNECTIONS IN COORIDOR.
8. PAR LIGHT SENSORS IN EACH ZONE (LED LIGHTS BY ELECTRICAL CONTRACTOR).
9. COMPUTER STATION FOR CONTROL SYSTEM SHALL BE PROVIDED BY OTHERS AND LOCATED IN HEAD HOUSE.
10. GREENHOUSE CONTROL SYSTEM SOFTWARE SHALL BE BY MANUFACTURER.
11. ARCHITECT/OWNER TO PROVIDE SEPARATE 115V OUTLETS AND PC & PHONE LINE FOR ALARM DIALER.
12. EVAPORATIVE COOLING SYSTEM REQUIRES SUPPLY LINE WITH MANUAL SHUT OFF VALVE AT EACH TANK AND FLOOR DRAIN BY PUMBING CONTRACTOR.
13. FOG SYSTEM SHALL PROVIDE 50 TO 80% HUMIDITY; 0.54 GPM. RO WATER LINE SHALL BE PROVIDED TO THE FOG PUMP BY PLUMPING CONTRACTOR, ALONG WITH A FLOOR DRAIN.
14. FERTILIZER INJECTOR REQUIRES TEMPERED WATER, BACKFLOW PREVENTER, SHUT OFF VALVE AND 115V OUTLET BY MEP CONTRACTOR.
15. FERTILIZER INJECTOR LINE SHALL BE PROVIDED FROM INJECTOR IN INTERMEDIATE ORCHID ZONE TO COOL ORCHID ZONE FOR HOSE ATTACHMENT BY PLUMBING CONTRACTOR.
16. SUPPLY & RETURN LINES FOR FIN TUBE HEATING SYSTEM SHALL BE BROUGHT INTO THE GREENHOUSE CORRIDOR BY PLUMBING CONTRACTOR WITH A FLANGED CONNECTION AND A BALL VALVE. BOILER BY MECHANICAL CONTRACTOR.
17. RADIANT HEAT SUPPLY SYSTEM TO PROVIDE 2,160,000 BTUH AND 200 GPM OF 160°F WATER TO THE SYSTEM AT –15°F, OUTDOOR TEMPERATURE WITH DELTA T OF 20°F. SYSTEM IS DESIGNED TO ACCOMMODATE 1:1 WATER TEMPERATURE TO OUTDOOR TEMPERATURE RESET RATIO TO 60°F OUTDOOR/90°F HWS.
18. THE DELTA FIN SF 125 FIN TUBE (ALUM. SCHEDULE 40 PIPE WITH 3.25 x 3.25 x 0.025 ALUM. FINS) SHALL SUPPLY APPROXIMATELY 93% OF THE CALCULATED HEAT LOAD. DESIGN FLOW RATE IS APPROXIMATELY 122 GPM.
19. IN–SLAB HEATING SYSTEM SHALL CONSIST OF ½" PEX CROSS LINK POLYETHYLENE TUBING WITH OXYGEN BARRIER INSTALLED ON 12 INCH SPACING 2 INCHES BELOW THE CONCRETE SURFACE. A THREE WAY MIXING VALVE AND PUMP STATION FOR EACH FLOOR HEAT ZONE WILL TEMPER THE WATER DOWN TO 130°F. TUBING SHALL BE ATTACHED TO A COPPER MANIFOLD USING A CRIMP RING. EACH MANIFOLD SHALL BE INSTALLED INTO A STEEL/GALVANIZED BOX IN THE CONCRETE SLAB AND COVERED WITH ALUMINUM DIAMOND PLATE COVER. DESIGN FLOW RATE IS APPROXIMATELY 48 GPM.

ROOM SQUARE FOOTAGE	
ROOM	SQUARE FEET
TROPICAL GREENHOUSE	2,450 +/–
ORCHIDS (COOL ZONE)	605 +/–
ORCHIDS (WARM ZONE)	1,840 +/–
PRODUCTION GREENHOUSE	4,900 +/–

HOSE BIB IDS (WATER SUPPLY BY OTHERS)		
SYMBOL	QTY.	DESCRIPTION
TW	6	TEMPERED WATER
RO	5	REVERSE OSMOSIS WATER
FW	6	FERTILIZED WATER
CW	6	COLD WATER

RADIANT HEATING SYSTEM	
HEATING ZONE	DESCRIPTION
ZONE 1 – TROPICAL DESIGN INSIDE TEMPERATURE: 65°F	(1) MIXING ZONE VALVE WITH PUMP – FLOOR HEAT (2) ZONE VALVE – LOW PERIMETER FIN TUBE (2) ZONE VALVE – UPPER FIN TUBE
ZONE 2 – INTERMEDIATE ORCHID DESIGN INSIDE TEMPERATURE: 62°F	(1) MIXING ZONE VALVE WITH PUMP – FLOOR HEAT (1) ZONE VALVE – UPPER FIN TUBE (1) ZONE VALVE – UPPER FIN TUBE
ZONE 3 – COOL ORCHID DESIGN INSIDE TEMPERATURE: 52°F	(1) MIXING ZONE VALVE WITH PUMP – FLOOR HEAT (1) ZONE VALVE – UPPER FIN TUBE
ZONE 4 – PRODUCTION N DESIGN INSIDE TEMPERATURE: 65°F	(1) MIXING ZONE VALVE WITH PUMP – FLOOR HEAT (1) ZONE VALVE – LOW PERIMETER FIN TUBE (1) ZONE VALVE – UPPER FIN TUBE
ZONE 5 – PRODUCTION S DESIGN INSIDE TEMPERATURE: 42°F	(1) MIXING ZONE VALVE WITH PUMP – FLOOR HEAT (1) ZONE VALVE – LOW PERIMETER FIN TUBE (1) ZONE VALVE – UPPER FIN TUBE
ZONE 6 – CORRIDOR DESIGN INSIDE TEMPERATURE: 65°F	(1) ZONE VALVE – UPPER FIN TUBE

EQUIPMENT ALTERNATES							
SYMBOL	QTY.	DESCRIPTION	HP	VOLT	PH	AMP	RPM
MS	11	Alt. #1, GREENHECK INSULATED MOTORIZED ALUMINUM SHUTTERS WITH HINGES AT EXHAUST FANS	–	120	1	0.28	–
MS1	11	Alt. #2, 72" X 72" MOTORIZED ALUMINUM SHUTTERS EVAP PADS IN COORIDOR WITH BELIMO ACTUATORS	–	120	1	0.28	–
MS1a	2	Alt. #2, 36" X 36" MOTORIZED ALUMINUM SHUTTERS EVAP PADS IN COORIDOR WITH BELIMO ACTUATORS	–	120	1	0.28	–

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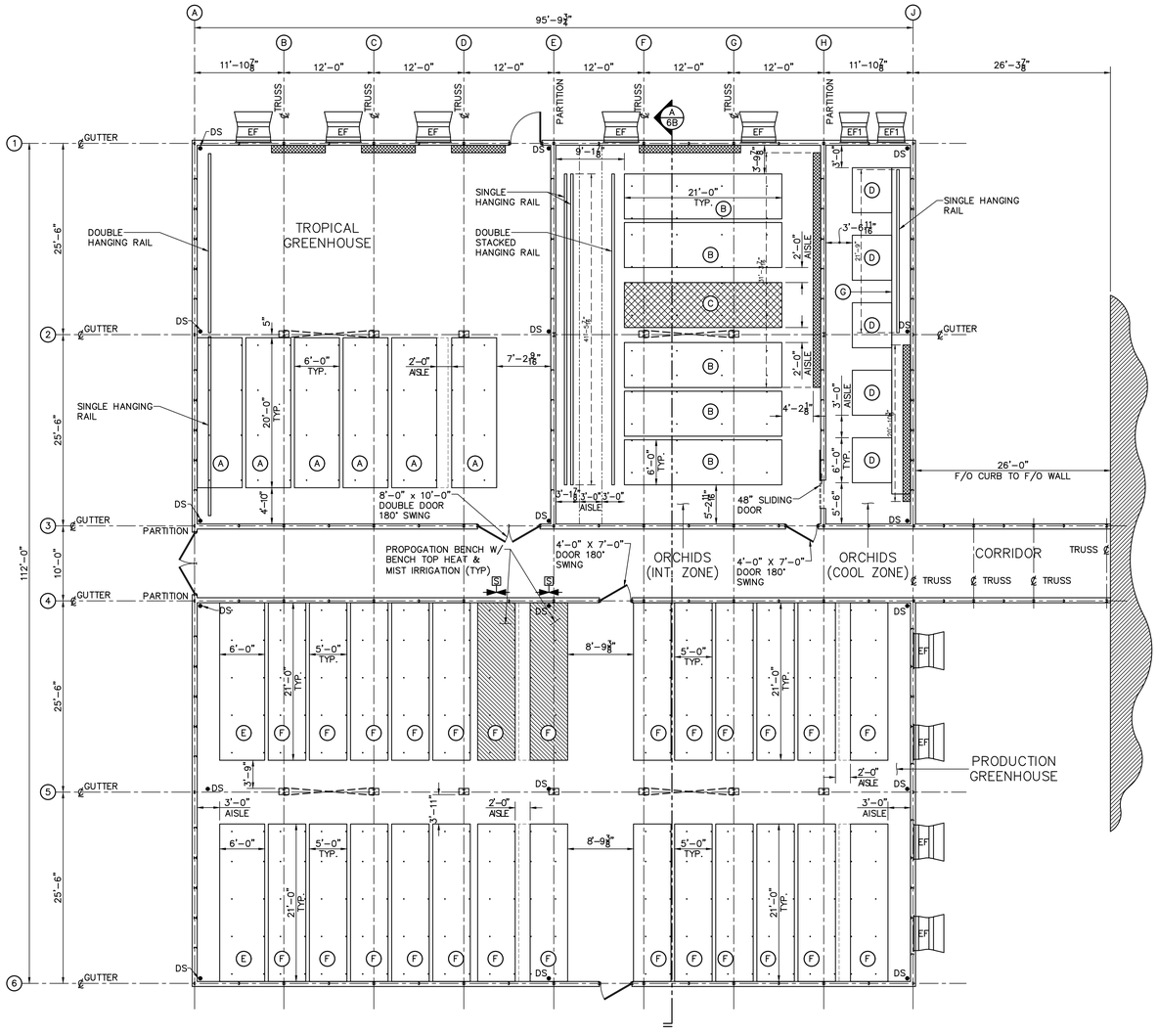
PROJECT NO: 2017016
PROJECT PHASE: DESIGN DEVELOPMENT
DRAWN BY: TLB
CHECKED BY: SW

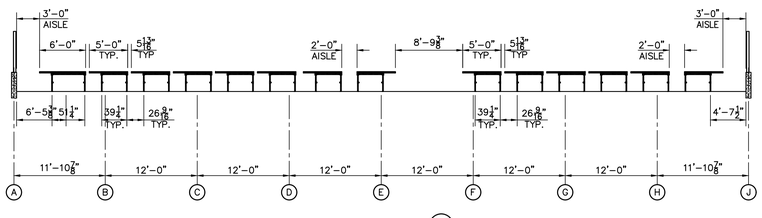
GREENHOUSE EQUIPMENT PLAN

GH6



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

TRUE PLAN



BENCH SECTION (A)
IN PRODUCTION GREENHOUSE

IRRIGATION SCHEDULE							
SYMBOL	QTY.	DESCRIPTION	HP	VOLT	PH	AMP	RPM
S	2	3/4" SOLENOID VALVE	–	24	–	–	–

BENCH SCHEDULE					
I.D.	QTY.	DESCRIPTION	LENGTH	WIDTH	HEIGHT
A	6	RO-FLO ROLLING BENCH WITH CAST CORNERS	20'-0"	6'-0"	2'-6"
B	5	RO-FLO ROLLING BENCH WITH CAST CORNERS	22'-0"	6'-0"	2'-6"
C	1	RO-FLO ROLLING BENCH WITH CAST CORNERS. ***THIS BENCH TO HAVE BENCH TOP HEATING SYSTEM***	22'-0"	6'-0"	2'-6"
D	5	RO-FLO STATIONARY BENCH WITH CAST CORNERS	6'-0"	5'-3"	2'-6"
E	2	RO-FLO ROLLING BENCH WITH CAST CORNERS	21'-0"	6'-0"	2'-6"
F	26	RO-FLO ROLLING BENCH WITH CAST CORNERS	21'-0"	5'-0"	2'-6"
G	1	RO-FLO STATIONARY BENCH WITH CAST CORNERS	43'-6"	2'-6"	2'-6"

BENCH NOTES:

1. PROPAGATION MIST SYSTEM ESTIMATED FLOW RATE FOR EACH BENCH IS 14GPM.
2. BENCH TOP HEATING SYSTEM SHALL BE AN EPDM SYSTEM MOUNTED TO THE BOTTOM OF THE BENCH WITH HIGH QUALITY EPDM RUBBER TUBING AND RIGID PLASTIC SPACERS. ALL RUBBER TUBING SHALL CONNECT INTO AN ONE-INCH SCH 80 PVC PIPE MANIFOLDS.
3. HOT WATER SUPPLY TEMPERATURE TO BE 135°F WITH TOTAL 1.0 GPM FOR ALL THREE BENCHES.
4. HEAT LOAD FOR THE PRODUCTION ZONE BENCHES IS TO BE AT 15,750 BTUH AND 13,000 BTUH FOR INTERMEDIATE ORCHID ZONE BENCH.
5. HEAT SOURCE AND SUPPLY AND RETURN HEATING WITH 3/4" MTHD STUB OUTS WITH CAPS FOR CONNECTION TO EACH BENCH SHALL BE BY THE MECHANICAL CONTRACTOR.

PLANT ACCESSORIES SCHEDULE	
APPROX. LENGTH	DESCRIPTION
27'	WALL MESH – TROPICAL
65'	WALL MESH – ORCHID
96'	HANGING RAIL – TROPICAL
190'	HANGING RAIL – ORCHID

NOTES:

1. PLANT HANGING RAILS AT BENCH TO BE 50" ABOVE BENCHES.
2. PLANT HANGING RAILS ARE TO BE 60" ABOVE FF X 12" FROM THE WALL AND 92" ABOVE FF X 18" FROM THE WALL.
3. DOUBLE STACKED HANGING RAILS ARE TO BE AT 60" AND 92" ABOVE FF.
4. WALL MESH TO BE 4'-0" TO 5'-0" TALL FROM THE TOP OF KNEEWALL.

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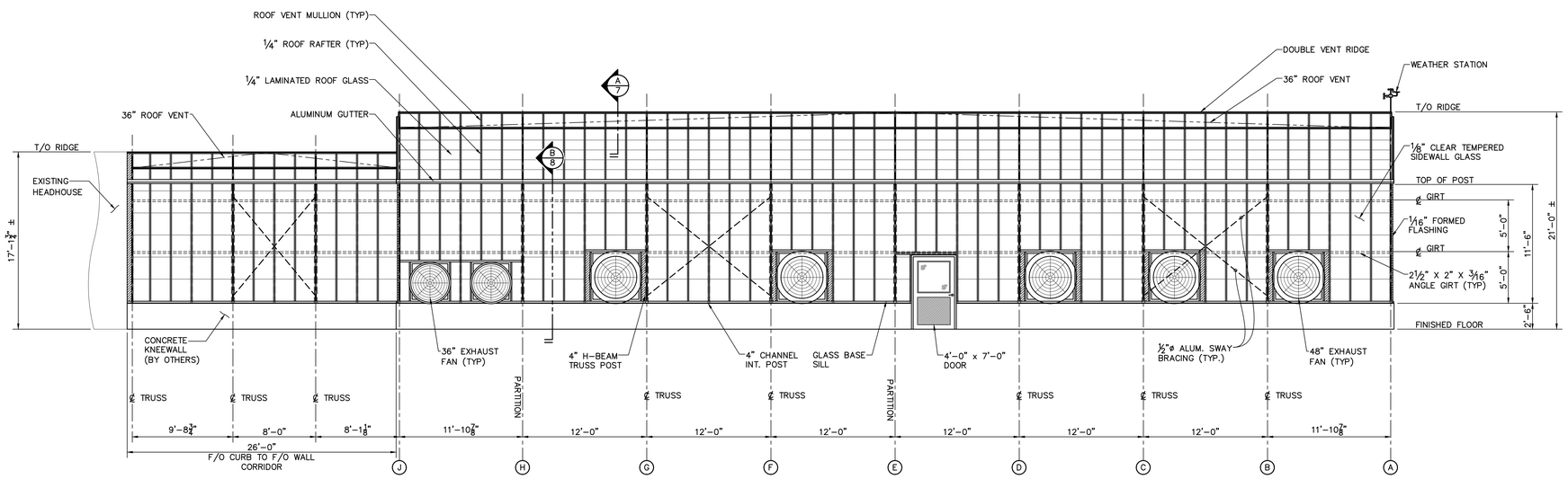
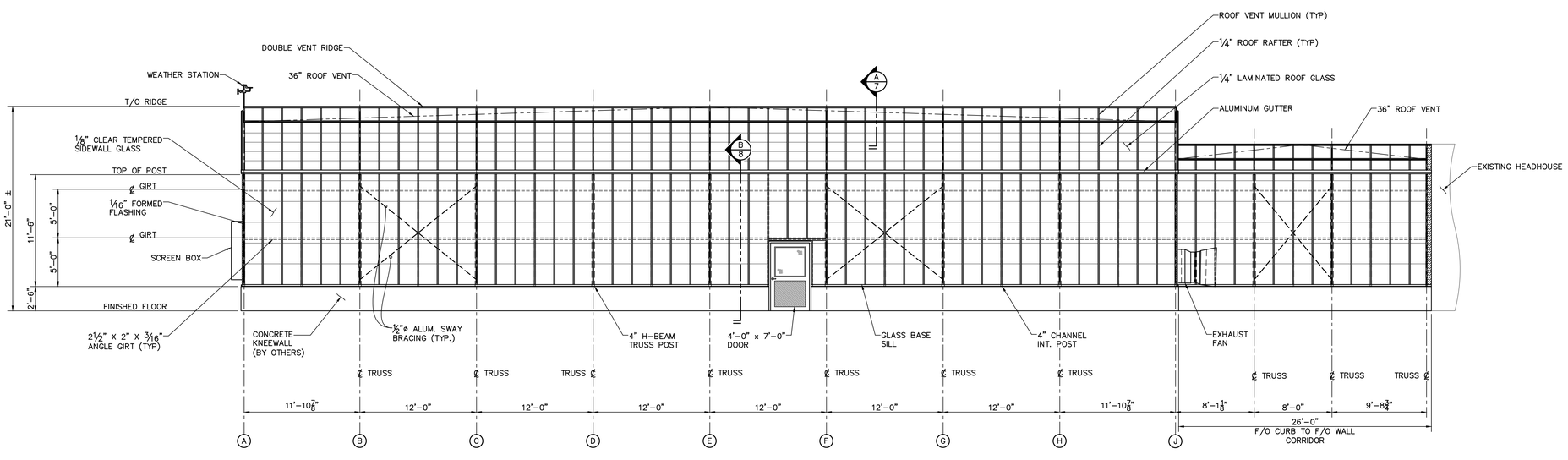
GREENHOUSE BENCH DESIGN

GH6.1



NORTH SIDEWALL ELEVATION (1)

SCALE: 3/16"=1'-0"



SOUTH SIDEWALL ELEVATION (2)

SCALE: 3/16"=1'-0"

ENGINEERING NOTE:
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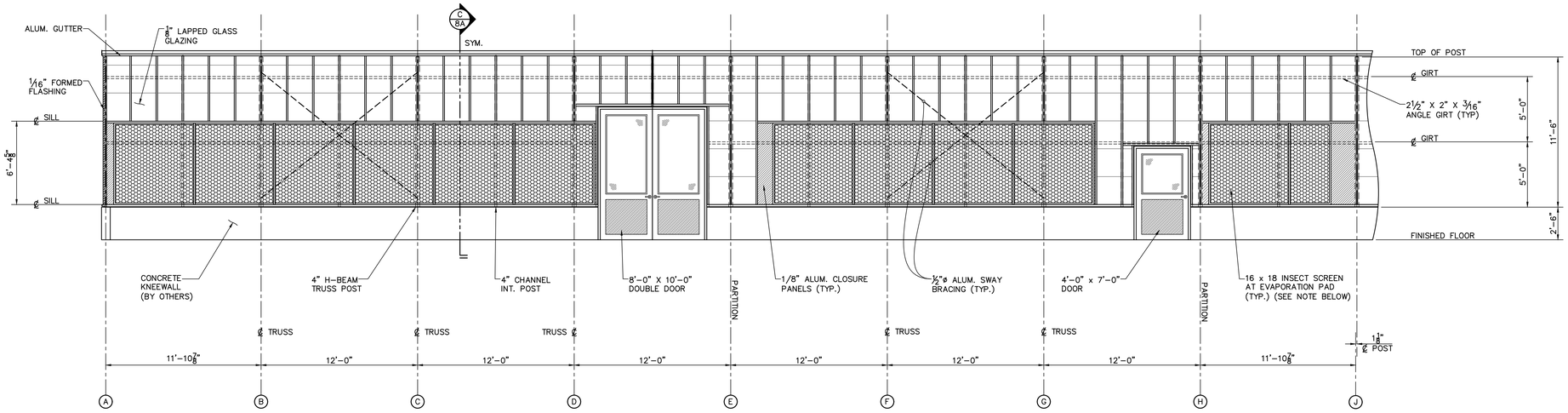
GREENHOUSE SIDEWALL ELEVATIONS

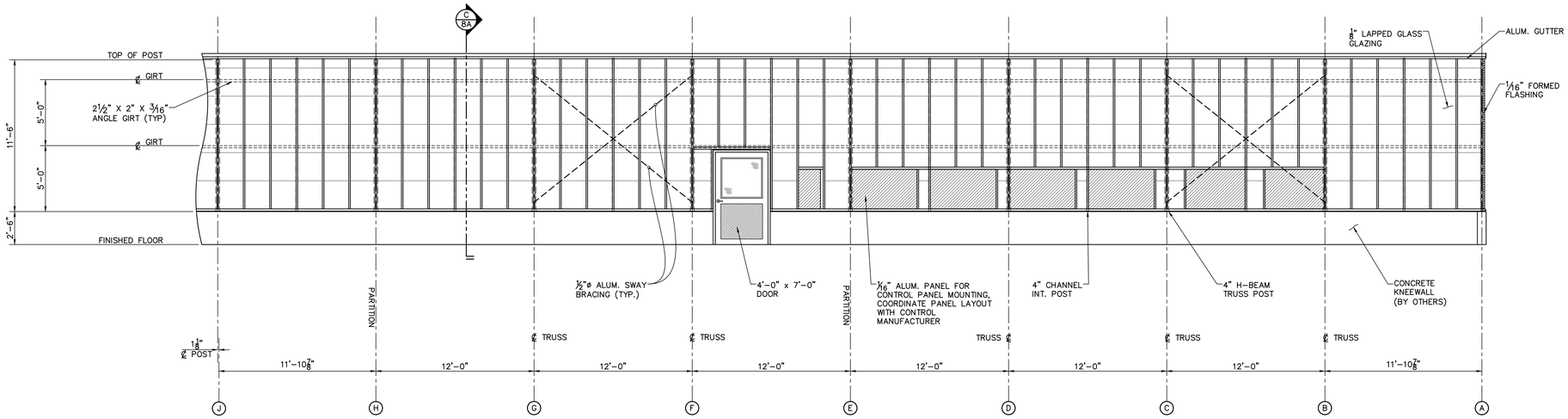
GH2



CORRIDOR AT PARTITION ELEVATION (LINE 3) (3)

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

*NOTE: IN LIEU OF 16 X 18 INSECT SCREENING AT EVAPORATIVE PAD—PROVIDE MOTORIZED ALUMINUM SHUTTERS



CORRIDOR AT PARTITION ELEVATION (LINE 4) (3)

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

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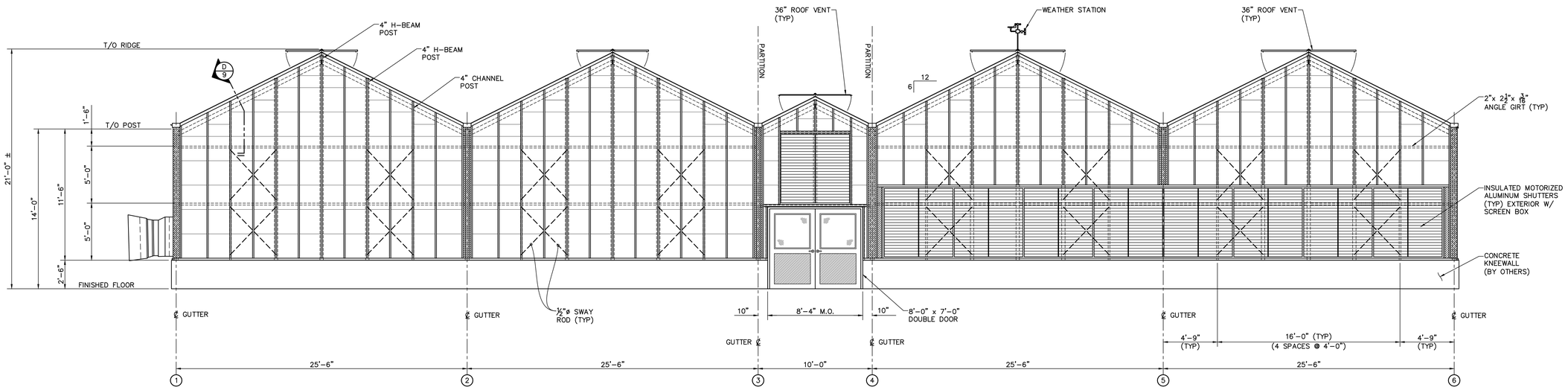
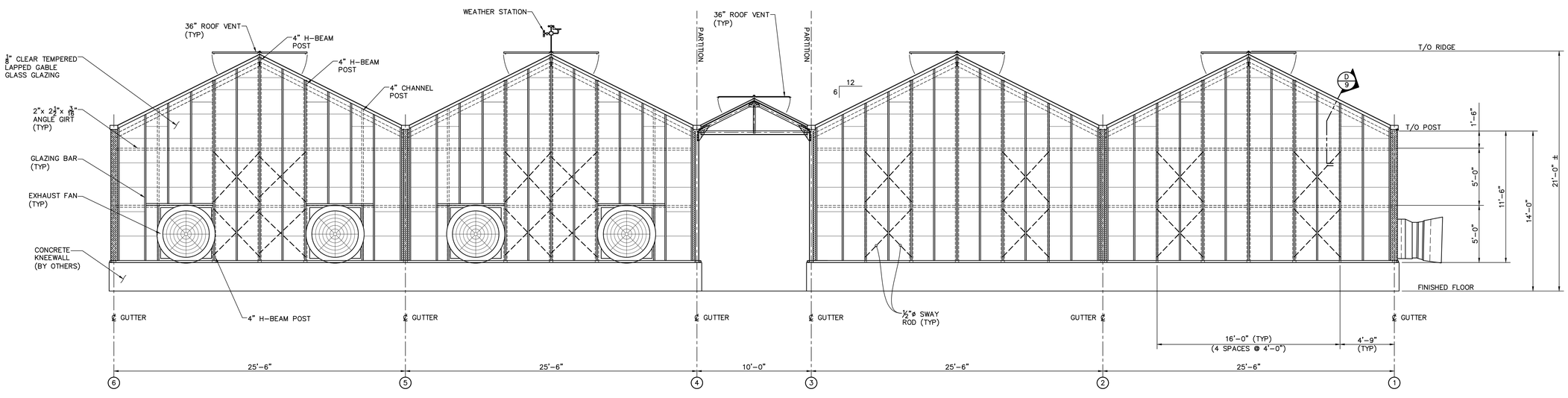
GREENHOUSE SIDEWALL CORRIDOR PARTITIONS

GH2.1



WEST GABLE ELEVATION (5)

SCALE: ¼"=1'-0"



EAST GABLE ELEVATION (6)

SCALE: ¼"=1'-0"

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GREENHOUS
GABLE ELEVATI

GH3

DESIGNER SERIES BLACK BODY DIMMING 4″ 850 TO 3000 LUMEN LED SQUARE DOWNLIGHT

OPEN APERTURE

SDSQ4BBD SERIES

Type	Cat. No.
B	

Project: OLBRICH GARDENS

Notes:

ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

- Black Body Dimming duplicates halogen dimming, offering a soft, natural, warm glow as light levels are reduced
- CCT "warms" from 2700K to 1800K, while staying on the Black Body Locus, when dimming
- Comparable light output to 26W, 32W, 42W and 2x26W CFL while consuming 11, 15, 26 and 34 watts.
- No harmful ultraviolet or infrared wavelengths
- No lead or mercury

PRODUCT SPECIFICATIONS

Optics

•**Trim:** Self-flanged, clear Alzak® satin (SASF) trim • Alzak® trim with low iridescent finish is standard • Others Alzak finishes are available; see trim options • Computer-optimized reflector maximizes fixture efficiency • Deep regression of source produces a very low glare system • Lensed mixing chamber conceals the LEDs to produce uniform aperture luminance

Electrical

•**LED Light Engine:** Proprietary micro-processor controlled light engine duplicates dimming performance of halogen light source • Natural white light on the Planckian curve • 2700K color temperature at full lumen output • 90+ CRI

•**Driver:** Power factor >0.9 • Dimming down to 5% • Dimmable using 0-10V protocol (2000, 3000 lumen only) and Triac dimming (850, 1250 lumen, 120V only)

•**Life:** Rated for 50,000 hours at 70% lumen maintenance

Mechanical

•**Housing:** Heavy gauge cold rolled steel with black finish • Universal housing design installs in suspended grid, plaster or drywall • Integral cast aluminum heat sink conducts heat away from LED light engine • Light engine and driver are accessible from above and below ceiling and can be upgraded to accommodate future technology improvements.

•**Mounting Frame:** Heavy gauge steel lower housing ring with factory installed spring steel friction clips securely holds cones in ceiling • Accommodates ceilings up to 3/4″ thick • For thicker ceilings; consult factory

•**Mounting Bracket:** Mounting brackets have 3″ vertical adjustment and accept proprietary Tru-Lock bar hangers, 1-1/2″ C-channel and flat linear bars (ordered as accessories) or 1/2″ EMT, 3/4″ and 1-1/2″ lathing channel (by others) • One-piece Tru-Lock bar hangers have integral T-bar locking screws and alignment notches for locating and locking fixture in the center or 1/4 tile increments

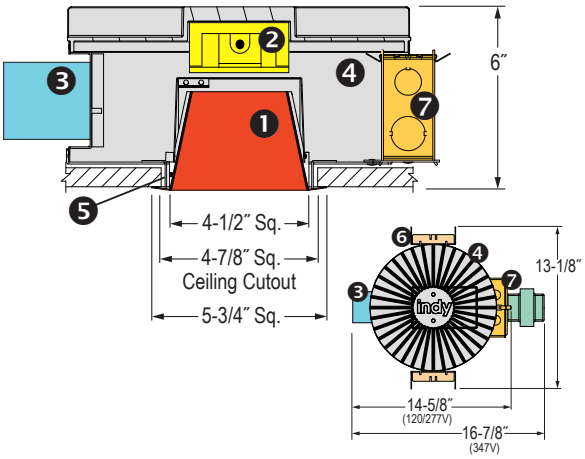
•**Junction Box:** Junction box rated for eight No. 12 AWG 90° C branch circuit conductors (4-in, 4-out)

Labels and Listings

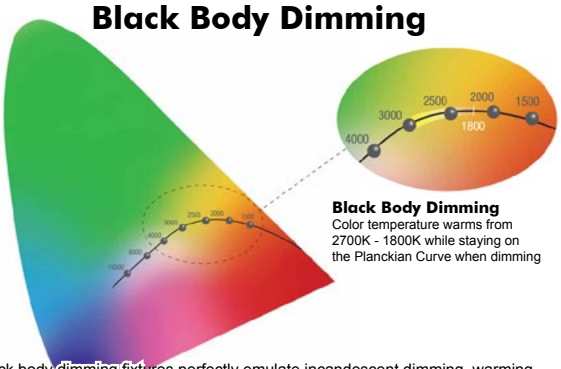
- UL listed for feed through and damp locations • I.B.E.W. Union made
- Wet Location listing available, see reflector ordering options.
- EMI complies with FCC 47, Part 15, Class A • UL and cUL, RoHS complaint
- Energy Star qualified, see page 2 for designated products
- ARRA compliant

Warranty: 5 years when used in accordance with manufacturing guidelines. Product specifications subject to change without notice.

DIMENSIONS



Black Body Dimming



Black Body Dimming
Color temperature warms from 2700K - 1800K while staying on the Planckian Curve when dimming

Black body dimming fixtures perfectly emulate incandescent dimming, warming from 2700K - 1800CCT while staying on the Planckian Curve and maintaining high CRI and R9 values throughout dimming range.

JUNO LIGHTING GROUP
an AcuityBrands company
1300 South Wolf Road • Des Plaines, Illinois 60018
PHONE 800-367-5866 • FAX 888-708-6578
www.junolightinggroup.com

ORDERING INFORMATION: Rough-in, reflector and accessories each ordered separately.

Rough-In:

LIGHT ENGINE LUMENS / COLOR TEMP. / VOLTAGE / OPTIONS

SDSQ4BBD-20 27 2 - F

SDSQ4BBD - [ ] **27** [ ] - [ ]

LIGHT ENGINE LUMENS	
∗**08**	850 lm
∗**12**	1250 lm
20	2000 lm
30	3000 lm

CCT	
27	2700

VOLTAGE	
1	120V
2	277V
3	347V

F	Fuse and Fuse Holder
† **BP**	120/277V Emergency Battery Pack with Remote test switch
† **CP**	Chicago Plenum

†Consult factory
∗120V only

Reflector:

COLOR / FINISH / OPTIONS

SDSQ4- SA F - PF

SDSQ4 - [ ] [ ] - [ ]

SA	Clear
CG	Gold
WT	Wheat
PA	Pewter
BR	Bronze
BA	Black
WH	White

F	Specular
SF	Satin
Blank for White	

PF	Painted flange Only (White)
WET	Wet Location (Clear glass lens standard)

Accessories:

HB-52

[ ]

HB-TL	25" Tru-Lock grid ceiling bar hangers, Pair
HB-52	52" C-Channel Bar Hangers, Pair
HB-28	28" C-Channel Bar Hangers, Pair

ENGINEERING DATA (347V available, consult factory)

Voltage	120V				277V			
Fixture Lumens	**850**	**1250**	**2000**	**3000**	**850**	**1250**	**2000**	**3000**
CCT	2700K				2700K			
Current	0.093	0.129	0.216	0.285	-	-	0.101	0.128
Input Wattage	11.0	15.3	25.6	33.9	-	-	26.0	34.0
Input Frequency	50/60Hz				50/60Hz			
THD%	16.06	13.59	17.53	14.61	-	-	23.73	20.5
Power Factor	0.976	0.987	0.984	0.988	-	-	0.928	0.953

Energy Star Qualified: SDSQ4BBD

	Product #	Fixture Configurations = Energy Star
ENERGY STAR	**SDSQ4BBD-(XX)27(Z); SDSQ4-SASF** **SDSQ4-SAF**	**Lumen Package: 850 / 1250 / 2000 / 3000 (XX = 08, 12, 20, 30)** **Voltage: 120V / 277V (Z = 1, 2)**

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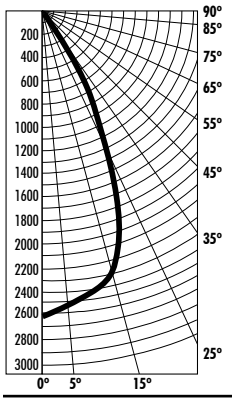
2700K CCT

Catalog Number: SDSQ4BBD-30271; SDSQ4-SAF
PHOTOMETRIC REPORT
Test Number: PR02142491
Total Lumen Output: 1866 Lumens
Luminaire Efficacy: 53.9 lm/w (2700K)
Luminaire Spacing Criteria: 0.80
Luminaire: Clear semi-specular Alzak® reflector. Open bottom.
CIE-Type: Direct



Initial Footcandles

Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Footcandles Beam Edge	Beam Diameter
6′	73.1	26.9	5.7′
7′	53.7	19.8	6.7′
8′	41.1	15.1	7.6′
9′	32.5	11.9	8.6′
10′	26.3	9.7	9.5′
11′	21.7	8.0	10.5′
12′	18.3	6.7	11.4′
13′	15.6	5.7	12.4′
14′	13.4	4.9	13.4′
15′	11.7	4.3	14.3′

Candlepower Distribution
(Candelas)

Angle	Candela	Lumens
0°	2631	
5°	2553	244
15°	2302	652
25°	1390	643
35°	369	232
45°	84	65
55°	23	20
65°	4	4
75°	3	3
85°	2	2

Lumen Multiplier: 2000 x .67
1250 x .42
850 x .28

Luminance Data

Angle in Degrees	Candela/M²
45°	9,084
55°	3,020
65°	700
75°	798
85°	1896

Zonal Lumen Summary

Zone	Lumens%	%Fixture
0-30°	1540	82.5
0-40°	1771	94.9
0-60°	1857	99.5
0-90°	1866	100.0
90-180°	0	0.0
0-180°	1866	100.0

AVERAGE INITIAL FOOTCANDLES
Reflectances: 80% Ceiling, 50% Walls, 30% Floors

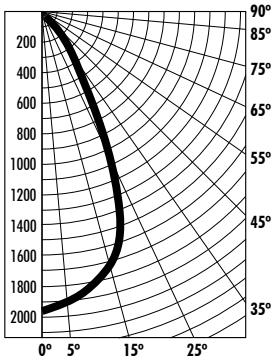
Luminaire Spacing	Room Cavity Ratio RCR1	RCR4	RCR8
5′ x 5′	83	69	55
6′ x 6′	58	48	38
7′ x 7′	42	35	28
8′ x 8′	32	27	22
9′ x 9′	26	21	17
10′ x 10′	21	17	14
11′ x 11′	17	14	11
12′ x 12′	14	12	10

COEFFICIENTS OF UTILIZATION - % (Zonal Cavity Method)
Effective Floor Reflectance 20%

PCC	80				70				50			30			10			0
PW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	92	90	88
3	104	98	93	89	102	96	92	88	94	90	87	91	88	86	89	87	84	83
4	99	92	87	83	97	91	86	82	89	84	81	87	83	80	85	82	79	78
5	94	86	81	77	93	86	80	77	84	79	76	82	78	75	81	77	75	73
6	90	82	76	72	89	81	76	72	79	75	71	78	74	71	77	73	70	69
7	86	77	72	68	85	77	71	68	75	71	67	74	70	67	73	69	67	65
8	82	73	68	64	81	73	67	64	72	67	64	71	66	63	70	66	63	62
9	79	70	64	60	78	69	64	60	68	63	60	67	63	60	67	63	60	58
10	75	66	61	57	74	66	61	57	65	60	57	64	60	57	64	60	57	56

2700K CCT

Catalog Number: SDSQ4BBD-30271; SDSQ4-SASF
PHOTOMETRIC REPORT
Test Number: PR02142091
Total Lumen Output: 1602 Lumens
Luminaire Efficacy: 46.1 lm/w (2700K)
Luminaire Spacing Criteria: 0.82
Luminaire: Clear satin Alzak® reflector. Open bottom.
CIE-Type: Direct



Initial Footcandles

Distance to Illuminated Plane (Feet)	Footcandles Beam Center	Footcandles Beam Edge	Beam Diameter
6′	54.7	19.8	5.9′
7′	40.2	14.6	6.9′
8′	30.8	11.1	7.8′
9′	24.3	8.8	8.8′
10′	19.7	7.1	9.8′
11′	16.3	5.9	10.8′
12′	13.7	5.0	11.8′
13′	11.6	4.2	12.7′
14′	10.0	3.6	13.7′
15′	8.7	3.2	14.7′

Candlepower Distribution
(Candelas)

Angle	Candela	Lumens
0°	1969	
5°	1920	183
15°	1720	487
25°	1095	507
35°	351	220
45°	144	111
55°	63	57
65°	26	26
75°	9	9
85°	0	0

Lumen Multiplier: 2000 x 1.50
1250 x .75
850 x .55

Luminance Data

Angle in Degrees	Candela/M²
45°	15,563
55°	8441
65°	4759
75°	2592
85°	0

Zonal Lumen Summary

Zone	Lumens%	%Fixture
0-30°	1177	73.5
0-40°	1398	87.3
0-60°	1566	97.8
0-90°	1601	100.0
90-180°	0	0.0
0-180°	1601	100.0

AVERAGE INITIAL FOOTCANDLES
Reflectances: 80% Ceiling, 50% Walls, 30% Floors

Luminaire Spacing	Room Cavity Ratio RCR1	RCR4	RCR8
5′ x 5′	70	57	45
6′ x 6′	49	40	31
7′ x 7′	36	29	23
8′ x 8′	28	22	18
9′ x 9′	22	18	14
10′ x 10′	18	14	11
11′ x 11′	15	12	9
12′ x 12′	12	10	8

COEFFICIENTS OF UTILIZATION - % (Zonal Cavity Method)
Effective Floor Reflectance 20%

PCC	80				70				50			30			10			0
PW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	108	105	110	108	106	104	104	102	100	100	99	97	97	96	95	93
2	107	102	98	94	105	100	97	93	97	94	91	94	92	89	91	89	87	86
3	102	95	90	86	100	94	89	85	91	87	84	88	85	82	86	83	81	80
4	96	89	83	79	94	87	82	78	85	81	77	83	79	76	81	78	75	74
5	91	83	77	73	90	82	76	72	80	75	72	78	74	71	77	73	70	69
6	87	78	72	67	85	77	71	67	75	70	67	74	70	66	73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62	70	65	62	69	65	62	60
8	79	69	63	59	77	69	63	59	67	62	59	66	62	58	65	61	58	57
9	75	65	59	55	74	65	59	55	64	59	55	63	58	55	62	58	55	53
10	72	62	56	52	71	62	56	52	61	56	52	60	55	52	59	55	52	50

Fixtures tested to IES recommended standard for solid state lighting per LM-79-08. Photometric performance on a single unit represents a baseline of performance for the fixture. Results may vary in the field.

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Wall luminaires with directed light

Housing: One piece die-cast aluminum supplied with universal mounting bracket for direct attachment to 3½" or 4" octagonal wiring box. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum cover frame secured by captive socket head, stainless steel screws threaded into stainless steel inserts. Semi-specular, anodized aluminum internal reflector. Stippled tempered clear glass. Fully gasketed for weather tight operation using a molded silicone rubber O-ring gasket.

Electrical: 17.9W LED luminaire, 22.9 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 90 CRI. Available in 4000K (90 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

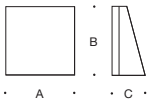
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: lbs.

Luminaire Lumens: 1893

Type:	J
BEGA Product:	33 242
Project:	OLBRICH GARDENS
Voltage:	120
Color:	BLACK
Options:	
Modified:	



		Lamp	A	B	C
33 242	ADA	17.9W LED	8	8	3¾

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com

Wall luminaires with directed light

Housing: One piece die-cast aluminum for direct attachment to wall over 3½" or 4" octagonal wiring box. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum guard, secured by two (2) captive socket head, stainless steel screws threaded into stainless steel inserts. Tempered etched glass with matte finish. Pure anodized aluminum reflector. Fully gasketed for weather tight operation using a molded silicone rubber O-ring gasket.

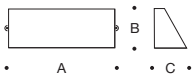
Electrical: 12W LED luminaire, 14.3 total system watts, -20°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. The LED module and driver are mounted on a removable inner assembly for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

UL listed for US and Canadian Standards, suitable for wet locations. Protection class: IP64

Luminaire Lumens: 465
Tested in accordance with LM-79-08.

Type:	J
BEGA Product:	33 242
Project:	OLBRICH GARDENS
Voltage:	120
Color:	BLACK
Options:	
Modified:	



		Lamp	A	B	C
22 380	ADA	12 W LED	11 ¾	4⅜	3⅜

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Recessed wall luminaires with directed light

Housing: Constructed of die-cast aluminum with integral wiring compartment. Mounting tabs provided. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: One piece die-cast aluminum faceplate. Clear tempered glass; .125" thick, machined flush to faceplate surface. Faceplate is secured by two (2) flush, socket head, stainless steel captive screws threaded into stainless steel inserts in the housing casting. Continuous high temperature, molded silicone rubber gasket for weather tight operation.

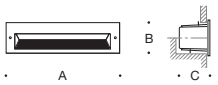
Electrical: 5.6 W LED luminaire, 7.5 total system watts, -25° C start temperature. Integral 120 V through 277 V electronic LED driver, 0 -10 V dimming. The LED and driver are mounted on a removable plate for easy replacement. Standard LED color temperature is 3000K (available in 4000K; add suffix K4).
Note: Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

UL listed for US and Canadian Standards, suitable for wet locations and for installation within 3 feet of ground. IC rated. Protection class: IP65.

Luminaire Lumens: 155
Tested in accordance with LM-79-08

Type:	J
BEGA Product:	33 242
Project:	OLBRICH GARDENS
Voltage:	120
Color:	BLACK
Options:	
Modified:	



		Lamp	A	B	C
22 382	ADA	5.6 W LED	6⅝	2¾	3¼

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LED garden and pathway bollard

Post construction: One piece extruded aluminum. All aluminum in the construction is marine grade and copper free.

Lamp Enclosure: One piece die cast aluminum housing attached to post by two (2) stainless steel set screws. Matte safety glass lens. Fully gasketed using a one piece molded silicone gasket.

Electrical: 2.1W LED luminaire, 3.4 total system watts, -30°C start temperature. Integral 12V AC driver provided must be operated using remote magnetic transformer. Standard LED color temperature is 3000K with a >90 CRI.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Anchor base: Anchor post provided made of galvanized steel. Bollards are secured to post using two (2) stainless steel set screws.

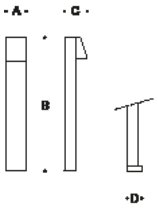
Finish: Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

Please note: BEGA's approach to product design is to innovate, not follow. With a steadfast commitment to quality, each product is conceived to satisfy a general or specific lighting task as defined by its architectural or exterior surroundings. The Home and Garden Collection is designed specifically for use in Residential and Light Commercial applications. Please reference our standard BEGA portfolio when mounting provisions for the rigorous demands of high-use commercial and/or vandal prone settings are required.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 6.3 lbs.

Type:	J
BEGA Product:	33 242
Project:	OLBRICH GARDENS
Voltage:	120
Color:	BLACK
Options:	
Modified:	



		Lamp	A	B	C	D
77 238	with hardscape base	2.1 W LED	3 ½	27 ½	4 ⅛	2 ½

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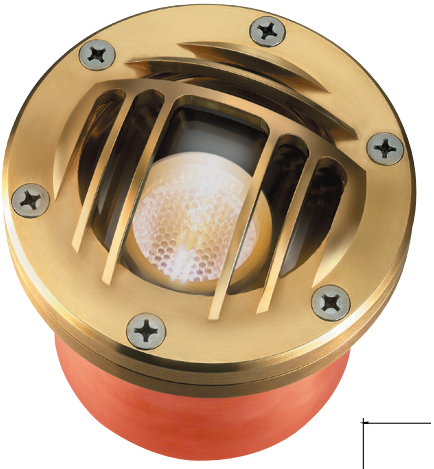
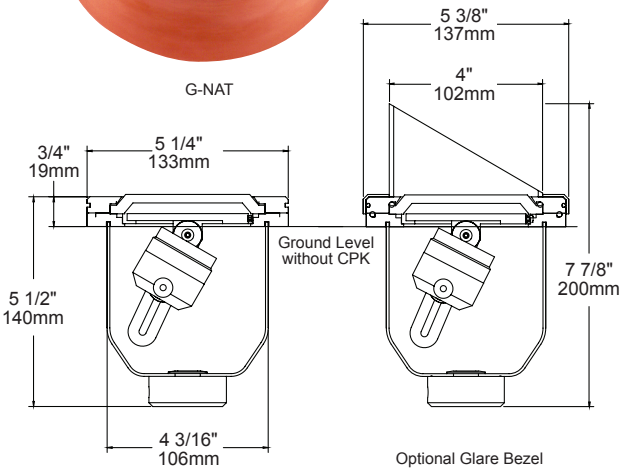
TYPE:	N - OLBRICH GARDENS
CAT. #: HWL11	G 4W 27D GB BLP-XD

HWL11 LIGHTHAUS



G-NAT



Optional Glare Bezel

The compact new **HWL11** is engineered around Auroralight's interchangeable LED module to deliver brilliant LED performance in a small package. Featuring significantly increased aiming capability allowing a full 45° of tilt onto the horizon with 360° of rotation. It has the ability to regress the light source 2" below the lens.

Features include:

- Interchangeable LED Module in 2, 4 or 6 Watts
- Cree XLAMP® High Intensity (XP-L) LED
- 2700, 3000 or 4000K (CRI 80 typ.)
- Thermally Integrated™ and Field Serviceable LED Module
- TRIAC Dimming to <10% typ.
- 12 VAC Electronic or Magnetic Source Compatible
- Drive-over Rated up to 6,000 lbs.
- Solid Copper Body and Brass Faceplate

Powered by CREE LEDs

LED hybrid HALOGEN

12V

FACEPLATE OPTIONS

Flush

Slotted

ORDERING GUIDE HWL11: H (HYBRID) WL (WELL LIGHT) 11 (MR11)

RED INDICATES REQUIRED FIELD

FACEPLATE
[G] Grill
[FC] Flush w/ Convex Glass
[FF] Flush w/ Flat Glass
[S] Slotted

LIGHT SOURCE (LED or Halogen)
Leave blank for **NO LAMP**

LED WATTAGE
[2] 2W
[4] 4W
[6] 6W

OPTIC
[W] 40° Wide
[WF] 50° Wide Flood
[A] All Optics

LED COLOR
[27D] 2700K
[30D] 3000K
[40D] 4000K
[D] = Dimmable

HALOGEN (MR11)
[05] 5W 30° (2,000hr)
[10] 10W 30° (2,000hr)
[11] 12W 10° (2,000hr)
[15] 15W 30° (2,000hr)
[21] 20W 10° (2,000hr)
[22] 20W 20° (2,000hr)
[23] 20W 30° (8,000hr)

ACCESSORIES
SELECT UP TO TWO:
[GB] Glare Bezel
[H] Hex Baffle
[L] Linear Spread
[P] Prismatic Lens
[MP] Micro Prismatic
[F] Frost (Diffusion)

MOUNT
[CPK] Concrete Pour Kit*

FINISH
[NAT] Natural
[BLP] Bronze Living Patina
[BLP-XD] BLP Extra Dark
[NI] Nickel PVD
[PC] Powder Coat-Specify Color

CPK

GB

*Use for installation into concrete, stone, tile or any time grout will be in contact with the fixture

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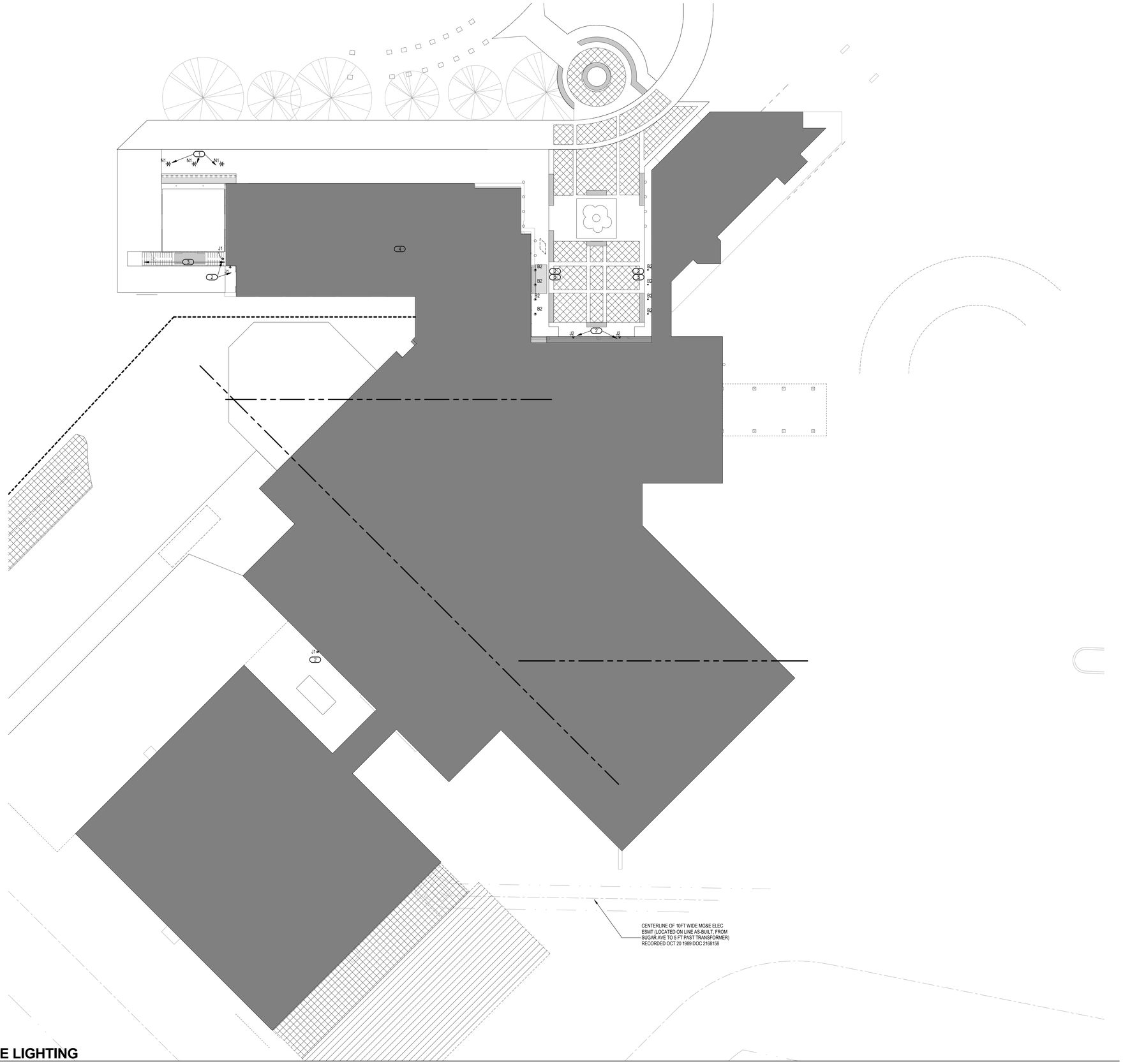

1 SITE LIGHTING

1/16" = 1'-0"

KEYED NOTES

1. IN-GROUND FLOOD LIGHTS ON CONTROLS TO BE SWITCHED OFF BETWEEN HOURS OF 11 PM AND 7 AM.
2. OUTDOOR PHOTOCELL MOUNTED 24" ABOVE ROOF PARAPET CONTROLS SWITCHING OF EXTERIOR LIGHT FIXTURES.
3. STEP LIGHTS, TYPE L, TO BE INSTALLED IN TREADS OF OUTDOOR STAIRWELL.
4. EXTERIOR LIGHTS FOR SECOND LEVEL SHOWN ON E101 LEARNING CENTER LIGHTING PLAN.
5. DOWNLIGHTS MOUNTED UNDER OVERHANG OF EAVES.

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608.251.3600 tel

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1800 Deming Way, Suite 200
Middleton, WI 53562
608.223.9600 tel

MEP Engineer
MEP Associates, LLC
860 Blue Gentian Road, Suite 175
Eagan, MN 55121
651.379.9120 tel

Fire Protection Engineer and Code Consultant
Summit Fire Consulting
575 Minnehaha Ave West
St. Paul, MN 55103
651.251.1880 tel

Greenhouse Design
Rough Brothers, Inc.
5513 Vine Street
Cincinnati, OH 45217
513.242.0310 tel

Olbrich Botanical Gardens Expansion Phase 1

3330 Atwood Avenue
Madison, WI 53704

NOT FOR CONSTRUCTION

ISSUE

MARK	DATE	DESCRIPTION
	09.09.2017	SCHEMATIC DESIGN SUBMISSION
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION

PROJECT NO. 2017016

PROJECT PHASE Design Development

DRAWN BY: Author
CHECKED BY: Checker

SITE LIGHTING PLAN

E001