



City of Huron
Agenda for the Planning Commission/DRB
Wednesday, July 15, 2026, 5:00pm.

I. Call to Order

II. Roll Call

III. Adoption of the Minutes (N/A)

IV. Audience Comments (3-minute time limit) *Please step to the podium and state your name and address for the record.

V. New Business

2012 Cleveland Rd W (Bates Kitchen) Window Signage	PPN	42-02065.002	B-3
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2012 Cleveland Rd W (Bath & Window Expo) Wall Signage	PPN	42-02065.002	B-3
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2300 University Dr. (Firelands Scientific) Final Site & Design Plan Review	PPN	42-01972.005 42-01972.011	I-1
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VI. Staff Report

Chapter 1133- Off-Street Parking (Public & Private Parking Lots)

VII. Other Matters

Next Regular Meeting: August 19, 2026

VIII. Adjournment



TO: Chairman Boyle and Members of the Planning Commission and Design Review Board
FROM: Christine Gibboney Planning & Zoning Manager
RE: Bates Kitchen- Rye Beach Plaza- 2012 Cleveland Road W- Unit C
DATE: June 17, 2026

Zoning District: B-3 **Parcel No.:** 42-02065.002 **Lot Size:** 1.27 acres

Owner: **Park & Fun Limited Partnership**
4918 Milan Road
Sandusky, OH 44870

Applicant: **Clinton Bates- Bates Kitchen**

Project Description

Bates Kitchen (Unit C within the Rye Beach Plaza) is proposing door/ window signage for their new take-out restaurant located within the plaza.

APPLICABLE CODE SECTIONS

Chapter 1129 Signage Regulations
1129.05

(b) Window Sign. The following regulations apply to signs affixed to or are displayed in a window:
(1) Ground Floor Occupants. A. Permanent window signs shall have a maximum area not greater than twenty percent (20%) of the total window area of the space occupied by the occupant, but not cover more than 50% of any one window unit. If a permanent window sign is installed along a public right-of-way, the signage must allow transparency in the window and not block views in and out of the establishment. If the proposed signage is applied to a "spandrel" window or a window that serves no visibility or natural light purpose to the establishment, the sign may be opaque.

Staff Analysis/Recommendation:

This is a new business going into the Rye Beach Plaza, the owner is proposing white vinyl lettering for the door and window of the unit. (Refer to the site plan)

Door Signage:

Door area 30" x 80" = 16.67sf

1 BATES KITCHEN 16" x 25" = 2.78sf

#2 CARRYOUT- CASH ONLY 14" x 24" = 2.67sf

Window Signage

(2) Window panel areas 5'-5" x 7' = 38.5sf.

#3 BATES 1.3' x 4.3' = 5.7sf

#4 KITCHEN 1.3' x 5.8' = 7.7sf

Staff finds the proposed window signage on the door and window panels to be in compliance with Chapter 1129.05 (b) for the 50% compliance to the individual proposed window areas, and the 20% total window area of the unit.

Staff recommends approval as proposed.

Attachments:

- Application, Site Plan, Signage Renderings

Planning Commission (PC)

Commercial Site Plan Application/Design Approval- Exterior/Design-Signage Only

DATE: 5/22/26

Property Owner

Name: Hobby - Park and Fun (TU)
Address: 5003 Milan Rd. Independence OH 44870
Phone: 419-609-7000
Email: kulak@hobby.com

Applicant

Name: Chadman Bates
Company/Business Name: Bates Kitchen
Mailing Address: 2012 Cleveland Rd Unit C. Marion OH 44839
Phone: [REDACTED]
Email: [REDACTED]

Location and Description of Project

Address: 2012 Cleveland Rd. Unit C County Parcel #: _____
Existing Use: _____ Acreage/Area of Site: _____
Proposed Use: _____ Lot # (if applicable): _____
Estimated Value of Project: _____ Total SF: _____

☐ New Construction
☐ Addition to Existing Structure

☒ Signage
☐ Demolition
☐ Other: _____

ZONING & FLOOD ZONE DISTRICTS

Zoning District: _____ (R-1 R-1A R-2 R-3 B-1 B-2 B-3 I-1 I-2 P-1 MU)

Flood Zone: _____ (A AE AO AH X-SHADED X)

Description of Project:

White vinyl letters on windows

6/1/26

SECTION 4. DESIGN APPROVAL (COMMERCIAL SIGNAGE ONLY) * The application fee of \$50.00 and complete plans to include the following information must be included with this application and provided in a PDF format.

___ Signage Site Plan with all setback dimensions

___ Rendering(s) of all signs with detail of dimensions, construction materials, graphics, illumination

Sign Type (circle)				Dimensions			
Sign #1:	☐ Wall	☒ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy		26' 16" X 18' 25" = 2.72 sq. ft.			
Sign Type (circle)				Dimensions			
Sign #2:	☐ Wall	☒ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy		26' 14" X 18' 24" = 3.32 sq. ft.			
Sign Type (circle)				Dimensions			
Sign #3:	☐ Wall	☒ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy		52' 16" X 30' 52" = 10.75 sq. ft.			
Sign Type (circle)				Dimensions			
Sign #4:	☐ Wall	☒ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy		22' 16" X 30' 70" = 15.27 sq. ft.			

PLEASE NOTE: Upon approval from the Planning Commission, your project may require Engineering Plan review and Storm Water/Erosion Control Plan review, associated fees will apply. Zoning and/or Building Permits may be required, associated permit fees will apply. All Contractors on your project must be registered with the City. Contact the Planning and Zoning Department with any questions: 419-433-5000 ext. 1302 OR 1303.

APPROVAL FROM THIS BOARD WILL EXPIRE 1 YEAR FROM THE DATE OF ISSUANCE.

I hereby certify that I am the owner of record of the named property or that the proposed work is authorized by the owner of record and/or I have been authorized to make this application as an authorized agent, and we agree to conform to all applicable laws, regulations, and ordinances. All information contained within this application and supplemental materials is true and accurate to the best of my knowledge and belief.

Applicant Signature: [Signature] Date: 6/1/26

Owner Signature: [Signature] Date: 6/1/26

For Departmental Use Only:

Date of Submission: _____ Application Fee: _____ PC Meeting Date: _____

30" x 30"

30" x 7'

30" x 7'

#1

**BATES
KITCHEN**

16" x 25"

#2

**CARRYOUT
CASH ONLY**

14" x 24"

30" x 80"

#3

BATES

16" x 52"

66" x 7'

#4

KITCHEN

16" x 70"

66" x 7'





TO: Chairman Boyle and Members of the Planning Commission and Design Review Board
FROM: Christine Gibboney Planning & Zoning Manager
RE: Bath & Window Expo- Rye Beach Plaza- 2012 Cleveland Road W
DATE: June 17, 2026

Zoning District: B-3 **Parcel No.:** 42-02065.002 **Lot Size:** 1.27 acres

Owner: **Park & Fun Limited Partnership**
4918 Milan Road
Sandusky, OH 44870

Applicant: **Timothy Franta- Canton Sign LLC**

Project Description

New business within the Rye Beach Plaza- Bath & Window Expo proposing a new LED lighted sign cabinet- 30sf wall signage.

APPLICABLE CODE SECTIONS

Chapter 1129 Signage Regulations

Appendix A : Maximum Signage Area- Wall Signage in B-3 – 50sf max area

Staff Analysis/Recommendation:

This is a new business going into the Rye Beach Plaza, in the unit formally occupied by Express Employment. The existing sign cabinet to be removed, electrical to remain and reused for the new sign cabinet.

The new tenant is proposing an LED lighted cabinet sign with plastic white sign face and vinyl logo decals to include black lettering with blue and orange accents. The cabinet sign conforms to the size regulation in Section 1129. Staff recommends approval of the wall signage as proposed.

Attachments:

- Application, Signage Renderings

Planning Commission (PC)

Commercial Site Plan Application/Design Approval- Exterior/Design-Signage Only

DATE: 6-16-2026

Property Owner

Name: TOM HOTY
Address: 5111 W. 164th ST. BRANKRAN, OH 44142
Phone: [REDACTED]
Email: [REDACTED]

Applicant

Name: TIMOTHY J. FRANTA
Company/Business Name: CANTON SIGN, LLC
Mailing Address: PO BOX 80137 CANTON, OHIO 44708
Phone: [REDACTED]
Email: [REDACTED]

Location and Description of Project

Address: 2012 CLEVELAND RD. WEST County Parcel #: _____
Existing Use: _____ Acreage/Area of Site: _____
Proposed Use: _____ Lot # (if applicable): _____
Estimated Value of Project: \$ 5,000.00 Total SF: 30

☐ New Construction
☐ Addition to Existing Structure

☒ Signage
☐ Demolition
☐ Other: _____

ZONING & FLOOD ZONE DISTRICTS

Zoning District: _____ (R-1 R-1A R-2 R-3 B-1 B-2 B-3 I-1 I-2 P-1 MU)
Flood Zone: _____ (A AE AO AH X-SHADED X)

Description of Project:

ONE (1) NEW, LED LIGHTED SIGN CABINET. ALUMINUM CONSTRUCTION
3/16" THICK - PLASTIC SIGN FACE WITH TRANSLUCENT VINYL DECALS OF LOGO
REPLACES EXISTING SIGN, SAME SIZE & TYPE
REUSES EXISTING ELECTRICAL CONNECTION ALREADY IN PLACE.
SIGN CABINET TO BE BOLTED INTO BRICK FASCIA WITH MASONRY HARDWARE.

SECTION 4. DESIGN APPROVAL (COMMERCIAL SIGNAGE ONLY) * The application fee of \$50.00 and complete plans to include the following information must be included with this application and provided in a PDF format.

____ Signage Site Plan with all setback dimensions

____ Rendering(s) of all signs with detail of dimensions, construction materials, graphics, illumination

Sign Type (circle)				Dimensions			
Sign #1:	☒ Wall	☐ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy		32"	X 144"	= 30 sq. ft.	ft.
Sign Type (circle)				Dimensions			
Sign #2:	☐ Wall	☐ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy			X	= sq. ft.	ft.
Sign Type (circle)				Dimensions			
Sign #3:	☐ Wall	☐ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy			X	= sq. ft.	ft.
Sign Type (circle)				Dimensions			
Sign #4:	☐ Wall	☐ Window	Other:	Height	Width	Display Area	Height (if ground)
	☐ Ground	☐ Changeable Copy			X	= sq. ft.	ft.

PLEASE NOTE: Upon approval from the Planning Commission, your project may require Engineering Plan review and Storm Water/Erosion Control Plan review, associated fees will apply. Zoning and/or Building Permits may be required, associated permit fees will apply. All Contractors on your project must be registered with the City. Contact the Planning and Zoning Department with any questions: 419-433-5000 ext. 1302 OR 1303.

APPROVAL FROM THIS BOARD WILL EXPIRE 1 YEAR FROM THE DATE OF ISSUANCE.

I hereby certify that I am the owner of record of the named property or that the proposed work is authorized by the owner of record and/or I have been authorized to make this application as an authorized agent, and we agree to conform to all applicable laws, regulations, and ordinances. All information contained within this application and supplemental materials is true and accurate to the best of my knowledge and belief.

Applicant Signature: Timothy J. Franta Date: 6-16-2026

Owner Signature: _____ Date: _____

For Departmental Use Only:

Date of Submission: _____ Application Fee: _____ PC Meeting Date: _____

CANTON SIGN CO.
PO BOX 80137
CANTON, OH 44708-0137

EXISTING SIGN
© 2012 CLEVELAND RD, W
HURON, OH 44839

THIS SIGN IS
BEING
REPLACED
ELECTRICAL
RE-USED

40"
12'
21'

Express

EMPLOYMENT PROFESSIONALS



NEW SIGN



Scale: 1/2"=1'

CANTON sign co
EST 1910

Phone (330) 456-7151
Fax (330) 456-7152
E-mail: cantonsign@aol.com

Mailing Address:
PO Box 80137
Canton, Ohio 44708

CUSTOMER: Bath & Window Expo - Huron		Fax:	
DATE: 6-11-26	1 of 2		





TO: Chairman Boyle and Members of the Planning Commission and Design Review Board
FROM: Christine Gibboney Planning & Zoning Manager
RE: Firelands Scientific, 2300 University Drive. Final Site & Design Plan Review
DATE: July 15, 2026

Current Zoning District: I-1

Parcel No.: 42-01972.005, 42-01972.011

Existing Land Use: Commercial

Property Size: 18.68 +acres

Traffic Considerations: Huron Corporate Park

Owner: Huron Corporate Park LLC
Mark Hobart
2300 University Drive E
Huron OH 44839

Applicant: Mark Hobart- Firelands Scientific (OPC Cultivation)

Project Description- Expansion Greenhouses, New Structure & Parking Area

The applicant is proposing a major expansion which includes the addition of four (4) – 11,880sf greenhouse structures, a 2,800sf support building, and a new parking lot. The estimated value of the project is \$3,000,000.

Applicable Code Sections

1125.04 I-1 Light Industrial District

(g) Lot Area, Frontage and Yard Requirements. The following minimum requirements shall be observed; except as otherwise provided herein:

Lot Area	Frontage	Front Yard Depth	Side Yard Width	Rear Yard Depth
Nonresidential	30 ft.	25 ft.	None except adjoining R District - then not less than 25 feet each.	1-story: 30 feet
Dwellings or residential parts of nonresidential dwellings		Not permitted in District		
Existing dwelling		Same as R-3		

(c) Accessory Uses. Accessory uses and structures permitted and as regulated in the B-3 District, except as hereinafter modified and such other uses and structures customarily accessory and incidental to any of the foregoing principal permitted uses, except for uses prohibited in an I-1 District.

1133.03 Number of Parking Spaces Required

The required number of off-street parking spaces for each facility or use shall be determined by application of the standards noted in Schedule 1133.03. For a use not specified in Schedule 1133.03, the Planning Commission shall apply the standard for a specified use which the Commission determines to be most similar to the proposed use.

Since the specified use is not directly reflected in 1133.03; Staff found the following categories most similar:

- (b) Office, Professional Service Uses: (1) Business, professional and administrative offices and services (excluding medical and dental)
- (f) General Commercial Uses: (2) Research and testing laboratories

Each of these categories have the same formula - 1 space for each 400sq. ft. of floor area. Based on the proposed 2,800sf building, 7 parking spaces are required, 32 are proposed. Should the Planning Commission believe an alternative use to be better suited, this can be noted and reviewed at the meeting.

Chapter 1131 Landscape Requirements

1131.04(h)

USE	SHADE TREES	# OF ISLANDS	LANDSCAPE ISLAND
Industrial	1 per acre	1 per 2 acres	250 sq. ft. 2-4 ornamental trees or evergreen trees. 8- 10 shrubs or perennials.

1131.05 Parking Lot Landscaping

1131.05 PARKING LOT LANDSCAPING.

Staff Analysis/Recommendation:

The preliminary site plan was approved by the Commission on March 25, 2026 which incorporated the additional fire lanes. The zoning setbacks for greenhouses and the support building as well as parking lot requirements were verified and confirmed with the preliminary approval. Stormwater and SWPPP approvals are in place, and prep earthwork has commenced. The final site and design plans including landscaping, and elevations are properly before the Commission for review.

This expansion project includes: four (4) 11,880sf greenhouses, a 2,800sf support building, and new parking lot. The design plans contain full landscape plans, specs for blackout/thermal curtains to address light emissions, and elevations of the greenhouses and support structure.

Landscape Plan

The landscape plan more than meets the requirements of Chapter 1131 by including the following:

CODE	SUBJECT	REQUIRED	PROVIDED
131.04(h)	GENERAL LANDSCAPE	LIGHT INDUSTRIAL: 1 SHADE TREE PER ACRE, 1 LANDSCAPE ISLAND PER 2 ACRES, AND LANDSCAPE ISLANDS REQUIRE 250 SQ FT, 2-4 ORNAMENTAL OR EVERGREEN TREES AND 8-10 SHRUBS OR PERENNIALS. (3.38 ACRES)	9 SHADE TREES 18 ORNAMENTAL TREES 22 EVERGREEN TREES 218 SHRUBS 6 FOOT BERM
1131.05(o)(3)	PUBLIC RIGHT OF WAY PARKING LOT SCREENING	PLANTS SHALL BE SPACED EVENLY AND CONSIST OF A COMBINATION OF HEDGES, SHRUBS, PERENNIALS, AND LIVE GROUND COVER. PERIMETER LANDSCAPE YARDS SHALL BE DESIGNED TO ENHANCE THE STREETScape, YET NOT HINDER THE USE OR SAFE FLOW OF PEDESTRIAN AND VEHICULAR TRAFFIC. ANY REMAINING AREA BETWEEN THE LANDSCAPE YARD AND THE CURB NOT DEDICATED FOR WALKWAYS, ACCESSORY USES, ACCESS LANES, OR OTHER APPROVED USES SHALL BE COVERED WITH TURF OR GROUND COVER AT A MINIMUM.	3 SHADE TREES 59 SHRUBS
1131.05(b)(6)	INTERIOR PARKING LOT SCREENING	SMALL SHADE TREES OR ORNAMENTAL TREES MUST BE THE PRIMARY PLANT MATERIALS USED IN PARKING LOT ISLANDS AND LANDSCAPED AREAS. SHRUBS, HEDGES AND OTHER PLANT MATERIALS MAY BE USED TO SUPPLEMENT THE PRIMARY PLANTINGS BUT MUST NOT CREATE SIGHT LINE VISIBILITY CONCERNS FOR AUTOMOBILES AND PEDESTRIANS. THE REMAINING AREA OF A PARKING LOT ISLAND MUST BE COVERED WITH SHRUBS, TURF, LIVE GROUND COVER, PERENNIALS OR ORNAMENTAL GRASSES	3 SMALL SHADE TREES 39 SHRUBS
1131.06(d)	BUFFER – SOUTH (497')	TYPE B – LOW DENSITY 20 FEET WIDTH 50% LENGTH ALONG LOT LINE 3-5 ORNAMENTAL TREES (PER 200 LINEAR FEET) 6 EVERGREEN TREES (PER 200 LINEAR FEET) 30 SHRUBS (PER 200 LINEAR FEET) 6' FENCE	8 ORNAMENTAL TREES 15 EVERGREEN TREES 75 SHRUBS 6 FOOT BERM
1131.06(d)	BUFFER – WEST (429')	TYPE B – LOW DENSITY 10 FEET WIDTH 30% LENGTH ALONG LOT LINE 3-5 ORNAMENTAL TREES (PER 200 LINEAR FEET) 3-5 EVERGREEN TREES (PER 200 LINEAR FEET) 20-30 SHRUBS (PER 200 LINEAR FEET)	8 ORNAMENTAL TREES 7 EVERGREEN TREES 45 SHRUBS

Elevations

The greenhouse and support building elevations are included. The applicant can provide detail as to the exterior materials and color palette at the meeting. If there is any exterior lighting proposed for the structure, the applicant can speak to this at the meeting as well.

Shades

Specifications on the greenhouse blackout shades have been included for review. Staff would recommend discussion/verification at the meeting that these shade will be on all new greenhouses and retrofitted on the existing greenhouses as well as the reports of light trespass were noted at the last meeting.

Staff recommends approval of the final site and design plans as submitted.

Attachments:

- Final Site & Design Plans

GENERAL NOTES:

PRIOR TO STARTING DEMOLITION, THE CONTRACTOR SHALL SECURE ALL REQUIRED PERMITS AND APPROVALS.

CONTRACTOR TO CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS), 1-800-362-2764, AND OHIO OIL AND GAS PRODUCERS (OGUPS), 1-800-925-0988, 48 HOURS PRIOR TO COMMENCING ANY WORK.

CONTRACTOR MUST PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, ETC., (AND OTHER APPROPRIATE BEST MANAGEMENT PRACTICES) AS APPROVED BY CONSTRUCTION MANAGER.

ALL ROAD SURFACES, EASEMENTS OR RIGHT-OF-WAYS DISTURBED BY CONSTRUCTION OF ANY PART OF THIS IMPROVEMENT ARE TO BE RESTORED COMPLETELY TO THE SATISFACTION OF THE OWNER AND THE CITY OF HURON.

PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.

DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED IN KIND AT CONTRACTOR'S EXPENSE.

ALL TREES, BRUSH AND OTHER VEGETATION WITHIN THE LIMITS OF THIS PROJECT THAT INTERFERE WITH THE CONSTRUCTION SHALL BE REMOVED FROM THE SITE. ALL STUMPS AND BRUSH SHALL BE GROUND OR CHIPPED AND REMOVED FROM THE SITE.

THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING THE DEBRIS IN A LAWFUL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.

ALL CLEARED AND DISTURBED AREAS MUST BE ROUGH GRADED TO ESTABLISH POSITIVE DRAINAGE BEFORE BEING SEEDED WITH TEMPORARY SEEDING.

PRICES BID PER FOOT FOR ALL PIPE IS COMPLETE IN PLACE REGARDLESS OF SOIL OR ROCK CONDITIONS.

THE CONTRACTOR SHALL CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. SHOULD THE CONTRACTOR WISH TO USE ANY AREA OUTSIDE THESE LIMITS, REQUEST IN WRITING MUST BE SUBMITTED TO THE OWNER. THE OWNER SHALL APPROVE THE REQUEST IN WRITING BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

THE CONTRACTOR SHALL OBTAIN A CITY OF HURON STREET OPENING PERMIT BEFORE BEGINNING WORK WITHIN ANY PUBLIC STREET RIGHT-OF-WAY.

THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS, BARRICADES, FLAGMEN, ETC. AS REQUIRED TO PERFORM THE REQUIRED WORK OR AS DIRECTED BY THE CITY OF HURON.

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE SUCH ADDITIONAL TRAFFIC CONTROL DEVICES LOCATED OUTSIDE THE LIMITS OF CONSTRUCTION AS ARE REQUIRED ON THOSE STREETS WHICH ARE USED AS DETOURS, INCLUDING THE "ROAD CLOSED" SIGNS AND BARRICADES AT THE POINT WHERE THE ROAD IS CLOSED TO THROUGH TRAFFIC.

NO PARKING OF CONTRACTORS OR CONTRACTOR EMPLOYEES VEHICLES ON ANY CITY STREETS SHALL BE PERMITTED.

THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES.

ALL DISTURBED SIGNS, GUARD RAILS, MAIL AND/OR PAPER BOXES, DRIVE AND DRIVE CULVERTS SHALL BE REPAIRED AND/OR REPLACED AS DIRECTED BY THE OWNER, HIS ENGINEER, AND THE CITY OF HURON.

COMPACTED PREMIUM BACKFILL (O.D.O.T. 304 LIMESTONE) WILL BE REQUIRED WHERE THE REMOVAL AND REPLACEMENT OF PAVEMENT IS REQUIRED. ALSO COMPACTED PREMIUM BACKFILL IS REQUIRED FOR UNDERGROUND CONSTRUCTION UNDER ANY ROADWAY AT A 45° ANGLE FROM THE OUTSIDE EDGE OF PAVEMENT OR THE TOP OF PROPOSED CURBS. THE METHOD OF BACKFILLING SHALL BE AS DIRECTED BY CITY OF HURON AND/OR THE OHIO DEPARTMENT OF TRANSPORTATION STANDARDS AND SHALL CONFORM TO SECTION 603.08 BACKFILLING FOR CONDUIT, AS SPECIFIED IN THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (LATEST EDITION). COMPACTION TESTS SHALL BE REQUIRED 1 EVERY 50 FEET UNDER PAVEMENT.

ANY DEFECTS IN THE CONSTRUCTION, INCLUDING MATERIALS OR WORKMANSHIP, SHALL BE REPLACED OR CORRECTED BY REMOVAL AND REPLACEMENT OR OTHER APPROVED METHODS, PRIOR TO ACCEPTANCE BY THE CITY OF HURON, ERIE COUNTY, OR THE OHIO DEPARTMENT OF TRANSPORTATION WITHOUT ANY EXTRA COST.

ALL SEWERS, MANHOLES, JUNCTION CHAMBERS AND INLET BASINS MUST BE CLEANED BEFORE ACCEPTANCE BY THE CITY OF HURON.

ADJUST TO GRADE OR RECONSTRUCT TO GRADE WORK SHALL, WHERE NECESSARY, INCLUDE THE REMOVAL AND REPLACEMENT OF ANY EXISTING CONCRETE BLOCKOUT PAVEMENT. DAMAGED PAVEMENT DOWELS OR OTHER SUCH LOAD TRANSFER DEVICES SHALL BE REPLACED AS DIRECTED BY THE CITY OF HURON. CASTINGS SHALL BE ADJUSTED TO GRADE IN ACCORDANCE WITH O.D.O.T. 604.

ALL EXISTING CASTINGS FOR STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE FIELD CHECKED AT THE TIME OF CONSTRUCTION AND MARKED SUITABLE FOR SALVAGE AND REUSE OR REPLACED AS DIRECTED BY THE ENGINEER.

STORMWATER POLLUTION PREVENTION:

ALL EROSION CONTROL DEVICES ARE TO BE INSPECTED AND MAINTAINED OR REPAIRED AS NECESSARY IMMEDIATELY FOLLOWING A STORM EVENT AND AT REGULAR INTERVALS.

ALL DISTURBED AREAS DURING CONSTRUCTION SHALL BE TEMPORARILY SEEDED PER SPECIFICATIONS ON SHEET C2.4.

THE CONTRACTOR SHALL FOLLOW ALL STORMWATER POLLUTION PREVENTION SPECIFICATIONS AS INDICATED IN THESE PLANS (SEE SHT. C2.0-C2.41) AND ALL OTHER SPECIFICATIONS THAT MAY BE REQUIRED BY THE CITY OF HURON, OHIO E.P.A. AND/OR ANY OTHER GOVERNING AUTHORITY.

FERTILIZING, SEEDING AND MULCHING FOR RESTORATION OF DISTURBED AREAS SHALL CONFORM TO SECTIONS 659.08 AND 659.09 AS SPECIFIED IN THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS (LATEST EDITION).

DUST CONTROL:
THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL, AND EQUIPMENT SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE NECESSARY TO MAINTAIN ALL ROADWAYS BEING USED FOR ACCESS TO THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL ORNANCES OF THE CITY OF HURON, THE OHIO E.P.A. AND/OR ANY OTHER GOVERNING AUTHORITY.

UTILITIES:

THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST THREE WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION OPERATIONS ADJACENT TO THEIR FACILITIES. THIS WORK SHALL CONFORM TO SECTION 107.17 AS THERE ARE EXISTING UNDERGROUND UTILITIES WHICH CROSS THE PROPOSED REPLACEMENT WORK AREAS. ALTHOUGH THEIR EXACT LOCATION CANNOT BE DETERMINED, IT IS KNOWN THAT THESE UTILITIES ARE LOCATED WHERE DIGGING IS REQUIRED. THE CONTRACTOR SHALL CONDUCT THE REQUIRED EXCAVATION IN THESE AREAS WITH EXTREME CAUTION. THE CONTRACTOR SHALL CALL ALL UTILITIES AND THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 AT LEAST TWO (2) WORKING DAYS PRIOR TO DIGGING. NON-MEMBER UTILITY COMPANIES MUST BE CALLED DIRECTLY.

THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY SERVICES FOR AND ACCESS TO ALL OCCUPIED BUILDINGS AND ADJACENT PROPERTIES ARE MAINTAINED.

THE CONTRACTOR SHALL COORDINATE WITH ALL REQUIRED UTILITY COMPANIES REGARDING REMOVAL OF EXISTING POLES, OVERHEAD WIRES, UNDERGROUND WIRES AND GAS LINES. ALL ADJUSTMENT OR RECONSTRUCTION WORK, EXCEPT FOR THOSE STRUCTURES OWNED BY PRIVATE COMPANIES, SHALL BE PERFORMED BY THE CONTRACTOR. WHERE APPLICABLE, THE TIME BETWEEN RESETTLE THE CASTINGS AND PAVEMENT CONSTRUCTION SHALL BE KEPT TO AN ABSOLUTE MINIMUM.

ANY AND ALL WORK REQUIRED FOR REMOVAL, RELOCATION AND/OR NEW CONSTRUCTION FACILITIES FOR PRIVATE OR PUBLIC UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS.

THE LOCATIONS OF ALL EXISTING UTILITIES, GAS LINES AND OVERHEAD AND/OR UNDERGROUND ELECTRIC, TELEPHONE, CABLE T.V. AND FIBEROPTICS SHALL BE DETERMINED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES AND VALVE BOXES, ETC., ARE TO BE HELD BY THE CONTRACTOR DURING CONSTRUCTION.

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO OR CROSS EITHER OVER OR UNDER AN EXISTING UTILITY, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING UTILITY BOTH AS TO LINE AND GRADE, BEFORE BEGINNING TO LAY THE PROPOSED CONDUIT. THERE WILL BE NO EXTRA PAYMENT FOR THE ABOVE WORK.

ALL CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR SEWERS, GRADING AND PAVING ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS (LATEST EDITION) AND THE ORDINANCES OF THE CITY OF HURON. WHERE CONFLICTS OCCUR IN THE ABOVE, THE CITY OF HURON SHALL BE THE GOVERNING AUTHORITY.

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECK AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE DESIGN ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS AND THE CONTRACTOR IS THEREFORE URGED TO PROCEED WITH CAUTION AND FOLLOW THE PROCEDURE FOR CONTACTING O.U.P.S. PRIOR TO COMMENCING CONSTRUCTION.

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UNDERGROUND AND ABOVE GROUND UTILITY LINES. IT MAY BE NECESSARY TO CHANGE THE ALIGNMENT OR THE FLOW LINE ELEVATION OF PROPOSED SEWERS DUE TO EXISTING UTILITY LINES. THE CONTRACTOR SHALL MAKE INVESTIGATIONS TO DETERMINE THE LOCATION OF EXISTING UTILITY LINES PRIOR TO THE INSTALLATION OF THE PROPOSED IMPROVEMENTS. ALL PROPOSED CHANGES MUST BE APPROVED BY THE OWNER'S ENGINEER AND THE CITY OF HURON.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING WATER AND SEWERAGE SYSTEM RESULTING FROM NON-CONFORMANCE WITH THE APPLICABLE STANDARDS OR THROUGH GENERAL NEGLIGENCE.

BEFORE ANY WORK IS STARTED ON THE PROJECT, REPRESENTATIVES OF THE CITY OF HURON, AND THE CONTRACTOR ALONG WITH THE ENGINEER SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE, AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS AND EXISTING VIDEO TAPES. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE CITY OF HURON.

THE END OF EACH CONNECTION SHALL BE SEALED WITH A TIGHT FITTING PLUG AND THE END OF EACH CONNECTION SHALL BE MARKED WITH A 2" X 2" HARDWOOD STAKE, EXTENDING VERTICALLY FROM THE END OF THE CONNECTION TO A POINT APPROXIMATELY THREE FEET ABOVE THE SURFACE OF THE GROUND. MARKERS SHALL BE COLOR CODED: STORM – GREEN; SANITARY – RED; WATER – BLUE. CURBS SHALL BE MARKED WITH THE FOLLOWING SYMBOLS ON EACH LOT AT TIME OF PAVEMENT INSTALLATION (IF POSSIBLE):

Δ – SANITARY
+ – STORM
w – WATER

ALL CONNECTIONS TO EXISTING PIPES FOR SANITARY SEWERS SHALL BE MADE IN ACCORDANCE WITH THE CITY OF HURON REQUIREMENTS.

ALL SANITARY SEWER CONDUIT SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

POLYVINYL CHLORIDE (PVC) ASTM D-3034 (SDR 35 OR 26 AS SPECIFIED) WITH GASKET MATERIAL CONFORMING TO ASTM F-477 AND JOINTS PER ASTM D-3212. WYE BRANCHES SHALL BE PERFORMED WYES, 6" DIA. RISERS & CONNECTIONS.

WHERE THE PLANS PROVIDE FOR CONNECTION TO/OR CROSSING EITHER OVER OR UNDER AN EXISTING PIPE, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE PRIOR TO STARTING CONSTRUCTION. COST IS TO BE INCLUDED IN THE PRICES BID.

OHIO EPA WATER MAIN NOTES:

- BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
- THE PROPOSED IMPROVEMENTS WILL PROVIDE A MINIMUM 35 PSI PRESSURE AT THE CURB STOP DURING NORMAL OPERATING CONDITIONS.
- A TEN FEET MIN. HORIZONTAL DISTANCE (OUT TO OUT) MUST BE MAINTAINED BETWEEN WATER LINES AND SANITARY SEWER.
- AN EIGHTEEN INCH MIN. VERTICAL SEPARATION (OUT TO OUT) MUST BE MAINTAINED BETWEEN WATER LINES AND SANITARY SEWER AT CROSSINGS.
- A TEN FEET MIN. HORIZONTAL DISTANCE (OUT TO OUT) MUST BE MAINTAINED BETWEEN WATER LINES AND STORM SEWERS.
- A EIGHTEEN INCH MIN. VERTICAL SEPARATION (OUT TO OUT) MUST BE MAINTAINED BETWEEN WATER LINES AND STORM SEWERS AT CROSSINGS.

OHIO EPA SANITARY NOTES:

- THE LEAKAGE TEST LIMIT IS 100 GALLONS/IN DIAMETER OF PIPE/MILE/DAY.
- ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER LINES ARE PROHIBITED.
- THE CONTRACTOR IS RESPONSIBLE FOR TESTING THE SANITARY SEWERS AND MANHOLES IN ACCORDANCE WITH THE STANDARDS OF THE G.L.U.M.R.B. "TEN STATES STANDARDS" AND THE OHIO E.P.A.
- PRECAST COLLARS AND/OR BRICKS FOR HEIGHT ADJUSTMENT SHALL MEET ASTM C-32 STANDARDS.

CLEARING AND GRUBBING:

- THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS AS SHOWN.
- ALL TREES, BRUSH AND OTHER VEGETATION WITHIN THE LIMITS OF THIS PROJECT THAT INTERFERE WITH THE CONSTRUCTION SHALL BE REMOVED FROM THE SITE. ALL STUMPS AND BRUSH SHALL BE GROUND OR CHIPPED AND REMOVED FROM THE SITE.
- ALL CLEARED AND DISTURBED AREAS MUST BE ROUGH GRADED TO ESTABLISH POSITIVE DRAINAGE BEFORE BEING SEEDED WITH TEMPORARY SEEDING.

INSPECTION:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL NECESSARY PERMITS FROM THE CITY OF HURON AND ANY OTHER AGENCY FOR ANY WORK DONE BY THE CONTRACTOR. ANY INSPECTION AND/OR TESTING COSTS SHALL BE PAID BY THE CONTRACTOR.

THE FOLLOWING ITEMS SHALL BE PAID BY THE CONTRACTOR AND INCLUDED IN THE BID PRICES FOR THE VARIOUS WORK ITEMS: WATER TAP-IN FEES RELATED TO DOMESTIC SERVICE AND IRRIGATION CONNECTIONS
ALL INSPECTION AND TESTING COSTS
ALL ROAD OPENING PERMITS
ALL OTHER FEES RELATED TO PERFORMING THE REQUIRED WORK AS SHOWN IN THESE PLANS.

IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, INSPECTION COSTS WILL BE CHARGED TO THE CONTRACTOR IF NO NOTIFICATION IS MADE IN REGARD TO CANCELLATION OF WORK FOR THE INSPECTION TIME INCURRED.

A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. CONTACT THE CITY OF HURON ENGINEER (419) 433-5000 TO ARRANGE.

EARTHWORK:

- THE CONTRACTOR SHALL DEWATER THE SUBGRADE AS NECESSARY AND MAINTAIN GOOD SURFACE DRAINAGE OF THE CONSTRUCTION AREA. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES AND SHALL BACKFILL AND GRADE EXCAVATED AREAS SO AS TO ELIMINATE PONDING ON THE SITE.
- ALL EXCESS EXCAVATION AND/OR TOPSOIL SHALL BE STOCKPILED ON-SITE AS SHOWN OR AS DETERMINED BY THE OWNER. SOIL STOCKPILES SHALL BE RINGED WITH SILT FENCE.
- ALL EXISTING STREETS SHALL BE KEPT CLEAN OF SOIL AND/OR DEBRIS.
- THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL MATERIAL DEEMED UNSUITABLE FOR EMBANKMENT BY THE OWNER, OWNER'S ENGINEER OR THE GEOTECHNICAL ENGINEER AND DISPOSED OF OFF-SITE.
- THE INTENT OF THIS PROJECT IS TO UTILIZE ALL USEABLE MATERIALS EFFICIENTLY. ACTUAL FIELD CONDITIONS MAY REQUIRE DECISIONS ON MATERIAL HANDLING AND USAGE. THE CONTRACTOR SHALL CONTINUALLY MONITOR AND MAINTAIN SITE CONDITIONS.
- NO OFF-SITE GRADING WITHOUT PRIOR WRITTEN CONSENT FROM THE PROPERTY OWNER OF THE LAND TO BE GRADED.
- TOPOGRAPHY CONTOURS SHOWN IN ROADWAY AND TURF AREAS ARE TO THE TOP OF PROPOSED PAVEMENT OR TURF. CONTRACTOR SHALL PREPARE THE ROADWAY OR TURF AREAS TO SUBGRADE OF PROPOSED PAVEMENT OR TURF.

CRANES AND OVERHEAD POWER LINES:

1. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN CRANES AND BOOMED VEHICLES ARE OPERATED NEAR OVERHEAD POWER LINES PER O.S.H.A. REGULATIONS. ALL OVERHEAD POWER LINES SHALL BE CONSIDERED ENERGIZED UNLESS THE OWNER OF THE LINE OR THE ELECTRIC UTILITY COMPANY INDICATES THAT THE OVERHEAD POWER LINE HAS BEEN DE-ENERGIZED AND IT IS VISIBLY GROUNDED. THE O.S.H.A. REGULATIONS ARE SUMMARIZED AS FOLLOWS:

- EMPLOYERS SHALL ENSURE THAT OVERHEAD POWER LINES ARE DE-ENERGIZED OR SEPARATED FROM THE CRANE AND ITS LOAD BY IMPLEMENTING ONE OR MORE OF THE FOLLOWING PROCEDURES:
 - DE-ENERGIZE AND VISIBLY GROUND ELECTRICAL DISTRIBUTION AND TRANSMISSION LINES.
 - USE INDEPENDENT INSULATED BARRIERS TO PREVENT PHYSICAL CONTACT WITH THE POWER LINES.
 - MAINTAIN MINIMUM CLEARANCE BETWEEN ENERGIZED POWER LINES AND THE CRANE AND ITS LOAD.
 - WHERE IT IS DIFFICULT FOR THE CRANE OPERATOR TO MAINTAIN CLEARANCE BY VISUAL MEANS, A PERSON SHALL BE DESIGNATED TO OBSERVE THE CLEARANCE BETWEEN THE ENERGIZED POWER LINES AND THE CRANE AND ITS LOAD.
 - THE USE OF CAGE-TYPE BOOM GUARDS, INSULATING LINKS, OR PROXIMITY WARNING DEVICES SHALL NOT ALTER THE NEED TO FOLLOW REQUIRED PRECAUTIONS. THESE DEVICES ARE NOT A SUBSTITUTE FOR DE-ENERGIZING AND GROUNDING LINES OR MAINTAINING SAFE LINE CLEARANCES.
- THE CONTRACTOR SHALL INSTALL PROXIMITY WARNING DEVICES ON ALL EXISTING, TEMPORARY AND PERMANENT OVERHEAD WIRES LOCATED ON THE SITE.

STORM SEWER NOTES

- STORM SEWER PIPE MATERIAL SHALL BE AS SPECIFIED ON THE CONSTRUCTION PLANS AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

MATERIAL	TYPE	SPECIFICATIONS	ACCEPTABLE AREAS OF USE
REINFORCED CONCRETE PIPE (R.C.P.)	CLASS III (MIN.)	ASTM C-76, ODOT 706.02	WITHIN R/W OR AS SHOWN ON UTILITY PLANS, ALSO REFER TO NOTES C4.01
HIGH DENSITY POLYETHYLENE (H.D.P.E.) PIPE	SMOOTH-WALLED CORRUGATED	AASHTO M294 (TYPE S),ODOT 707.33	ON SITE
POLYVINYL CHLORIDE (P.V.C.)	SDR 35	ASTM D-3034 ODOT 707.45	4"-10" DIA. MAIN RUNS
P.V.C.	SDR 35 W/3 ROWS OF PERFORATIONS	ASTM D-3034 ODOT 605	4" UNDERDRAINS UNDER PAVEMENT

- ALL STORM SEWER PIPE IS TO BE SAW CUT, NOT BROKEN.

- ALL JOINTS BETWEEN SECTIONS OF REINFORCED CONCRETE PIPE (RCP) SHALL BE SEALED WITH BITUMINOUS JOINT MATERIAL IF THE SECTIONS ARE CLOSER THAN 6FT BARREL TO BARREL, PREMIUM JOINTS ARE REQUIRED.
- CONNECTIONS TO EXISTING STORM SEWER MAIN LINE PIPES SHALL BE MADE WITH THE LIKE PIPE MATERIALS.
- THE INSTALLATION OF STORM SEWERS AND CULVERTS SHALL BE IN ACCORDANCE WITH O.D.O.T. ITEM 611 SPECIFICATIONS, AND PROJECT SPECIFICATIONS.
- ALL ROCK CHANNEL PROTECTION SHALL BE PER O.D.O.T. ITEM 601.08, AS DIMENSIONED ON THE PLANS. NO BROKEN CONCRETE SHALL BE USED FOR CHANNEL PROTECTION.
- ALL STORM CONNECTIONS AND LATERALS SHALL HAVE A 6" MINIMUM GRANULAR BEDDING AND BACKFILL, (CLASS B).
- ALL MANHOLES SHALL BE SET TO GRADE PER THE CONSTRUCTION PLANS, BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THE FINAL ADJUSTMENT OF THE CASTINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THE FINAL INSPECTION, APPROVAL AND ACCEPTANCE OF THE OWNER SHALL BE CONTINGENT UPON THIS FINAL ADJUSTMENT OF THE CASTINGS.

SANITARY

PER THE ECODES, ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

DEFLECTION TESTS SHALL BE PERFORMED NO SOONER THAN 60 DAYS FOLLOWING THE COMPLETION OF BACKFILL. A RESPONSIBLE AGENCY OF AN ACCREDITED, INDEPENDENT TESTING LABORATORY SHALL PERFORM FINAL DEFLECTION TESTS AND SUBMIT VERIFICATION RECORDS OF RESULTS AND DATES TESTED. NO PIPE UNDER LOAD SHALL EXCEED A DEFLECTION OF 5 PERCENT OF THE BASE INSIDE DIAMETER PER ASTM D-2680 AND ASTM D-3034. DEFLECTION TESTING SHALL BE ACCOMPLISHED BY USING A GO, NO-GO MANDREL THROUGH THE PIPE, OR METHODS APPROVED BY LOCAL AUTHORITY. (UNIFORM STANDARDS FOR SEWAGE IMPROVEMENTS)

AN AIR LEAKAGE TEST SHALL BE PERFORMED PER ASTM F-1417. NOTE THAT THE LEAKAGE TEST LIMIT IS 100 GALLONS/INCH DIAMETER/MILE/DAY PER THE OHIO EPA STANDARDS.

ALL MANHOLES MUST BE TESTED FOR LEAKAGE PER ASTM C-1244.

UTILITY MATERIALS LIST

SANITARY SEWERS

THE SANITARY SEWER MAIN SHALL BE PVC MEETING ASTM D3034 WITH GASKET JOINTS MEETING ASTM D3212:

SDR 35 PIPES LESS THAN 8.5' DEEP
SDR 26 PIPES 8.5' THRU 21' DEEP

LATERALS SHALL BE 6" PVC SDR 35 MEETING ASTM D3034 WITH GASKETED JOINTS MEETING ATM D3212.

DUCTILE IRON PIPE – PER AWWA C150

WATER LINES

(SEE SITE DETAILS)

SYMBOL LEGEND
(EXISTING)

⊙	IRON PIN/PIPE FOUND
⊙	IRON PIN SET
Ⓜ	MONUMENT BOX FOUND
Ⓜ	EXISTING FIRE HYDRANT
Ⓜ	EXISTING WATER VALVE
Ⓜ	EXISTING GAS VALVE
Ⓜ	EXISTING CLEAN OUT
Ⓜ	EXISTING WATER CORP STOP
Ⓜ	EXISTING GAS METER
Ⓜ	EXISTING WATER METER
Ⓜ	EXISTING ELECTRIC METER
Ⓜ	EXISTING SQUARE INLET BASIN
Ⓜ	EXISTING MANHOLE
Ⓜ	EXISTING CURB INLET BASIN
Ⓜ	EXISTING GUTTER INLET BASIN
Ⓜ	EXISTING FLAG POLE
Ⓜ	EXISTING SIGNAL POLE
Ⓜ	EXISTING POWER POLE
Ⓜ	EXISTING GUY ANCHOR
Ⓜ	EXISTING LIGHT POLE
Ⓜ	EXISTING TRAFFIC SIGNAL
Ⓜ	EXISTING TRANSFORMER
Ⓜ	EXISTING UTILITY BOX (ELEC, TELE,)
Ⓜ	EXISTING TRAFFIC BOX
Ⓜ	EXISTING BOLLARD
Ⓜ	EXISTING TRAFFIC SIGN
Ⓜ	EXISTING TREE
—	EX. SANITARY SEWER
—	EX. STORM SEWER
—	EX. WATER LINE
-X--X-	EX. FENCE
—	EX. OVERHEAD LINES
—	EX. GAS LINE
—	EX. UNDERGROUND ELECT.
—	EX. UNDERGROUND TELE.
—	EX. OVERHEAD UTILITY LINE

SYMBOL LEGEND
(PROPOSED)

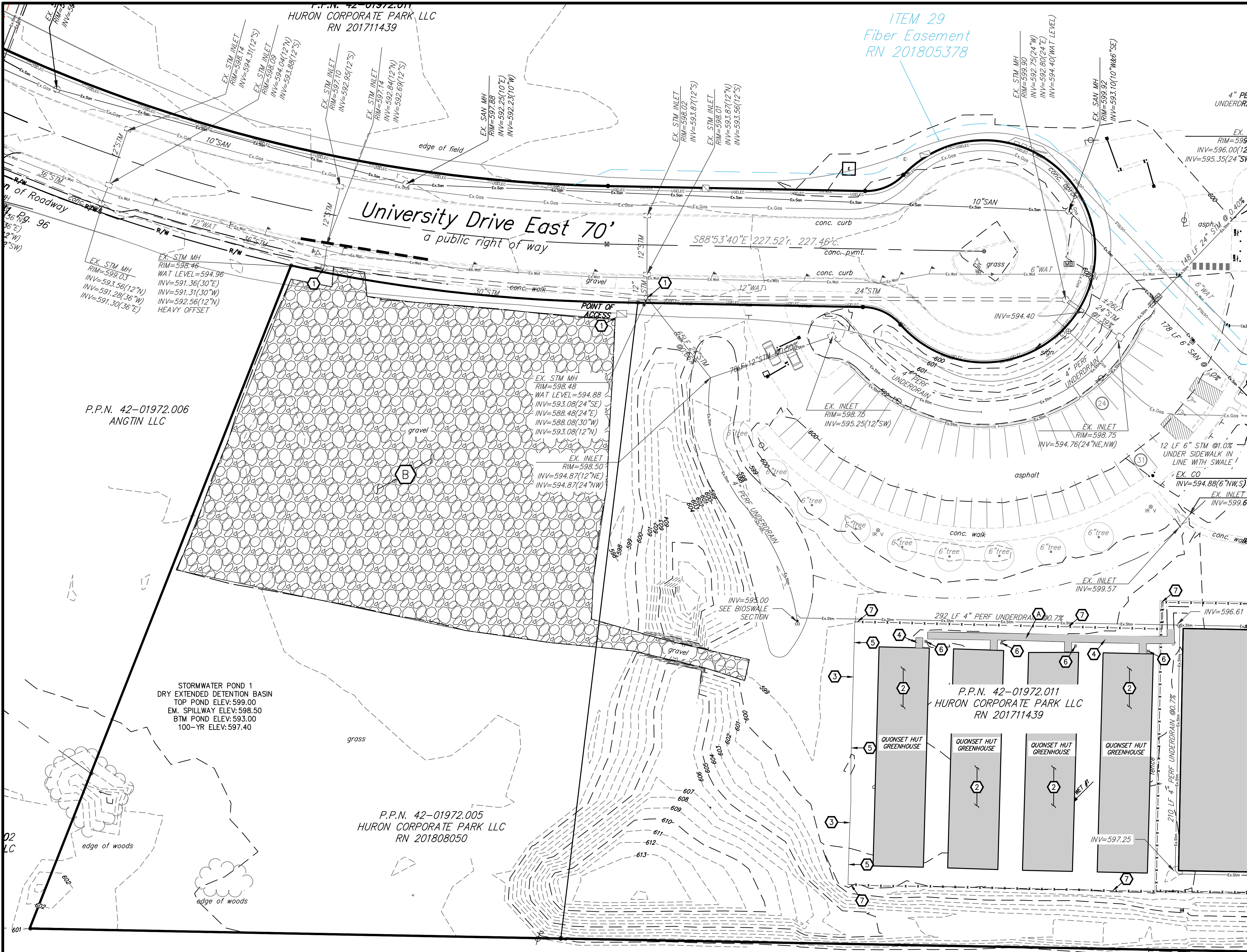
REFER TO SURVEY FOR EXISTING CONDITIONS LEGEND	
⊙	PROPOSED ROUND INLET
⊙	PROPOSED MANHOLE
⊙	PROPOSED CLEAN OUT
Ⓜ	PROPOSED FIRE HYDRANT
Ⓜ	PROPOSED TRAFFIC CONTROL SIGNAL
Ⓜ	PROPOSED SQUARE INLET
Ⓜ	PROPOSED GUTTER INLET
Ⓜ	PROPOSED WATER VALVE
Ⓜ	SOIL BORING
—	LIMITS OF DISTURBANCE

ABBREVIATIONS

C. or CALC.....	CALCULATED
C.....	CENTER LINE
CONC.....	CONCRETE
C.D.R.....	COUNTY DEED RECORD
C.P.R.....	COUNTY PLAT RECORD
D.....	DEED
EX.....	EXISTING
F.....	FOUND
FF EL.....	FINISH FLOOR ELEVATION
INSTR.....	INSTRUMENT
L/A.....	LIMITED ACCESS
MON.....	MONUMENT
O. or OBS.....	OBSERVED
PG.....	PAGE
P or P/L.....	PROPERTY LINE
R. or REC.....	RECORD
R/W.....	RIGHT OF WAY
U.....	USED
VOL.....	VOLUME
SAN.....	SANITARY
SIM.....	STORM
W.....	WATER
INV.....	INVERT
PVC.....	POLYVINYL CHLORIDE
VCP.....	VITRIFIED CLAY PIPE
RCP.....	REINFORCED CONCRETE PIPE
CMP.....	CORRUGATED METAL PIPE
GUT.....	GUTTER
TC.....	TOP OF CURB

	03-12-26	REVISED PLANNING SUBMITAL	
	02-09-26	PLANNING SUBMITTAL	
	12-10-25	PROGRESS SET	
REV NO	DATE	DESCRIPTION	
DWG NAME	DRAWN BY	CHK'D BY	JOB NO
DWG NAME	DMB	GHW	14057F

N:\LAND DEVELOPMENT\Proj\150077-Huron Corporate Park\150077-01.dwg, CLO, 3/12/2025, 8:39:47 AM



LEGEND

CONSTRUCTION LIMITS
(LIMITS OF DISTURBANCE)

EX. CURB/SAWCUT
(TO BE REMOVED)

EX. UTILITY
(TO BE REMOVED)

EX. PAVEMENT, CURBS, AND
BOLLARDS
(TO BE REMOVED)

EX. GRAVEL DRIVE
(TO BE REMOVED)

KEY NOTES

- EXISTING UTILITY STRUCTURE, TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
- EXISTING GREENHOUSES TO REMAIN AND BE PROTECTED
- EXISTING FENCE SECTION TO BE REMOVED AND SAVE, COORDINATE WITH OWNER FOR STORAGE LOCATION.
- EXISTING CONCRETE PAD/TILE TO BE REMOVED AND SAVED, COORDINATE WITH THE OWNER FOR STORAGE LOCATION
- EXISTING SECURITY CAMERAS TO BE RELOCATED, COORDINATE WITH OWNER FOR NEW LOCATION
- EXISTING UTILITY BOX TO REMAIN AND BE ADJUSTED TO PROPOSED SIDEWALK GRADE, SEE SHEET C3.0 FOR MORE DETAILS
- EXISTING FENCE SECTION TO REMAIN AND BE PROTECTED.

ALL TREES ARE TO BE REMOVED WITHIN LIMITS OF DISTURBANCE UNLESS OTHERWISE NOTED ON THE PLANS.

	03-12-26	REVISED PLANNING SUBMITAL	
	02-09-26	PLANNING SUBMITTAL	
	12-10-25	PROGRESS SET	
REV NO	DATE	DESCRIPTION	
DWG NAME	DRAWN BY	CHKD BY	JOB NO
DWG NAME	DMB	GHW	14057F

0 15 30 45

SCALE
1 INCH = 30 FEET
24 x 36
SHEETS ONLY

NORTH

HURON CORPORATE PARK LLC

EXISTING CONDITIONS AND DEMOLITION PLAN

CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

NEFF & ASSOCIATES

Civil Engineers • Landscape Architects • Planners • Surveyors

6405 E. 14th Avenue, Suite 100, Huron, OH 44829-1100

Phone: 440.884.5100 | Fax: 440.884.3104

www.neff-assoc.com

SHEET NO.

C1.0

COVER SHEET	C2.0
NOTES	C2.1
NOTES	C2.2
SITE PLAN	C2.3
DETAILS	C2.4
DETAILS	C2.5
DETAILS	C2.6

I, THE UNDERSIGNED, DO HEREBY CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR THE SYSTEM, I AM AWARE THAT THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

FIRELANDS SCIENTIFIC
2300 UNIVERSITY DR. EAST
HURON, OH 44839
ATTN: MARK HOBART
EMAIL: mark.hobart@firelandsscientific.com

OWNER/PERMITEE SIGNATURE _____ DATE _____

I, THE UNDERSIGNED, DO HEREBY ASSENT TO AND ACKNOWLEDGE HAVING REVIEWED AND UNDERSTAND THE TERMS AND CONDITIONS OF THIS STORM WATER POLLUTION PREVENTION PLAN AND THE TERMS AND CONDITIONS OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY NPDES GENERAL PERMIT.

GENERAL CONTRACTOR CONTACT SIGNATURE _____ DATE _____

NEFF & ASSOCIATES
6405 YORK ROAD
PARMA HEIGHTS, OHIO 44130
PHONE: (440) 884-3100 FAX:
(440) 884-6443 CONTACT:
JEFFREY M. PLAUTZ, P.E.

JEFFREY M. PLAUTZ – REGISTERED ENGINEER No. 71328

PRE-2
0.15 AC.

City Drive East 70'
a public right of way

PRE-4
0.53 AC.

PRE-1
2.43 AC.

PRE-3
0.28 AC.

Bio Basin
1.30 AC.

PRODUCTION
WASTEWATER
25.62 MG/D

CmA - Colwood Loam, 0 to 1 percent slopes - 5.9% of site
HkA - Haskins loam, 0 to 2 percent slopes - 34.7% of site
Mfa - Milford silty clay loam, 0 to 1 percent slopes - 32.9% of site
RcA - Rawson sandy loam, 0 to 2 percent slopes - 26.4% of site

PRE-DEVELOPMENT
DRAINAGE AREA(S)

[illegible]

POST-DEVELOPMENT
DRAINAGE AREA(S)

[illegible]

Instructions:
Create a log above or as an attachment, of changes and updates to the SWPPP. You should include additions of new BMPs, replacement off failed BMPs, significant changes in the activities or their timing on the project, changes in personnel, changes in inspection and maintenance procedures, updates to site maps, and so on.

[illegible]

Instructions:
Create a log above or as an attachment, of grading and stabilization activities on the construction site.

THE LOCATIONS OF ALL EROSION AND SEDIMENT CONTROL PRACTICES, INCLUDING IF APPLICABLE BUT NOT LIMITED TO THE LOCATION OF AREAS LIKELY TO REQUIRE TEMPORARY STABILIZATION, SEDIMENT AND STORM WATER MANAGEMENT BASINS, PERMANENT STORM WATER MANAGEMENT PRACTICES, AREAS DESIGNATED FOR STORAGE OF MATERIALS, THE LOCATION OF DESIGNATED CONSTRUCTION ENTRANCES, AND THE LOCATION OF ANY IN-STREAM ACTIVITIES CAN BE FOUND ON SHEET C2.3 WITHIN THIS STORM WATER POLLUTION PREVENTION PLAN.

	03-12-26	REVISED PLANNING SUBMITAL
	02-09-26	PLANNING SUBMITTAL
	12-10-25	PROGRESS SET
REV NO	DATE	DESCRIPTION
DWG NAME	DRAWN BY	CHKD BY
DWG NAME	DMB	GHW
		14057F

120
60
30
0



SCALE
1 INCH = 60 FEET
24 x 36
SHEETS ONLY



NORTH

HURON CORPORATE PARK LLC
SWP3 COVER SHEET
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

NEFF
& ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104

SHEET NO.
C2.0

\\LAND DEVELOPMENT\Proj\J4057F Hursen Cultivation Expense\AutoCAD\J4057F-C.dwg, C2.O, 3/12/2026 8:39:56 AM

SITE DESCRIPTION

Project Name and Location: Huron Cultivation Expansion
Cleveland, Ohio

Owner Name and Address: HUB 27 LLC
9100 CENTRE POINT DRIVE, SUITE 210
WEST CHESTER, OHIO 45069

Site Description: (Nature and Types of Construction Activities)

This project will consist of a two story laboratory building and associated green houses and the installation of all utilities to service the new building and asphalt and concrete parking lot, and a dry basin. Soil disturbing activities will include: clearing and grubbing; installing a stabilized construction entrance, perimeter, and other erosion and sediment controls; grading; storm sewer; grading to pavement subgrade; and, preparation for final planting and seeding as shown on the Storm Water Pollution Prevention Plan.

Site Area

The site is approximately 2.39 acres of which 3.45 acres will be disturbed by construction activities.

Impervious Area (Acres)

Pre-Construction	Post-Construction
0.00 Ac. (Impervious)	0.99 Ac. (Impervious)
3.39 Ac. (Pervious)	2.40 Ac. (Pervious)
3.39 Ac. (Total)	3.39 Ac. (Total)
0.00% (Impervious)	29.20% (Impervious)

Runoff Coefficient

Pre-Development Run-off Coefficient (C) = 80

	Area (Ac.)	CN	Area x CN
Soil Group D – Open Space (Good) Cover	3.39	80	271.2
Soil Group D – Woods (Good) Cover	0.00	77	0.0
Soil Group D – Impervious Cover	0.00	98	0.00
	3.39 Total		271.2 Total

Post-Development Run-off Coefficient (C) = 85

	Area (Ac.)	CN	Area x CN
Soil Group D – Open Space (Good) Cover	2.40	80	192.0
Soil Group D – Woods (Good) Cover	0.00	77	0.0
Soil Group D – Impervious Cover	0.99	98	0.99
	3.39 Total		131.2 Total

Soil Types

A: CmA – Colwood loam, 0 to 1 percent slopes 13.3% of Site
B: HkA – Haskins loam, 0 to 2 percent slopes 18.4% of Site
C: MfA – Milford silty clay loam, 0 to 1 percent slopes 36.6% of Site
D: RcA – Rawson sandy loam, 0 to 2 percent slopes 31.7% of Site

Prior Land Use

The site was previously a cleared vacant lot with a gravel pad.

Sequence of Major Activities

Implementation of ALL necessary erosion, sediment, non-sediment pollutant controls, storm water management practices or facilities, and post-construction best management practices to be employed during each operation of the sequence.

The order of activities will be as follows:

1. Install stabilized construction entrance, silt fence, and inlet protection on all existing inlets.
2. Clear and grub site.
3. Strip & stockpile topsoil.
4. Stabilize denuded areas & stockpiles within 7 days of lot construction activity in that area.
5. Commence earthwork activities.
6. Install underground utilities and grade sediment basin. Immediately install inlet protection when storm inlets are installed.
7. Finalize grade to pavement subgrade. Once subgrade is reached, immediately install aggregate base to all pavement areas to help reduce sediment laden runoff.
8. Apply temporary stabilization to all disturbed areas.
9. Install building foundation, pavement, and sidewalk per this planset.
10. Install proposed landscaping.
11. Remove all temporary sediment controls upon establishment of permanent stabilization and convert sediment basin to dry basin.
12. Reseed any disturbed areas.
13. Clean & Jet storm sewer system to remove and sediment from construction activities and remove any sediment buildup from dry basin.

Name of Receiving Waters

Most of the site will drain into an existing storm sewer on site. Portions of the site to the South will sheet flow to an existing farm field and eventually drain into unnamed tributaries of Lake Erie.

CONFORMANCE STATEMENT

Implementation of sediment and erosion controls will conform to the Ohio EPA NPDES Construction General Permit #OHCC000006 and City of Huron Codified Ordinances. If a conflict exists regarding the implementation of sediment and erosion controls, the more restrictive shall apply.

GENERAL NOTES:

Notice of Intent (NOI) must be submitted to the Ohio EPA for NPDES Permit 21 days prior to the start of clearing and grading.

All construction activities must comply with all local erosion and sediment control regulations.

All erosion and sediment control practices must meet the standards and specifications of the current edition of the Ohio Rainwater and Land Development Manual.

Other erosion control items may be necessary due to environmental conditions.

The contractor shall use erosion control measures as necessary to prevent sediment movement into areas designated as wetlands.

No solid or liquid waste shall be discharged into storm water runoff.

The contractor shall use indicated area designated for the storage or disposal of solid, sanitary, and toxic wastes, including dumpster, cement truck washout, and vehicle refueling areas.

Cast iron catch basins, grates, and inlet covers with messages such as, "Dump No Waste, Drains to Waterways" shall be utilized as a non-structural best management practice that promotes pollution prevention and conservation awareness. All catch basin grates and inlet covers shall be specified with an equivalent message.

SEDIMENT AND EROSION CONTROLS

Non-Structural Preservation Methods

Practices shall be used which preserve the existing natural condition as much as possible. Such practices may include: preserving riparian areas adjacent to surface waters of the State, preserving existing vegetation and vegetative buffer strips, phasing construction operations in order to minimize the amount of disturbed land at any one time, and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the State is 25 feet as measured from the ordinary high water mark of the surface water.

Erosion Control Practices

All disturbed areas of the site shall be protected by stabilization practices. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances, and the use of alternative ground cover.

Permanent Stabilization

The timing specifications for the permanent seed can be found in the table below. The permanent seed shall be applied as per the permanent seeding specifications, see sheet C2.5. Note that 70% vegetative density is required on all disturbed soil areas for stabilization.

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Temporary Stabilization

The timing specifications for the temporary seed can be found in the table below. The temporary seed shall be applied as per the temporary seeding specifications, see sheet C2.4. Areas of the site which are to be paved will be temporarily stabilized by applying stone sub-base until pavement can be applied. Note that 70% vegetative density is required on all disturbed soil areas for stabilization.

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the State and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the State	Within seven days of the most recent disturbance within the area
	For residential subdivision, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s)
Disturbed areas that will be idle over winter	Prior to onset of winter weather (November 1).

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

Permanent Stabilization of Conveyance Channels

Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include: seeding, dormant seeding, mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.

INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present onsite during construction:

Concrete
Detergents
Paints (enamel and latex)
Metal Studs
Asphalt
Tar
Fertilizers
Petroleum Based Products
Cleaning Solvents
Wood

INSPECTION NOTES

Regular inspection (by a qualified personnel) and maintenance will be provided for all erosion and sediment control practices. Inspections are to be performed until the Notice of Termination (N.O.T.) is filed. Permanent records of maintenance and inspections must be kept throughout the construction period and for 3 years after the (N.O.T.) is filed with the Ohio E.P.A. Inspections must be made a minimum of once every 7 days and immediately after storm events greater than 0.5 inches of rain in a 24 hour period by a qualified inspector. Provide name of inspector, major observations, date of inspection and corrective measures taken.

Temporary BMPs shall be repaired within 3 days of being identified as deficient. New temporary BMPs shall be installed within 10 days of identifying that a current BMP is not functioning as intended. Temporary BMPs that were not installed shall be installed within 10 days of being identified as missing.

TIMING OF CONTROLS/MEASURES

As indicated in the Sequence of Major Activities, stabilized construction entrance and silt fence will be constructed prior to clearing or grading of any other portions of the site. Areas where construction activity temporarily ceases for more than 14 days will be stabilized with a temporary seed and mulch within 7 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, the accumulated sediment will be removed.

Disturbed areas that are to remain dormant for over 1 year or at final grade shall have permanent erosion controls applied within 7 days.

SOIL PROTECTION CHART

STABILIZATION TYPE	J	F	M	A	M	J	J	A	S	O	N	D
PERMANENT SEEDING				●	●	●	●	*	*	●	●	●
DORMANT SEEDING	●	●	●	●	●	●	●	●	●	●	●	●
TEMPORARY SEEDING				●	●	●	●	*	*	●	●	●
SODDING				***	***	***	***	***	***	***	***	***
MULCHING	●	●	●	●	●	●	●	●	●	●	●	●

* – IRRIGATION NEEDED
** – IRRIGATION NEEDED FOR 2–3 WEEKS AFTER SOD IS APPLIED

Runoff Control Practices

Measures shall be implemented which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include: rock check dams, pipe slope drains, diversions to direct flow away from exposed soils, and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

Sediment Control Practices

Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days, which store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond, and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

Sediment Control Practices: (Implemented in this plan)

Sediment Settling Ponds	X
Silt fences	X
Earth Diversion Channels	
Other	

Timing

Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.

Sediment Settling Ponds

A sediment settling pond is required for any one of the following conditions:

- Concentrated storm water runoff (e.g., storm sewer or ditch)
- Runoff from drainage areas, which exceed the design capacity of silt fence or other sediment barriers
- Runoff from drainage areas that exceed the design capacity of inlet protection
- Runoff from common drainage locations with 10 or more acres of disturbed land.

Silt Fence and Diversions

Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour down slope of the disturbed area.

Inlet Protection

Inlet protection shall be used to minimized sediment laden water entering the active storm sewer system.

Surface Waters of the State Protection

If construction activities disturb areas adjacent to surface waters of the State, structural practices shall be implemented on site to protect all adjacent surface waters of the State from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling sediment pond) shall be used in a surface water of the State. For all construction activities immediately adjacent to surface waters of the State, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE												
NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE												
CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY CONSTRUCTION ENTRANCE												
TEMPORARY CONTROL MEASURES												
SEDIMENT CONTROL BASINS												
STRIP & STOCKPILE TOPSOIL												
ROUGH GRADE												
STORM FACILITIES												
SITE CONSTRUCTION												
PERMANENT CONTROL STRUCTURES												
FINISH GRADING												
LANDSCAPING/SEED/FINAL STABILIZATION												

1) CONTRACTOR SHALL UPDATE THE TABLE BY DATING THE APPLICABLE ACTIVITIES AS PROJECT PROGRESSES.
2) TIME SCHEDULE MUST CONCLUDE WITH SEQUENCE OF CONSTRUCTION.

SPILL PREVENTION

Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials on-site.

Hazardous Products

These practices are used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturers' or Local and State recommended methods for proper disposal will be followed.

Emergency Contact Information

In the event of a spill of petroleum fuel over 25 gallons, the contractor shall contact the Ohio EPA at 1-800-282-9378, the Cleveland Fire Department at (216) 664-6800



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MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices

These are the inspection and maintenance practices that will be used to maintain erosion and sediment:

- Less than 100% of the site will be denuded at one time.
- All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.
- Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Diversion dikes will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector. The site superintendent will select individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance report.

Non-Stormwater Discharges

It is expected that the following non-stormwater discharges will occur from the site during the construction period:

- Water from water line flushings.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater (from dewatering excavation).
- There shall be no sediment-laden discharges to surface waters resulting from dewatering activities. It is recommended that if a trench or ground water contains sediment that it must pass through an effective sediment control device prior to being discharged from the construction site.

Dewatering Procedures

Should dewatering be required, e.g., from trenches, etc., during construction, all water shall be pumped to the temporary sediment basins, if possible, before being released to downstream channels, storm sewers, etc. If a temporary sediment basin is not shown on the plan, or not achievable for dewatering, the water shall be pumped into a sediment trap or through sediment bags onto a relatively flat surface away from inlet basins, streams, etc.

POST-CONSTRUCTION INSPECTION PROCEDURE

- The property owner or its authorized representative(s) is responsible for the inspection of the newly installed structures for outlet damage, proper flow, and sediment accumulations.
- Maintenance costs, if inspected by the owner or the owner's representative(s), will be paid by the owner.
- The site shall be maintained per the Post-Construction Maintenance Plan following the submittal of the NOT.
- Regular inspections, especially following major storm events, will require an inspection report that shall be kept by the owner and submitted, if required, to the City of Huron Utilities Department.

VEGETATION MAINTENANCE PLAN

This is a suggested schedule only. Vegetative needs may vary depending on site conditions.

Some maintenance needs include:

- pH adjustment (as required)
- pruning
- pest control
- reseeding (in particular after maintenance of forebay and micro pool if disturbances have occurred)
- thatch and weed removal

Thatch removal includes the following unwanted woody seedlings in shoreline areas:

- Cottonwood (Populus deltoides)
- Willow (Salix spp.)
- Silver Maple (Acer saccharinum)

Weed removal includes the following species detrimental to wetland plantings:

- Common Reed (Phragmites australis)
- Cattails (Typha spp.)
- Purple Loosestrife (Lythrum salicaria)

When removing the Purple Loosestrife it is important to remove the large root systems as well as the plant prior to flowering (June through September). The plant and its parts should be immediately placed in a bag to prevent further spread of the species. If this procedure is not possible, regular remove the flower heads before seeds are dispersed.

If Weed growth exceeds 10" in height in seeded areas trim or mow to 4". Do not cut areas where live plants were installed.

LONG TERM MAINTENANCE PLAN

Typical Maintenance Activity For The Underground Detention System

The Owner will be responsible for the long term maintenance of the dry basin.

This is a suggested schedule only, depending on rainfall and site conditions, the need for maintenance may vary.

Monthly: Clean trash and debris from outlet structure. Address any accumulation of hydrocarbons.

Annually: Inspect outlet structure for proper flow. Monitor sediment accumulations in Forebay and Micropool

3-7 Years: Remove sediment as needed.*

15-20 Years: Monitor sediment throughout the bottom of the basin and remove as needed to prevent volume being reduced significantly.

* This preservation operation should be scheduled when the forecast calls for dry weather, and in conjunction with any scheduled vegetation maintenance to allow all disturbed or damaged areas to be properly restored.

POST-CONSTRUCTION STRUCTURAL BMPs

Vegetative Controls (Check those that apply to this SWPP Plan)

Forested Buffer Strip
Constructed Wetlands
Swales
Turf Reinforcement Mats
Preserving Natural Vegetation
Rain Gardens
Grass-Lined Channels and Swales
Grass Filter Strips
Filter Berms
Other

Infiltration Controls

Infiltration Trenches
Dry Wells
Sand & Organic Filters
Porous Pavement
Infiltration Drainfields
Infiltration Basins
Other

Treatment Controls

Separators
Filtration Devices
Catch Basin Inserts
Catch Basin Skimmers
Hydrodynamic Separators
Bioretention
Other

POST-CONSTRUCTION NON-STRUCTURAL BMPs

(Check those that apply to this SWPP Plan)

Education Materials
School Storm Water Programs
Public Meeting & Citizen Groups
Illicit Discharge Detection Programs
Regulatory Ordinances
BMP Operation & Maintenance Requirements
Street Sweeping, Catch Basin Cleaning
Yardwaste Controls
Recycling & Pollution Prevention Programs
Alum Injection
On-Lot Treatment
Buffer Zones
Open Space Design
Urban Forestry
Conservation Ordinances
Eliminating Curbs and Gutters
Green Parking
Alternative Turn-A-Rounds
Alternative Pavers
Zoning
Other

Description and Rationale for the Post-Construction BMP(s) Used in This Plan

- See Post-Construction BMP Water Quality Design Rationale below.

POST-CONSTRUCTION STRUCTURAL BMPs (cont'd)

Runoff Controls (Check those that apply to this SWPP Plan)

Minimize Clearing
Land Grading
Permanent Diversions
Detention Basin
Retention Basin
Sediment Basin
Water Quality Pond
Wet Ponds
Dry Extended Detention Ponds
Construction Entrances
Rip-Rap
Check Dams
Stabilize Drainage Ways
Dust Control
Level Spreader
Conveyance Channel
Outlet Protection
Subsurface drainage
Other

Erosion Controls

Stabilize Exposed Soil
Chemical Stabilization
Mulching
Permanent Seeding
Sodding
Soil Roughening
Other

Stream Channel Construction and Restoration

Eddy Rocks
Deflectors
Gravel Riffle
Multi-Stage Channel
Rock Check
Streambank Stabilization
Vortex Rock Weir
Other

POST-CONSTRUCTION STORM WATER MANAGEMENT

ANTICIPATED IMPACTS ON WATER QUALITY, ETC.

(Reference p. 20 of Ohio EPA's NPDES Permit)

(Rev. April, 2018)

Post-construction practices shall provide for perpetual maintenance of runoff quality and quantity.

- Refer to Maintenance & Inspection Procedure section.
- Runoff quantity will be controlled by an dry basin.
- Runoff quality during construction will be maintained by on-site filter fence and inlet protection.
- Refer to description of post-construction BMPs listed below.
- Maintenance plan shall ensure that pollutants collected within structural post-construction practices will be disposed of in accordance with local, state, and federal regulations.

POST-CONSTRUCTION BMP WATER QUALITY DESIGN

The Ohio EPA's general permit for construction requires the implementation of post-construction BMPs on all projects where the larger common plan of development or site disturbs one or more acres.

For new development the Ohio EPAs general construction permit requires that structural post-construction BMPs be provided on any projects where the larger common plan of development or site will result in 5 or more acres of disturbance. Structural BMPs must provide extended detention of the water quality volume. In addition, an extra 20% of the WQv must be provided within the area of the BMP where pollutants will accumulate to provide storage for these pollutants.

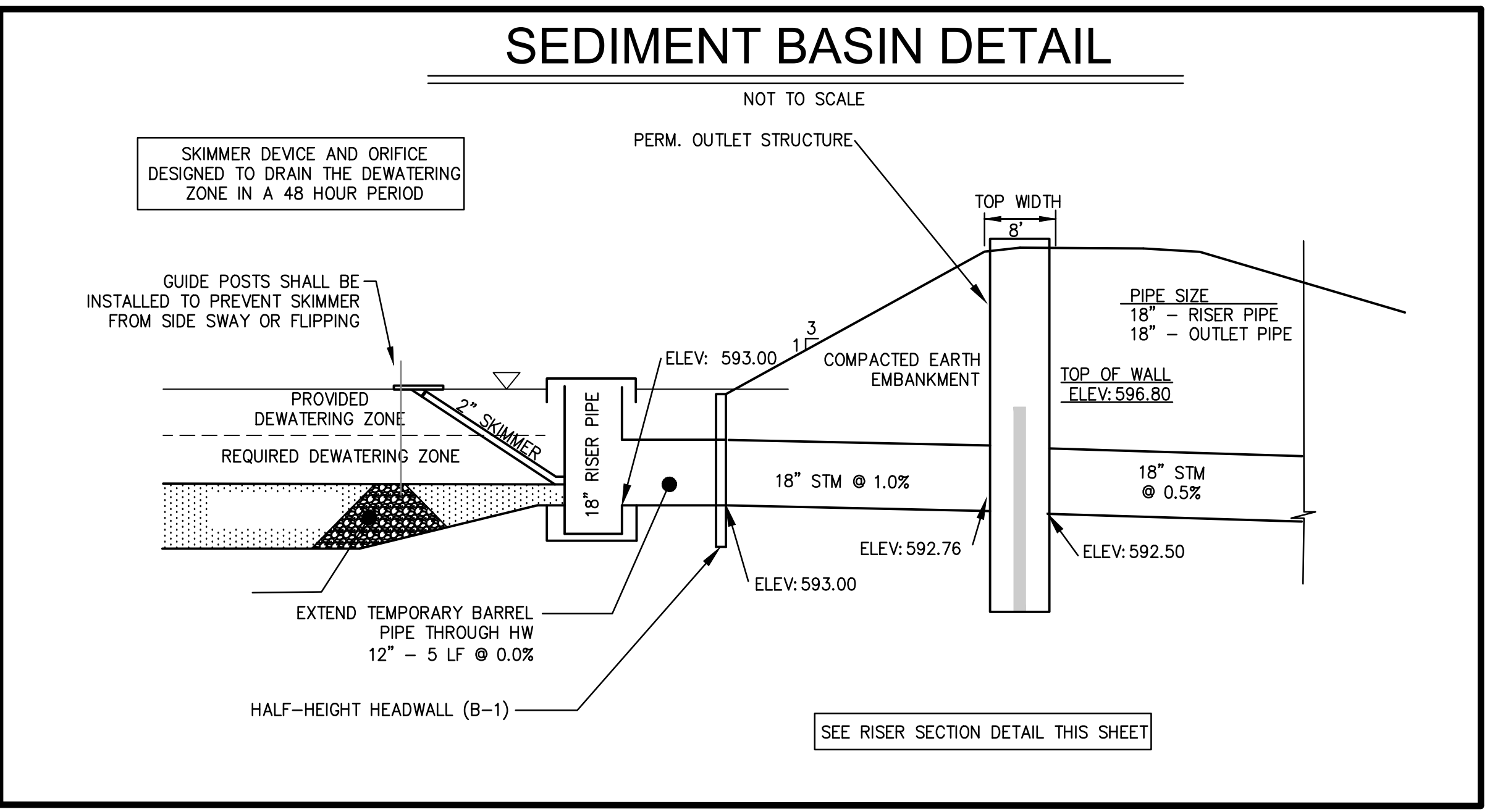
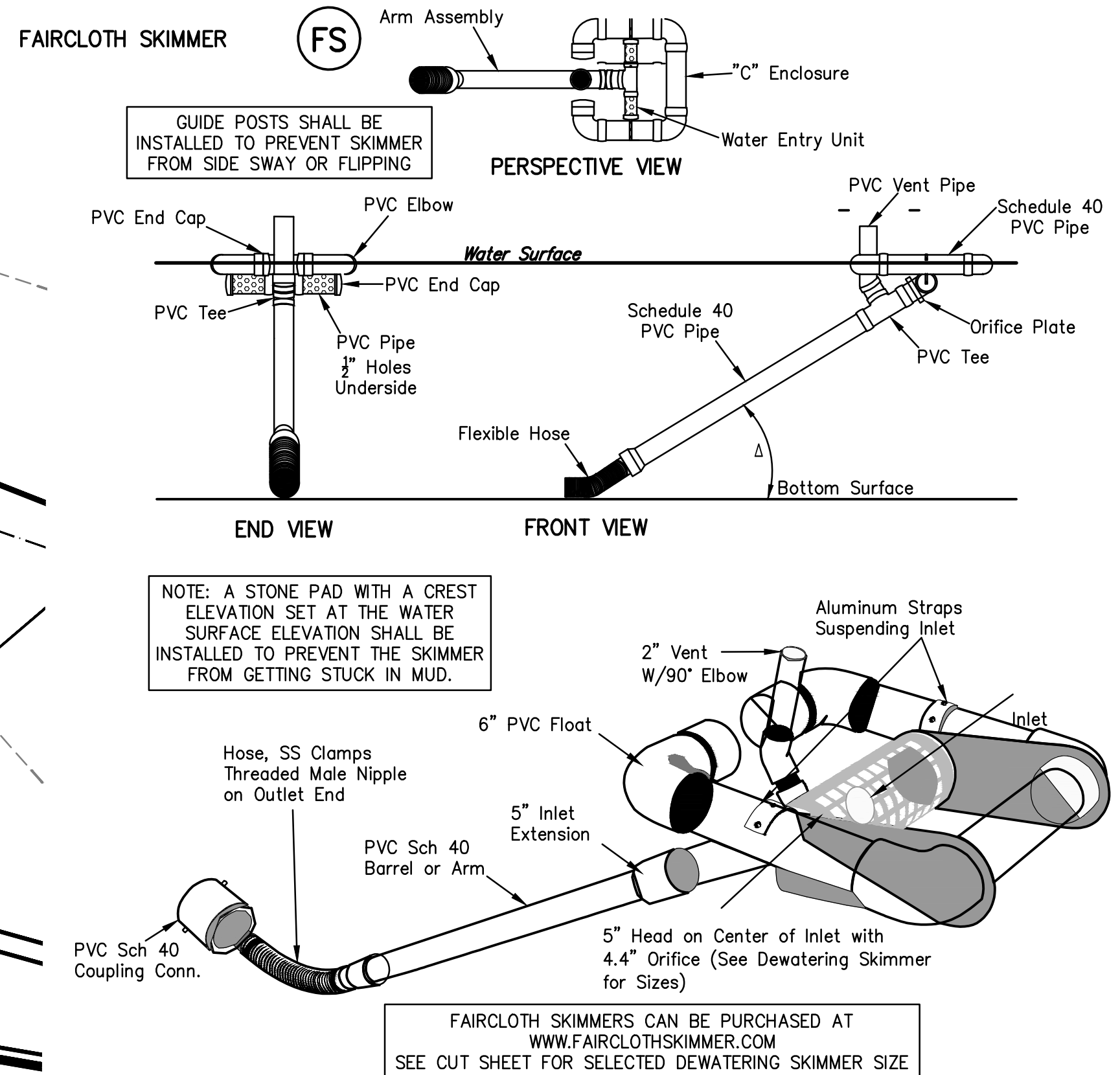
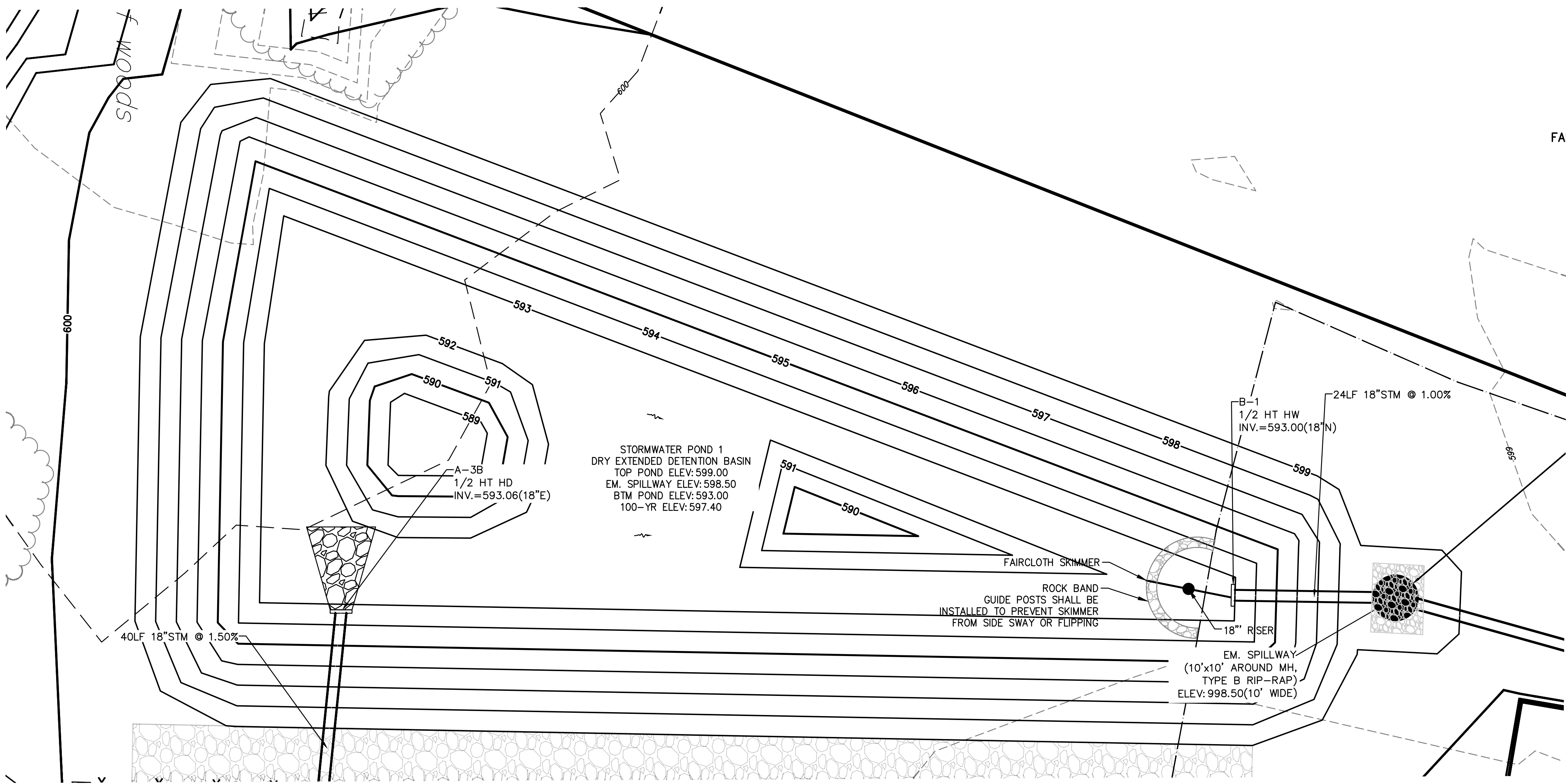
For redevelopment projects, the Ohio EPA's general permit requires that either (a) a 20% net reduction of site impervious area, (b) structural BMPs be provided to treat 20% of the WQv, or (c) a combination of (a) and (b) that has the same net effect.

Rationale

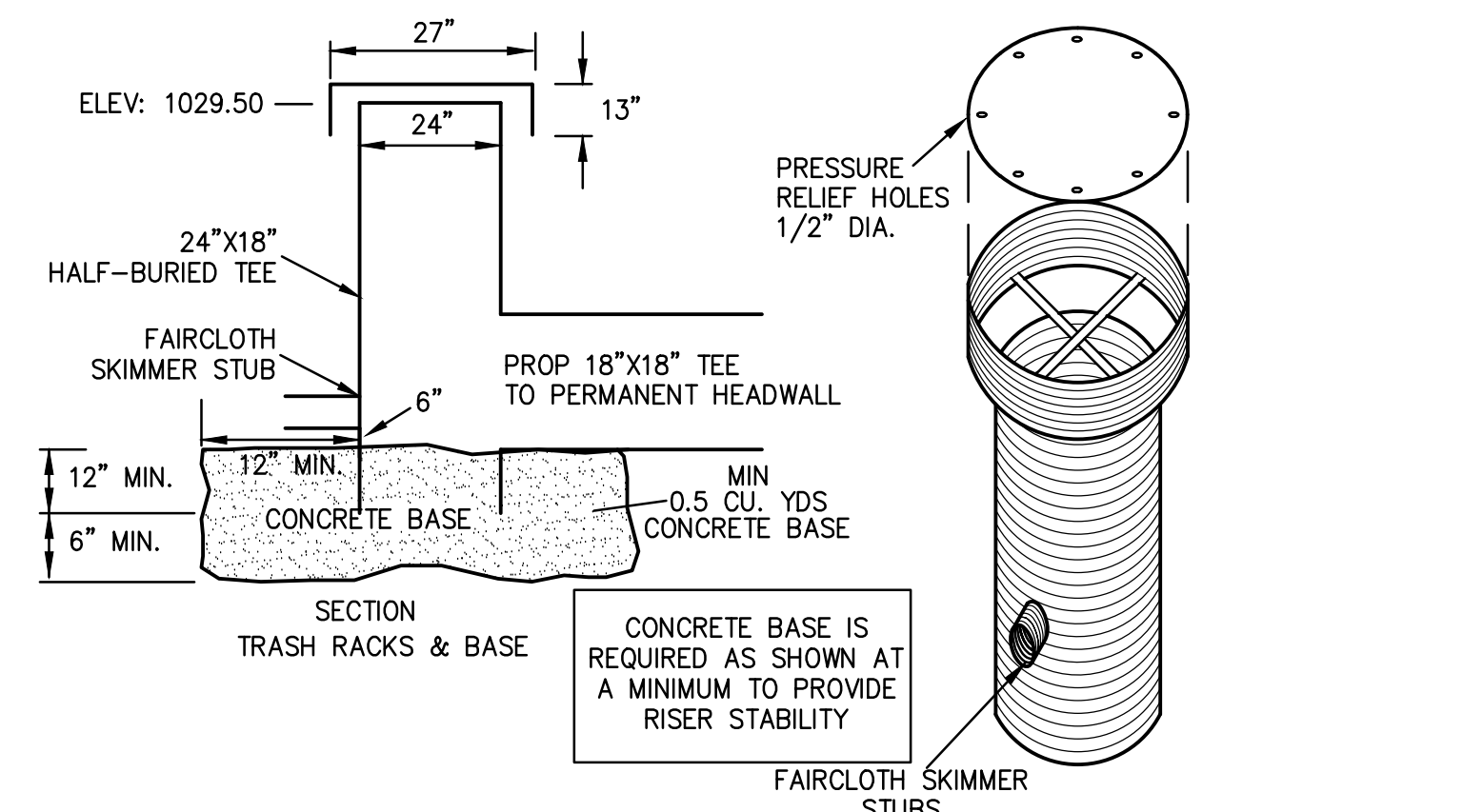
The site will flow into a proposed dry basin and a existing bioretention basin. An increase in impervious surfaces is proposed on this project so a dry basin detention system has been provided for water quality and quantity treatment. Most of the proposed site will drain to the proposed dry basin either through a proposed stormsewer, underdrains or overland flow. A portion of the parking lot and access drive to the greenhouses will drain to an existing bioretention basin adjacent to the east of the site. Due to proposed work blocking overland flow of a portion of the existing runoff from the building and adjacent land to the East to the Existing bio retention basin. This area will be captured and conveyed to the proposed dry basin. In exchange a lower amount of proposed impervious and pervious area will be conveyed to the existing bioretention basin and the proposed dry basin is sized accordingly to provide treatment for the extra volume of water. Water quality calculations for the proposed site can be found below:

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DWG NAME	DMB	GHW
		JOB NO
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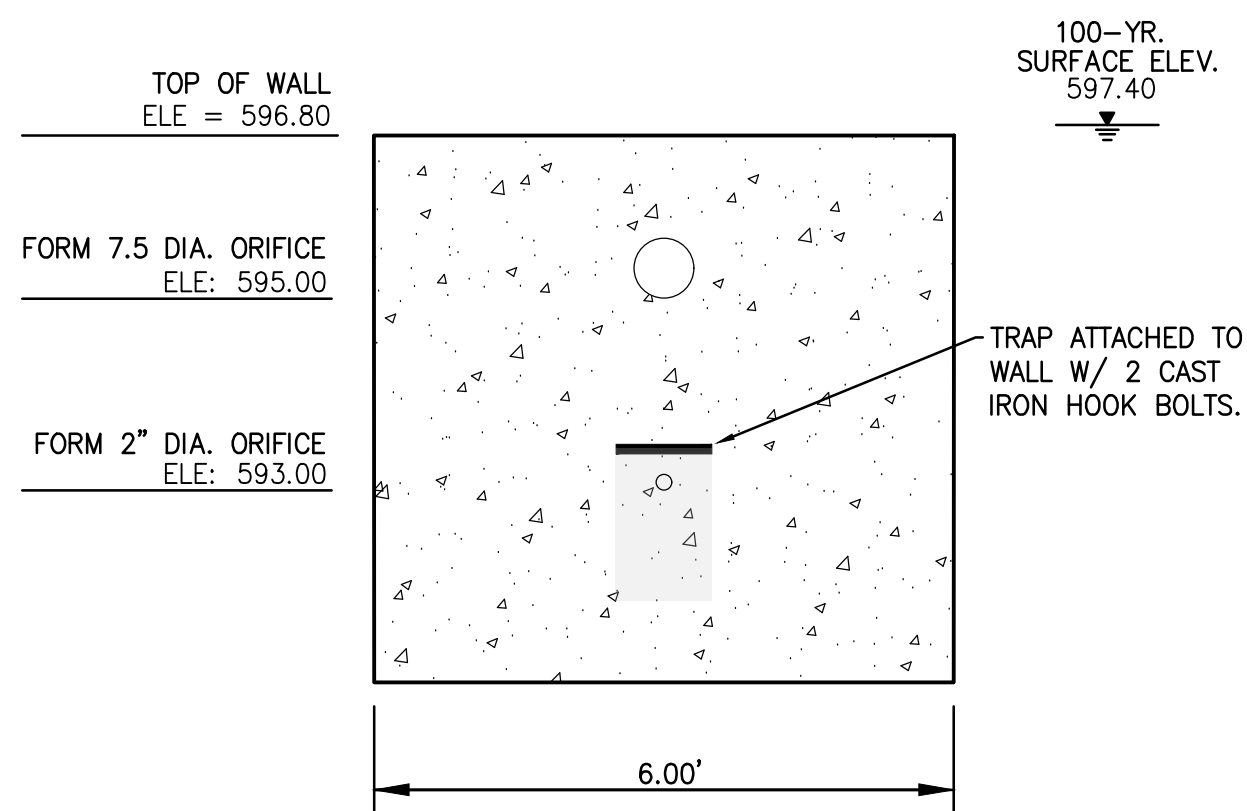
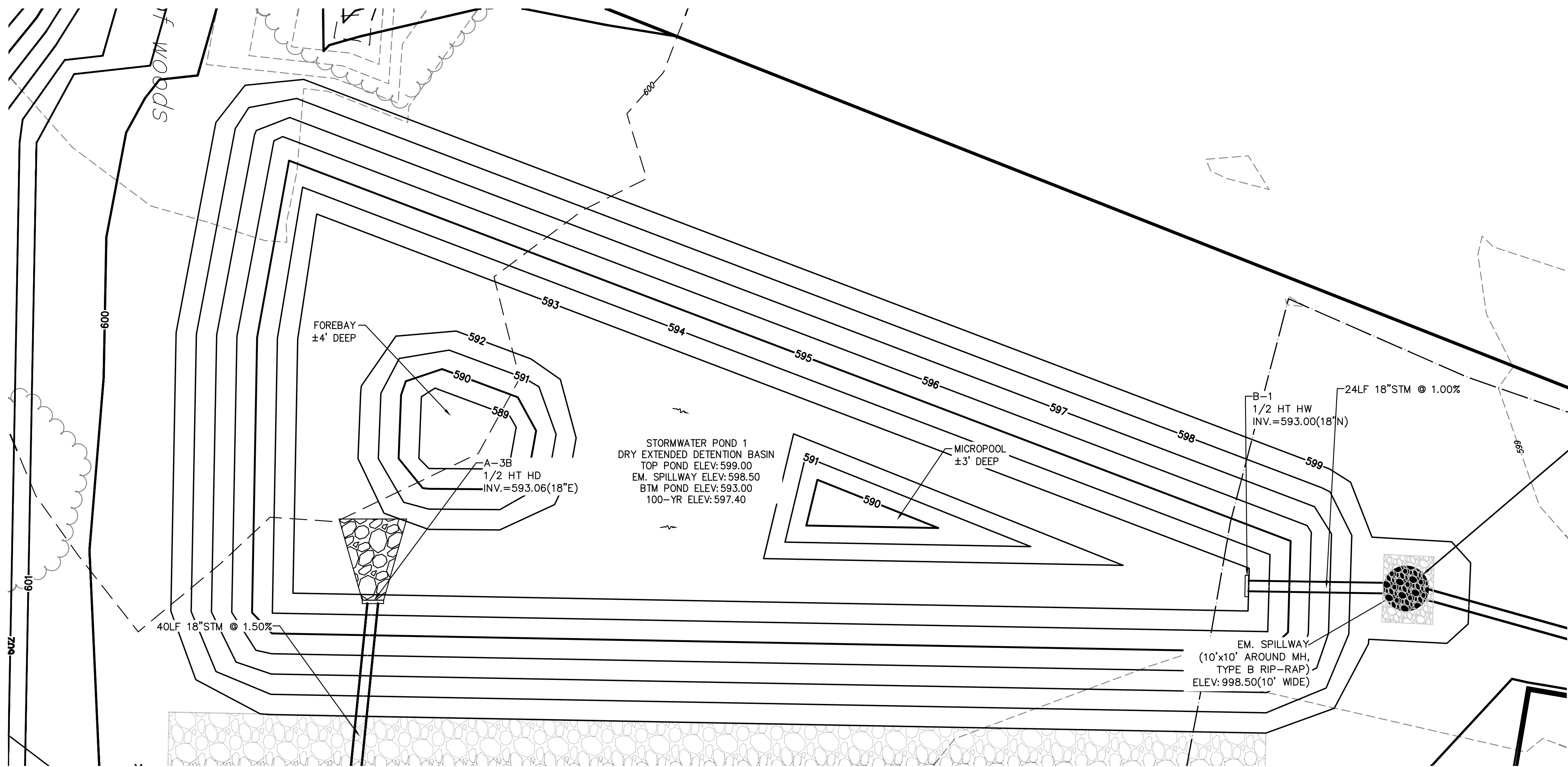


SEDIMENT BASIN DESIGN	
CONTRIBUTING DRAINAGE AREA	2.72 Ac.
DEWATERING STORAGE VOLUME REQ. (1,800 CF/AC.)	4,896 CF
DEWATERING STORAGE VOLUME PROVIDED	22,461 CF
SEDIMENT STORAGE VOLUME REQ. (1,000 CF/AC.)	2,720 CF
SEDIMENT STORAGE VOLUME PROVIDED	3,965 CF
TOTAL VOLUME REQUIRED	7,616 CF
TOTAL VOLUME PROVIDED	26,426 CF
ELEVATIONS	
CREST OF EMBANKMENT	599.00
CREST OF EMERGENCY SPILLWAY	598.50
CREST OF RISER PIPE	597.60
DEWATERING STORAGE	597.00
INVERT OF DEWATERING ORIFICE	594.00
SEDIMENT STORAGE	594.00
BASIN BOTTOM	593.00
INVERT OF BARREL OUTLET	593.00
SKIMMER SIZE/ORIFICE DIAMETER (FAIRCLOTH SKIMMER)	2.0"
H (EMERGENCY SPILLWAY-BARREL OUTLET)	4.0'
h (EMERGENCY SPILLWAY-RISER)	1.5'
DRAWDOWN TIME	2.0 DAYS
RISER SIZE (15" MINIMUM)	18"
BARREL SIZE (12" MINIMUM)	18"
EMERGENCY SPILLWAY	CONCRETE



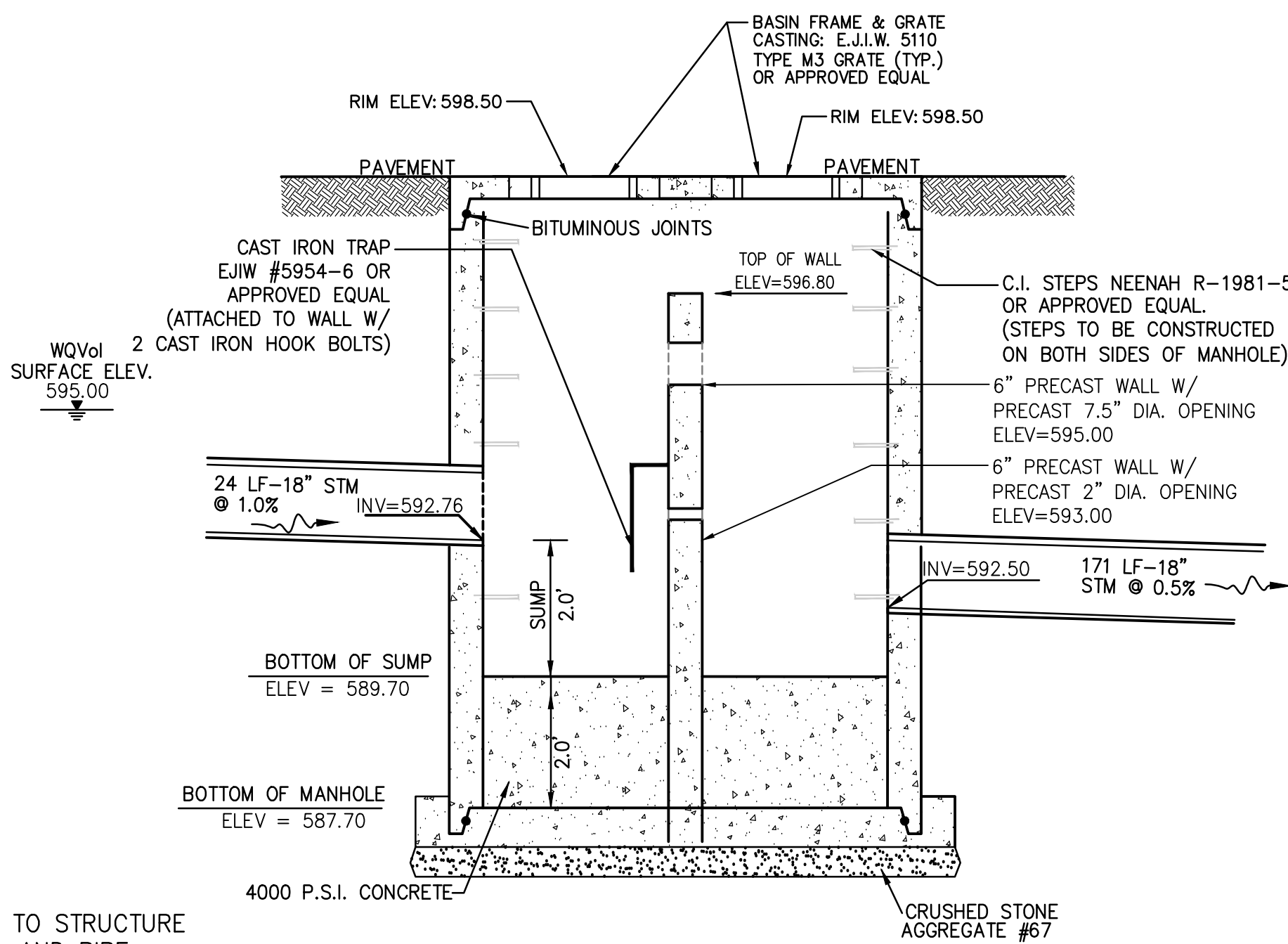
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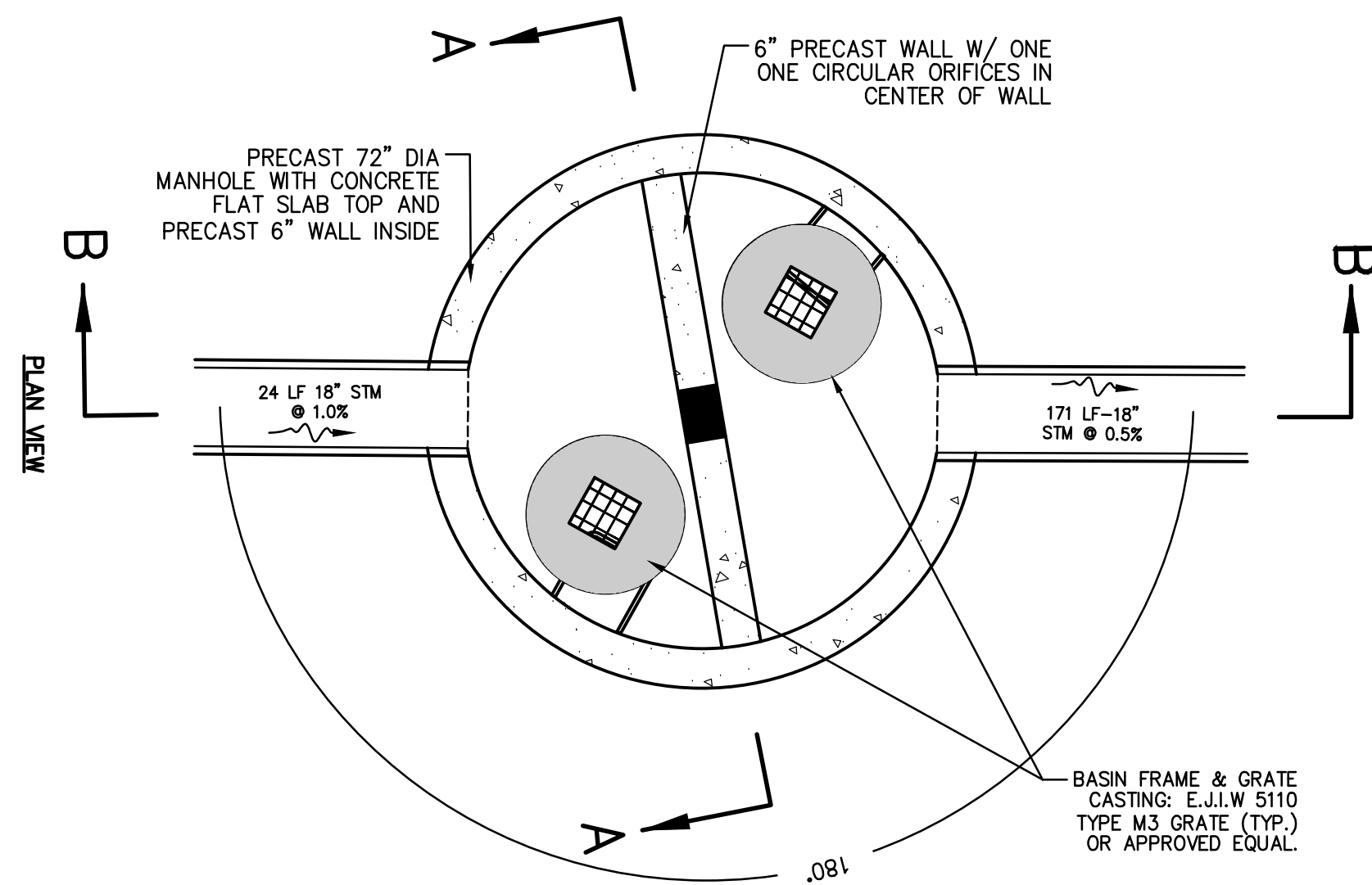
SECTION A-A
WALL DETAIL

- NOTES:
1. ALL WALL JOINTS, WALL TO STRUCTURE JOINTS, ORIFICE PLATES, AND PIPE CONNECTIONS SHALL BE WATERTIGHT.

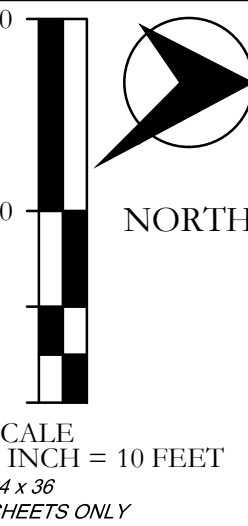


SECTION B-B
OUTLET STRUCTURE - "B2"

NOT TO SCALE



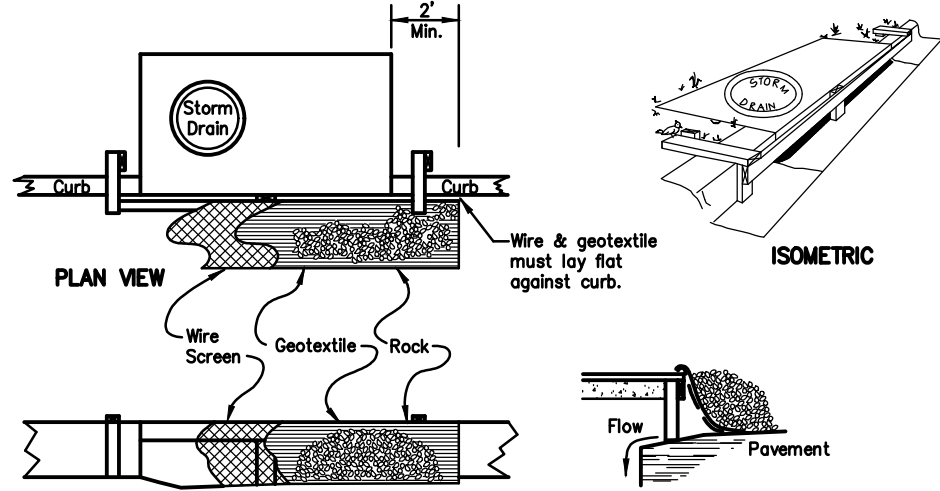
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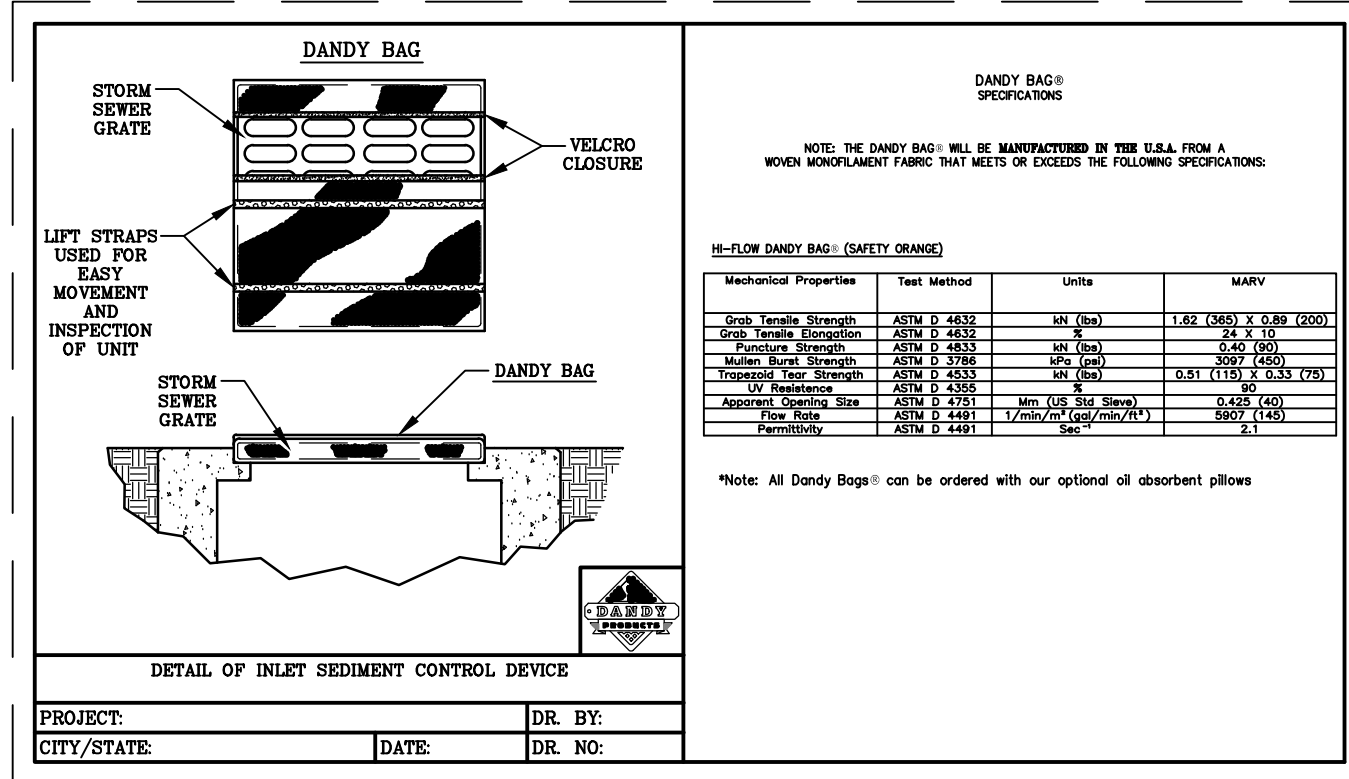
Storm Drain Inlet Protection

IP

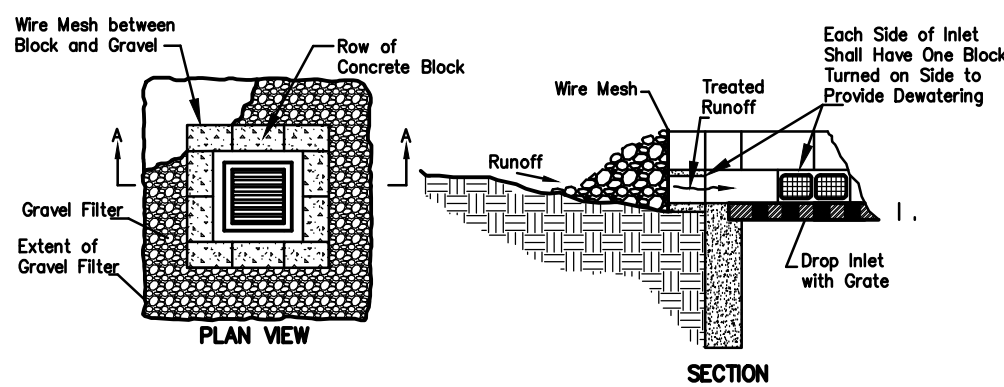
Specifications for Geotextile-Stone Inlet Protection for Curb Inlets



- Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
- Construct a wooden frame of 2-by-4-in. construction-grade lumber. The end spacers shall be a minimum of 1 ft. beyond both ends of the throat opening. The anchors shall be nailed to 2-by-4-in. stakes driven on the opposite side of the curb.
- The wire mesh shall be of sufficient strength to support fabric and stone. It shall be a continuous piece with a minimum width of 30 in. and 4 ft. longer than the throat length of the inlet, 2 ft. on each side.
- Geotextile cloth shall have an equivalent opening size (EOS) of 20-40 sieve and be resistant to sunlight. It shall be at least the same size as the wire mesh.
- The wire mesh and geotextile cloth shall be formed to the concrete gutter and against the face of the curb on both sides of the inlet and securely fastened to the 2-by-4-in. frame.
- Two-inch stone shall be placed over the wire mesh and geotextile in such a manner as to prevent water from entering the inlet under or around the geotextile cloth.
- This type of protection must be inspected frequently and stone and/or geotextile replaced when clogged with sediment.



Specifications for Block and Gravel Drop Inlet Filter



- Place 4-inch by 8-inch by 12-inch concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, with the ends of adjacent blocks abutting. The height of the barrier can be varied, depending upon the design needs, by stocking combinations of the same size blocks. The barrier of blocks should be at least 12-inches high but no greater than 24-inches high.
- Wire mesh should be placed over the outside vertical face (webbing) of the concrete blocks to prevent stone from being washed through the block cores. Hardware cloth or comparable wire mesh with 1/2-inch openings should be used.
- Two-inch stone should be piled against the wire to the top of the block barrier, as shown above.
- If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, pull stone away from the blocks, clean and/or replace.

Temporary Seeding

TS

Description

Temporary seedings establish temporary cover on disturbed areas by planting appropriate rapidly growing annual grasses or small grains. Temporary seeding provides erosion control on areas in between construction operations. Grasses, which are quick growing, are seeded and usually mulched to provide prompt, temporary soil stabilization. It effectively minimizes the area of a construction site prone to erosion and should be used everywhere the sequence of construction operations allows vegetation to be established.

Specifications for Temporary Seeding

Temporary Seeding Species Selection			
Seeding Dates	Species	Lb./1000 ft ²	Lb./Acre
March 1 to August 15	Oats	3	128 (4 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
August 16th to November	Oats	3	128 (3 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Rye	3	112 (2 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
November 1 to Feb. 29	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	40
	Use much only or dormant seeding		

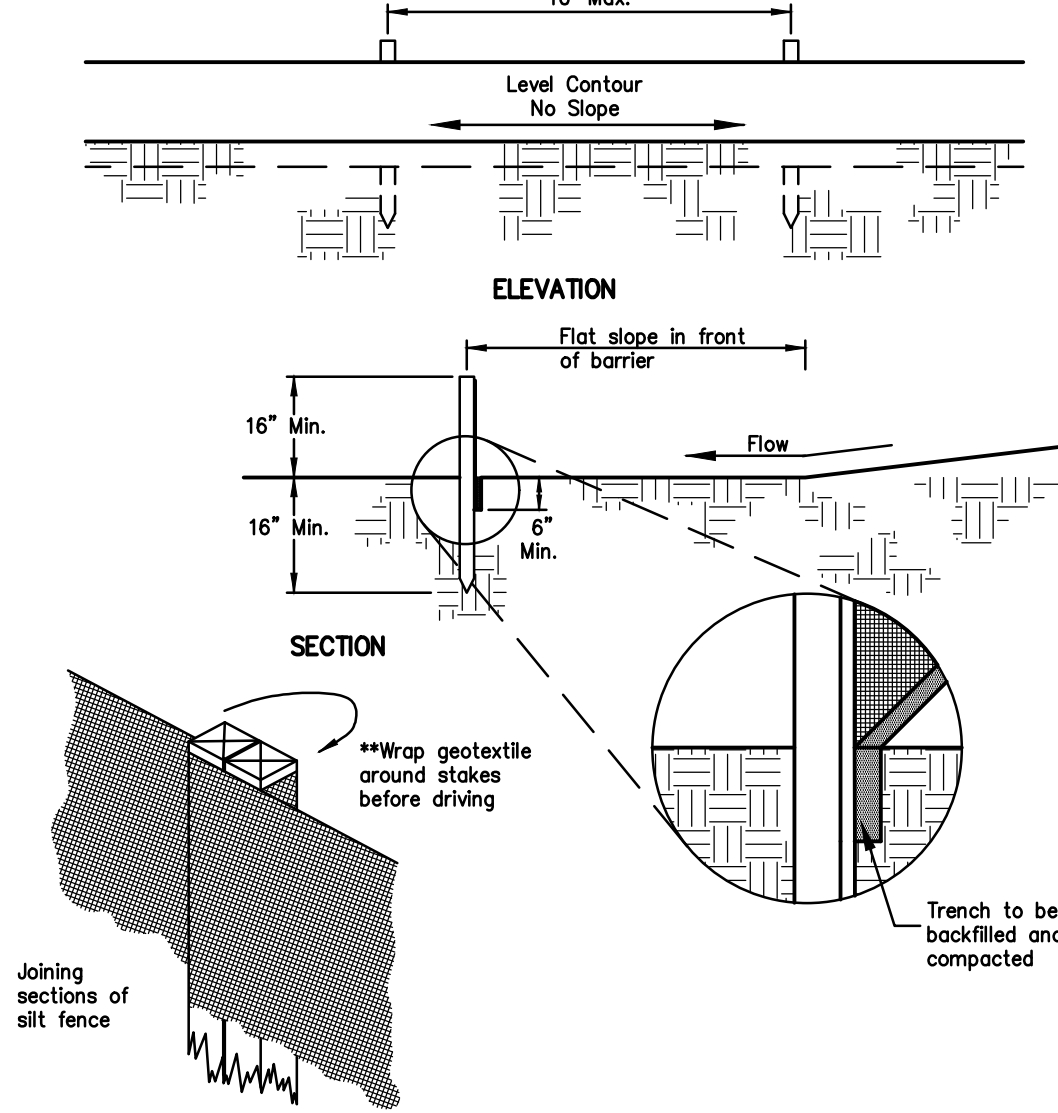
Silt Fence



Description

Silt fence is a sediment-trapping practice utilizing a geotextile fence, topography and sometimes vegetation to cause sediment deposition. Silt fence reduces runoff's ability to transport sediment by ponding runoff and dissipating small rills or concentrated flow into uniform sheet flow. Silt fence is used to prevent sediment-laden sheet runoff from entering into downstream creeks and sewer systems.

Specifications for Silt Fence



- Silt fence shall be constructed before upslope land disturbance begins.
- All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry concentrated flows to the silt fence are dissipated along its length.
- Ends of the silt fence should be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
- Silt fence shall be placed on the flattest area available.
- Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
- The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
- The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequate uniform trench depth.
- The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
- Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into ground, (see detail).
- Maintenance – Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.
 - Sediment deposits shall be routinely removed when the deposit reaches approximately one-half the height of the silt fence.
 - Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. The location of the existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for Silt Fence Materials

- Fence post – The length shall be a minimum of 32 inches. Wood post will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits, and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
- Silt fence fabric – See chart below.

Fabric Properties	Values	Test Method
Minimum Tensile Strength	120 lbs (535 N)	ASTM D4632
Maximum Elongation at 60 lbs	50%	ASTM D4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D4533
Apparent Opening Size	≤ 0.84 mm	ASTM D4751
Minimum Permittivity	1X10–2 sec.–1	ASTM D4491
UV Exposure Strength Retention	70%	ASTM D4355

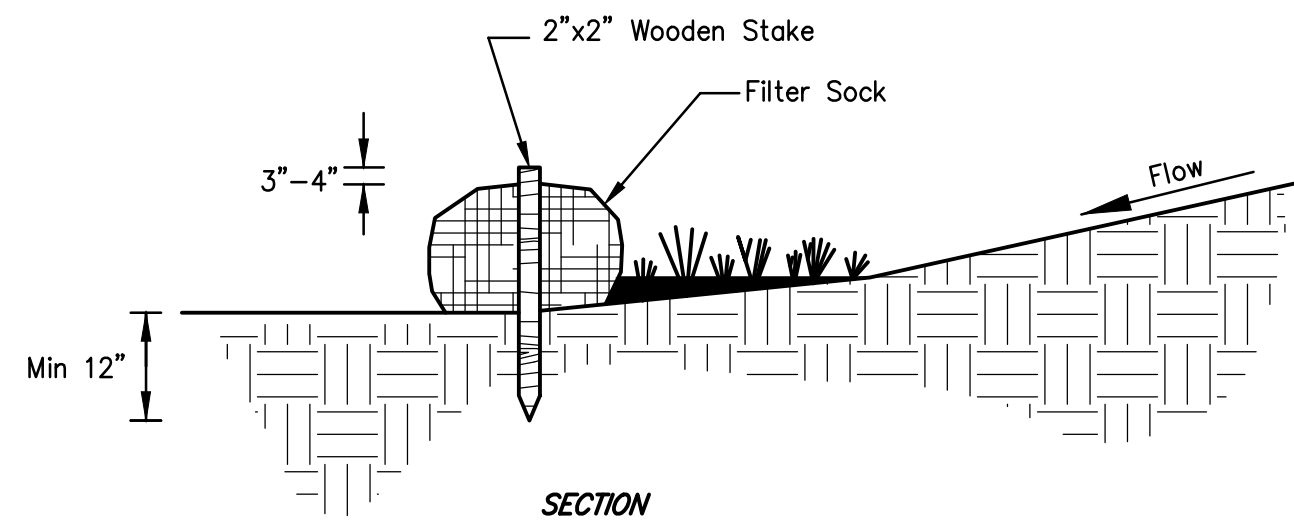
Filter Sock



Description

Filter socks are sediment-trapping devices using compost inserted into a flexible, permeable tube with a pneumatic blower device or equivalent. Filter socks trap sediment by filtering water passing through the berm and allowing water to pond, creating a settling of solids.

Specifications for Filter Sock



- Materials – Filter sock must be composted sock and 12" wide minimum. Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
- Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

Installation :

- Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
- Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
- Filter Socks are not to be used in concentrated flow situations or in runoff channels.

Maintenance:

- Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
- Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
- Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
- Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

Additional Construction Site Pollution Controls



Description

Although sediment is the primary pollutant of concern resulting from construction activity, other pollutants need to be considered as well. These include petrochemicals: fuel, oil, and asphalt, and construction chemicals and materials: paints, solvents, fertilizer, soil additives, concrete wash water, etc. Also included are solid wastes and construction debris. Keeping these substances from polluting runoff can be accomplished to a large extent through good housekeeping and following the manufacturer's recommendations for their use and disposal.

Specifications for Additional Construction Site Pollution Controls

- Construction personnel, including subcontractors who may use or handle hazardous or toxic materials, shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:
 - Prevent spills
 - Use products up
 - Follow label directions for disposal
 - Remove lids from empty bottles and cans when disposing in trash
 - Recycle wastes whenever possible
 - Don't pour into waterways, storm drains or onto the ground
 - Don't pour down the sink, floor drain or septic tanks
 - Don't bury chemicals or containers
 - Don't burn chemicals or containers
 - Don't mix chemicals together
- Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.
- No construction related waste materials are to be buried on-site. By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.
- Handling Construction Chemicals. Mixing, pumping, transferring or other handling of construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any watercourse, ditch or storm drain.
- Equipment Fueling and Maintenance, oil changing, etc., shall be performed away from watercourses, ditches or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for oil fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.
- Concrete Wash Water shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged. For small projects, truck chutes may be rinsed away from any water conveyances.

- Spill Reporting Requirements: Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-3378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.
- Contaminated Soils. If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water run off associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.
- Open Burning. No materials containing rubber, grease, asphalt, or petroleum products, such as tires, auto parts, plastics or plastic coated wire may be burned (OAC 3745-19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbecues. Outside of restricted areas, open burning is permissible for landscape or land-clearing wastes (plant material, with prior written permission from Ohio EPA), and agricultural wastes, excluding buildings.
- Dust Control or dust suppressants shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.
- Other Air Permitting Requirements: Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.
- Process Waste Water/Leachate Management. Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on-site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or seepage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.
- A Permit To Install (PTI) is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

Permanent Seeding



Description

Perennial vegetation is established on areas that will not be re-disturbed for periods longer than 12 months. Permanent seeding includes site preparation, seedbed preparation, planting seed, mulching, irrigation and maintenance.

Permanent vegetation is used to stabilize soil, reduce erosion, prevent sediment pollution, reduce runoff by promoting infiltration, and provide storm water quality benefits offered by dense grass cover.

Specifications for Permanent Seeding

Site Preparation

- Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
- The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
- Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

- Lime – Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
- Fertilizer – Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
- The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

- Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
- The following methods may be used for "Dormant Seeding":
 - From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
 - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
 - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
 - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

- Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
- Materials:
 - Straw – If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
 - Hydroseeders – If wood cellulose fiber is used, it shall be applied at 2000 lb./ac. or 46 lb./1,000 sq.-ft.
 - Other – Other acceptable mulches include rolled erosion control matings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
- Straw and Mulch Anchoring Methods:
 - Straw mulch shall be anchored immediately to minimize loss by wind or water.
 - Mechanical – A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
 - Mulch Netting – Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
 - Asphalt Emulsion – Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.
 - Synthetic Binders – Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
 - Wood Cellulose Fiber – Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

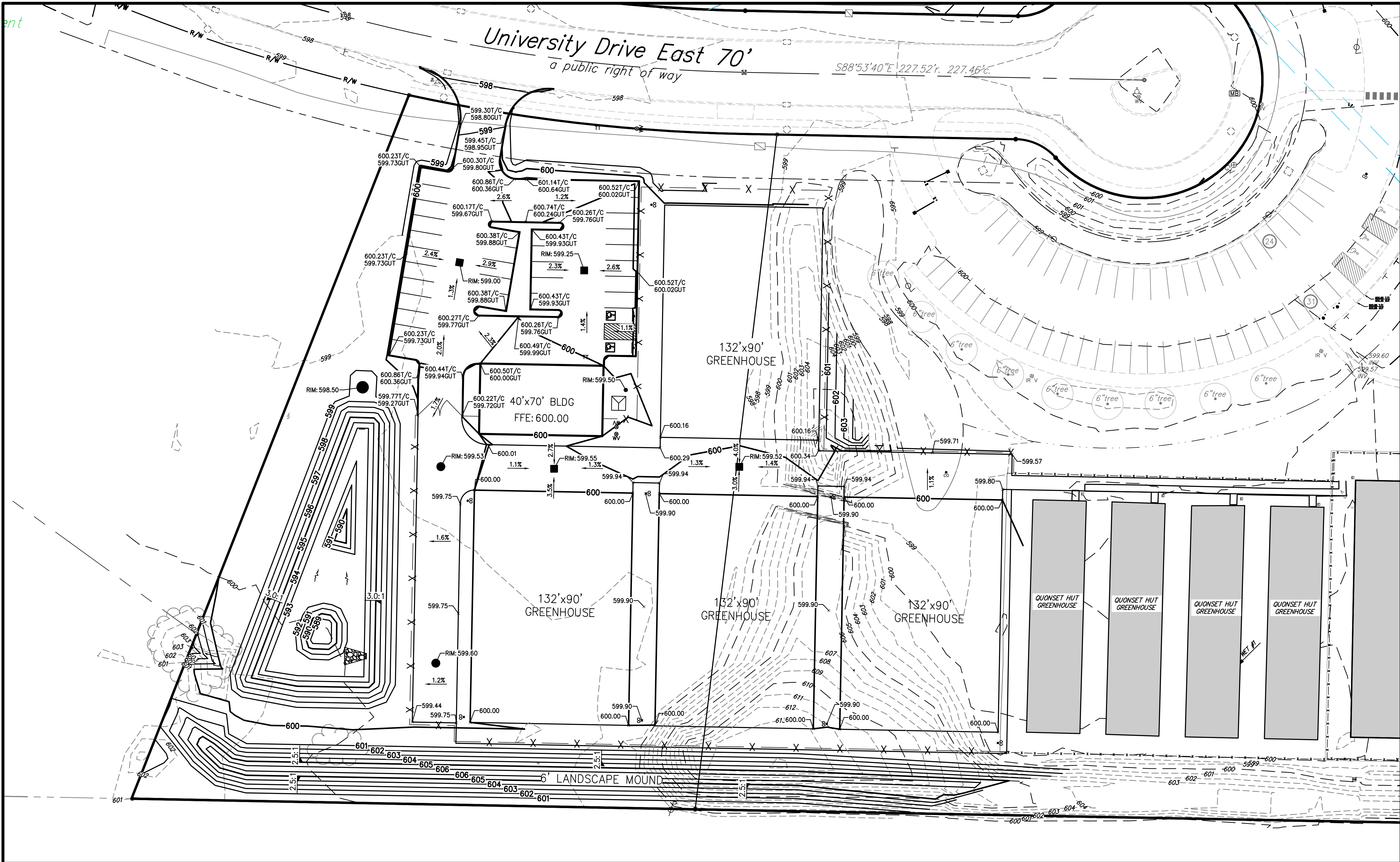
Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth. Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

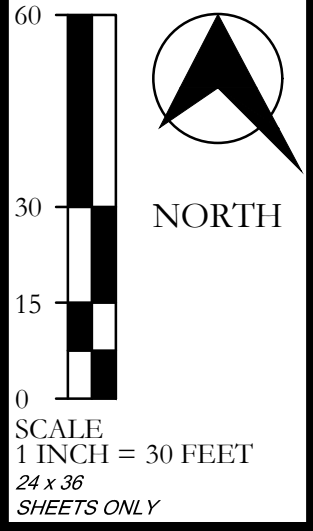
Seed Mix	Seeding Rate		Notes:
	Lbs./Acre	Lbs./1,000 Sq. Feet	
General Use			
Creeping Red Fescue	20-40	1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Domestic Ryegrass	10-20	1/4-1/2	
Kentucky Bluegrass	20-40	1/2-1	
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	Do not seed later than August
Crown Vetch	10-20	1/4-1/2	
Tall Fescue	20-30	1/2-3/4	
Flat Pea	20-25	1/2-3/4	Do not seed later than August
Tall Fescue	20-30	1/2-3/4	
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue	90	2 1/4	
Kentucky Bluegrass	5	0.1	
Lawns			
Kentucky Bluegrass	100-200	2	For shaded areas
Perennial Ryegrass		2	
Kentucky Bluegrass	100-200	2	
Creeping Red Fescue		1-1/2	

Note: Other approved species may be substituted.

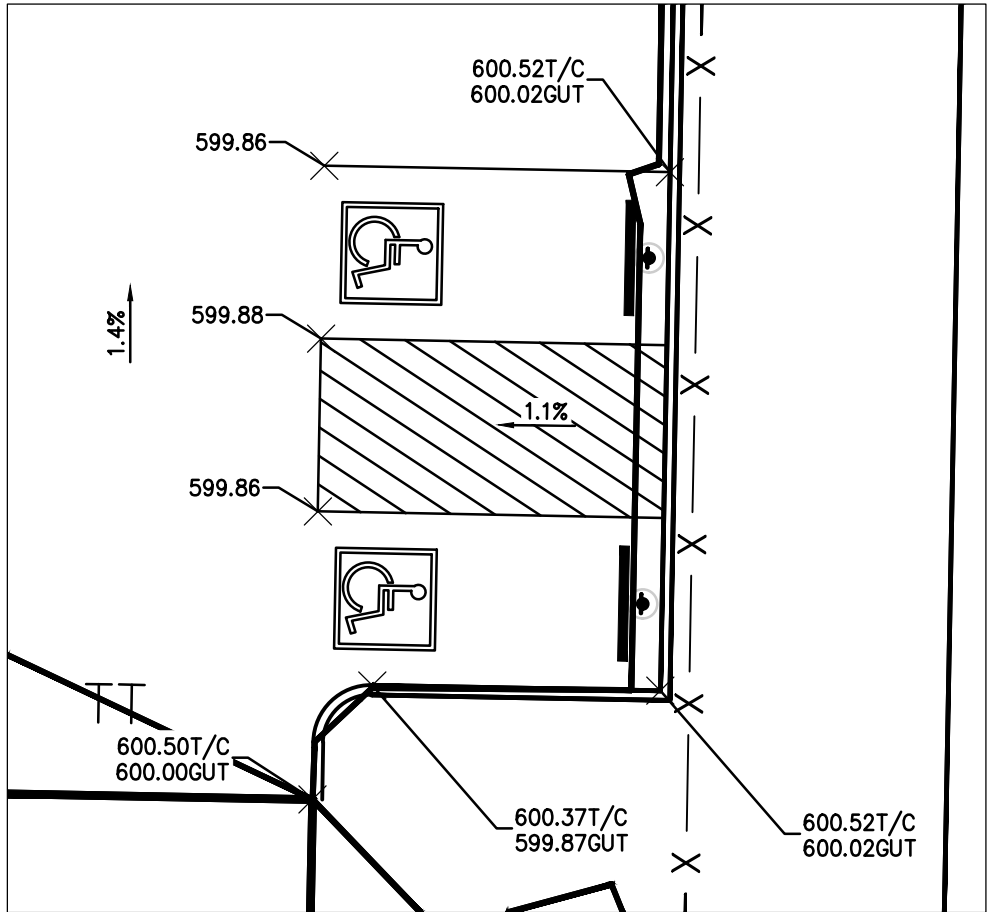
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	02-09-26	PLANNING SUBMITTAL	
	12-10-25	PROGRESS SET	
REV NO	DATE	DESCRIPTION	
DWG NAME	DRAWN BY	CHECKED BY	JOB NO
DWG NAME	DMB	GHW	14057F



- GRADING LEGEND**
- XXX --- EX. 1' CONTOUR
 - XXX --- EX. 5' CONTOUR
 - XXX --- PROP. 1' CONTOUR
 - XXX --- PROP. 5' CONTOUR
 - XXXX.XX T/C PROP. TOP OF CURB
 - XXXX.XX GUT PROP. BOTTOM OF CURB
 - XXXX.XX PROP. SPOT GRADE
 - XXXX.XX PROP. SPOT GRADE
 - XXXX.XX EX. SPOT GRADE
 - XXXX.XX EX. SPOT GRADE
 - ~ FLOW DIRECTION ARROW
 - 4:1 PROPOSED GROUND SLOPE
 - PROP. RIDGE LINE



HURON CORPORATE PARK LLC
SITE GRADING PLAN
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO



ADA ENLARGEMENT

SCALE: 1" = 10'

APPROXIMATE EARTHWORK VOLUMES (C.Y.)

EXCAVATION & EMBANKMENT CUT 7,000 FILL 4,800

NET 2,200 EXCESS

(NUMBERS SHOWN ABOVE ARE FROM EXISTING TO FINISH GRADE. NO TOPSOIL OR PAVEMENT SECTIONS HAVE BEEN ACCOUNTED FOR IN ABOVE CUT/FILL NUMBERS.)

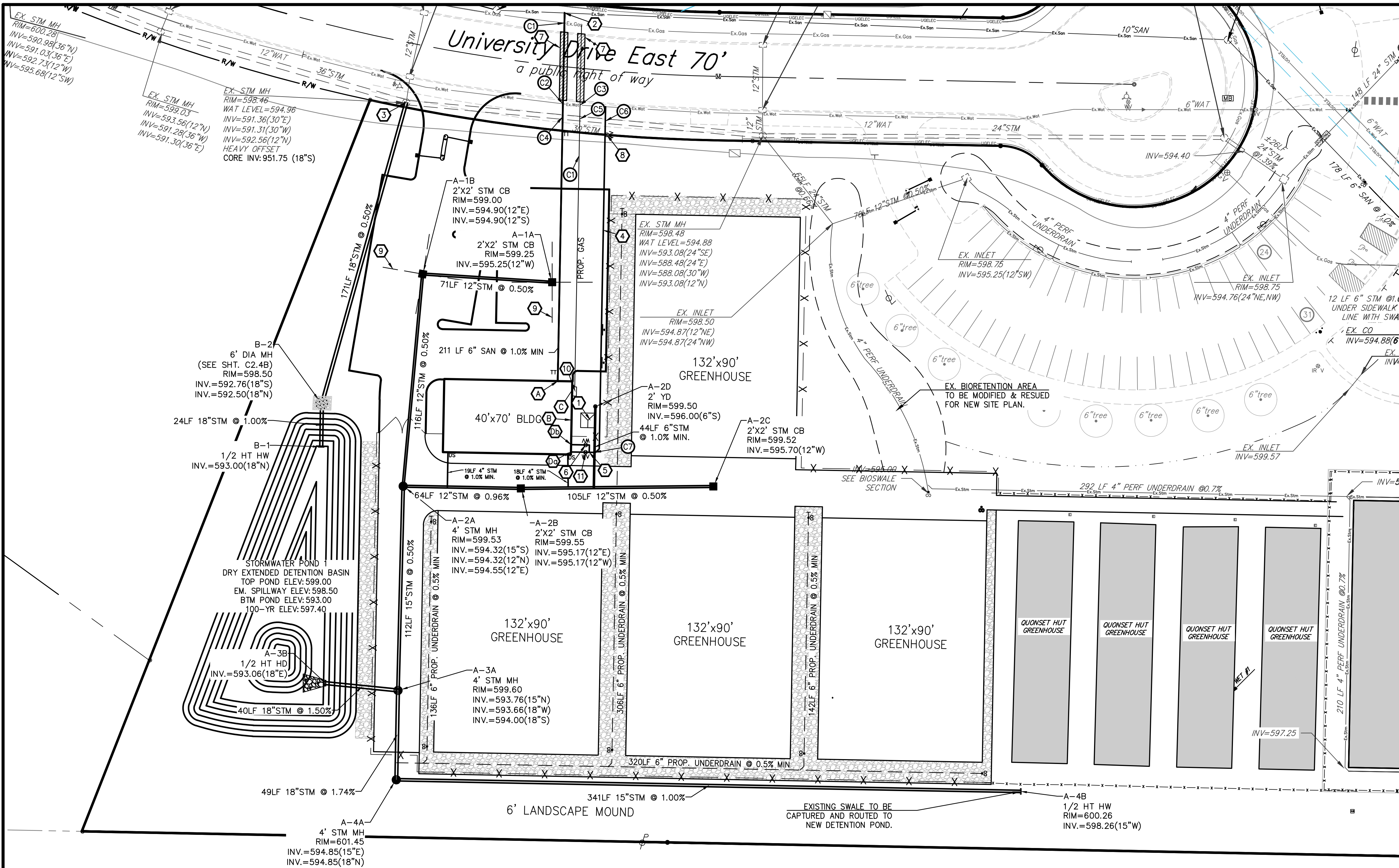
±3,000 CY OF TOPSOIL IS ESTIMATED FOR THIS SITE (10" OVER ANY OPEN SPACE AREA)

REV NO	DATE	DESCRIPTION
03-12-26		REVISED PLANNING SUBMITAL
02-09-26		PLANNING SUBMITTAL
12-10-25		PROGRESS SET
DWG NAME	DRAWN BY	CHK'D BY
DWG NAME	DMB	GHW

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6445 W. Lakeshore Drive, Suite 100
Tulsa, Oklahoma 74133
Tel: 440.884.5100 | Fax: 440.884.3104
www.neffr-assoc.com

SHEET NO.
C3.0

N:\LAND DEVELOPMENT\Proj\150077-Huron Corporate Expressway\AutoCAD\150077-1.dwg, 1/10/2024, 8:43:59 AM



UTILITY NOTES

- GAS LINE SIZE TO BE DETERMINED BY GAS UTILITY COMPANY.
- ALL UTILITY CONNECTIONS TO BUILDING TO COORDINATE LOCATIONS AND ELEVATIONS WITH ARCHITECTURAL PLANS.
- FINAL ELECTRICAL LAYOUT/LOCATION TO BE VERIFIED WITH ELECTRIC COMPANY
- FINAL TELEPHONE LAYOUT/LOCATION TO BE VERIFIED WITH TELEPHONE COMPANY

KEY NOTES

- PAD MOUNTED TRANSFORMER, COORDINATE W/ ELEC. PROVIDER
- CONNECT PROPOSED SANITARY TO EX. SANITARY (INV.592.33) LATERAL WITH 1.50' RISER.
- CONNECT STM TO EXISTING MANHOLE
- 6" 239LF WATER LINE
- 2"x6" WATER TEE
- 2" WATER VALVE
- PAVEMENT AND CURB REPAIR FOR UTILITY. NEW WORK SHALL MEET CITY REQUIREMENTS FOR PAVEMENT REPAIR
- 6" TAPPING SLEEVE WATER VALVE, COORDINATE EXACT LOCATION WITH UTILITY COMPANY
- 20LF 4" PERF. UNDERDRAIN
- GAS METER. COORDINATE LOCATION WITH PLUMBING PLANS AND UTILITY COMPANY
- 6" WATER VALVE

UTILITY CROSSINGS

- C1 6" PROP. SAN INV.592.33
- C2 6" EX. GAS INV.594.77 (ASSUMING 3' COVER)
- C3 6" PROP. SAN INV.594.39
- C4 2" EX. WAT INV.592.78 (ASSUMING 5' COVER)
- C5 PROP. GAS INV. 594.89 (ASSUMING 3' COVER)
- C6 2" EX. WAT INV.592.89 (ASSUMING 5' COVER)
- C7 6" PROP. SAN INV.594.46
- C8 30" EX. STORM INV.589.07
- C9 PROP. GAS INV.595.36 (ASSUMING 3' COVER)
- C10 30" EX. STORM INV. 589.93
- C11 6" PROP. WAT INV.593.07 (ASSUMING 5' COVER)
- C12 30" EX. STORM INV. 589.73
- C13 6" PROP. WAT INV.594.75 (ASSUMING 5' COVER)
- C14 6" PROP. STORM INV. 595.65

BUILDING CONNECTIONS

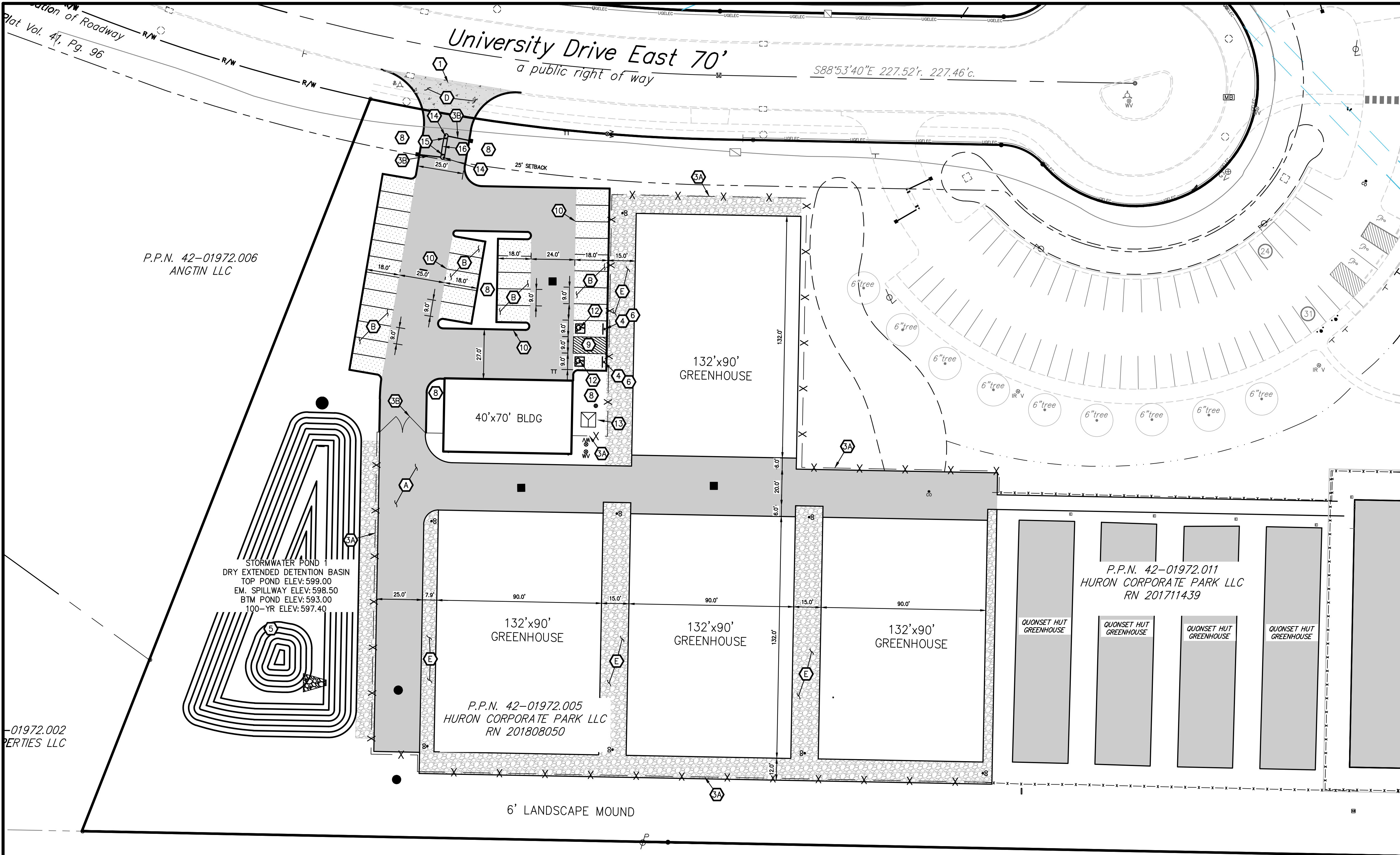
- 6" SAN (FFE -4.0') INV.596.00 (SEE BLDG PLUMBING PLANS)
- 4" CONDUIT FOR ELECTRICAL PRIMARY, COORDINATE WITH UTILITY PROVIDER
- PROPOSED GAS, COORDINATE WITH UTILITY PROVIDER
- 6" WAT CONN. (FIRE) FIRE BACKFLOW ASSEMBLY TO BE PLACED IN BLDG. (SEE BLDG PLUMBING PLANS)
- 2" WAT CONN. (DOMESTIC) DOMESTIC METER & RP BACKFLOW TO BE PLACED IN BLDG. (SEE BLDG PLUMBING PLANS)

SYMBOL LEGEND (PROPOSED)

REFER TO SURVEY FOR EXISTING CONDITIONS LEGEND

- PROPOSED ROUND INLET
- PROPOSED MANHOLE
- PROPOSED CLEAN OUT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC CONTROL SIGNAL
- PROPOSED SQUARE INLET
- PROPOSED GUTTER INLET
- PROPOSED WATER VALVE
- SOIL BORING

REV NO	DATE	DESCRIPTION
03-12-26		REVISED PLANNING SUBMITAL
02-09-26		PLANNING SUBMITTAL
12-10-25		PROGRESS SET
DWG NAME	DRAWN BY	CHKD BY
DWG NAME	DMB	GHW



KEY NOTES

- 1 TAPER CURB AT DRIVE APRON
- 2 NOT USED
- 3A 8' HT. CHAIN LINK FENCE, SEE SHT. C7.1
- 3B 12' CHAIN LINK SWING GATE, SEE SHT. C7.1
- 4 HANDICAP SIGN, SEE SHT. C7.0
- 5 WATER QUALITY POND, REFER TO SWPPP & UTILITY PLANS
- 6 CONCRETE WHEEL STOPS.
- 7 NOT USED
- 8 LAWN OR LANDSCAPE, REFER TO LANDSCAPE PLAN
- 9 TRANSVERSE STRIPING - 4" WD. SOLID YELLOW STRIPE AT 45'
- 10 PARKING STALL MARKING - 4" WD. SOLID YELLOW STRIPE
- 11 NOT USED
- 12 ADA ACCESSIBLE PARKING SYMBOL, SEE SHT, C7.1
- 13 TRANSFORMER PAD, REFER TO UTILITY AND ELECTRICAL PLANS FOR MORE DETAILS
- 14 UTILITY BOLLARD, SEE SHT. C7.0
- 15 BARRIER ARM KEYPAD, CAMERA & AUDIO. REFER TO SECURITY PLAN AND SHT, C7.3
- 16 CONCRETE CURB ISLAND

LEGEND

REFER TO GENERAL NOTES SHEET FOR ADDITIONAL SYMBOL LEGEND

- A HEAVY DUTY ASPHALT PAVEMENT
- B STANDARD DUTY ASPHALT PAVEMENT (DET 1, SHT C7.0)
- C CONCRETE SIDEWALK (DET 2, SHT C7.0)
- D HEAVY DUTY CONCRETE PAVEMENT (DET 3, SHT C7.0)
- E GRAVEL

SITE DATA

PARKING		
STANDARD SPACES	30	
ADA SPACES	2	
TOTAL	32	

CITY OF HURON DESIGN STANDARDS

CURRENT ZONING DISTRICT: I-1 LIGHT INDUSTRIAL DISTRICT

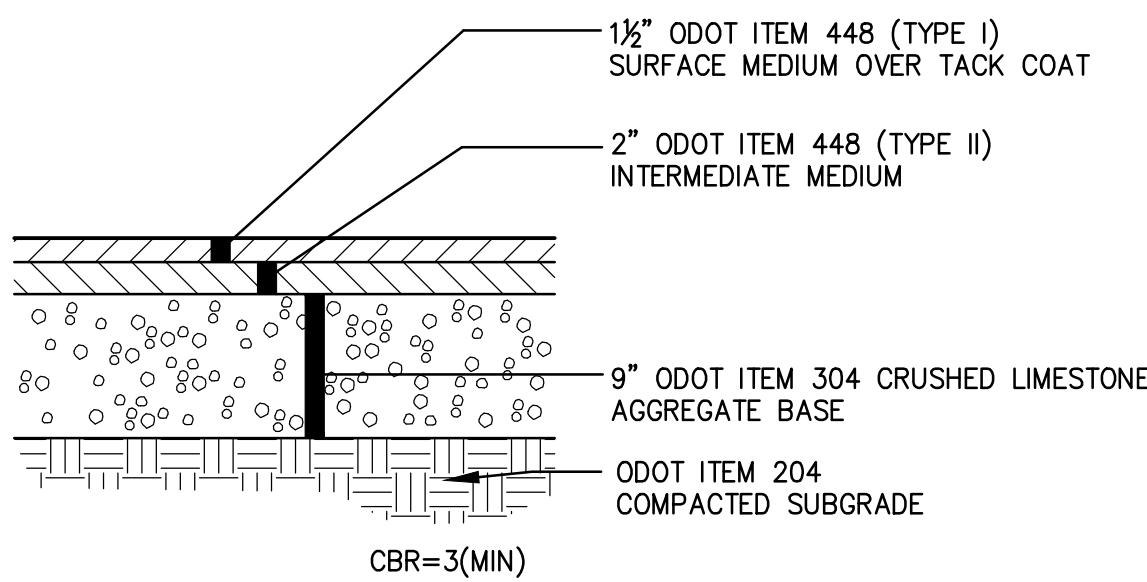
CODE	SUBJECT	REQUIRED
1125.04(g)	MIN. FRONTAGE	30'
	MIN. FRONT YARD DEPTH	25'
	MIN. SIDE YARD WIDTH	
	NOT ADJOINING RESIDENTIAL DISTRICT	NONE
	ADJOINING RESIDENTIAL DISTRICT	25'
	MIN. REAR YARD DEPTH	1 STORY, 30'
1131.05(a)	PERIMETER LANDSCAPE DEPTH (R.O.W.)	5'
1131.05(b)	PARKING LOT LANDSCAPE (>20 SPACES)	ONE LANDSCAPE ISLAND PER 15 SPACES
1131.06(d)	BUFFER YARD TYPE D	
	ADJACENT TO R-1 & R-1A	
	MIN. WIDTH	20'
	YARD LENGTH ALONG LOT LINE	50%
	MIN. REQUIRED PLANTINGS	
	(PER 200 LINEAR FEET)	3-5 SHADE TREES
		2-4 ORNAMENTAL TREES
		6 EVERGREEN SHRUBS
		30 SHRUBS
	FENCING MATERIALS	WOOD, SIMULATED WOOD, VINYL OR MASONRY
	FENCE HEIGHT	6'

HURON CORPORATE PARK LLC
SITE LAYOUT PLAN
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

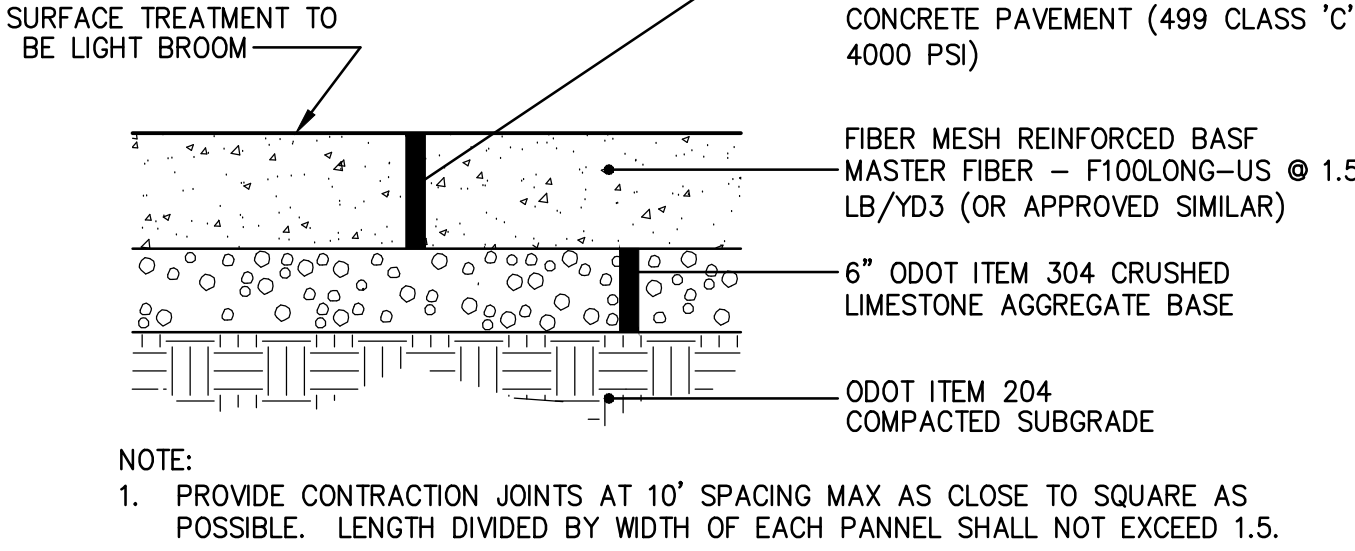


SHEET NO.
C5.0

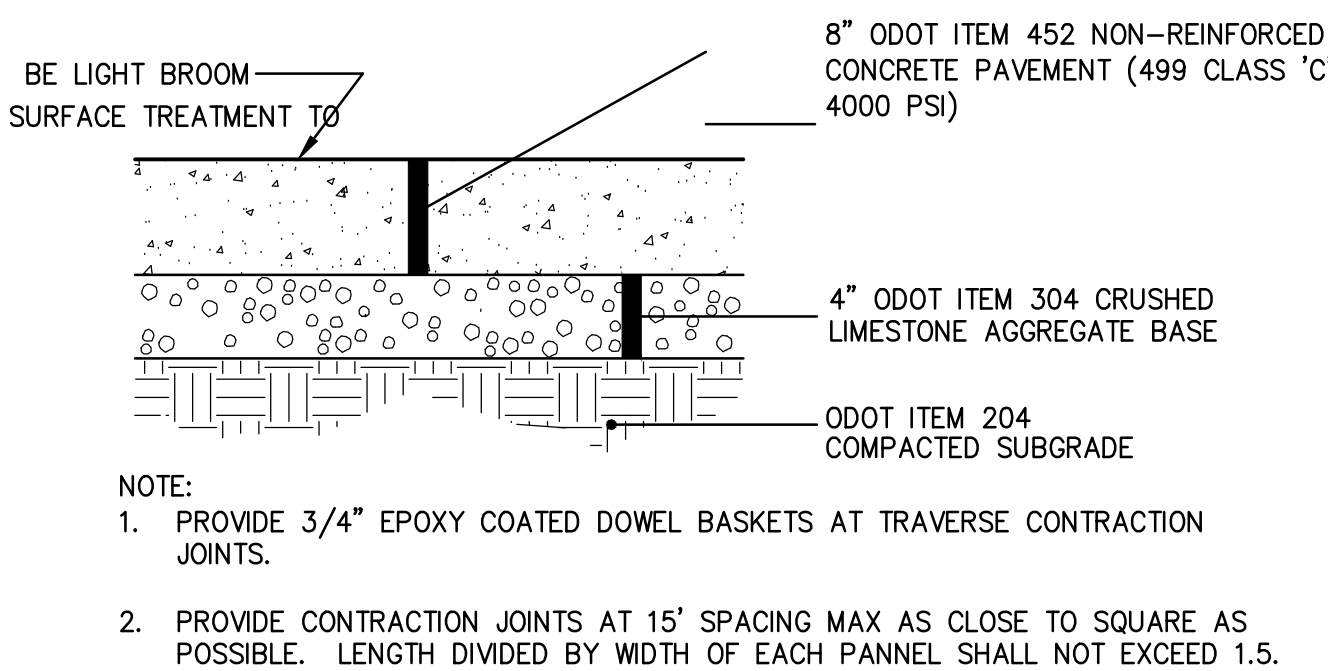
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03-12-26		REVISED PLANNING SUBMITAL
02-09-26		PLANNING SUBMITTAL
12-10-25		PROGRESS SET
DWG NAME	DRAWN BY	CHKD BY
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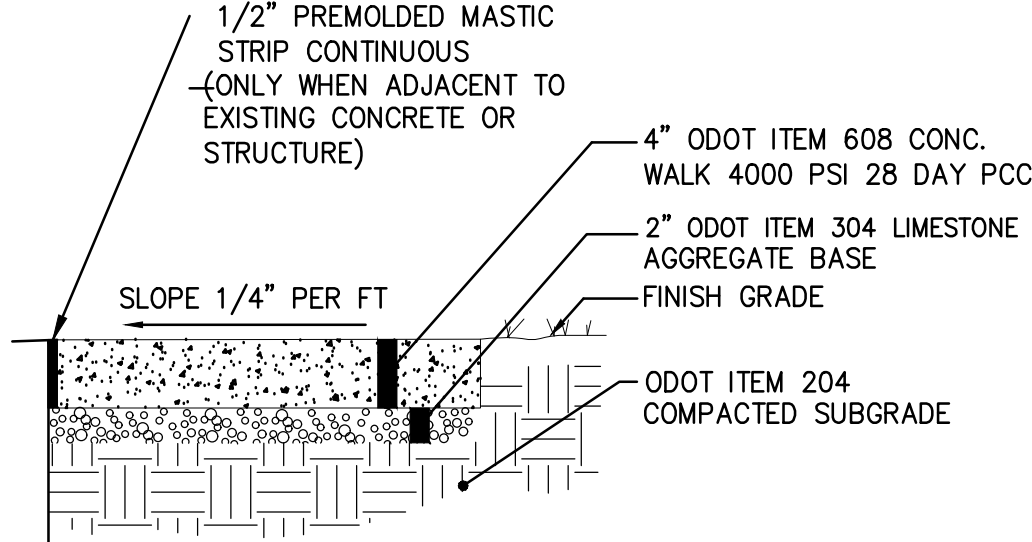
1 STANDARD DUTY ASPHALT PAVEMENT
NOT TO SCALE



2 STANDARD DUTY CONCRETE PAVEMENT
NOT TO SCALE

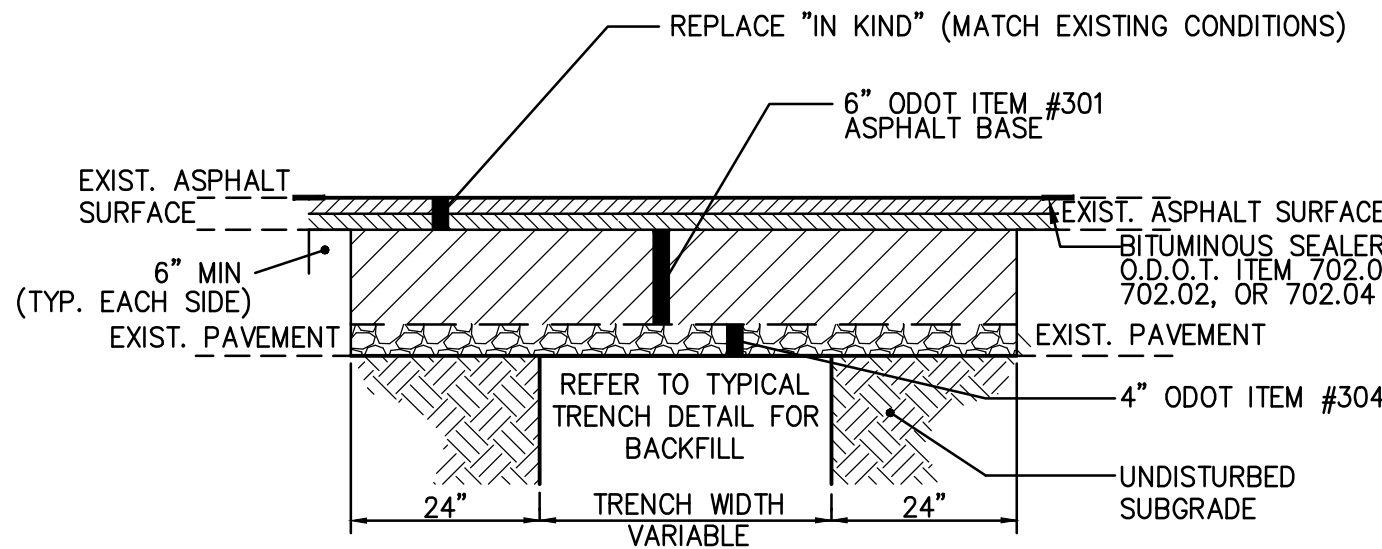


3 HEAVY DUTY CONCRETE PAVEMENT
NOT TO SCALE

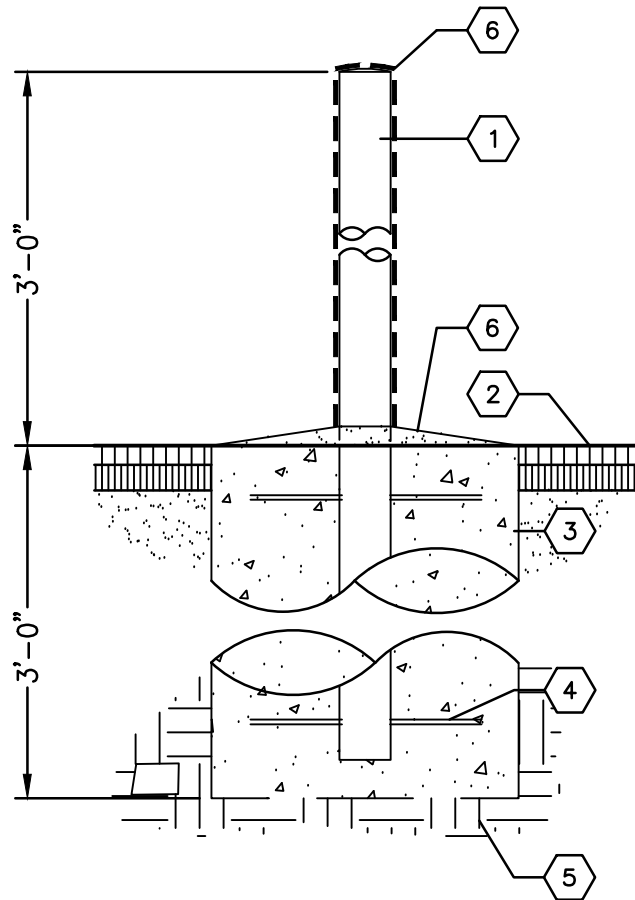


4 CONCRETE SIDEWALK
NOT TO SCALE

6 NOT USED
NOT TO SCALE

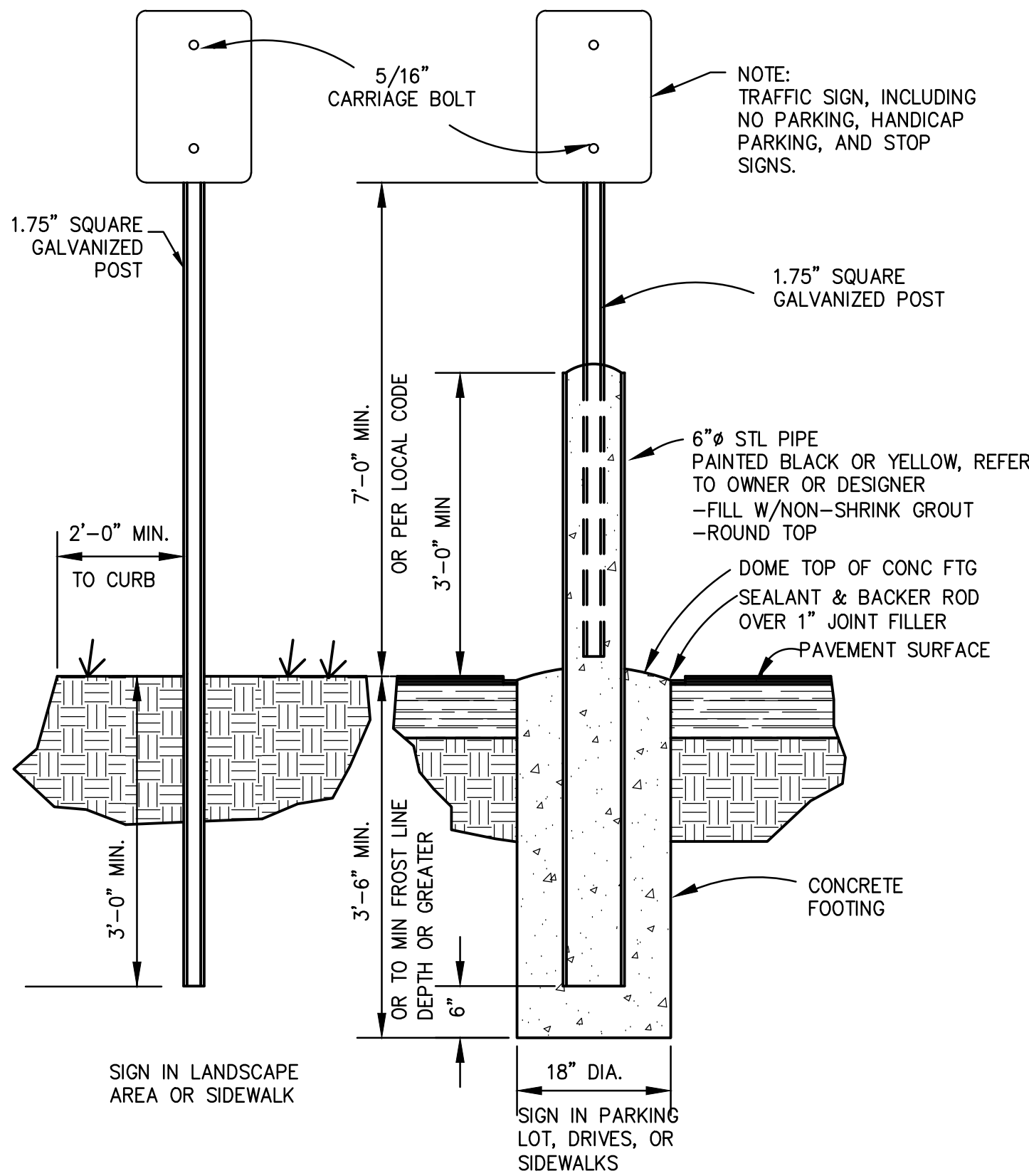


7 REPAVING OVER UTILITY TRENCH--(ASPHALT)
NOT TO SCALE

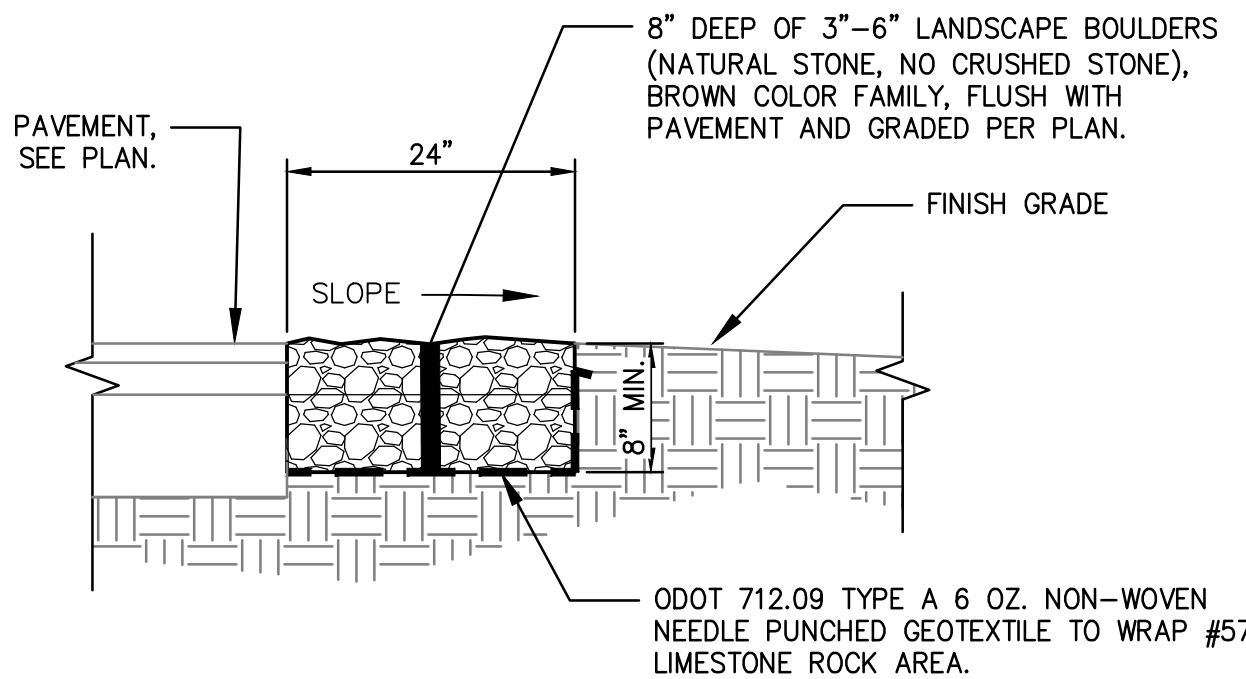
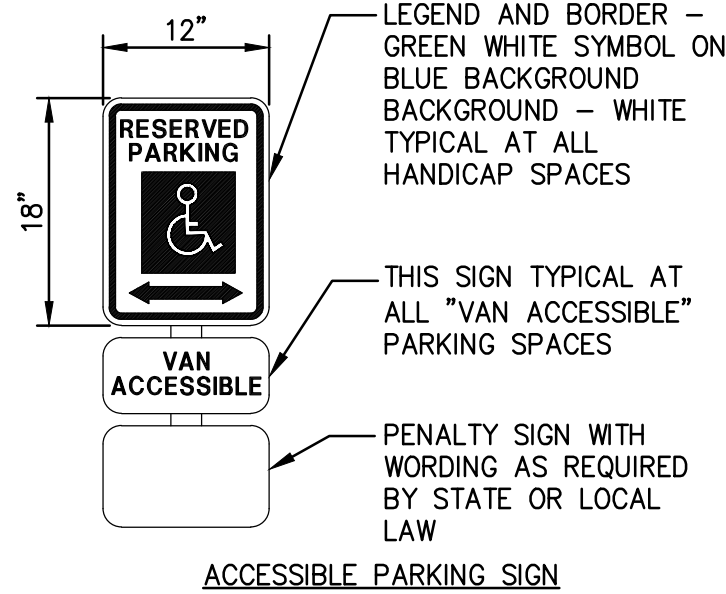


8 UTILITY BOLLARD
NOT TO SCALE

- KEYED NOTES
- 6" STANDARD STL. PIPE FILLED WITH CONCRETE AND HOOPS WELDED TO PIPE AT ALL LOCATIONS INCLUDING UTILITIES, TRASH ENCLOSURE. PROVIDE 1/4" WELDED CLOSURE PLATE AT BOTTOM.
 - TOP OF PAVEMENT.
 - 24" CONCRETE FOUNDATION. USE SONOTUBE FORM.
 - 3/8" WELDED HOOPS. 18" TOP, BOTTOM, AND CENTER WELDED TO 6" STL PIPE
 - SOLID UNDISTURBED SOIL.
 - 1/8" THICK ALL BLACK HDPE BOLLARD COVER CUT TO LENGTH. BOLLARD COVER TO BE "BOLLARDGARD" BY INNOPLAST, (800) 516-9287, 10120 GOTTSCHALK PARKWAY, CHAGRIN FALLS, OH 44023, OR APPROVED EQUAL.

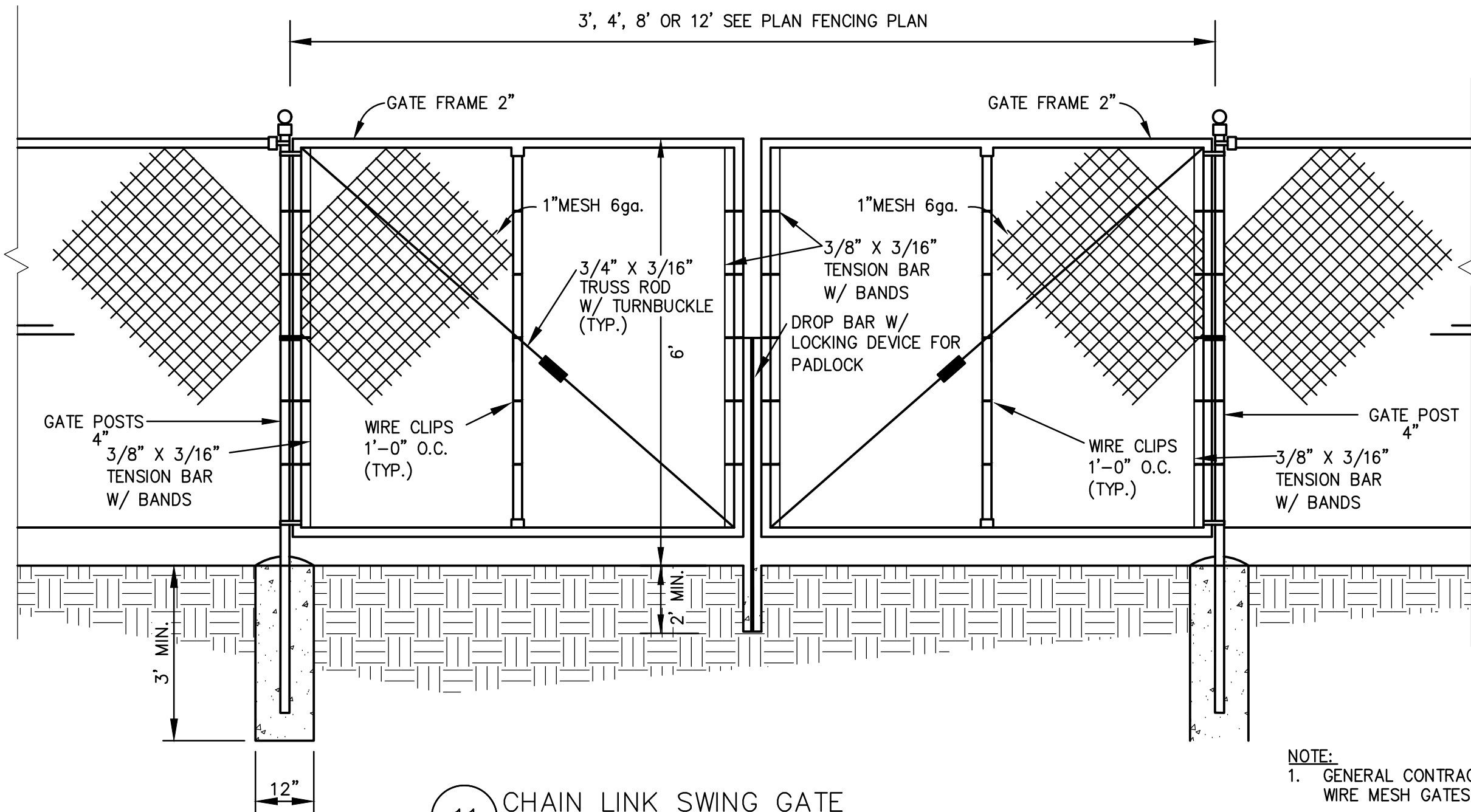


10 GENERAL PARKING SIGNAGE
NOT TO SCALE (FREESTANDING)



9 GRAVEL EROSION STRIP
NOT TO SCALE

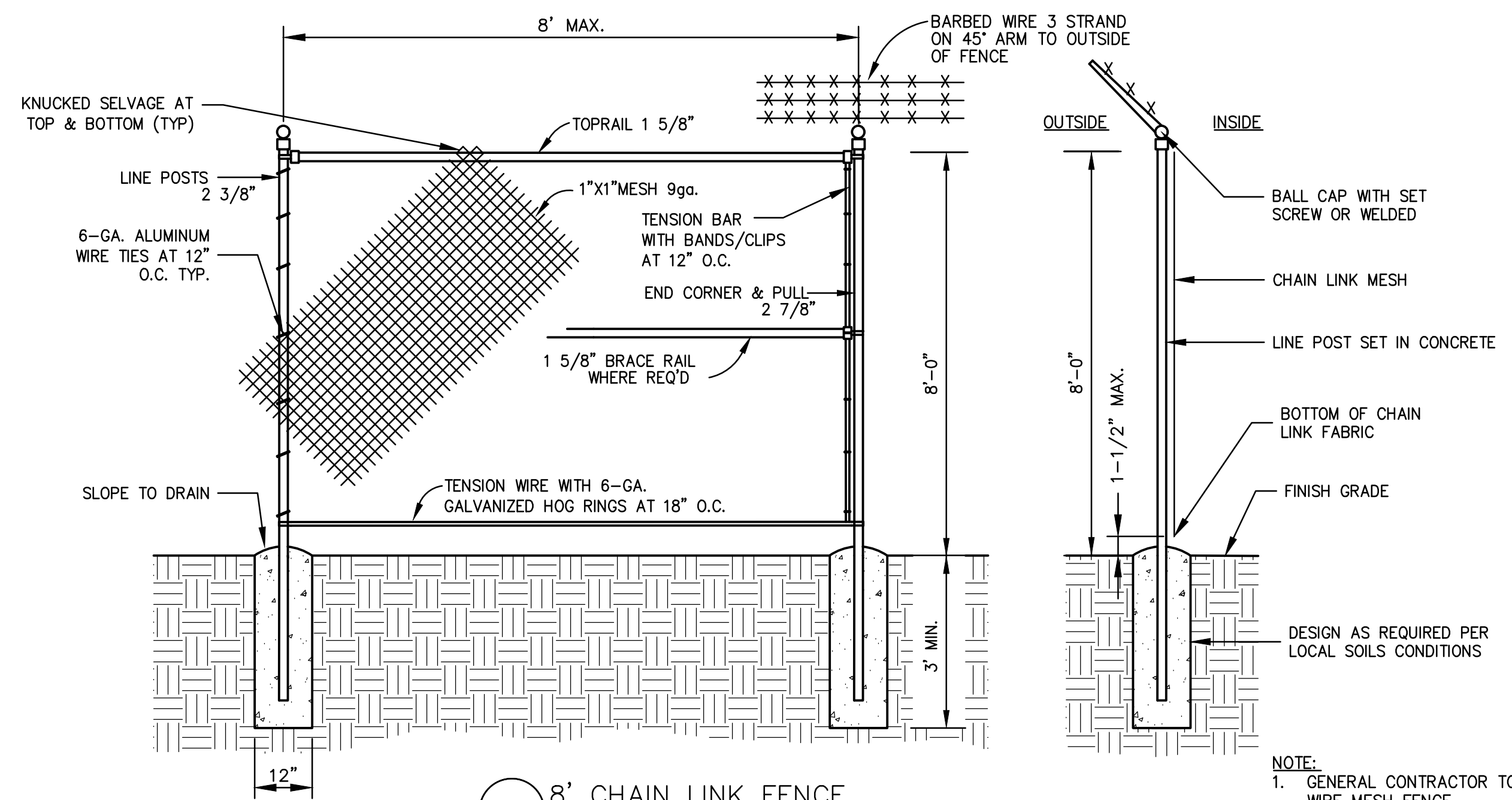
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11 CHAIN LINK SWING GATE
NOT TO SCALE

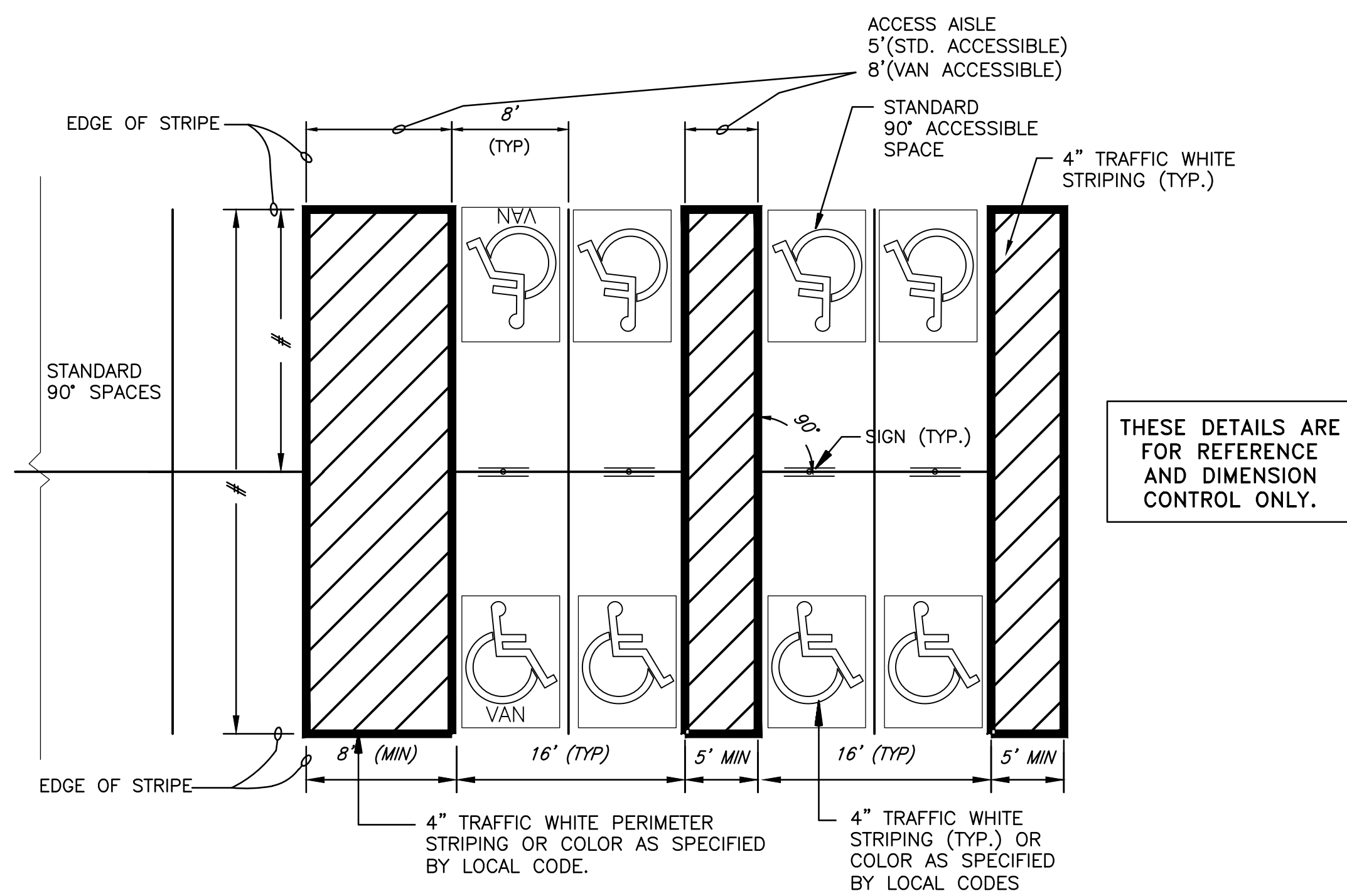
NOTE:
CONTRACTOR TO CONFIRM GATE SIZES AND LOCATIONS WITH PALADIN FENCING PLAN. 3' AND 4' GATES ARE ONLY SINGLE GATES.

- NOTE:
1. GENERAL CONTRACTOR TO INSTALL 96" HIGH, BLACK WIRE MESH GATES. GATE TO MATCH FENCE.
 2. ALL COATINGS AND INSTALLATIONS TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. COLOR TO BE BLACK.
 3. SUBMIT SHOP DRAWINGS OF GATES FOR OWNER'S APPROVAL PRIOR TO COMMENCING ANY WORK. SHOP DRAWINGS TO INCLUDE DETAIL SITE LAYOUT PLAN OF GATES AND ALL COMPONENTS.

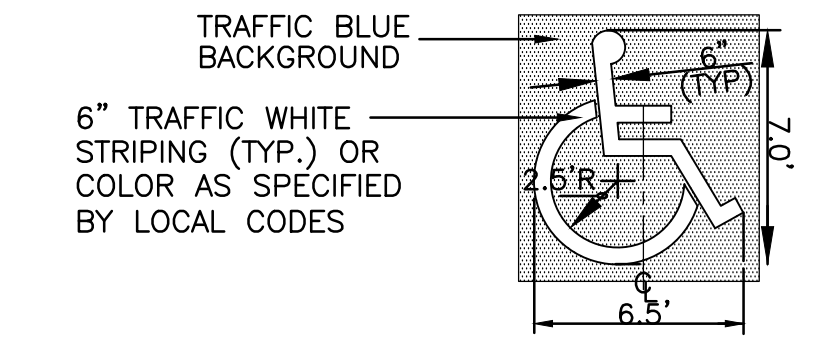


12 8' CHAIN LINK FENCE
NOT TO SCALE

- NOTE:
1. GENERAL CONTRACTOR TO INSTALL 96" HIGH, BLACK WIRE MESH FENCE.
 2. ALL COATINGS AND INSTALLATIONS TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. COLOR TO BE BLACK.
 3. SUBMIT SHOP DRAWINGS OF FENCE FOR OWNER'S APPROVAL PRIOR TO COMMENCING ANY WORK. SHOP DRAWINGS TO INCLUDE DETAIL SITE LAYOUT PLAN OF FENCE AND ALL COMPONENTS.



- NOTES:
1. SEE SITE PLAN FOR TOTAL LAYOUT.
 2. 8' ACCESS AISLE SHALL BE PLACED ON THE PASSENGER SIDE OF A VAN ACCESSIBLE SPACE.
 3. ALL DIMENSIONS ARE TO ϕ OF STRIPE UNLESS OTHERWISE INDICATED.
 4. SEE SITE PLAN FOR ALL OTHER DIMENSIONS NOT INDICATED (ϕ , MIN).
 5. SLOPE WITHIN ACCESSIBLE SPACES SHALL NOT EXCEED 2%.

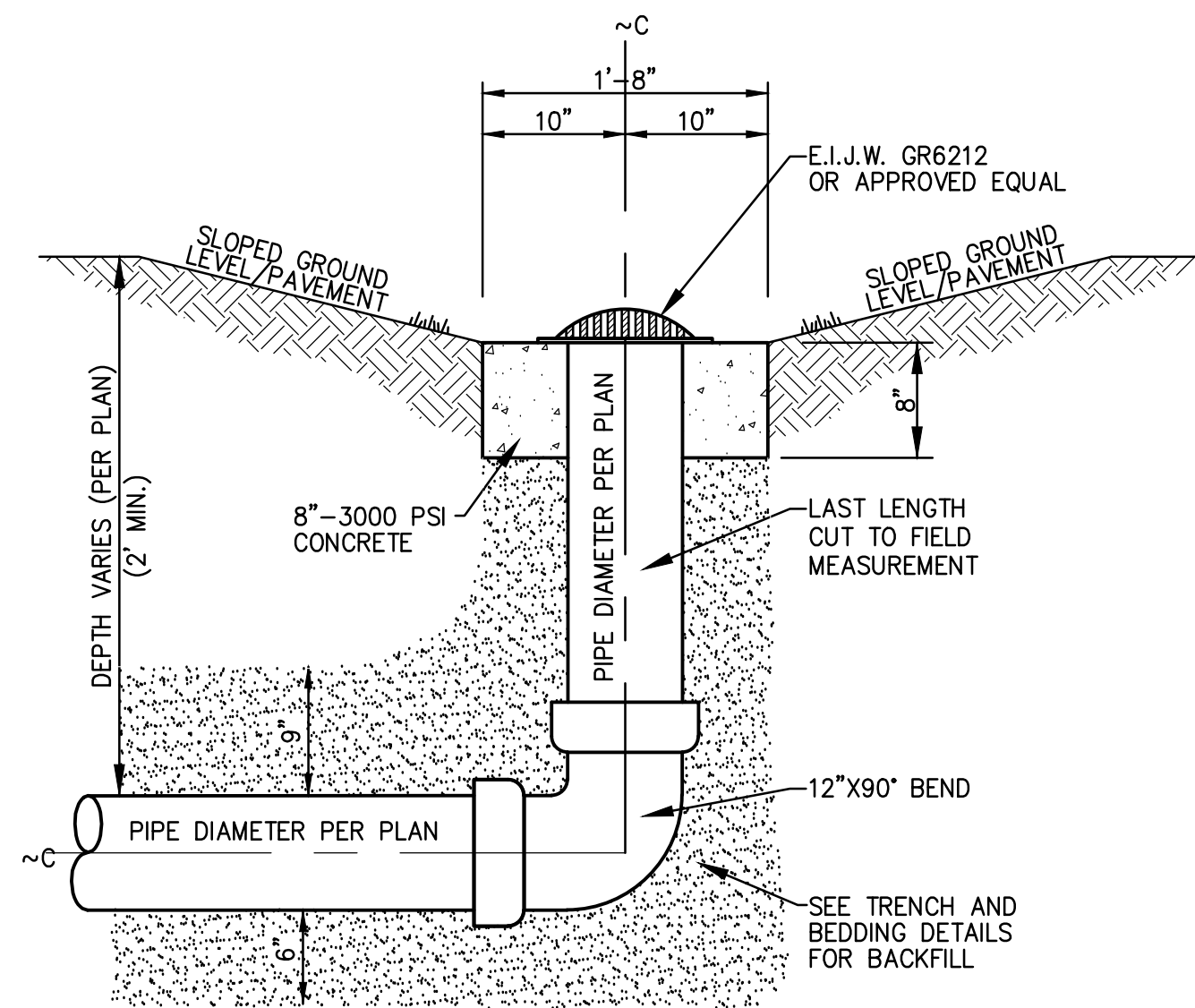


ACCESSIBLE PARKING SYMBOL
LOCATE AT EDGE OF PARKING SPACE UNLESS ACCOMPANIED BY "VAN" LETTERING WHERE SPECIFIED

13 ADA ACCESSIBLE PARKING DETAIL
NOT TO SCALE

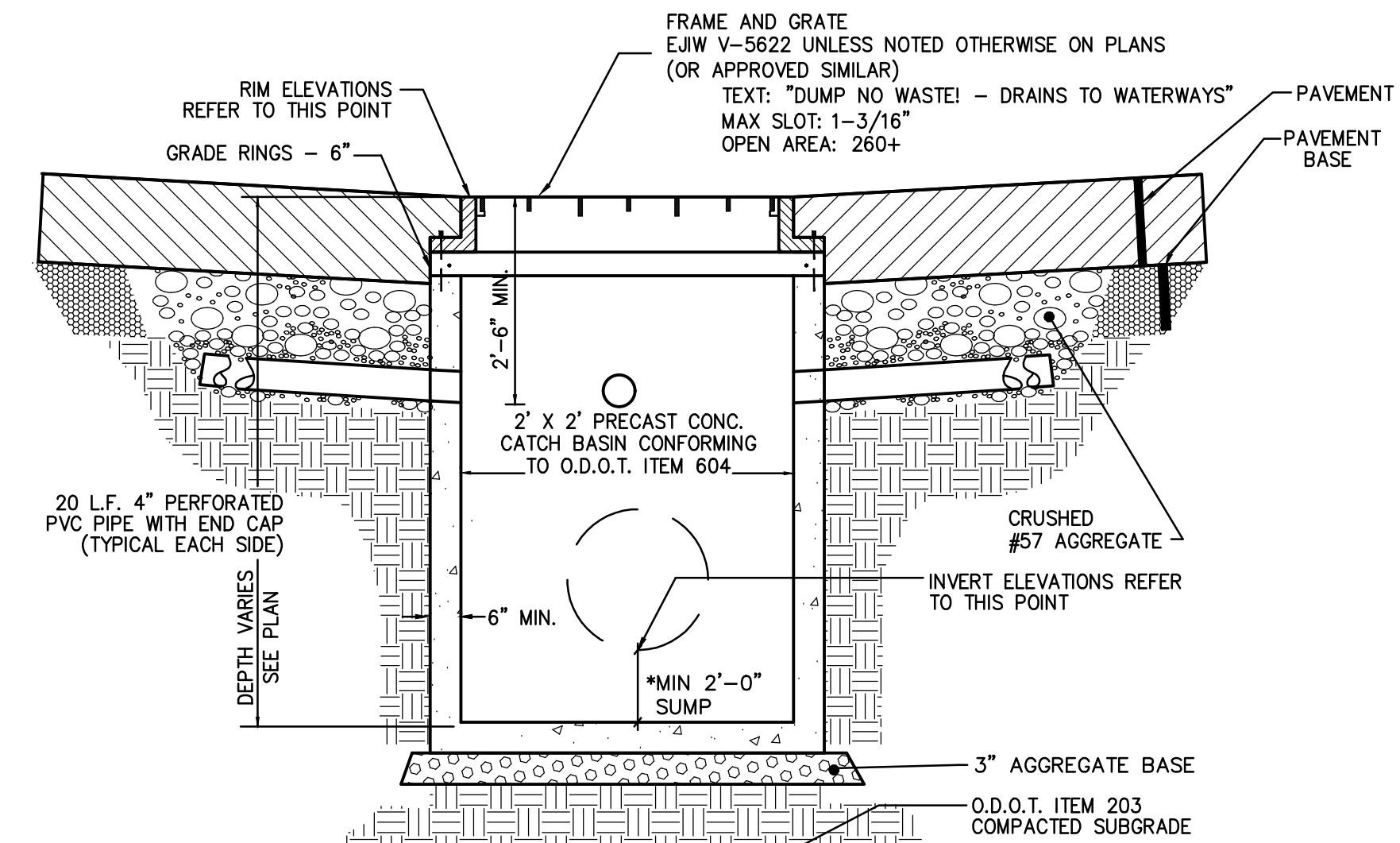
14 NOT USED
N.T.S.

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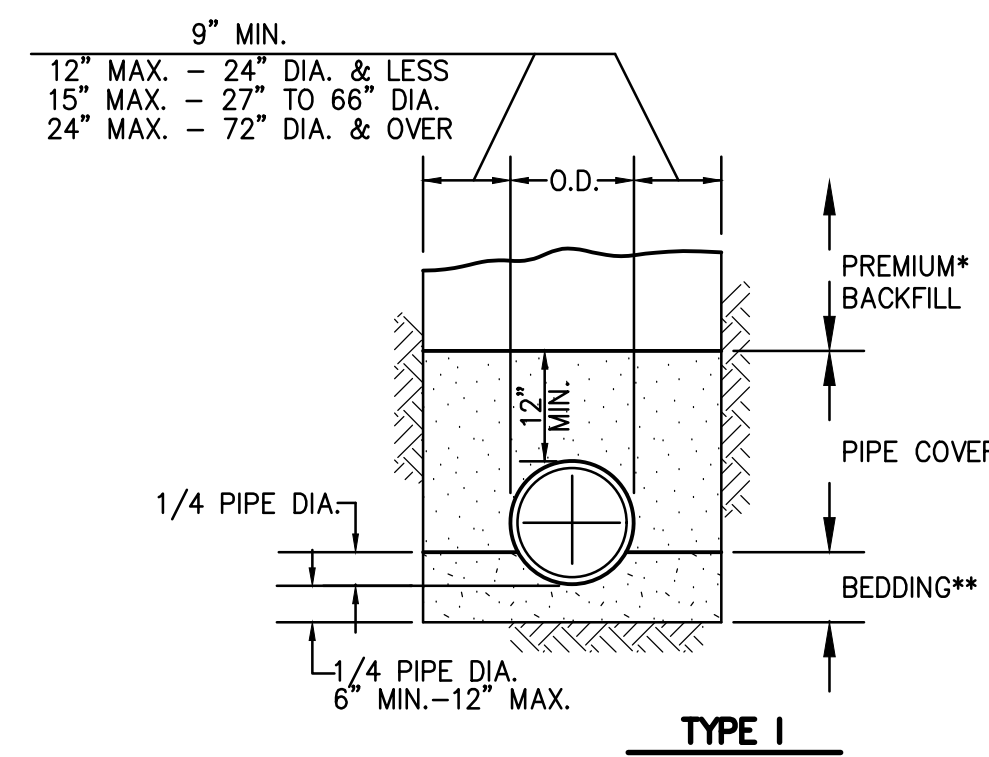
PLAN DESIGNATION - YD

15 YARD DRAIN
1" = 1'-0"



2x2 CATCH BASIN
NOT TO SCALE
PLAN DESIGNATION - CB

16 PRECAST CATCH BASIN / INLET BASIN
NOT TO SCALE



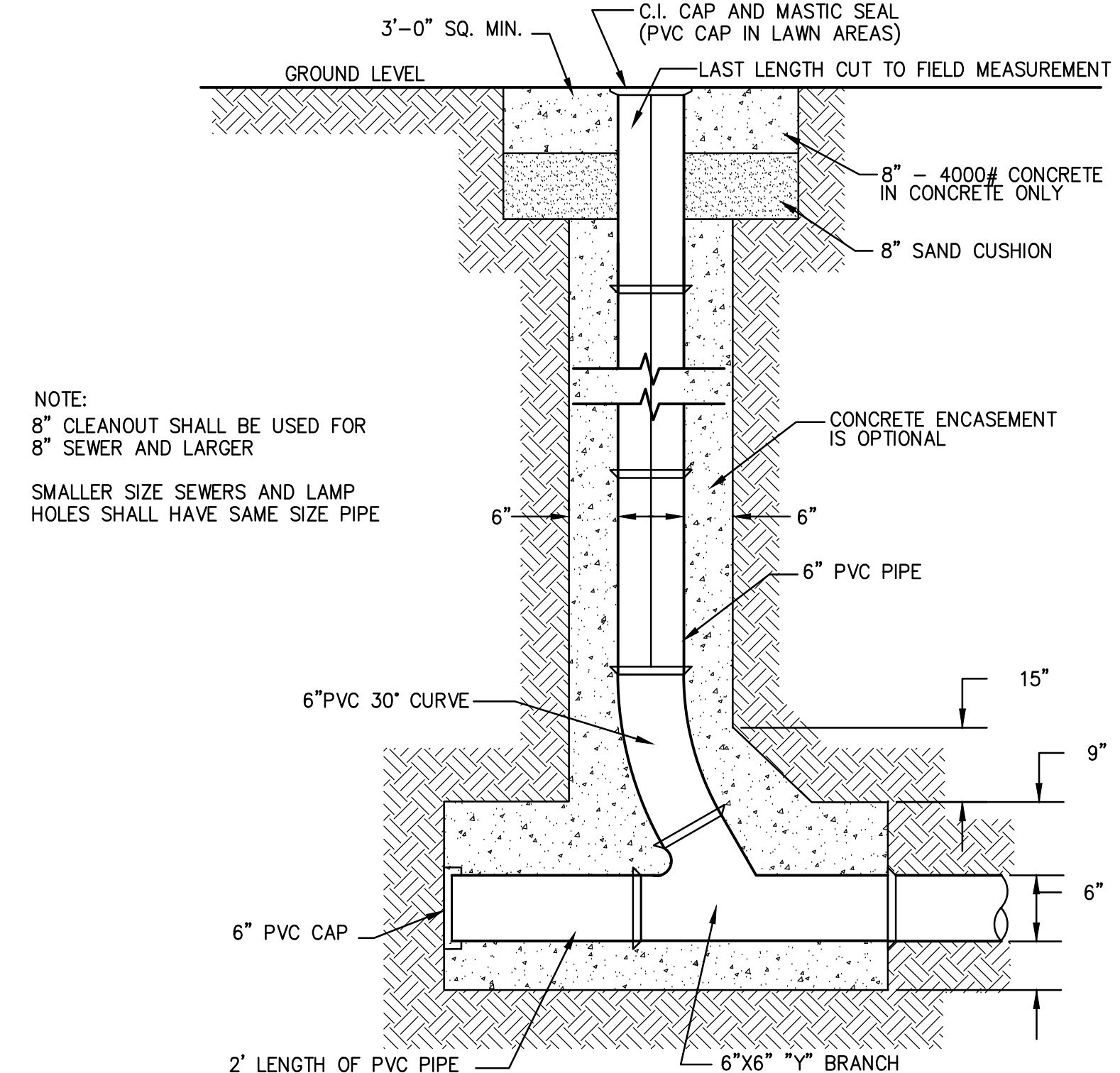
* NOTE:
PROVIDE PREMIUM BACKFILL TO SUBGRADE UNDER ALL PROPOSED AND EXISTING PAVED AREAS INCLUDING SIDEWALK, OR WHEN TRENCH IS WITHIN 45' ZONE OF INFLUENCE OF PROPOSED PAVED AREAS OR BUILDING FOUNDATIONS. NATIVE BACKFILL SHALL ONLY BE USED WHEN APPROVED IN WRITING BY THE OWNER, OWNER'S GEOTECHNICAL ENGINEER AND THE CITY ENGINEER.

** NOTE:
LATERAL CONNECTIONS TO HAVE A MINIMUM BEDDING DEPTH OF 3" COARSE AGGREGATE.
BEDDING
ASTM D2321, BEDDING SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 FOR 60" OR SMALLER DIA. PIPE. FOR 66" DIA. PIPE OR LARGER No. 4 AGGREGATE MAY ALSO BE USED.

PREMIUM BACKFILL
PREMIUM BACKFILL SHALL CONSIST OF ODOT ITEM 304 LIMESTONE.

PIPE COVER
PIPE COVER SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 LIMESTONE.

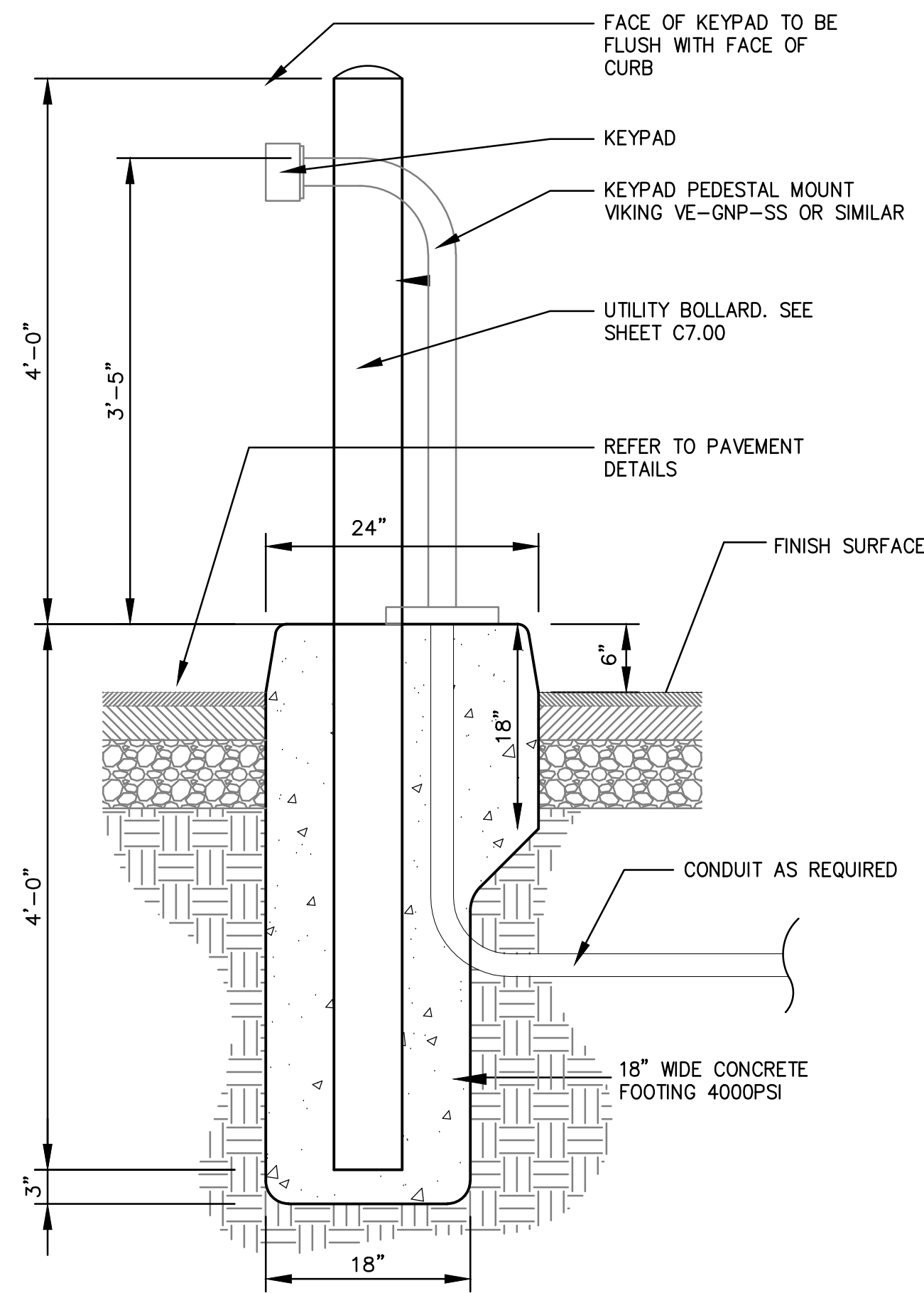
17 TYPICAL TRENCH DETAILS
NOT TO SCALE



NOTE:
8" CLEANOUT SHALL BE USED FOR 8" SEWER AND LARGER
SMALLER SIZE SEWERS AND LAMP HOLES SHALL HAVE SAME SIZE PIPE

18 SAN/STM CLEANOUT DETAIL
NOT TO SCALE

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14057F		



19 KEYPAD/UTILITY BOLLARD AT ENTRY ISLAND
NOT TO SCALE

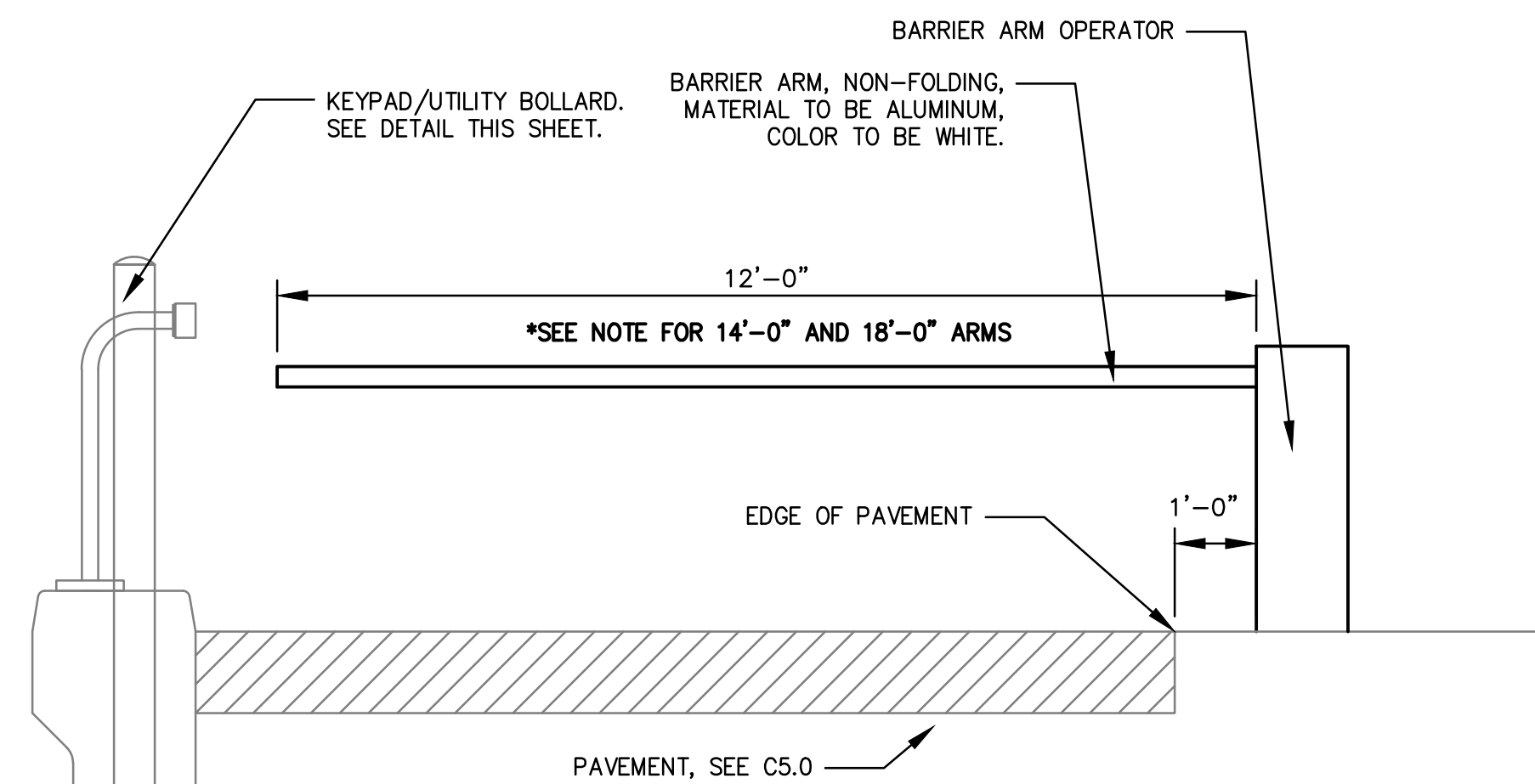
PRODUCT SPEC:
BARRIER ARM INGRESS/EGRESS KEYPAD
BASIS OF DESIGN

KEY PAD:
LIFTMASTER MK500GS OR APPROVED EQUAL

MUST HAVE SPECIFICATIONS:
1. VANDEL RESISTANT
2. LIT KEYPAD
3. STAINLESS STEEL KEYPAD HOUSING AND PEDESTAL MOUNT.

NOTE
CONTRACTOR TO CONFIRM KEYPAD, KEYPAD HOUSING, AND PEDESTAL MOUNT ARE COMPATIBLE WITH EACHOTHER, AS WELL AS THE BARRIER GATE OPERATOR.

CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO ORDERING.



PRODUCT SPEC:
BARRIER ARM OPERATOR BASIS OF DESIGN

OPERATOR:
LIFTMASTER MATDCBB3 (MEGA ARM TOWNER) OR APPROVED EQUAL

MUST HAVE SPECIFICATIONS:
1. BATTERY BACK-UP
2. WHITE ALUMINUM BARRIER ARM (STRIPING/PADDING/TAPE PER OWNERS DIRECTION)
3. STEEL TAMPER-PROOF PROTECTIVE CASE
4. BOTH ENTRY BARRIER GATES MUST HAVE ABILITY TO BE OPENED VIA KEYPAD. SEE ELECTRICAL PLANS AND MANUFACTURER'S INSTRUCTIONS.

NOTE
CONTRACTOR TO CONFIRM BARRIER GATE OPERATOR IS COMPATIBLE WITH KEY PAD.

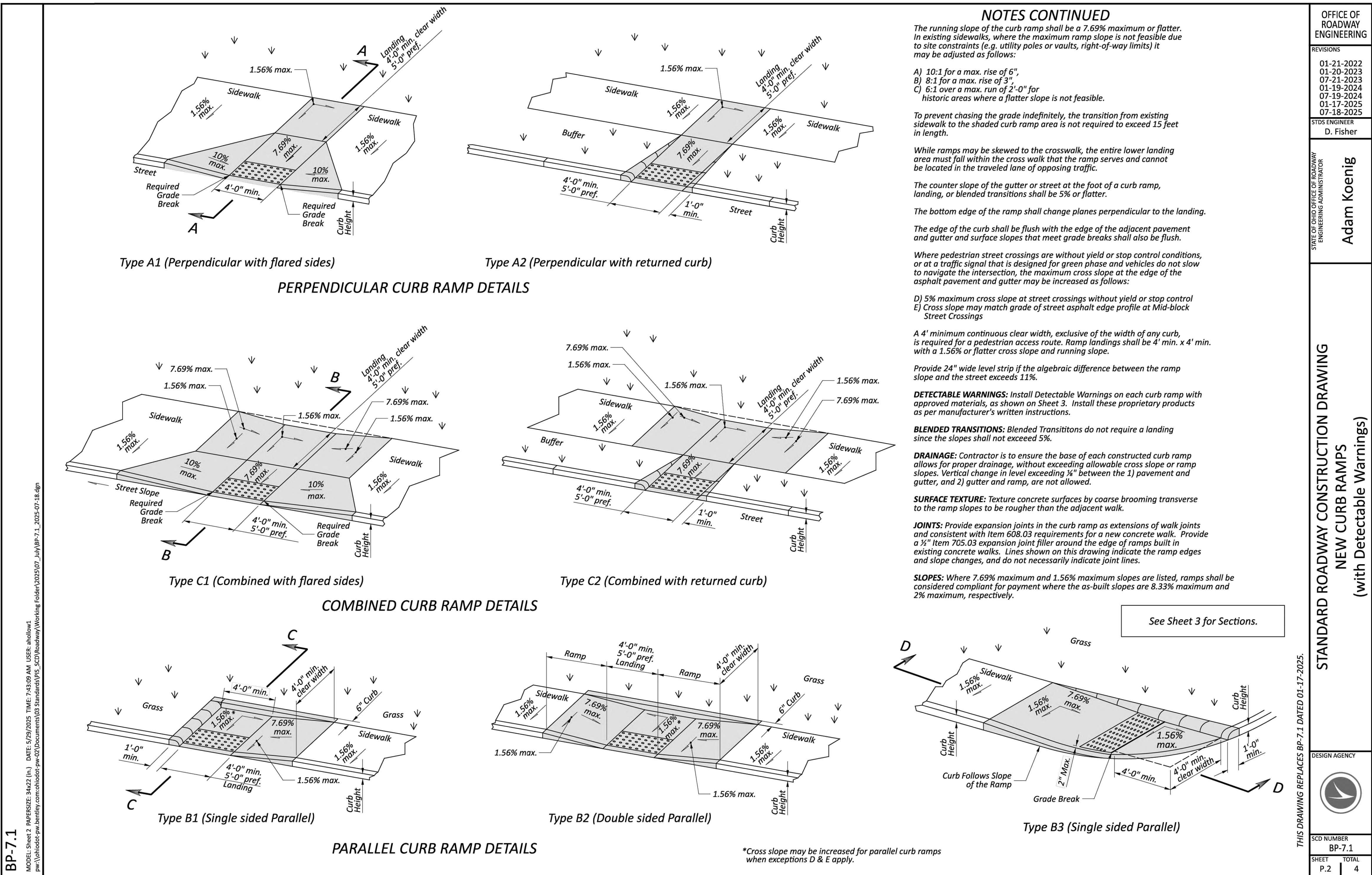
CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO ORDERING.

***NOTE**
CONTRACTOR TO CONFIRM BARRIER GATE OPERATOR IS OPERATIONAL WITH 14' AND 18' BARRIER ARMS AS NEEDED PER PLAN.

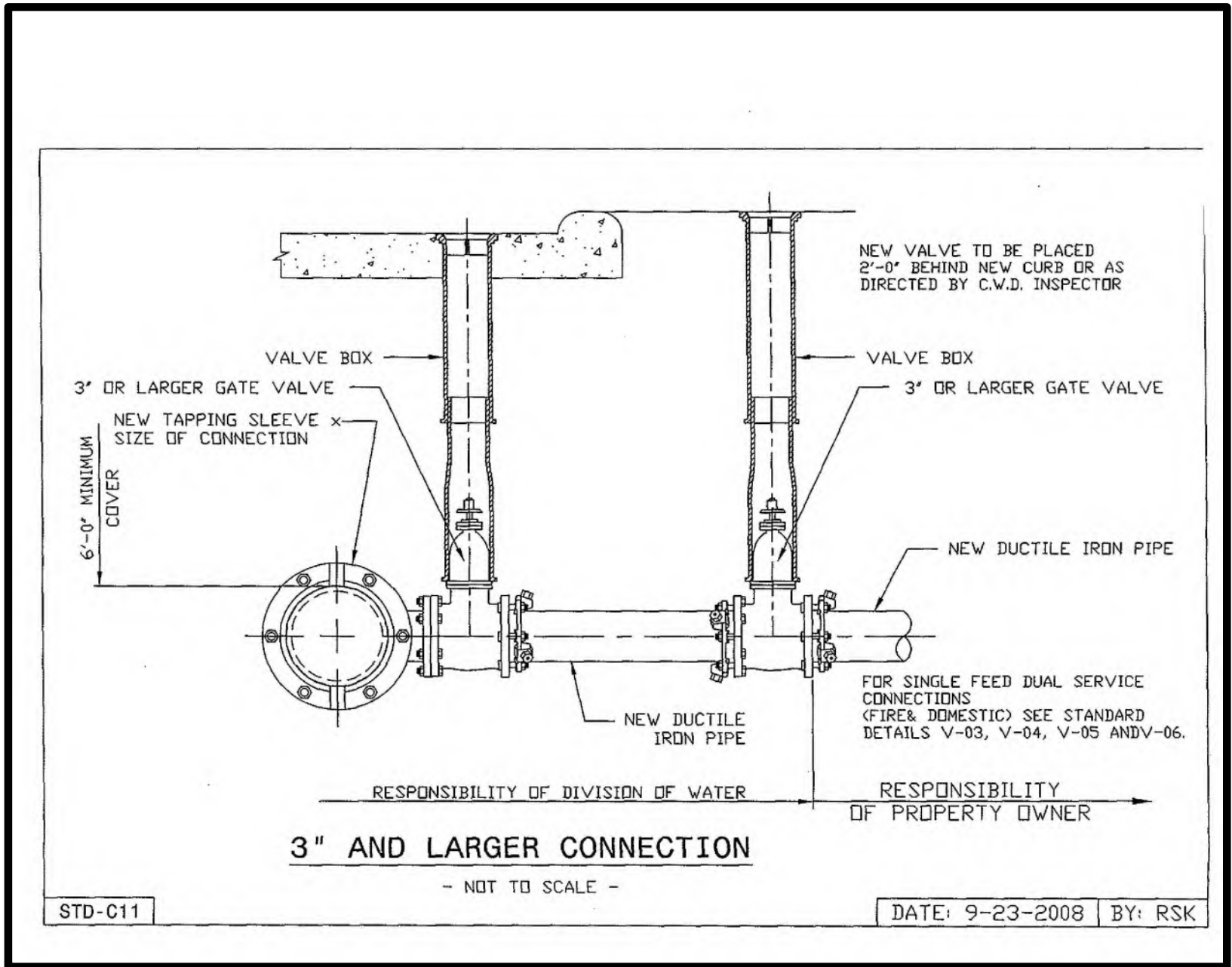
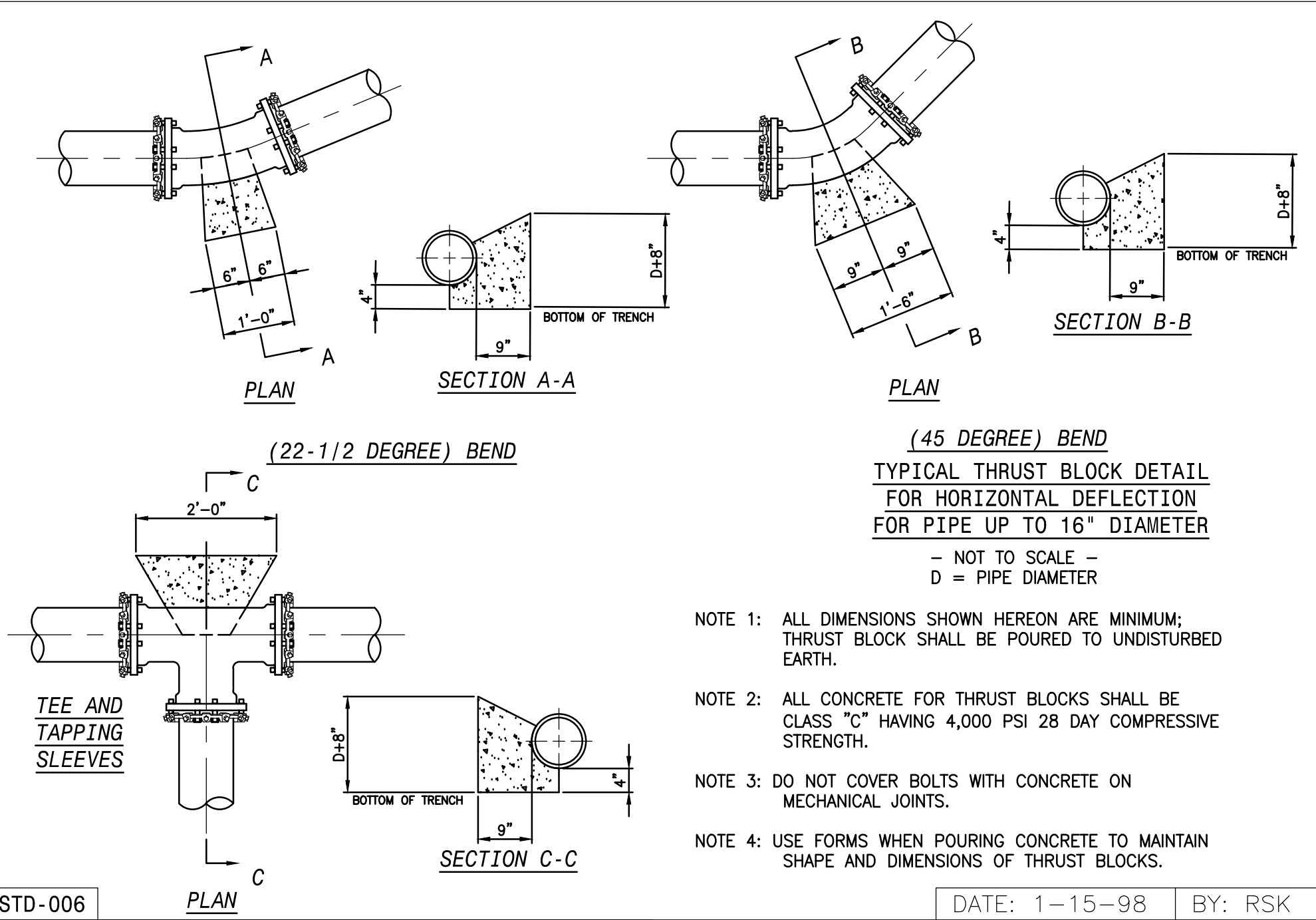
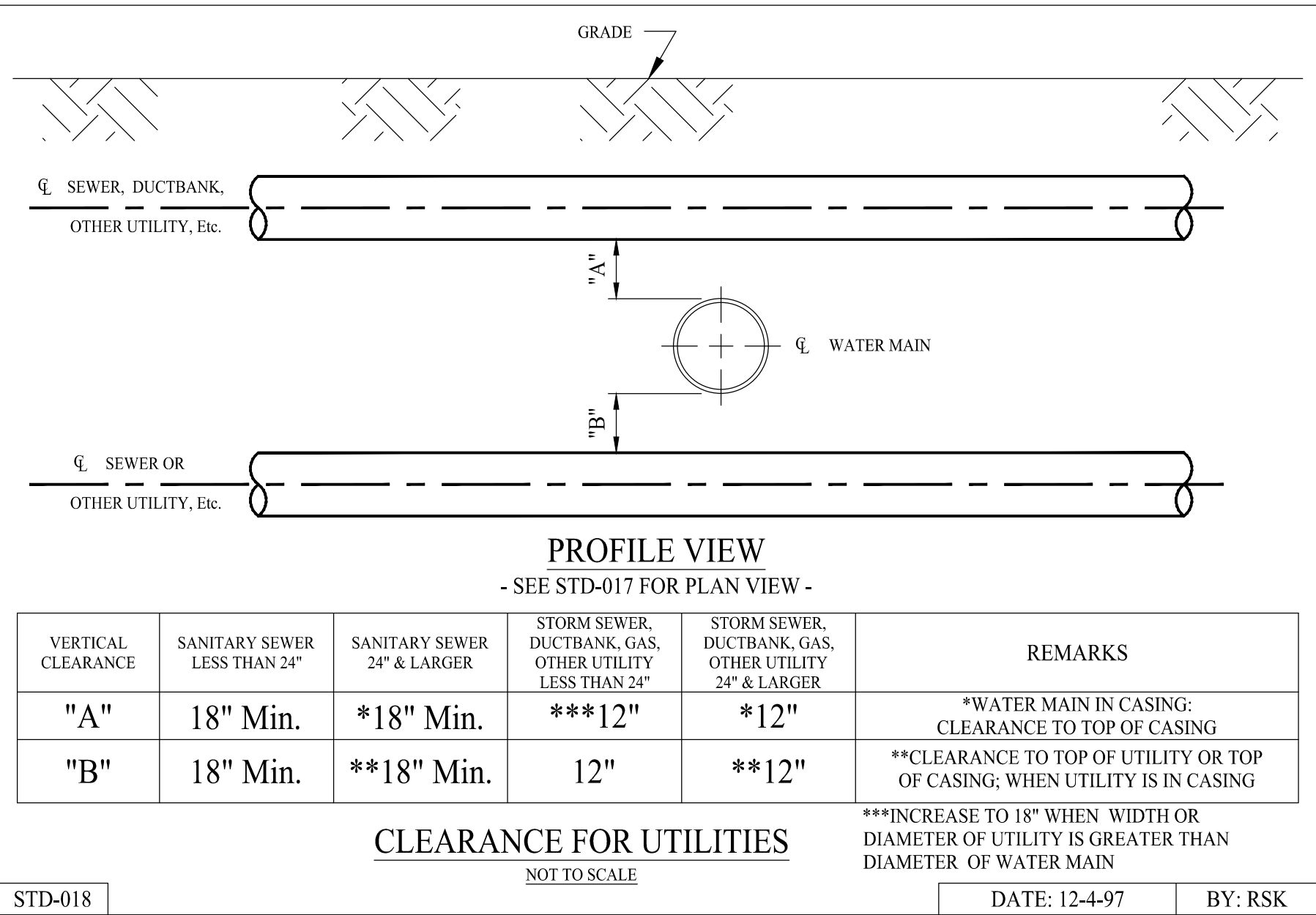
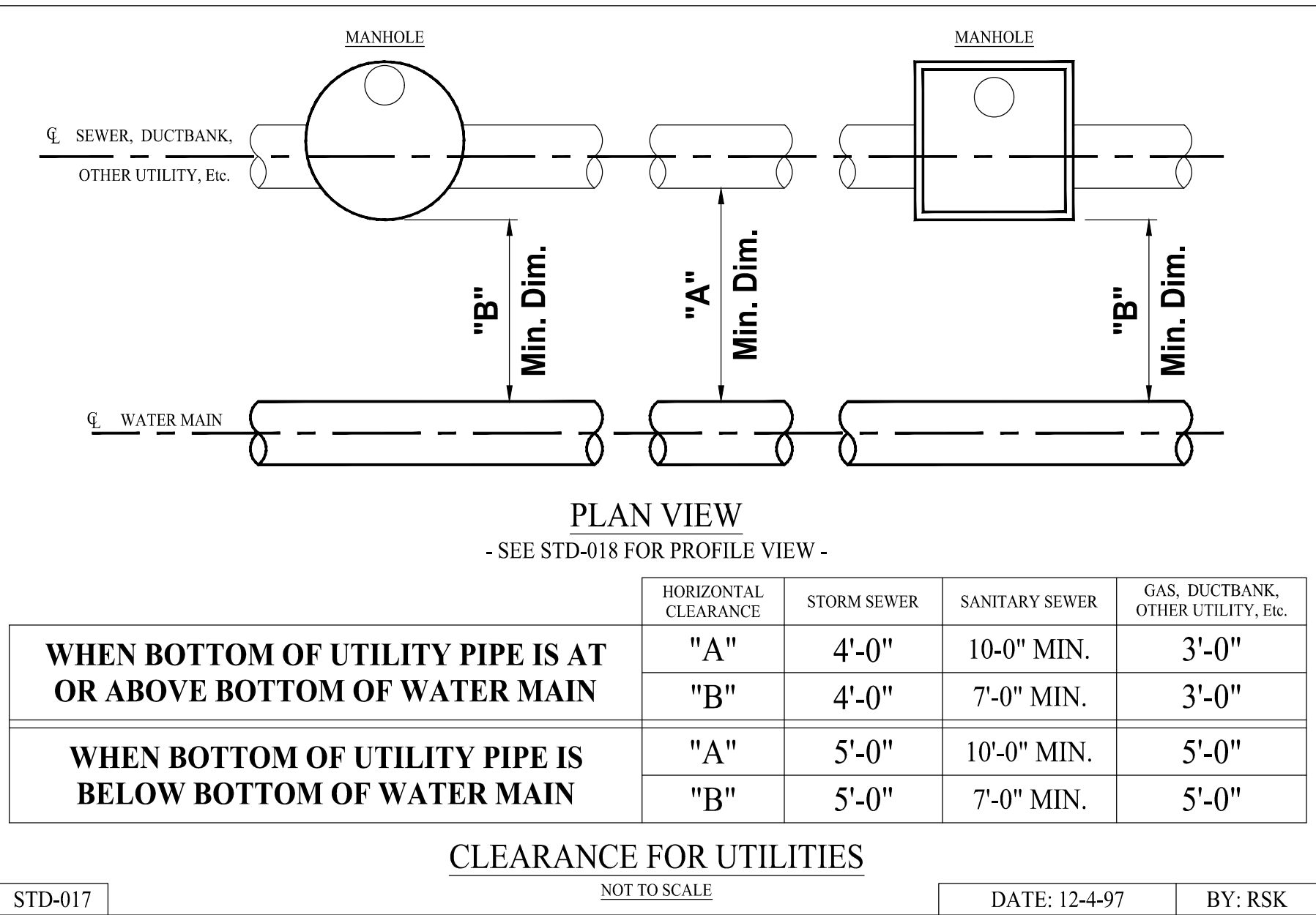
CONTRACTOR TO SUBMIT ADDITIONAL SHOP DRAWINGS IF DIFFERENT GATE OPERATORS ARE NEEDED.

20 BARRIER ARM GATE
NOT TO SCALE

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22 WATER DETAILS
1" = 1'-0"

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STANDARD SPECIFICATIONS - SANITARY SEWER MAINS AND APPURTENANCES

DEVELOPER PROCEDURES

All Developer Procedures as established by Erie County Commissioners, Erie County Engineer, Erie County Regional Planning Commission and local political subdivisions shall be followed, which includes: entering into a Developers Agreement, following standards and books of design, inspection, permits, record drawings (as-built) on mylar media, warranty and financial assurances. One (1) electronic copy in pdf format, and one (1) paper set of detail drawings, including plan and profile, proposed and existing topography and all buried utilities, and specifications of all proposed sanitary sewers on 24" x 36" sheets shall be submitted for review and approval to: Erie County Sanitary Engineer, c/o D.O.E.S., 554 River Road, P.O. Box 469, Huron, Ohio, 44839. Upon the Sanitary Engineers approval of the detail drawings and specifications for construction, the developer will have one year from approval date to complete the construction of the sanitary sewer lines or will have to resubmit for approval and at a minimum be subject to any new D.O.E.S. requirements.

The cost to record any and all easements and/or plats for Developer's projects for sanitary sewer lines, water lines, or pump stations to be dedicated to Erie County for ownership, operation and maintenance shall be at the cost of the Developer. The County shall invoice the Developer for these costs, the Developer shall pay said invoice within thirty (30) days of the invoice date.

O.R.C. 307.73 AGREEMENTS

Erie County may agree to an O.R.C. 307.73 Agreement to allow a Developer install a sanitary sewer line, dedicate it to the County as a public owned and maintained line in an easement and the County will collect and return connection fees from non-participating property owners as allowed under the law under the following terms:

1. Agreement Term: not-to-exceed ten (10) years.
2. Pro-rated front footage fees shall not exceed the county's current equalization fee as described in Water Rule 3, Section 1.C, at the date of the agreement.
3. No successor and/or assignment of the agreement will be allowed for the Developer.
4. Developer will pay for all costs involved in acquiring easements including the cost of recording said easements.

WASTEWATER COLLECTION SYSTEM IMPROVEMENTS BASIS OF DESIGN

The Sanitary Engineer shall determine whether or not the County wastewater collection and tributary treatment system has available capacity to allow for a development to proceed. Gravity sewers shall consist of a minimum size of eight inch (8") diameter for mainline sewers and six inch (6") diameter for service laterals at full flow minimum velocities of two (2) fps. The Sanitary Engineer shall require sewers and pump stations to be sized and to be installed at depths for the ultimate development of the entire tributary service area. Gravity sewers shall be required in place of force mains/pressure sewers when the Sanitary Engineer determines it is in the public interest to do so.

Generally, design shall be in accordance with Ohio E.P.A. regulations, the latest version of "Ten State Standards" and shall conform to the proceeding Standard Minimum Required Specifications and Standard Drawings.

The Developer and/or Engineer shall not allow other utilities to be installed within five feet (5') horizontally of an installed sanitary sewer or in the same trench as the sanitary sewer except at crossings. Should this occur, the Developer will be responsible for maintaining the sewer mains and the Sanitary Engineer will not permit taps to said line until the other utility lines are relocated five feet (5') away from the sanitary sewer.

Sanitary sewer lines shall be located within the public road right-of-way, along with other County utilities, such as water mains, storm sewers and drainage swales. All other utilities shall be located in Easements, outside the public right-of-way.

Pursuant to EPA requirements, water mains shall be installed with at least a ten foot (10') horizontal and eighteen inch (18") vertical separation from any sanitary sewers. The County also requires a five foot (5') horizontal and eighteen inch (18") vertical separate from any storm sewers, measured from out-to-out.

Bulkheads shall be installed once for every 200 lineal feet of sanitary sewer installed. Bulkheads will consist of an impervious material which will prevent ground water from passing through pipe bedding and backfill materials. Such materials may include native dais, low strength mortar, or a mixture of ODOT 304 limestone with bentonite.

WASTEWATER COLLECTION MATERIAL MINIMUM REQUIRED SPECIFICATIONS AND INSTALLATION STANDARDS

IN THE CASE OF CONFLICTS BETWEEN WRITTEN SPECIFICATIONS AND DRAWINGS, THE WRITTEN SPECIFICATION SHALL APPLY.

SHOP DRAWING REQUIREMENTS

Two (2) copies of shop drawings containing manufacturers information concerning meeting the minimum required specifications shall be submitted to the Sanitary Engineer for approval by the Contractor prior to installation for the following items: pipe, fittings, manholes with appurtenances, oil/grit interceptors, grease traps, pump stations, electrical controls, valves, castings, casing pipe, casing supports, casing end seals, etc. All drawings shall be stamped and initialed as reviewed by the Contractor before submitting these documents to the Sanitary Engineer for acceptance. U.S. manufacturers information are preferred by Erie County and purchased from Erie County vendors where possible.

LINE CONSTRUCTION STAKING

Gravity sanitary sewers and force mains shall be staked prior to the installation of new pipe. Staking shall be for both line and grade every fifty feet (50') plus at all fittings and off-set at ten feet (10'). A professional surveyor will be required where the Contractor does not have competent surveyors. All public gravity sewers shall be installed with the use of a laser to insure installed-to-grade.

GRAVITY MAIN LINE AND SERVICE LATERAL SEWER PIPE

All sewer pipe should be buried below the frost line consisting of thirty-six (36") of cover over the top of the pipe. Sewer pipe buried less than four foot (4') of cover in road or driveway areas shall be of Class 52, Ductile Iron Pipe, cement lined, with rubber gasket bell and spigot push on joints or PVC pipe as specified below installed in a rigid sleeve such as D.I.P. or welded steel pipe.

Sewer pipe buried with less than eighteen feet (18') of cover shall be PVC (solid wall pipe, PVC compounds shall meet the requirements of ASTM D-1784, cell class 12454-B), SDR 35 (six inch (6") through fifteen inch (15") diameter pipe) and ASTM F-679 (eigheten inch (18") through thirty inch (30") diameter pipe), conforming to ASTM D3034, with joints conforming to ASTM D3212. Installed pipe testing shall meet or exceed ASTM D-1784 for leakage and five (5) percent deflection. Fittings shall conform to ASTM D-3034. Gaskets shall conform to ASTM F-477. Pipe bedding shall consist of No. 8 or 9 limestone to the dimensions shown on the standard drawings haunched in place.

Sewer pipe buried with more than eighteen feet (18') of cover shall be PVC (solid wall pipe, PVC compounds shall meet the requirements of ASTM D-1784, cell class 12454-B), pipe shall meet minimum pipe stiffness rating of PS-115 and shall consist of SDR 26 or thicker walled pipe as needed, as recommended by the manufacturer for the actual buried depth, conform to ASTM D3034 through fifteen inch (15") diameter and ASTM F679 for larger sizes. Installed pipe testing shall meet or exceed ASTM D-1784 for leakage and five (5) percent deflection. Fittings shall conform to ASTM D-3034. Pipe bedding shall consist of No. 8 or 9 limestone to the dimensions shown on the standard drawings haunched in place. All new public sanitary gravity sewers shall be CCTV upon completion of installation and provide Erie County DOES with a DVD and log of same.

Special/alternate pipe different than those specified above for gravity sewer installations use may be considered for special conditions, such as directional drilled HDPE or steel encased cement lined D.I.P. for under roads and water courses when sewer grade elevations will permit, or other pipe subject to approval by the Erie County Sanitary Engineer. Care should be taken not to drill through other buried utilities and the Contractor shall provide a 15 year warranty for the repair of damaged utilities

Service lateral pipe shall be six inch (6") diameter consisting of PVC (solid wall pipe) as meeting the above described specifications. Larger pipe may be required for larger water using customers subject to Sanitary Engineers approval. Service lateral pipes shall not be installed without a Connection Permit from the County and without calling two (2) work days in advance for inspection at (419) 656-0577. County service lateral inspections will only be performed during normal County work hours. Service laterals shall only serve gravity drains in the customers structure which are above the vertical elevation of the closest downstream public sanitary sewer manhole cover. Drains below this elevation may be connected using a grinder pump system for lower level sewage to prevent a public sewer backup into the structure. Basement or lower level gravity drains such as floor drains, toilet, sink, showers, slop sinks, clothes washer drains, etc. may not be connected by gravity to a service lateral, but will require a grinder pump system and force main/pressure sewer piped to the gravity service lateral. Service laterals which cannot meet the required five feet (5') clearance shall utilize a grinder pump system for the lower interior drains. See detail A. Service laterals shall have a clean-out installed within three feet (3') of the building foundation exterior. Service laterals shall not have any bends other than 45-degree or 22.5-degree bends and not exceed four (4) feet (4') below finish grade. One clean-out should be installed for every three hundred feet (300') of pipe installed and spaced and located to allow for easy cleaning. Clean water connections of the sanitary sewer are prohibited, including, but not limited to storm water drains, yard drains, driveway drains, roof water drains, exterior floor or foundation subsurface group water by gravity or with interior sump pump, etc. In developments where connection to a service lateral will not occur for more than thirty (30) days, the Developers contractor shall install locator rings at their cost over the end of the service pipe meeting the inspectors requirements. The locator ring shall be as manufactured by 3M Scotchmark #1255, green, mid-range sewer markers as sold by Hughes Supply located in Toledo (419-874-8487) and in Elyria (440-439-4040). The locator ring shall be buried on average of three feet (3') below finish grade, but (1) more than four feet (4') below finish grade. Record drawings shall include detail information locating the plan and vertical depth (m.s.l. elevation) the end of each service lateral. When a building(s) is abandoned, existing service laterals shall be cut and capped with a watertight cap. A locator ring shall be installed as described above and a record drawing locating the service connection pipe end in plan and profile shall be provided to the Sanitary Engineer by the demolition contractor or property owner.

Connecting service laterals to existing sewer pipe mains shall be as follows:

- a. To PVC Sewer Mains - cut out a section of existing sewer main, install a manufactured PVC wye (with six inch (6") branch) with water tight Fernco pipe adapter(s). Where applicable Insert-a-tees, manufactured by Inserta Fittings Company, (phone 603-538-2110), or approved equal. Bed the pipe connection with No. 8 or 9 limestone, haunched in place to twelve inches (12") over top of pipe.
- b. To Concrete Sewer Mains - core pipe and install a manufactured flexible watertight six inch (6") rubber boot with stainless steel band(s), Model NPC Kor-N-Tee as manufactured by NPC (phone 800-826-2180) or approved equal. Bed around the pipe connection with No. 8 or 9 limestone, haunched in place to twelve inches (12") over top of pipe.
- c. To Vitrified Clay Pipe Sewer Mains - remove one (1) section of existing pipe (joint-to-joint), install a manufactured watertight PVC (with six inch (6") branch) with sleeve section as needed with two (2) watertight Fernco pipe adapters, or where applicable Insert-a-tees, manufactured by Inserta Fittings Company, (phone 603-537-2110), or approved equal. Bed around the pipe connection with No. 8 or 9 limestone, haunched in place to twelve inches (12") over top of pipe.

Service lateral connections to manholes shall use a KOR-N-SEAL or approved equal (only allowed in special cases and only one (1) inside drop per manhole allowed). Service laterals from the public sewer main to the building foundation shall not be installed until the building foundation and basement construction has been completed. A native clay bulkhead dam must be installed on all service laterals typically near the Public Road right-of-way.

Grease traps shall be installed in services for all food service businesses and oil/grit interceptors on all services for customers with floor drains in garage/warehouse type buildings. They will be sized as required by the State of Ohio Building and Plumbing Codes and localcodes with minimum effective size of 500 gallons. The customer shall be responsible to maintain by cleaning/pumping their trap on a regular schedule. Traps shall be constructed water tight and shall meet the requirements of proceeding manhole specifications for joint construction, chemical additive in the concrete mix, external joint searn wisp, pipe connections and infiltration vacuum testing. All seals (water tight pipe to structure seals, precast concrete top and manhole seals) shall be constructed of oil resistant materials. Grease traps and interceptors shall be of precast concrete meeting the requirements of manhole concrete ring walls and ring wall joints. Grease traps and oil/grit interceptors shall be field tested for infiltration using a vacuum test at four inches (4") of mercury for five (5) minutes, with less than a one-half (0.5) inch reduction per ASTM C 1613-069.1.1. Grease trap openings/cleanouts at the top shall be sealed with ConSeal CS-102, or equal, between metal frames, grade adjustment rings, and top of trap. Two (2) openings for cleaning shall be provided, one over the inlet and the other over the outlet area of the grease trap. No internal chimney seal is required. The inlet pipe size from the building foundation to the grease trap shall be four inch (4") diameter with a four inch (4") diameter outlet to three feet (3') outside the tank, then increased to a minimum six inch (6") diameter sewer pipe for the remainder of the service to the public sewer.

Grease traps shall conform to the Ohio Administrative Code 4101:13-13-02. Grease traps for commercial/institutional kitchen wastes shall be installed so they receive all grease bearing waste except those from garbage disposal. Grease traps shall be installed immediately outside the building where there is easy access for cleaning, unless it is impractical, in which case they may be installed adjacent to and outside of the food preparation area. Grease traps shall be at least 500 gallon effective capacity or larger sized to allow for cooling of liquids before discharge. Grease traps shall be inspected frequently and cleaned frequently and as often as necessary to retain the grease waste. The use of enzymes for the cleaning of grease traps is not permitted. If external grease trap, follow the above standards. Contact Erie County DOES, Engineering Division, to schedule inspection and testing of new structure.

Oil and sand/grit interceptors shall conform to the Ohio Administrative Code 4101:13-13-02. Oil interceptors are required for garages and service stations where automobiles are serviced. Sand/Grit interceptors are required for car washes, garages and other areas where sand, dirt, solids and semi-solids or other heavy solids potentially plugging sanitary service laterals and public sanitary sewers. Oil interceptor effective volumes will be not less than one cubic feet above the outlet for each one hundred square feet of floor area to be drained to the interceptor. Should only a portion of the buildings floor area drain to the interceptor only that area needs to be considered in this calculation. Sand/Grit interceptors shall be sized and designed based on the volume of water and wastes produced and the rates of flow, thereof.

PRESSURE SEWER/FORCE MAIN PIPE

Pressure sewer/force main pipe shall be designed for a minimum pressure of 150 p.s.i. and shall consist of:

- a. PVC, conforming to AWWA C900, DR 18 (solid wall pipe with PVC compounds meeting the requirements of ASTM D-1784, and meeting the requirements of cell classification 12454-A or 12454 B), pipe shall include integral bell gasketed joints with re-enforced gaskets which are locked in place at the factory; or
- b. Ductile Iron Pipe (DIP) shall have a minimum wall thickness of Class 52, with push-on type joints, cement lined (AWWA C104), and shall meet the requirements of AWWA C150 and C151.
- c. Pressure sewer pipe shall be pressure tested to 150 psi for thirty (30) minutes without leakage.
- d. Restrained joints shall be used at a minimum at all joint fittings and at the next pipe joint from each fitting in all directions. Restrained joints shall consist of Meg-a-Lugs, Model Ebba Series 1000 or equal as approved by the Erie County Sanitary Engineer.
- e. #12 stainless steel bolts shall be used on all fittings and be subject to equal cathodic protection as required for the "Water Line Material Specification"
- f. Thrust blocks shall be used at all change of direction fittings in addition to the restrained joints, same as required for the "Water Line Material Specification"
- g. Grinder pump pressure sewer/force mains shall be a flexible, PE 3408, 200 psi, SODRS, ASTM D2737 rated water line pipe material, jointless material to the gravity sewer.
- h. All high points in force main shall have installed an air release valve in a manhole consisting of a one inch (1") sewage combination air valve as manufactured by Apco Valve and Primer Corporation, (representatives McStay & Associates, (216-439-7208), or equal
- i. Two (2) No. 8 stranded wires shall be buried with all PVC and HDPE pressure sewer pipes located at the 10:00 and 2:00 positions and terminated in valve boxes, along with four inch (4") wide tape noting "SEWER FORCE MAIN BURIED BELOW" buried over pipe twelve inches (12") below finish grade.

GENERAL PIPE REQUIREMENTS & TESTING

All manufacturers recommendations for installation, unloading, trench preparation, assembly, backfill, pressure or infiltration test, deflection tests, etc. shall be followed unless in conflict with these specifications, the latest version of Ten State Standards or with Ohio EPA requirements.

SEWER PIPE BEDDING

Sewer Pipe Bedding shall consist of No. 8 or 9 limestone haunched in place to the dimensions shown on the standard trench drawing for all gravity, service laterals and pressure sewer pipe installed by open trench method to twelve inches (12") over top of pipe. A native clay bulkhead dam will be installed at a minimum for every 200 feet of sewer pipe installed by open trench method and on every service lateral outside of the mainline sewer trench.

STEEL ENCASUREMENT PIPE

Under Railroad Crossings and the Ohio Turnpike or as required by the County, sewer pipe shall be installed in welded steel encasement pipe with minimum wall thickness of 0.375 inches, with a minimum I.D. of eight inches (8") larger than the O.D. of the sewer pipe, (measured at the bell), installed with the use of a bore machine. The annular space shall be filled with sand or approved grout mixture. All PVC sewers installed in casing pipes shall have restrained joints and shall contain at least three (3) stainless steel, plastic, or pre-treated wood casing spacers per pipe length as well as casing end seals or approved equal. All D.I.P. installed in casing pipe shall have restrained joints and shall contain at least two (2) spacers per pipe length; and all HDPE pipe installed in casings shall contain one (1) spacer for every ten feet (10') of pipe.

MANHOLES

All manholes shall be watertight structures made of precast concrete sections with full depth channels and shall meet the requirements of ASTM C478, plus have external joint wraps, chimney seals and use concrete additives for water tightness. All existing manholes which are to receive a new sewer pipe connection may be required to be replaced if not already constructed to the proceeding specifications as determined by the Sanitary Engineer. All inspections by D.O.E.S. will be performed to determine the need for replacement or rehabilitation.

Concrete ring walls. Concrete for manhole ring walls shall be constructed of Class A, 4,000 psi, 28 day compressive strength (6.5 bags per c.y.), with a waterproofing additive consisting of Xypex Concentrate Admix C-2000 as manufactured by Xypex Chemical Corporation, 13731 Mayfield Place, Richmond, B.C., Canada V6V 0B4 (604) 273-6265, or Ispen as manufactured by IPA Systems, Inc., 2745 North Amber Street, Philadelphia, Pa., (1-800-523-3834). Penetron Admix as manufactured by ICSPenetro International, LTD, 45 Research Way, Suite 200, East Setauket, New York 11733 (631) 341-9700) or approved equal. Reinforced steel and ring wall dimensions shall be as shown on standard manhole drawing. Lift holes if provided shall be watertight. Lift holes shall be filled with a non-shrink grout after set in place if they are thru holes. Cone sections shall include a minimum two inch (2") high smooth vertical interior face at the top to allow for the installation of the lower section of the internal chimney seal.

Ring wall joints. Joints shall be formed entirely of concrete employing a round rubber gasket conforming to ASTM C443, shall be self-centering and made a uniform watertight joint. Joints damaged during installation shall be replaced with new ring walls. This joint seal shall be lubricated with Conseal CS-2000 or approved equal. Ring wall joints shall be further sealed for water tightness by installing an external joint/seal wrap consisting of Conseal/Con Wrap CS-212, twelve inch (12") width with CS-75 primer as manufactured by Concrete Sealants, Inc., 8917 South Palmer Road, New Carlisle, OH 45344 (800-332-7325), or approved equal. Minor concrete joint damage may be repaired with hydraulic cement in the field under approval of the inspector.

Connections. All sewer pipe connections shall be flexible and watertight. The sewer pipe at the spring line shall not extend to the manhole flow channel. Any space left between the end of pipe inside the manhole and the concrete channel shall be filled with ConSeal CS-1500, or equal, waterproof flexible joint filler in a smooth workman like manner, which will not restrict solids to pass. Connections shall consist of flexible rubber boots with stainless steel bands. Connections should be installed at the factory when possible, including future sewer pipe stubs. Factory installed connections shall be 2-LOK for four foot (4") diameter manholes with sewer pipe sizes with O.D. less than 18.25 inches or A-LOK for larger manholes and sewer pipes as manufactured by Products, Inc., P.O. Box 1647, 697 Tullytown, PA 19007, (800-822-ALOK), or approved equal. Connections of sewers to existing manholes shall be KOR-N-SEAL, as manufactured by NPC, Inc., 250 Elm Street, P.O. Box 301, Milford, N.H. 03055, (800-626-2180) or approved equal.

Manhole Steps. Shall conform to the requirements of ASTM C478 except that the steps shall be polypropylene with steel reinforcement. Manhole steps shall not be installed in shallow manholes (four feet (4') deep or less)

Grade Adjustment. Shall be of precast concrete conforming to ASTM C478, shall be held in place with tar/ephalitic cement, no more than three (3) rings used per manhole and shall not exceed twelve inches (12') of total height adjustment. Precast concrete grade rings shall not be less than two and two inch (2") height. One (1) one-inch (1") grade ring made of plastic or neoprene rubber may be used on each manhole as needed.

Frames and Covers. Shall be gray iron castings conforming to ASTM A48 and shall be cleaned and factory dipped in coal tar pitch varnish at the factory or cleaned and field coat applied with asphaltic paint. All frames shall be mortared in place. Covers shall have solid (without vents) lids, unless otherwise specified. Typical frame and covers shall be Neenah R-1782, East Jordan model 1710, (8-1/2 inch high), East Jordan V-1317, (5 inch high), or approved equal. Watertight frames and covers shall be Neenah R-1916-F, East Jordan "Watertite" 1047 or approved equal.

Drop Manhole Connections. Shall consist of an inside drop, conforming to the preceding connection paragraph with the addition of utilizing a GPK drop pipe fitting as manufactured by GPK Products, Inc., Fargo, ND 58108-2872, (701-277-3225) or approved equal, with internal drop pipe clamps at the top and bottom of the drop pipe and every four feet (4') in between manufactured of 316 stainless steel strap anchored with anchor bolts such as 3/8 inch diameter Stainless Wajeet or equal anchors as supplied by Fasteners, (419-621-8228), or Spout Concrete, (800-252-5205). Generally drop pipe diameter shall be one pipe size smaller than the inlet sewer pipe diameter with six inch (6") diameter a minimum. At the bottom of the drop pipe will be a 45 degree bend directing the flow smoothly into the flow channel, toward the outlet sewer pipe. Leave all caps off GPK ends.

Invert/Flow Channel. Invert/flow channels shall be installed at the factory. The minimum flow chan to remov/ell width and depth shall match the O.D. of the outgoing sewer pipe diameter. The minimum radius of flow channel curvature shall be equal to 1.5 times the I.D. of the outlet sewer pipe diameter and shall be smooth. Manhole diameter shall be designed appropriately to allow for the minimum radius. Flow channel shall also be installed for all future stub sewers installed with the installation and for all drop pipe connections. The bench above the channel shall be sloped at a grade of 4:1 toward the flow channel. Flow channels shall be U shaped with a cross section width slightly larger than the outside diameter of the largest pipe connected to the manhole. All flow channel and benches shall be installed in a workman like manner. Non-smooth flow channel manhole bottoms shall be rejected and have to be remanufactured at the factory causing a possible delay to the project. All upstream connecting pipes shall be installed to "match crowns" (top outside of pipes).

Chimney Seals. Shall be external chimney seals as manufactured by WrapIDSeal external chimney seals as manufactured by CANUSA a division of Shaw Resources Services, Inc., 2408 Timberloch Place, Building C-8, The Woodlands, Texas 77380, (218-367-8866) or approved equal as required by the Sanitary Engineer. Internal chimney seals must be installed in a water tight manner. The chimney seal shall start at the frame including all adjusting rings down to the first ring wall.

Manhole Infiltration Test. The manhole from invert to top of casting, with chimney seal in place, shall be field tested for infiltration using a vacuum test at ten inches (10") of mercury for sixty (60) seconds, with less than a one inch (1") reduction.

All new manholes receiving wastewater from a pressure sewer/forcemain or within 100 lineal feet of another manhole receiving wastewater from a pressure sewer/forcemain shall have all concrete interior walls, channels and bench areas field coated with Aromatic Polyurea Spray for Concrete as manufactured by Elastomer Specialties, Inc., 19068 S. 26th East Ave., Broken Arrow, OK 74014 (800-786-4244) including a five (5) year warranty against H2S corrosion or equal.

Backfill Material And Installation.

Pipe backfill material over sewer pipe bedding and around manholes within a 45 degree plane of influence of gravel or paved driveways and within influence of private and public roads shall at a minimum consist of ODOT 304 limestone installed in eighteen inch (18") lifts and mechanically compacted to 95 percent modified proctor. In areas of public roads, the backfill shall meet the requirements of the appropriate public official whom maintains the paved road.

SUBMERSIBLE PUBLIC PUMP STATIONS

General requirements of typical wastewater pump station includes, but is not limited to, the following: Duplex submersible pumps with controls as manufactured by Hydromatic, Vaughn chopper pumps for high collapsing conditions or equal, in a concrete wet well with a separate valve vault. The wet well and valve vault shall be at a minimum eight feet (8') diameter, to a maximum of twelve feet (12') diameter Class A (4,000 psi) reinforced concrete designed for 14-20 highway loadings, with sufficient size top hatches to remove all pumps, valves and equipment, with hatches made of aluminum (State Hatch from Fright or equal), hinged and padlocked, designed to same water tight specifications as sanitary manholes and shall include steps. Wet well shall have a hopper shaped bottom with all interior concrete surfaces field coated with Aromatic Polyurea Spray for Concrete as manufactured by Elastomer Specialties, Inc., 19068 S. 26th East Ave., Broken Arrow, OK 74014, (800-786-4244) including a five (5) year warranty against H2S corrosion or equal. Hydromatic Pumps with flanged assembly for break away fittings are preferred with one spare pump provided. Victaulic D.I.P. shall be provided in the valve vault. In the wet well provide stainless or fiberglass guide rails to remove the pumps. Provide one (1) spare Hydromatic Pump with motor.

Size the vault for expansion to handle the ultimate service area design flow. Electric controls shall include circuit breaker system, level controls, alternating pump controls, lighting, HOA for motor starters, soft start and stop (future condition) for all motors larger than 25HP motor starters. All electric controls in stainless steel NEMA 4X weatherproof enclosures. Four (4) wire contacts shall be provided and left open and labeled in the control panel for connection of an auxiliary portable generator to provide power during a station primary power outage.

Pump Stations shall include as a minimum the following items:

- a. Use Hydromatic Duplex Q with duplex PC boards. High level and seal failure boards for alarms only.
- b. Control panel shall have an internal Plexiglas door inside the box with control switches, gauges, etc., on the inside door. The external door shall be lockable.
- c. All electrical panels shall be located a distance of four feet (4') from wet well on a separate mounting frame of sufficient size to support both a telemetry panel and a stainless steel electrical service panel.
- d. Mounting surface shall consist of aluminum or stainless steel posts with stainless steel unlutnut system with stainless steel fasteners.
- e. Check valves shall have external weighted swings.
- f. Minimum one-quarter inch (1/4") stainless steel lift chains for lifting pump and motor. Pumps shall have stainless steel lifting ball.
- g. Stainless steel bracket for hanging tip floats.
- h. Isolation valves shall be short bodied quarter turn plug valves.
- i. Dresser couplings shall be installed in forcemain pipes between wet well and valve vault.
- j. A four inch (4") quick disconnect compression type connection shall be provided in the valve vault piping to connect a portable pump hose, used for emergency by passing the pumps or wet well.
- k. The pump station alarm system shall include a cellular RTU compatible with alarm website and connected to local phone line installed complete to call out alarms listed above.
- l. Consult shall be PVC underground to terminal box, aluminum overhead with gas seals before entering control panel or telemetry panel.
- m. Provide exterior area lighting.
- n. Provide a GFI 120 volt receptacle in the control panel.
- o. All control panels shall be grounded to a six feet (6') grounding rod and grounding cable in a conduit to protect against corrosion.
- p. Valve vault shall drain to wet well through a red valve check valve, series 39 or approved equal located in a sump in valve vault with vault floor sloped to sump.
- q. Provide two (2) complete copies of O&M Manuals for all pumps, motors and controls.
- r. A one year warranty shall be provided from the manufacturer(s) of the pumps, controls, valves, piping with fittings and all structures beginning from the time of successful completion, startup and submittal of O&M Manuals, covering the cost of all material and labor defects.
- s. Level controls will consist of a submersible transducer for VFD motors and/or mercury float type for low level alarm, pumps off, lead pump on, lag pump on and high level alarm, plus one spare (total of six (6)).
- t. No spare parts for pumps are necessary, except as listed above.

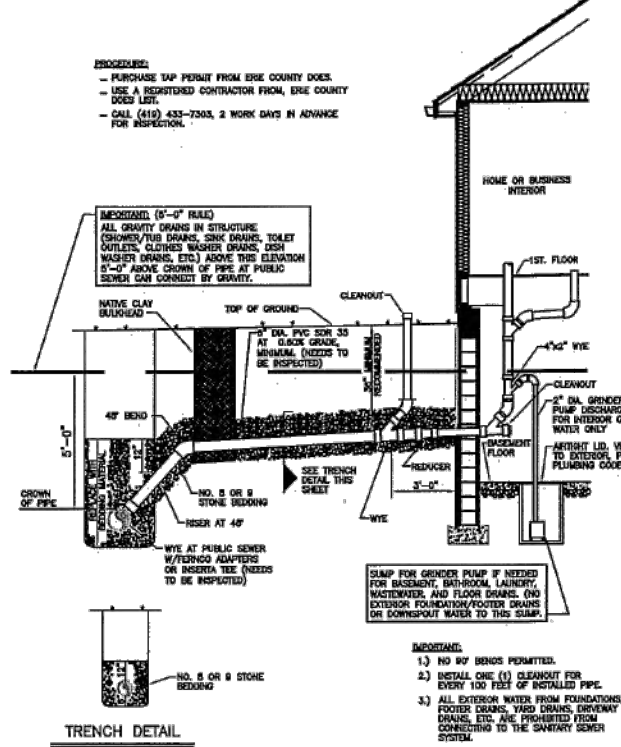
Developers or there agents shall own and maintain the pump station, including paying for all utilities until an equivalence of a minimum of five (5) single family homes are connected to and contributing wastewater flow to the new pump station at which time Erie County will inspect the station one last time and if in acceptable condition will accept for ownership, operation and maintenance the pump station.

GRINDER PUMP STATION

Grinder pump stations may be used in homes and/or businesses where the public sewer does not meet the required depth to serve the customer by gravity as described in the Service Lateral section of these standards. It is recommended to use a submersible positive displacement type grinder pump that is designed to pump against varying heads as manufactured by Environmental One and represented by the Craun-Liebig Co. of Cleveland, Ohio. (1-800-221-1251). A single submersible grinder pump with spare pump is recommended for a single-family home installation. Multiple home installations connecting to a shared grinder pump station or businesses using a submersible grinder pump station shall require a duplex (2 pumps) submersible grinder pump station, designed by a Professional Engineer, EPA Permit-to-Install, and an agreement as to ownership, use, operation and maintenance, recorded with the property deed of all customers utilizing the pump station. Grinder pump stations shall be the responsibility of the private sewer customer(s) to own, maintain and operate.

WARRANTY

All new public water lines, sanitary sewer lines and appurtenances installed shall have a one (1) year warranty against any manufacturer defects, installation defects, workmanship or failures of the system. Trench backfill and pavement installed as part of a public water or sewer project shall have a two (2) year warranty against settlement, cracking, raveling, deterioration or shrinking of joint seal products, etc. Term of the warranties shall commence upon County written acceptance of the public lines and appurtenances.



REVISION DATE:

06/15/1999
01/14/2000
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08/11/2001
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07/01/2003
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07/01/2006
07/01/2007
07/01/2008
07/01/2011
Last revision date:
07/01/2013

ERIE COUNTY
DEPARTMENT OF ENVIRONMENTAL SERVICES
SITE DETAILS - ECDOES STANDARDS

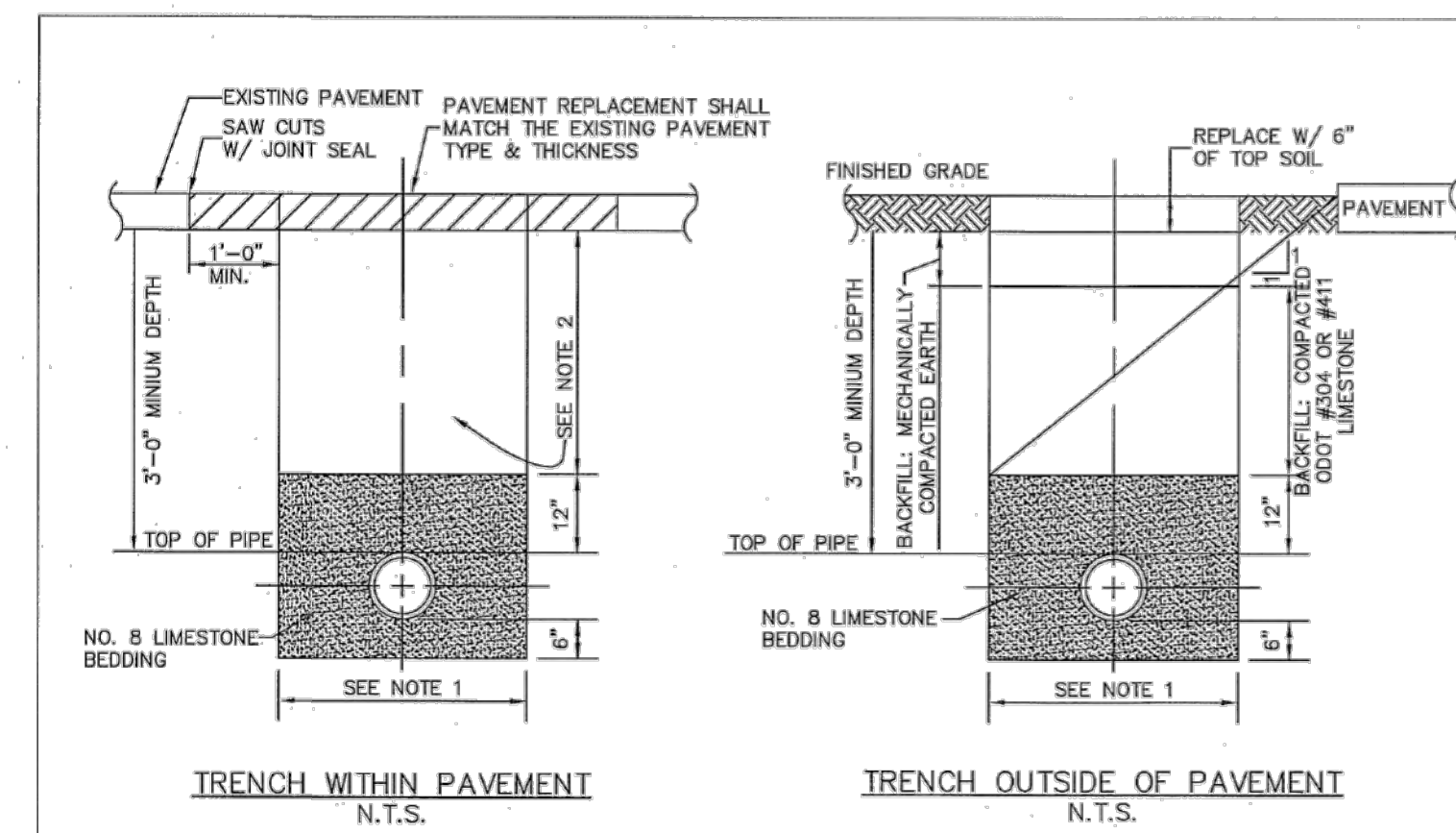
Standard Specifications
Sanitary Sewer Mains and Appurtenances

REV NO	DATE	DESCRIPTION
03-12-26		REVISED PLANNING SUBMITAL
02-09-26		PLANNING SUBMITTAL
12-10-25		PROGRESS SET
DWG NAME	DRAWN BY	CHKD BY
14057T-C	DMB	GHW
JOB NO	14057F	

HURON CORPORATE PARK LLC
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers & Landscaping Architects & Planners & Surveyors
Office: 440.984.1500 Fax: 440.984.3104
www.neff-associates.com

SHEET NO.
C7.4



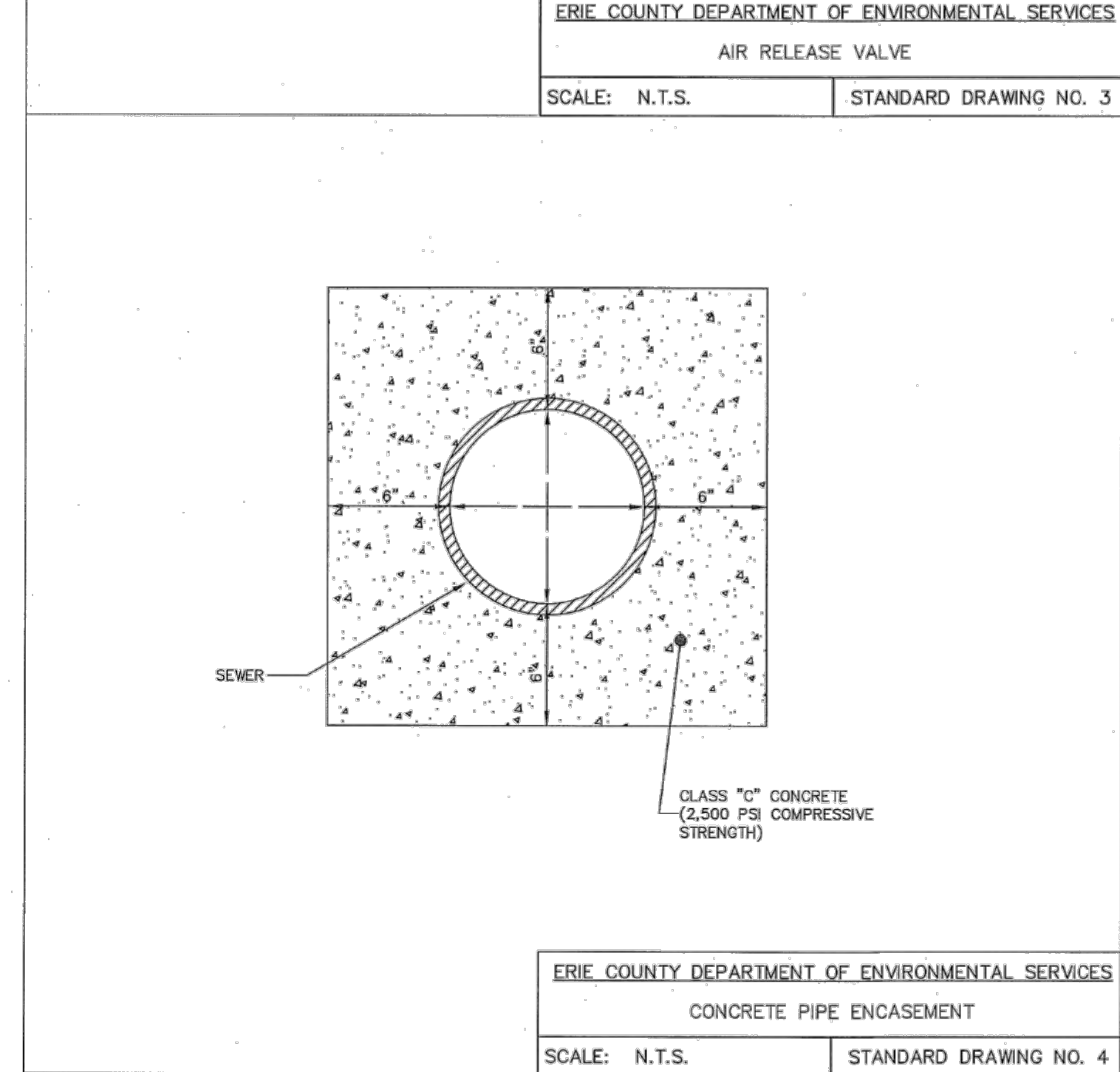
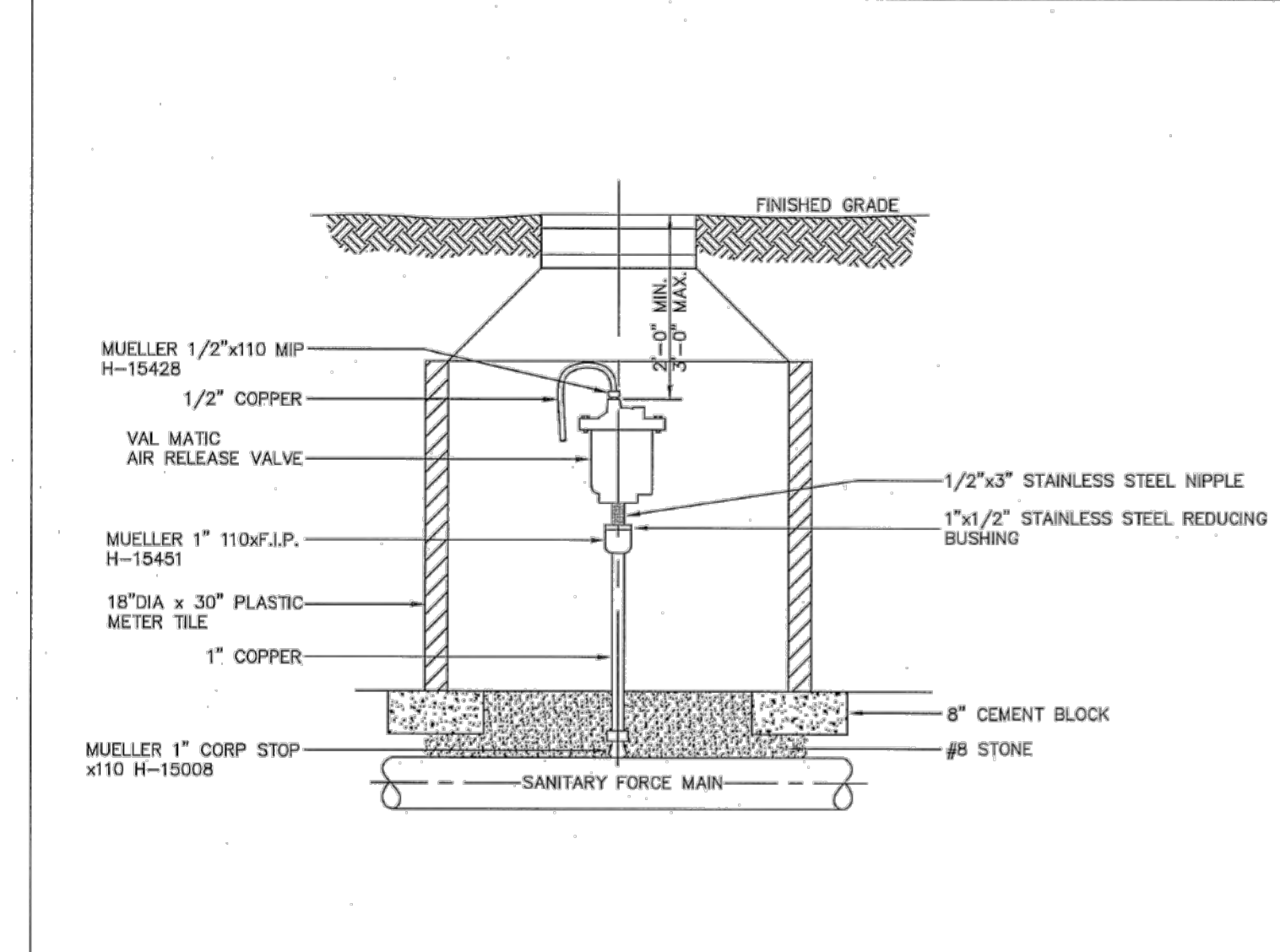
NOTES:

1. THE WIDTH OF THE TRENCH SHALL BE AT LEAST 12 INCHES AND NOT EXCEED 24 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE. THE SANITARY LINE SHALL BE LOCATED IN CENTER OF TRENCH TO ALLOW FOR A MINIMUM OF 6 INCH CLEARANCE FROM TRENCH WALLS.

2. BACKFILL: AS A MINIMUM USE COMPACTED ODOT #304 OR #411 LIMESTONE TO 95% STANDARD PROCTOR, OR AS REQUIRED BY THE POLITICAL SUBDIVISION MAINTAINING THE PAVEMENT IF MORE STRINGENT.

NOTE: ODOT, COUNTY ENGINEER OR TOWNSHIP MAY REQUIRE SPECIAL BACKFILL NEAR AND/OR UNDER PAVEMENT.

ERIE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES
TYPICAL TRENCH SECTION FOR SANITARY LINE INSTALLATION
SCALE: N.T.S. STANDARD DRAWING NO. 2



NEENAH R-1782, EAST JORDAN MODEL 1710 (8 1/2" HIGH), EAST JORDAN V-1317 (5" HIGH), OR APPROVED EQUAL CASTINGS WITH SOLID COVER W/ SANITARY SEWER INSCRIBED ON LID.
(FIELD COAT W/ONE COAT ASPHALTIC PAINT)

PRECAST MANHOLES SHALL CONFORM TO ASTM C-478

INSTALL EXTERNAL CHIMNEY SEAL WRAPID SEAL BY CANUSA-CPS THE WOODLANDS, TEXAS

MAX. 12" W/3 CONCRETE ADJUSTING RINGS

EXTEND 4" ABOVE AND BELOW CHIMNEY AREA

RUBBER GRADE ADJUST IN PAVEMENT AREAS

ECCENTRIC CONE

STEPS SHALL BE STEEL COVERED WITH POLYPROPYLENE AND SHALL CONFORM TO ASTM C-478.
(SEE STANDARD MH.DWG FOR LOCATION)

JOINTS SHALL CONFORM TO ASTM C-433 AND INCLUDE CONSEAL 102 BUTYL RESIN OR CONSEAL CS 1500.

INSTALL A 12" WIDE EXTERNAL JOINT SEAM WRAP, USING CONSEAL CS-212 WITH CS-75 PRIMER MANUFACTURED BY CONCRETE SEALANTS INC. NEW CARLISLE, OHIO

FLEXIBLE WATERTIGHT JOINT W/S.S. BAND

NOTE: PRECAST SANITARY MANHOLE CONCRETE MIX SHALL INCLUDE XYPEX CONCENTRATE ADMIX C-2000.

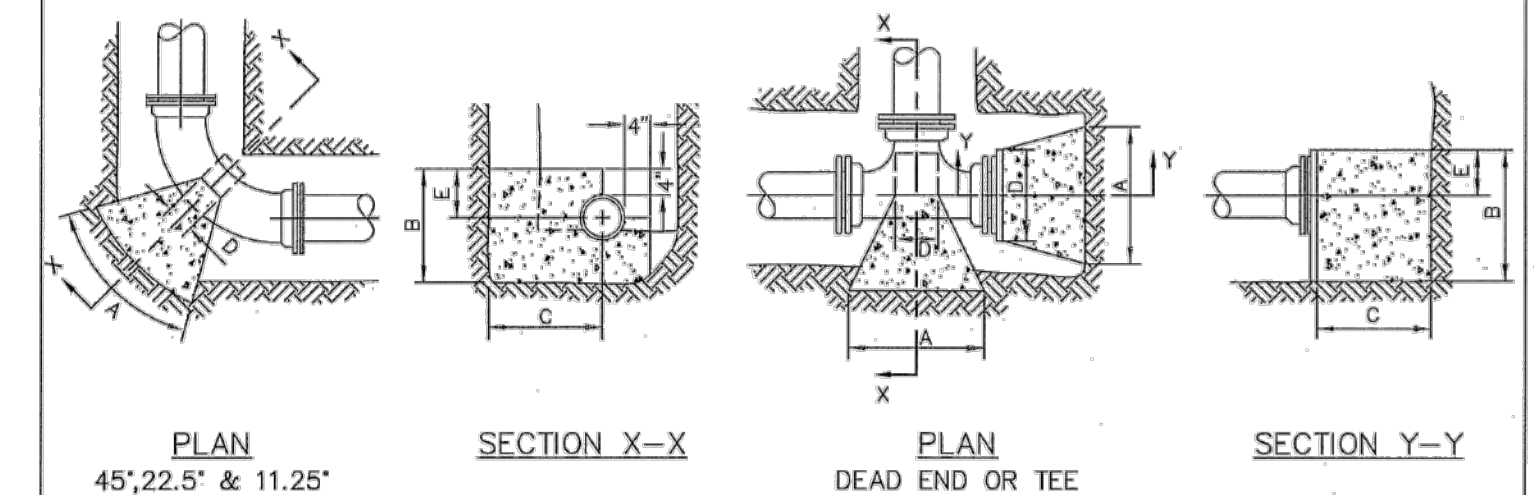
INTEGRAL BASE

6" COMPACTED GRANULAR MAT

HANDLING HOLES MAY BE CAST IN SECTIONS AND WILL BE FILLED WITH EMBECO GROUT AFTER SECTIONS ARE IN PLACE. CONCRETE FOR MANHOLE BASE TOGETHER WITH FILL CONCRETE SHALL BE ODOT CLASS C.

STANDARD SANITARY MANHOLE

ERIE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES
STANDARD SANITARY MANHOLE
SCALE: N.T.S. STANDARD DRAWING NO. 1



11.25' BEND				22.5' BEND				45' BEND				TEE-DEAD END			
DIA	A	B	C.Y.	DIA	A	B	C.Y.	DIA	A	B	C.Y.	DIA	A	B	C.Y.
4"	1'-0"	1'-0"	0.08	4"	1'-0"	1'-0"	0.08	4"	1'-0"	1'-0"	0.08	4"	1'-0"	1'-0"	0.08
6"	1'-0"	1'-0"	0.07	6"	1'-0"	1'-0"	0.07	6"	1'-0"	1'-0"	0.07	6"	1'-0"	1'-0"	0.07
8"	1'-0"	1'-0"	0.06	8"	1'-0"	1'-0"	0.06	8"	1'-0"	1'-0"	0.06	8"	1'-0"	1'-0"	0.06
10"	1'-0"	1'-0"	0.05	10"	1'-0"	1'-0"	0.05	10"	1'-0"	1'-0"	0.05	10"	1'-0"	1'-0"	0.05
12"	1'-0"	1'-0"	0.04	12"	1'-0"	1'-0"	0.04	12"	1'-0"	1'-0"	0.04	12"	1'-0"	1'-0"	0.04
14"	1'-0"	1'-0"	0.03	14"	1'-0"	1'-0"	0.03	14"	1'-0"	1'-0"	0.03	14"	1'-0"	1'-0"	0.03
16"	1'-0"	1'-0"	0.02	16"	1'-0"	1'-0"	0.02	16"	1'-0"	1'-0"	0.02	16"	1'-0"	1'-0"	0.02
18"	1'-0"	1'-0"	0.01	18"	1'-0"	1'-0"	0.01	18"	1'-0"	1'-0"	0.01	18"	1'-0"	1'-0"	0.01
20"	1'-0"	1'-0"	0.00	20"	1'-0"	1'-0"	0.00	20"	1'-0"	1'-0"	0.00	20"	1'-0"	1'-0"	0.00
24"	1'-0"	1'-0"	0.00	24"	1'-0"	1'-0"	0.00	24"	1'-0"	1'-0"	0.00	24"	1'-0"	1'-0"	0.00

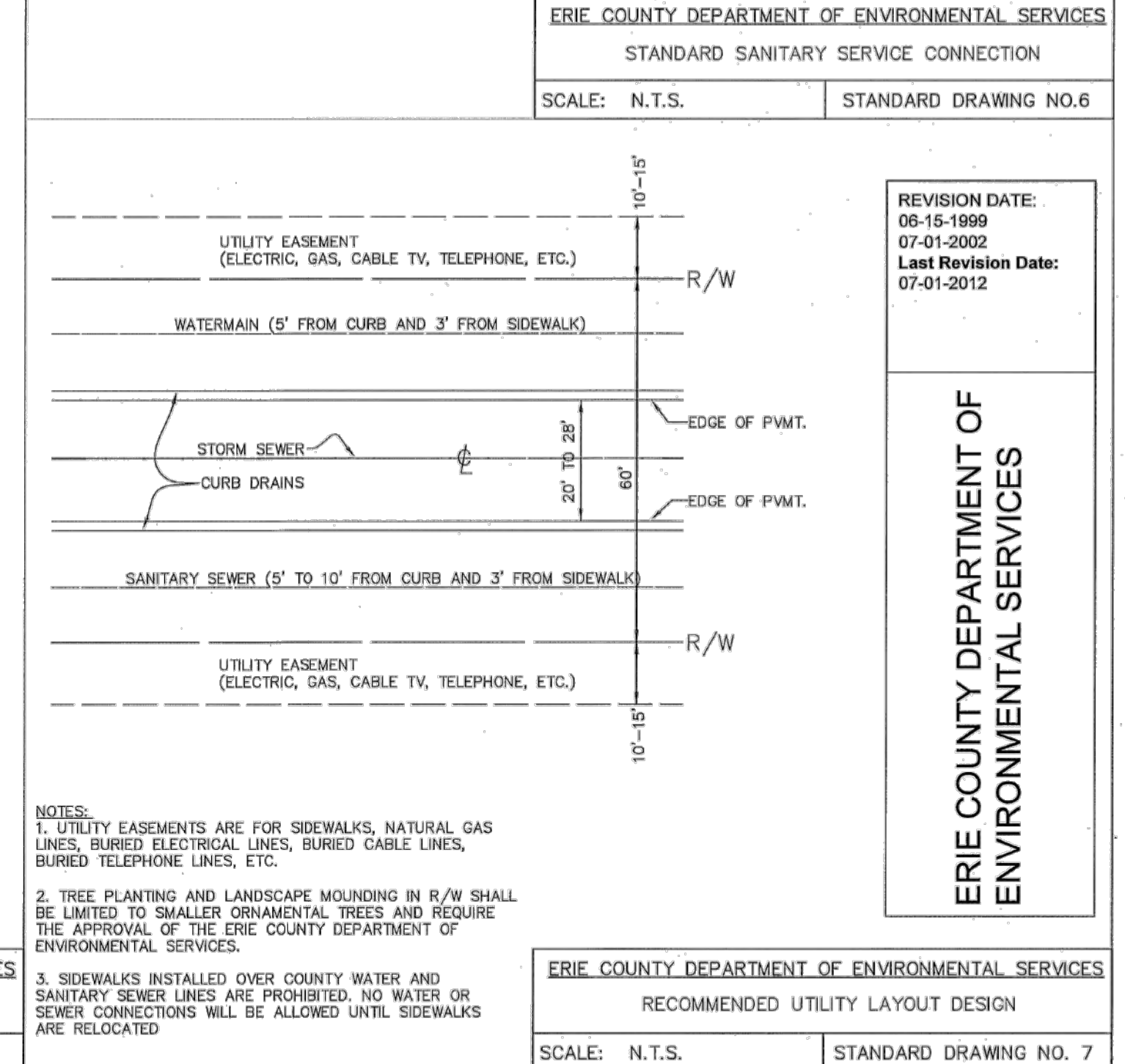
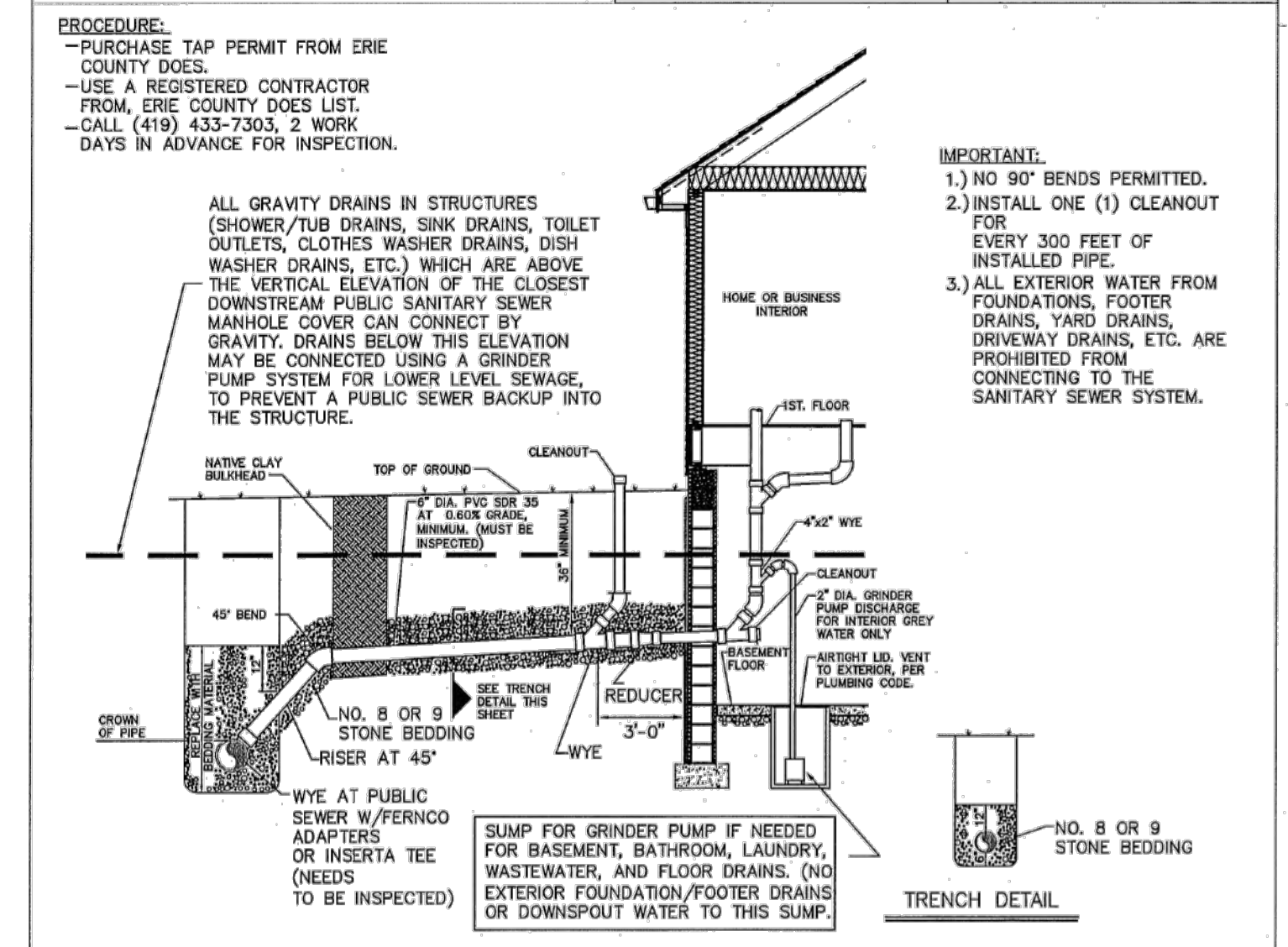
NOTE:

1. BLOCKING DESIGN BASED ON WORKING PRESSURE 150 PSI + 100 PSI WATER HAMMER AND SOIL BEARING 3000 PSF.

2. THRUST BLOCKS SHALL BE CLASS "C" CONCRETE 4000 PSI COMPRESSIVE STRENGTH.

3. THRUST BLOCKS SHALL BE 3" MINIMUM CLEARANCE FROM ALL BOLTS.

ERIE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES
THRUST BLOCKING DETAILS FOR BENDS IN HORIZONTAL PLANE (WORKING PRESSURE UP TO 150 PSI)
SCALE: N.T.S. STANDARD DRAWING NO. 5



NOTES:

1. UTILITY EASEMENTS ARE FOR SIDEWALKS, NATURAL GAS LINES, BURIED ELECTRICAL LINES, BURIED CABLE LINES, BURIED TELEPHONE LINES, ETC.

2. TREE PLANTING AND LANDSCAPE MOUNDING IN R/W SHALL BE LIMITED TO SMALLER ORNAMENTAL TREES AND REQUIRE THE APPROVAL OF THE ERIE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES.

3. SIDEWALKS INSTALLED OVER COUNTY WATER AND SANITARY SEWER LINES ARE PROHIBITED. NO WATER OR SEWER CONNECTIONS WILL BE ALLOWED UNTIL SIDEWALKS ARE RELOCATED.

HURON CORPORATE PARK LLC
SITE DETAILS - ECDOES STANDARDS
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers & Landscapers
440.884.3100
www.neff-assoc.com

SHEET NO.
C7.5

REV NO	DATE	DESCRIPTION
03-12-26		REVISED PLANNING SUBMITAL
02-09-26		PLANNING SUBMITAL
12-10-25		PROGRESS SET
DWG NAME	DRAWN BY	CHECKED BY
14057F-C	DMB	GHW
		JOB NO
		14057F

LANDSCAPE SPECIFICATIONS

PART 1 – GENERAL

- 1.1 SUMMARY
- A. SECTION INCLUDES:
1. PLANTING OF DROUGHT-TOLERANT TREES, SHRUBS, LAWN SEED, GROUND COVER, AND ASSOCIATED MATERIALS.
- 1.2 REFERENCES
- A. THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED. PUBLICATIONS ARE REFERENCED WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY.
- B. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
1. ANSI Z60.1 – AMERICAN STANDARD FOR NURSERY STOCK.
- C. ASTM INTERNATIONAL (ASTM):
1. ASTM D5268 – TOPSOIL USED FOR LANDSCAPING PURPOSES.
2. ASTM C602 – AGRICULTURAL LIMING MATERIALS.
- D. EROSION CONTROL TECHNOLOGY COUNCIL (ECTC):
1. STANDARD SPECIFICATION FOR ROLLED EROSION CONTROL PRODUCTS.
- 1.3 SUBMITTALS
- A. MATERIALS TEST REPORTS: SUBMIT TOPSOIL BORROW AREA TEST REPORTS TO THE ARCHITECT A MINIMUM 6 WEEKS PRIOR TO DELIVERY TO SITE.
1. PROVIDE LOCATION OF TOPSOIL BORROW AREA.
2. PROVIDE NAME OF INDEPENDENT SOIL TESTING LABORATORY.
3. PROVIDE DATE OF SAMPLING AND TESTING.
- B. PRODUCT DATA:
1. SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS, SOD, AND SEED VERIFYING TYPE AND PURITY TO ARCHITECT.
- 1.4 QUALITY ASSURANCE
- A. PLANT MATERIAL SELECTION:
1. SHRUBS: DELIVER REPRESENTATIVE SAMPLES OF EACH SHRUB VARIETY AND SIZE TO THE PROJECT SITE FOR VERIFICATION OF SPECIFICATION COMPLIANCE. MARK SHRUBS WITH SIZE, GENUS, SPECIES, CULTIVAR, AND VARIETY.
2. OWNER AND LANDSCAPE ARCHITECT MAY OBSERVE TREES AND SHRUBS FURTHER FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEMS, PESTS, DISEASE SYMPTOMS, INJURIES, AND LATENT DEFECTS.
3. REMOVE REJECTED TREES OR SHRUBS IMMEDIATELY FROM PROJECT SITE.
- B. PLANT MEASUREMENTS: MEASURE ACCORDING TO ANSI Z60.1. SPREAD, HEIGHT, OR CONTAINER SIZES SHOWN ON THE DRAWINGS ARE MINIMUM ACCEPTABLE SIZES. DO NOT PRUNE TO OBTAIN REQUIRED SIZES. IF RANGE OF SIZES IS GIVEN, NO PLANT SHALL BE LESS THAN MINIMUM SIZE, AND AT LEAST 50 PERCENT OF PLANTS SHALL BE AS LARGE AS UPPER HALF OF RANGE SPECIFIED.
1. TREES AND SHRUBS: MEASURE WITH BRANCHES AND TRUNKS OR CANES IN THEIR NORMAL POSITION. TAKE HEIGHT MEASUREMENTS FROM OR NEAR THE TOP OF THE ROOT FLARE FOR FIELD-GROWN STOCK AND CONTAINER-GROWN STOCK. MEASURE MAIN BODY OF TREE OR SHRUB FOR HEIGHT AND SPREAD. DO NOT MEASURE BRANCHES OR ROOTS TIP TO TIP. TAKE CALIPER MEASUREMENTS 6 INCHES ABOVE THE ROOT FLARE FOR TREES UP TO 4-INCH CALIPER SIZE, AND 12 INCHES ABOVE THE ROOT FLARE FOR LARGER SIZES.
2. OTHER PLANTS: MEASURE WITH STEMS, PETIOLES, AND FOLIAGE IN THEIR NORMAL POSITION.
- C. QUALITY ASSURANCE INSPECTIONS: CONDUCT THE FOLLOWING INSPECTIONS DURING THE COURSE OF THE WORK IN THE PRESENCE OF THE LANDSCAPE ARCHITECT TO VERIFY CONFORMANCE TO SPECIFICATION REQUIREMENTS. CORRECT NOTED DEFICIENCIES DURING EACH INSPECTION PRIOR TO PROCEEDING WITH SUBSEQUENT WORK.
1. SUBSTANTIAL COMPLETION INSPECTION: CONVEENE A SUBSTANTIAL COMPLETION INSPECTION TO OBSERVE COMPLETED WORK. LANDSCAPE ARCHITECT WILL RECORD THE DEFICIENT OR INCOMPLETE ITEMS WITHIN 3 CALENDAR DAYS OF INSPECTION DATE.
2. FINAL INSPECTION: WITHIN 30 DAYS OF SUBSTANTIAL COMPLETION DATE, CONVEENE A FINAL INSPECTION TO OBSERVE THAT ALL WORK IS COMPLETED AS SPECIFIED AND SHOWN ON THE DRAWINGS.
- 1.5 PROJECT CONDITIONS
- A. PERFORM WORK ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO HEALTH AND WELFARE OF PLANTS. OWNER SHALL DETERMINE SUITABILITY OF SUCH WEATHER CONDITIONS.
- 1.6 WARRANTY
- A. GUARANTEE PLANT MATERIAL FOR A PERIOD OF 12 MONTHS FOLLOWING THE SUBSTANTIAL COMPLETION DATE.
1. A LIMIT OF ONE REPLACEMENT OF EACH PLANT SHALL BE REQUIRED, EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH REQUIREMENTS.
2. REMOVE FROM SITE ANY PLANT THAT IS DEAD OR UNSATISFACTORY TO OWNER, JURISDICTION HAVING AUTHORITY, OR LANDSCAPE ARCHITECT. REPLACE PLANTS DURING NORMAL PLANTING SEASON.
- PART 2 – PRODUCT
- 2.1 WOODY PLANT MATERIALS
- A. FURNISH NURSERY-GROWN TREES AND SHRUBS COMPLYING WITH ANSI Z60.1 AND THE FOLLOWING REQUIREMENTS:
1. PROVIDE PLANTS WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING.
2. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS DISFIGURING KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT.
3. PROVIDE SELECTED SPECIMEN QUALITY PLANTS BEING EXCEPTIONALLY HEAVY, SYMMETRICAL, TIGHT KNOT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY.
4. DO NOT PRUNE PLANTS BEFORE DELIVERY.
5. TREES WITH FRESH CUTS OF LIMBS OVER 1 1/4-INCH, WHICH HAVE NOT COMPLETELY CALLOUSED, SHALL BE REJECTED.
6. PROVIDE PLANTS TYPICAL OF THEIR SPECIES OR VARIETY AND EXHIBITING A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH PROPER NAME. PROVIDE PLANTS GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE OF SITE OR HAVE BEEN ACCLIMATED TO SUCH CONDITION FOR AT LEAST 2 YEARS.
7. ROOT SYSTEM OF EACH PLANT SHALL BE WELL-PROVIDED WITH FIBROUS ROOTS. PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF.
8. PLANTS DESIGNATED BALL AND BURLAP SHALL BE MOVED WITH ROOT SYSTEMS AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP AND COMPLY WITH THE FOLLOWING:
- a. DIAMETER AND DEPTH OF BALLS OF EARTH SHALL BE SUFFICIENT TO ENCOMPASS FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR HEALTHY DEVELOPMENT OF PLANT.
- b. NO PLANT SHALL BE ACCEPTED WHEN BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN CRACKED OR BROKEN PREPARATORY TO OR DURING PROCESS OF PLANTING. BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS.
- c. HEEL-IN PLANTS THAT CANNOT BE PLANTED IMMEDIATELY BY SETTING IN GROUND AND COVERING BALLS WITH SOIL OR MULCH AND THEN WATERING.
- d. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, TWINE SHALL BE CUT FROM AROUND TRUNK AND BURLAP SHALL BE REMOVED.
9. PROVIDE SINGLE TRUNK TREES GROWING FROM SINGLE UN-MUTILATED CROWN OF ROOTS. NO PART OF TRUNK SHALL BE CONSPICUOUSLY CROOKED AS COMPARED WITH NORMAL TREES OF SAME VARIETY.
10. PROVIDE SHRUBS WITH THICKNESS CORRESPONDING TO TRADE CLASSIFICATION "NO. 1" SINGLE-STEMMED OR THIN PLANTS SHALL NOT BE ACCEPTED. SIDE BRANCHES SHALL BE THICK, AND PLANT AS WHOLE WELL-BRANCHED TO GROUND. PLANTS SHALL BE IN MOST CONDITION, FREE FROM DEAD WOOD, BRUISES, OR OTHER ROOT OR BRANCH INJURIES.
- 2.2 LAWN SEED
- A. PROVIDE FRESH, CLEAN, NEW CROP LAWN SEED MIXTURE. FURNISH TO OWNER DEALERS GUARANTEED STATEMENT OF COMPOSITION OF MIXTURE AND PERCENTAGE OF

- PURITY AND GERMINATION OF EACH VARIETY.
- B. SEED MIXTURE: PROVIDE SEED OF GRASS SPECIES AND VARIETIES, PROPORTIONS BY WEIGHT AND MINIMUM PERCENTAGES OF PURITY, GERMINATION, AND MAXIMUM PERCENTAGE OF WEED SEED. SEED MIXTURES VARY BY REGION AND SEASON AND SHALL COMPLY WITH STATE DOT AND LOCAL SOIL CONSERVATION SERVICE STANDARDS FOR LAWN TURF.
- 2.3 GROUND COVER
- A. PROVIDE GROUND COVER ESTABLISHED AND WELL ROOTED IN POTS OR SIMILAR CONTAINERS AND COMPLY WITH ANSI Z60.1.
- 2.4 TOPSOIL
- A. ASTM D5268, NATURAL, FRIABLE, FERTILE, FINE LOAMY SOIL POSSESSING CHARACTERISTICS OF REPRESENTATIVE TOPSOIL IN THE VICINITY THAT PRODUCES HEAVY GROWTH. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 7.4 PERCENT, FREE FROM SUBSOIL, OBJECTIONABLE WEEDS, LITTER, SODS, STIFF CLAY, STONES LARGER THAN 1-INCH IN DIAMETER, STUMPS, ROOTS, TRASH, HERBICIDES, TOXIC SUBSTANCES, OR ANY OTHER MATERIAL WHICH MAY BE HARMFUL TO PLANT GROWTH OR HINDER PLANTING OPERATIONS. TOP SOIL SHALL CONTAIN A MINIMUM OF THREE PERCENT ORGANIC MATERIAL.
- B. TOPSOIL SHALL BE TESTED IN ACCORDANCE WITH PART 3 BELOW.
- C. SALVAGED OR EXISTING TOPSOIL: REUSE SUITABLE TOPSOIL STOCKPILED ON-SITE OR EXISTING TOPSOIL UNDISTURBED BY GRADING OR EXCAVATION OPERATIONS. CLEAN TOPSOIL OF ROOTS, PLANTS, SODS, STONES, CLAY LUMPS, AND OTHER EXTRANEOUS MATERIALS HARMFUL TO PLANT GROWTH.
- D. VERIFY AMOUNT OF SUITABLE TOPSOIL STOCKPILED IF ANY, AND SUPPLY ADDITIONAL IMPORTED TOPSOIL AS NEEDED.
- E. IMPORTED TOPSOIL: SUPPLEMENT SALVAGED TOPSOIL WITH IMPORTED TOPSOIL FROM OFF-SITE SOURCES WHEN EXISTING QUANTITIES ARE INSUFFICIENT.
1. OBTAIN TOPSOIL DISPLACED FROM NATURALLY WELL-DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 6 INCHES DEEP; DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS, OR MARSHES.
2. VERIFY BORROW AND DISPOSAL SITES ARE PERMITTED AS REQUIRED BY STATE AND LOCAL REGULATIONS. OBTAIN WRITTEN CONFIRMATION THAT PERMITS ARE CURRENT AND ACTIVE.
3. OBTAIN PERMITS REQUIRED BY STATE AND LOCAL REGULATIONS FOR TRANSPORTING TOPSOIL. PERMITS SHALL BE CURRENT AND ACTIVE.
- 2.5 ORGANIC SOIL AMENDMENTS
- A. MANURE: WELL-ROTTED, UNLEACHED, STABLE OR CATTLE MANURE CONTAINING NOT MORE THAN 25 PERCENT BY VOLUME OF STRAW, SAWDUST, OR OTHER BEDDING MATERIALS; FREE OF TOXIC SUBSTANCES, STONES, STICKS, SOIL, WEED SEED, AND MATERIAL HARMFUL TO PLANT GROWTH.
- B. BACK TO NATURE COTTON BURR COMPOST OR APPROVED EQUIVALENT.
- C. COMPOST: DECOMPOSED ORGANIC MATERIAL INCLUDING LEAF LITTER, MANURE, SAWDUST, PLANT TRIMMINGS AND/OR HAY, MIXED WITH SOIL.
- D. PECAN HULLS: COMPOSTED PECAN HULLS FOR LOCAL SOURCE.
- E. BIOSOLIDS: USE GRADE 1 CONTAINING LOWER PATHOGEN LEVELS.
- F. WORM CASTINGS: EARTHWORMS.
- 2.6 INORGANIC SOIL AMENDMENTS
- A. LIME: ASTM C602, CLASS 0 AGRICULTURAL LIMESTONE CONTAINING A MINIMUM OF 80 PERCENT CALCIUM CARBONATE EQUIVALENT WITH A MINIMUM OF 95 PERCENT PASSING NO. 8 SIEVE AND MINIMUM OF 55 PERCENT PASSING NO. 60 SIEVE.
- B. SULFUR: GRANULAR, BIODEGRADABLE, CONTAINING A MINIMUM OF 90 PERCENT SULFUR, WITH A MINIMUM OF 99 PERCENT PASSING NO. 6 SIEVE AND A MAXIMUM OF 10 PERCENT PASSING NO. 40 SIEVE.
- C. IRON SULFATE: GRANULATED FERROUS SULFATE CONTAINING A MINIMUM OF 20 PERCENT IRON AND 10 PERCENT SULFUR.
- D. AGRICULTURAL GYPSUM: FINELY GROUND, CONTAINING A MINIMUM OF 90 PERCENT CALCIUM SULFATE.
- E. SAND: CLEAN, WASHED, NATURAL OR MANUFACTURED, FREE OF TOXIC MATERIALS.
- 2.7 PLANTING ACCESSORIES
- A. NON SELECTIVE HERBICIDE: ROUNDUP-PRO, FINALE OR EQUIVALENT.
- B. SELECTIVE POST EMERGENT HERBICIDE: EPA REGISTERED AND APPROVED, OF TYPE RECOMMENDED BY MANUFACTURER FOR APPLICATION.
- C. SELECTIVE PRE-EMERGENT HERBICIDE: EPA REGISTERED AND APPROVED, OF TYPE RECOMMENDED BY MANUFACTURER FOR APPLICATION.
- 2.8 PLANTING SOIL MIX
- A. ASTM D 5268 TOPSOIL, WITH PH RANGE OF 5.5 TO 7, A MINIMUM OF 4 PERCENT ORGANIC MATERIAL CONTENT. EXISTING, NATIVE SURFACE TOPSOIL FORMED UNDER NATURAL CONDITIONS WITH THE DUFF LAYER RETAINED DURING EXCAVATION PROCESS AND EXISTING, IN-PLACE SURFACE SOIL. IMPORTED TOPSOIL OR MANUFACTURED TOPSOIL FROM OFF-SITE SOURCES; DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS OR MARSHES. VERIFY SUITABILITY OF SOIL TO PRODUCE VIABLE PLANTING SOIL. CLEAN SOIL OF ROOTS, PLANTS, SOD, STONES, CLODS, CLAY LUMPS, POCKETS OF COARSE SAND, CONCRETE, SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, BUILDING DEBRIS, AND OTHER EXTRANEOUS MATERIALS HARMFUL TO PLANT GROWTH.
- 2.9 FERTILIZER
- A. COMMERCIAL FERTILIZER: COMMERCIAL-GRADE COMPLETE FERTILIZER OF NEUTRAL CHARACTER, CONSISTING OF FAST- AND SLOW-RELEASE NITROGEN, 50 PERCENT DERIVED FROM NATURAL ORGANIC SOURCES OF UREA FORMALDEHYDE, PHOSPHOROUS, AND POTASSIUM.
1. COMPOSITION: NITROGEN, PHOSPHOROUS, AND POTASSIUM IN AMOUNT REQUIRED TO REMEDY DEFICIENCIES IDENTIFIED IN THE RESULTS OF THE EXISTING TOPSOIL AND IN-PLACE TOPSOIL TEST PERFORMED BY THE GEOTECHNICAL ENGINEERING COMPANY AND THE CTL.
- B. SLOW-RELEASE FERTILIZER: USE ONE OF THE FOLLOWING:
1. OSMOCOTE STANDARD GRANULAR FERTILIZER BY SCOTTS COMPANY COMPOSED OF 13 PERCENT NITROGEN, 13 PERCENT PHOSPHOROUS, AND 13 PERCENT POTASSIUM, BY WEIGHT.
2. MULTI-COTE ALL PURPOSE BY SCHULTZ COMPOSED OF 17 PERCENT NITROGEN, 17 PERCENT PHOSPHOROUS, AND 17 PERCENT POTASSIUM, BY WEIGHT.
- C. DELIVER FERTILIZER, MIXED AS SPECIFIED, IN ORIGINAL UNOPENED STANDARD SIZE BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. CONTAINERS SHALL BEAR MANUFACTURER'S GUARANTEED STATEMENT OF ANALYSIS, OR MANUFACTURER'S CERTIFICATE OF COMPLIANCE COVERING ANALYSIS SHALL BE FURNISHED TO OWNER. STORE FERTILIZER IN SUCH MANNER THAT IT SHALL BE KEPT DRY.
- 2.10 MULCH
- A. STRAW MULCH: STRAW MULCH SHALL USED FOR SEEDING PURPOSES ONLY AND SHALL BE AIR-DRY, CLEAN, MILDEW AND SEED FREE, SALT HAY OR THRESHED STRAW OF WHEAT, RYE, OATS, OR BARLEY.
- B. WOOD MULCH: WOOD MULCH SHALL BE SHREDDED HARDWOOD OR SOFTWOOD MULCH OBTAINED FROM A LOCAL SOURCE HARVESTED IN A SUSTAINABLE MANNER AND SALT FREE AND FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS. MULCH SHALL HAVE THE CHARACTERISTICS OF RETAINING MOISTURE, FORMING A MAT NOT SUSCEPTIBLE TO SPREADING BY WIND OR RAIN, AND PROVIDING A SUITABLE GROWTH MEDIUM FOR PLANTS AND SHALL BE FREE OF SOIL, ROCKS, WEEDS, SAWDUST, DIRT, GARBAGE, OR OTHER DEBRIS.
1. HARDWOOD MULCH: SHREDDED HARDWOOD MULCH SHALL CONSIST OF LONG FIBROUS INTERLOCKING STRANDS.
2. SOFTWOOD MULCH: SOFTWOOD MULCH SHALL BE MEDIUM SIZED SOFTWOOD MATERIAL 1/2 TO 3 INCHES WITH FINES OF 1/2 INCHES AND BELOW PRODUCED FROM DOUGLAS FIR, HEMLOCK, OR RED CEDAR.
3. COLOR: BLACK.
- C. PINE BARK OR PINE NEEDLE MULCH SHALL NOT BE USED.
- 2.11 WATER
- A. POTABLE WATER, HOSE, AND OTHER WATERING EQUIPMENT.
- PART 3 – EXECUTION

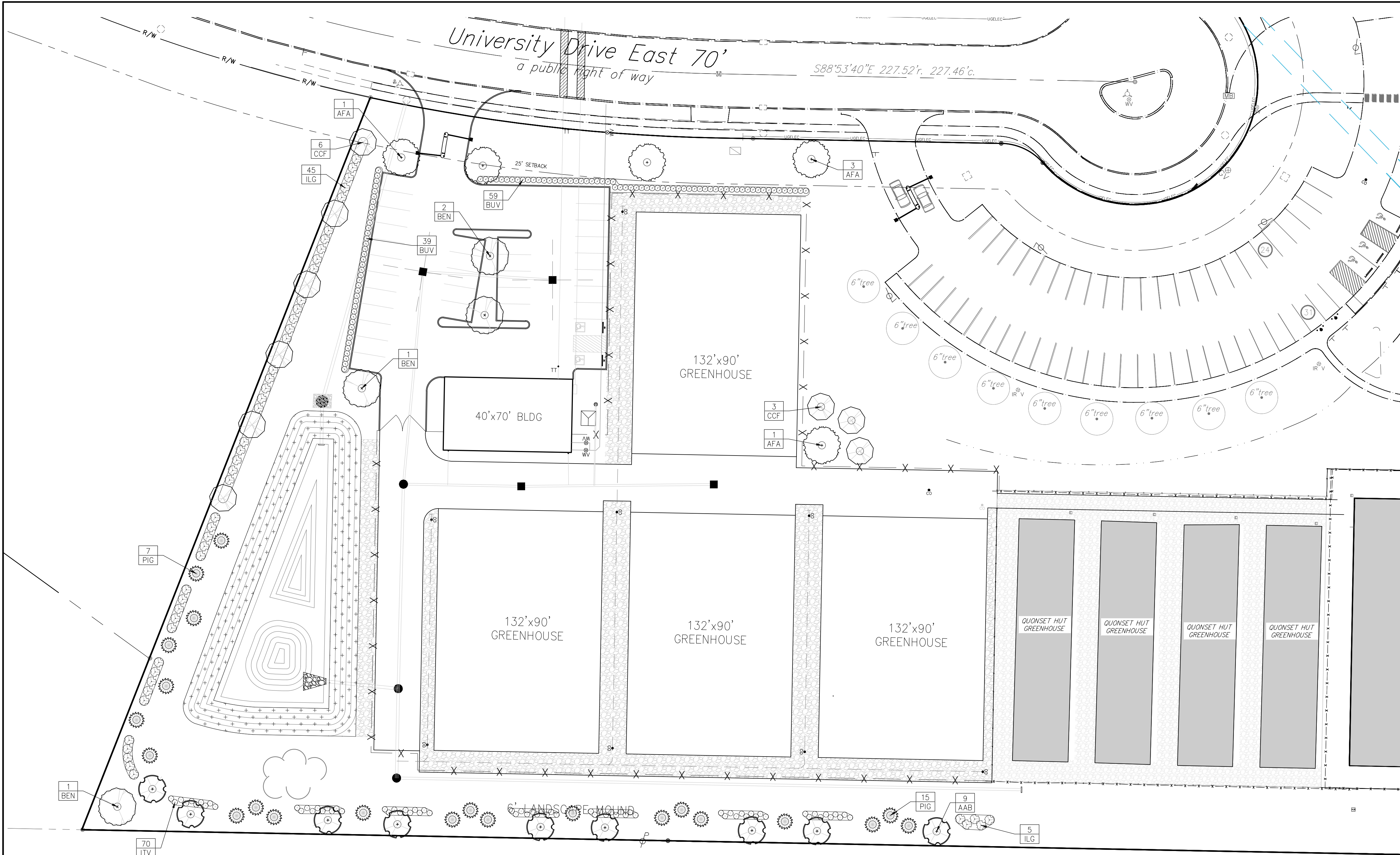
3.1 PREPARATION

- A. OPTIMAL PLANTING WINDOW FOR TREES, SHRUBS, AND PERENNIALS IS IN MID SPRING (APRIL THROUGH MAY) OR FALL (SEPTEMBER THROUGH OCTOBER). THESE SEASONS PROVIDE COOLER TEMPERATURES AND RELIABLE MOISTURE, WHICH HELP REDUCE TRANSPLANT SHOCK AND SUPPORT STRONG ROOT DEVELOPMENT. AVOID PLANTING DURING THE HEAT OF SUMMER WHEN STRESS FROM HEAT AND DROUGHT IS HIGHEST.
- B. IF PROJECT COMPLETION DATE PROHIBITS IN-SEASON PLANTING, PREPARE FOR OUT-OF-SEASON SEEDING OR SODDING SO THAT LAWNS SHALL BE COMPLETED AND READY FOR ACCEPTANCE AT TIME OF PROJECT COMPLETION.
- C. UNSUITABLE SUBSOILS: LOCATIONS CONTAINING UNSUITABLE SUBSOIL SHALL BE TREATED BY ONE OR MORE OF THE FOLLOWING:
1. WHERE UNSUITABILITY IS DEEMED BY OWNER TO BE DUE TO EXCESSIVE COMPACTION CAUSED BY HEAVY EQUIPMENT AND WHERE NATURAL SUBSOIL IS OTHER THAN AASHTO CLASSIFICATION OF A6 OR A7, LOOSEN SUCH AREAS WITH SPIKES, DISING, OR OTHER MEANS TO LOOSEN SOIL TO CONDITION ACCEPTABLE TO OWNER. LOOSEN SOIL TO MINIMUM DEPTH OF 12 INCHES WITH ADDITIONAL LOOSENING AS REQUIRED TO OBTAIN ADEQUATE DRAINAGE. CONTRACTOR MAY INTRODUCE PEAT MOSS, SAND, OR ORGANIC MATTER INTO THE SUBSOIL TO OBTAIN ADEQUATE DRAINAGE. SUCH REMEDIAL MEASURES SHALL BE CONSIDERED AS INCIDENTAL, WITHOUT ADDITIONAL COST TO OWNER.
2. WHERE UNSUITABILITY IS DEEMED BY OWNER TO BE DUE TO PRESENCE OF BOARDS, MORTAR, CONCRETE, OR OTHER CONSTRUCTION MATERIALS IN SUB-GRADE AND WHERE NATURAL SUBSOIL IS OTHER THAN AASHTO CLASSIFICATION OF A6 OR A7, REMOVE DEBRIS AND OBJECTIONABLE MATERIAL. SUCH REMEDIAL MEASURES SHALL BE CONSIDERED AS INCIDENTAL, WITHOUT ADDITIONAL COST TO OWNER.
3. WHERE UNSUITABILITY IS DEEMED BY OWNER TO BE BECAUSE NATURAL SUBSOIL FALLS INTO A6 OR A7 CLASSIFICATION OF A6 OR A7 AND CONTAINS MIXTURES IN EXCESS OF 30 PERCENT THEN INSTALLATION OF SUB-DRAINAGE SYSTEM OR OTHER MEANS DESCRIBED ELSEWHERE IN SPECIFICATIONS SHALL BE USED. WHERE SUCH CONDITIONS HAVE NOT BEEN KNOWN OR REVEALED PRIOR TO PLANTING TIME AND THEY HAVE NOT BEEN RECOGNIZED IN PREPARATION OF THE DRAWINGS AND SPECIFICATIONS, THEN OWNER SHALL ISSUE PRICING ORDER TO INSTALL PROPER REMEDIAL MEASURES.
- C. UNSUITABLE TOPSOIL: LOCATIONS CONTAINING UNSUITABLE TOPSOIL SHALL BE TREATED BY ONE OR MORE OF THE FOLLOWING:
1. WHERE UNSUITABILITY IS DEEMED BY OWNER TO BE BECAUSE OF PRESENCE OF OBJECTIONABLE WEEDS, LITTER, SODS, STIFF CLAY, TOXIC SUBSTANCES; HERBICIDES OR OTHER MATERIAL WHICH MAY BE HARMFUL TO PLANT GROWTH, THEN TOPSOIL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER.
2. WHERE UNSUITABILITY IS DEEMED BY OWNER TO BE BECAUSE OF PRESENCE OF THE STUMPS, ROOTS; STONES LARGER THAN 1 INCH IN DIAMETER; LESS THAN 3 PERCENT ORGANIC MATERIAL; LOW OR HIGH PH RANGE, REMOVE OBJECTIONABLE MATERIAL AND AMEND TOPSOIL TO MEET THE REQUIREMENTS SPECIFIED IN PART 2 ABOVE. SUCH REMEDIAL MEASURES SHALL BE CONSIDERED AS INCIDENTAL, WITHOUT ADDITIONAL COST TO OWNER.
- D. PERFORM PLANTING OPERATIONS AT STEADY RATE OF WORK UNLESS WEATHER CONDITIONS MAKE IT IMPOSSIBLE TO WORK. NO PLANT MATERIAL SHALL BE PLANTED IN FROZEN GROUND.
- E. TREE AND SHRUB PREPARATION
1. DIG BARE-ROOTED SHRUBS WITH ADEQUATE FIBROUS ROOTS. COVER ROOTS WITH UNIFORMLY THIN COATING OF MUD BY BEING PUDDLED IMMEDIATELY AFTER THEY ARE DUG, OR PACKED IN MOIST STRAW OR MOSS.
2. DIG BALL AND BURLAP PLANTS WITH FIRM NATURAL BALLS OF EARTH OF DIAMETER AND DEPTH TO INCLUDE FIBROUS ROOTS.
3. PROTECT ROOTS OR BALLS OF PLANTS AT ALL TIMES FROM SUN AND DRYING WINDS.
4. BALL AND BURLAP PLANTS WHICH CANNOT BE PLANTED IMMEDIATELY UPON DELIVERY SHALL BE SET ON GROUND AND PROTECTED WITH SOIL, WET MOSS, OR OTHER ACCEPTABLE MATERIAL. HEEL-IN BARE ROOTED PLANTS THAT CANNOT BE PLANTED IMMEDIATELY UPON DELIVERY ALL SHALL BE KEPT MOST.
5. OPEN AND SEPARATE BUNDLES OF PLANTS BEFORE ROOTS ARE COVERED. PREVENT AIR POCKETS AMONG ROOTS. DURING PLANTING OPERATIONS, COVER BARE ROOTS WITH CANVAS, HAY, OR OTHER SUITABLE MATERIAL. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE WHICH WILL RESULT IN DAMAGE TO BARK OR BRANCHES.
- F. SOD AND SEED BED PREPARATION
1. NEWLY GRADED SUBGRADES:
- a. DO NOT PLACE TOPSOIL UNTIL SUBGRADE HAS BEEN APPROVED IN ACCORDANCE WITH SECTION 02300.
- b. BEFORE PLACING TOPSOIL, RAKE SUBSOIL SURFACE CLEAR OF STONES, DEBRIS, AND ROOTS. DISK, DRAG, HARROW, OR HAND RAKE SUBGRADE TO DEPTH OF 4 INCHES AND REMOVE STONES LARGER THAN 1-1/2 INCHES TO PROVIDE BOND FOR TOPSOIL.
- c. SPREAD TOPSOIL TO A DEPTH OF 4 INCHES BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. ADJUST DEPTH OF TOPSOIL IN AREAS ADJACENT TO PAVED SURFACES OR CURBS TO ALLOW FOR THE PLACEMENT OF SOD OR SEED.
2. UNCHANGED SUBGRADES: IF LAWNS ARE TO BE PLANTED IN AREAS UNALTERED OR UNDISTURBED BY EXCAVATING, GRADING, OR SURFACE-SOIL STRIPPING OPERATIONS, PREPARE SURFACE AS FOLLOWS:
- a. REMOVE EXISTING GRASS, VEGETATION, AND TURF. DO NOT MIX INTO SURFACE SOIL.
- b. DISK, DRAG, OR HARROW SURFACE SOIL TO A DEPTH OF AT LEAST 6 INCHES.
- c. REMOVE STONES LARGER THAN 1-1/2 INCH IN ANY DIMENSION AND STICKS, ROOTS, TRASH, AND OTHER EXTRANEOUS LITTER.
- d. LEGALLY DISPOSE OF WASTE MATERIAL, INCLUDING GRASS, VEGETATION, AND TURF.
- e. ADJUST DEPTH OF TOPSOIL IN AREAS ADJACENT TO PAVED SURFACES OR CURBS TO ALLOW FOR THE PLACEMENT OF SOD OR SEED.
3. INCORPORATE SOIL AMENDMENTS AND COMMERCIAL FERTILIZER INTO THE TOP 4 INCHES OF TOPSOIL TO ACHIEVE THE SPECIFIED TOPSOIL REQUIREMENTS. TILL SOIL TO A HOMOGENOUS MIXTURE OF FINE TEXTURE.
4. GRADE AREAS TO FINISH GRADES, FILLING AS NEEDED OR REMOVING SURPLUS TOPSOIL. FLOAT AREAS TO SMOOTH, UNIFORM GRADE AS INDICATED ON THE DRAWINGS. LAWN AREAS SHALL SLOPE TO DRAIN.
5. WHERE NO GRASSES ARE SHOWN, AREAS SHALL HAVE A SMOOTH AND CONTINUAL GRADE BETWEEN EXISTING OR FIXED CONTROLS, SUCH AS WALKS, CURBS, CATCH BASIN, STEPS, OR BUILDINGS. ROLL, SCARIFY, RAKE, AND LEVEL AS NECESSARY TO OBTAIN TRUE, EVEN LAWN SURFACES. FINISH GRADES SHALL MEET APPROVAL OF OWNER.
6. SOD AND SEED BEDS SHALL BE FIRMED BY ROLLING BEFORE SEEDING BEGINS.
- G. GROUND COVER BED PREPARATION:
1. GRADE AREAS TO FINISH GRADES, FILLING AS NEEDED OR REMOVING SURPLUS TOPSOIL. FLOAT AREAS TO SMOOTH, UNIFORM GRADE AS INDICATED ON THE DRAWINGS.
2. SET OUT AND SPACE GROUND COVER AS SPECIFIED ON PLANS.
3. DIG HOLES LARGE ENOUGH TO ALLOW SPREADING OF ROOTS, AND BACKFILL WITH PLANTING SOIL.
4. REMOVE GROUND COVER FROM POTS.
5. WORK SOIL AROUND ROOTS TO ELIMINATE AIR POCKETS AND LEAVE A SLIGHT SAUCER INDENTATION AROUND PLANTS TO HOLD WATER.
6. WATER THOROUGHLY AFTER PLANTING TAKING CARE NOT TO COVER PLANT CROWNS WITH WET SOIL.
7. PROTECT PLANTS FROM HOT SUN AND WIND; REMOVE PROTECTION WHEN PLANTS SHOW EVIDENCE OF RECOVERY FROM TRANSPLANTING SHOCK.
- H. ISLAND PREPARATION:
1. EXCAVATE COMPACTED SOIL TO A DEPTH OF 24 INCHES.
2. MAINTAIN REQUIRED ANGLES OF REPOSE OF ADJACENT MATERIALS AS SHOWN ON THE DRAWINGS. DO NOT EXCAVATE SUBGRADES OF ADJACENT PAVING, STRUCTURES, HARDSCAPES, OR OTHER NEW OR EXISTING IMPROVEMENTS.
3. SCARIFY SIDES OF EXCAVATION PIT SWEARED OR SMOOTHED DURING EXCAVATION.
4. SUBSOIL OR TOPSOIL REMOVED FROM ISLANDS SHALL NOT BE USED IN PLANTING SOIL MIX.
5. NOTIFY OWNER'S CEC IF SUBSOIL CONDITIONS EVIDENCE UNEXPECTED WATER SEEPAGE OR RETENTION WITHIN EXCAVATION AREA.
6. BACKFILL ISLANDS IN 9 INCH LIFTS WITH PLANTING SOIL MIX SPECIFIED HEREIN. TAMP EACH LIFT LIGHTLY TO PREVENT SETTLING.
7. GRADE AREAS TO FINISH GRADES, FILLING AS NEEDED TO ALLOW POSITIVE

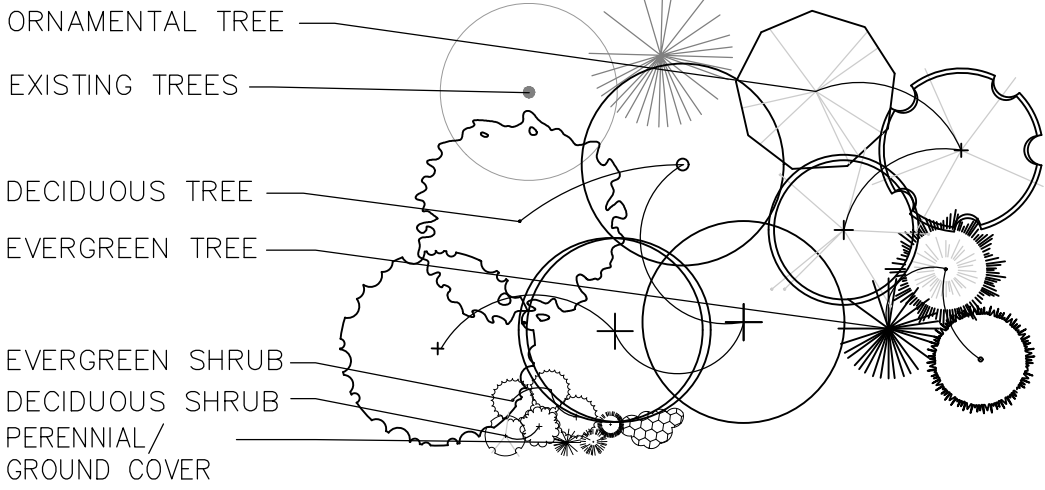
- DRAINAGE. FLOAT AREAS TO A SMOOTH, UNIFORM GRADE AS INDICATED ON THE DRAWINGS.
- 3.2 PROTECTION
- A. TOPSOIL WHICH MUST BE TRANSPORTED ACROSS FINISHED SIDEWALKS SHALL BE DELIVERED IN SUCH MANNER THAT NO DAMAGE WILL BE DONE TO SIDEWALKS.
- B. BEFORE COMMENCING WORK, TREES AND SHRUBS THAT ARE TO BE SAVED SHALL BE PROTECTED FROM DAMAGE BY PLACEMENT OF FENCING FLAGGED FOR VISIBILITY OR SOME OTHER SUITABLE PROTECTIVE PROCEDURE APPROVED BY OWNER.
- C. TRUCKS OR OTHER EQUIPMENT SHALL NOT BE DRIVEN OR PARKED WITHIN DRIP LINE OF ANY TREE UNLESS TREE OVERSPREADS PAVED AREA.
- D. USE PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, SIDEWALKS, PAVEMENTS, UTILITIES, AND OTHER FEATURES EITHER EXISTING OR PREVIOUSLY INSTALLED.
- E. ADJUST DEPTH OF EARTHWORK AND TOPSOIL WHEN WORKING IMMEDIATELY ADJACENT TO AFOREMENTIONED FEATURES IN ORDER TO PREVENT DISTURBING TREE ROOTS, UNDERMINING SIDEWALKS AND PAVEMENTS, AND DAMAGE IN GENERAL TO OTHER FEATURES EITHER EXISTING OR PREVIOUSLY INSTALLED.
- F. COVER PLANTS TRANSPORTED TO PROJECT IN OPEN VEHICLES WITH TARP AULINS OR OTHER SUITABLE COVERS SECURELY FASTENED TO BODY OF VEHICLE TO PREVENT INJURY TO PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, OR IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION. PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS ENTIRE PERIOD DURING WHICH PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
- G. PLANTS SHALL NOT BE DELIVERED TO THE SITE MORE THAN SEVEN DAYS PRIOR TO PLANTING. PLANTS NOT PLANTED WITHIN 48 HOURS OF DELIVERY, SHALL BE HEALED IN (COVERED WITH SAWDUST, SOIL OR MULCH), AND THE CONTAINERS OR BALLS PROTECTED FROM WIND AND TEMPERATURE AND KEPT MOIST UNTIL PLANTING.
- H. WHERE EXCAVATION, FILL, OR GRADING IS REQUIRED WITHIN DRIP LINE OF TREES THAT ARE TO REMAIN, WORK SHALL BE PERFORMED AS FOLLOWS:
1. TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, TREE ROOTS SHALL NOT BE CUT BUT TRENCH SHALL BE TUNNELED UNDER OR AROUND ROOTS BY CAREFUL HAND DIGGING WITHOUT INJURY TO ROOTS.
2. RAISING GRADES:
- a. WHERE FILL NOT EXCEEDING 16 INCHES IS REQUIRED, CLEAN, WASHED GRAVEL GRADED FROM 1 INCH TO 2 INCHES IN SIZE SHALL BE PLACED DIRECTLY AROUND TREE TRUNK. EXTEND GRAVEL OUT FROM TRUNK ON ALL SIDES MINIMUM OF 18 INCHES AND FINISH APPROXIMATELY 2 INCHES ABOVE FINISHED GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH TRUNKS OF TREES REQUIRING FILL.
3. LOWERING GRADES: EXISTING TREES IN AREAS WHERE NEW FINISH GRADE IS TO BE LOWERED SHALL HAVE REGRADEING WORK DONE BY HAND TO ELEVATION INDICATED ON THE DRAWINGS. ROOTS AS REQUIRED SHALL BE CUT CLEANLY 3 INCHES BELOW FINISHED GRADE AND SCARS COVERED WITH TREE PAINT.
- 3.3 PLANTING BED ESTABLISHMENT
- A. PRIOR TO PREPARING PLANTING BEDS, THE AREA SHALL CONFORM TO THE LINES AND GRADES SHOWN ON THE PLANS AND THE CONDITION OF THE SUBSOIL SHALL BE APPROVED BY THE OWNER.
- B. CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UNDERGROUND UTILITIES ON SITE.
- C. PLANTING BEDS WHERE EXISTING SUBSOIL IS DETERMINED BY OWNER TO BE UNSUITABLE FOR PLANT GROWTH IN ACCORDANCE PARAGRAPH UNSUITABLE SUBSOIL HEREIN SHALL BE EXCAVATED TO A DEPTH OF 24 INCHES OR AS NEEDED TO PROVIDE ADEQUATE DRAINAGE. REPLACE EXCAVATED SOIL WITH PLANTING SOIL MIX.
- D. PLANTING BEDS WHERE EXISTING SUBSOIL IS ACCEPTABLE BY OWNER SHALL BE PREPARED AS FOLLOWS:
1. SEVEN DAYS PRIOR TO COMMENCING ESTABLISHMENT OF THE PLANTING AREAS, APPLY NON SELECTIVE HERBICIDE. REMOVE DEAD VEGETATION.
2. LOOSEN SUBSOIL TO A DEPTH OF 12 INCHES. REMOVE STONES LARGER THAN 1 INCH IN ANY DIMENSION, STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND LEGALLY DISPOSE OF THEM OFF SITE.
3. SPREAD 3 INCHES OF SOIL CONDITIONER OVER THE SURFACE OF THE PLANTING AREA AND INCORPORATE INTO THE TOP 12 INCHES OF THE SOIL. PREPARE TO SPREADING SOIL CONDITIONER, ADD OR REMOVE TOPSOIL AS NEEDED TO ACCOMMODATE ADDITION OF SOIL CONDITIONER AND TO ACHIEVE FINISH GRADE.
4. TILL PLANTING SOIL MIX TO A HOMOGENOUS MIXTURE OF FINE TEXTURE.
5. FLOAT AREAS TO SMOOTH, UNIFORM GRADE PROVIDING POSITIVE DRAINAGE OUT OF PLANTING BEDS AND AWAY FROM STRUCTURES OR AS INDICATED ON THE DRAWINGS.
- E. APPLY SLOW RELEASE FERTILIZER AT A RATE OF 1-1/2 POUNDS PER 100 SQUARE FEET FOR BEDS AREAS OR AS RECOMMENDED BY MANUFACTURER AND INCORPORATE INTO THE TOP 8 INCHES.
- 3.4 TREE AND SHRUB PLANTING
- A. PLANTS TOO LARGE FOR 2 PERSONS TO LIFT IN AND OUT OF HOLES SHALL BE PLACED WITH SLING. DO NOT ROCK TREES IN HOLES TO REASE.
- B. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, OWNER MAY REQUIRE PLANT PITS TO BE RELOCATED, PITS ENLARGED, OR PLANTS DELETED FROM PROJECT.
- C. MAKE ADJUSTMENTS IN LOCATIONS AS DIRECTED. IN EVENT THAT PITS OR AREAS FOR PLANTING ARE PREPARED AND BACKFILLED WITH PLANTING SOIL MIX OR TOPSOIL TO GRADE PRIOR TO COMMENCEMENT OF LAWN OPERATIONS, THEY SHALL BE SO MARKED THAT WHEN PLANTING PROCEEDS, THEY CAN BE READILY LOCATED. IN CASE UNDERGROUND OBSTRUCTIONS SUCH AS LEDGES OR UTILITIES ARE ENCOUNTERED, CHANGE LOCATION UNDER DIRECTION OF OWNER WITHOUT CHARGE.
- D. HOLES FOR TREES SHALL BE AT LEAST 2 FEET GREATER IN DIAMETER THAN SPREAD OF ROOT SYSTEM AND AT LEAST 6 INCHES DEEPER THAN ROOT BALL OR AS SHOWN ON THE DRAWINGS. HOLES FOR SHRUBS SHALL BE AT LEAST 2 FEET GREATER IN DIAMETER THAN THE SPREAD OF ROOT SYSTEM AND AT LEAST 2 FEET DEEP OR AS SHOWN ON THE DRAWINGS. HOLES FOR VINES SHALL BE AT LEAST 12 INCHES GREATER IN DIAMETER THAN THE SPREAD OF ROOTBALL AT LEAST 12 INCHES DEEP.
- E. BACKFILL TREE HOLES AND SHRUB BEDS WITH PLANTING SOIL MIX. APPLY SLOW RELEASE FERTILIZER AT A RATE OF 1/4 POUNDS PER CALIPER INCH FOR TREES. INCORPORATE FERTILIZER INTO THE PLANTING SOIL MIX.
- F. PLANTS SHALL BE PLANTED AT SAME DEPTH AS THEY HAD PREVIOUSLY GROWN OR AS SHOWN ON THE DRAWINGS. BACKFILL PLANTING SOIL MIX IN LAYERS OF NOT MORE THAN 2 INCHES AND EACH LAYER WATERED SUFFICIENTLY TO SETTLE BEFORE NEXT LAYER IS PLACED. TAMP PLANTING SOIL MIX UNDER EDGES OF BAILED PLANTS. USE ENOUGH PLANTING SOIL MIX TO BRING SURFACES TO FINISH GRADE WHEN SETTLED.
1. PROVIDE SAUCER AROUND EACH PLANT AS SHOWN ON THE DRAWINGS.
2. SOAK PLANTS WITH WATER TWICE WITHIN FIRST 24 HOURS AFTER TIME OF PLANTING. APPLY WATER WITH LOW PRESSURE SO AS TO SOAK IN THOROUGHLY WITHOUT DISLOGGING TOPSOIL.
- G. TREE STAKING: AS SPECIFIED ON PLANS. TREE STAKING REQUIREMENT MAY BE WAIVED FOR TREES LOCATED IN PROTECTED AREAS UPON APPROVAL OF THE LANDSCAPE ARCHITECT.
- H. WATERING DURING ESTABLISHMENT PERIOD: INSTALLED LANDSCAPE SHALL BE WATERED AND OBSERVED DURING THE LANDSCAPE'S ESTABLISHMENT PERIOD.
1. TREES: 1 YEAR ESTABLISHMENT
- 1.1. WEEKS 1-2: FULLY WATER DAILY.
- 1.2. WEEKS 3-12: FULLY WATER 2-3 TIMES A WEEK.
- 1.3. WEEKS 13-52: FULLY WATER ONCE EVERY 7-10 DAYS.
2. SHRUBS: 1 YEAR ESTABLISHMENT
- 1.1. WEEK 1: FULLY WATER DAILY.
- 1.2. WEEKS 2-12: FULLY WATER 1-2 TIMES A WEEK.
- 1.3. WEEKS 13-52: FULLY WATER ONCE EVERY 7-10 DAYS.
2. PERENNIALS: 6 MONTH ESTABLISHMENT
- 1.1. WEEK 1: FULLY WATER DAILY.
- 1.2. WEEKS 2-12: FULLY WATER 1-2 TIMES A WEEK.
- 1.3. WEEKS 13-24: FULLY WATER ONCE EVERY 7-10 DAYS.
4. WATERING DOES NOT NEED TO BE DONE ON DAYS WITH RAIN, AND SHOULD NOT BE DONE DURING WINTER DORMANCY.
- 3.5 MISCELLANEOUS INSTALLATIONS

- A. MULCH: PLACE 3 INCHES OF MULCH AS A TOP DRESSING IN PLANTING BEDS. MULCH SINGLE TREES OR SHRUBS TO OUTSIDE EDGE OF SAUCER OR AS SPECIFIED ON PLAN.
- B. PEG SODDED SLOPES GREATER THAN 3:1 TO HOLD IN PLACE.
- C. AREAS TO BE COVERED WITH EROSION CONTROL BLANKETS SHALL BE PROPERLY PREPARED, FERTILIZED, AND SEEDED BEFORE BLANKET IS APPLIED. WHEN BLANKET IS UNROLLED, NETTING SHALL BE ON TOP AND FIBERS IN CONTACT WITH SOIL. IN DITCHES, APPLY BLANKET IN DIRECTION OF FLOW OF WATER. ON SLOPES, APPLY BLANKETS VERTICALLY ON SLOPE. OVERLAP ENDS AND SIDES 6 INCHES AND STAPLE PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 3.6 AREAS TO BE TURFED
- A. UNLESS OTHERWISE SHOWN ON THE PLANS, DISTURBED AREAS SHALL BE PERMANENTLY SODDED AND/OR SEEDED.
- B. CONTINUALLY SEED DISTURBED AREAS UNTIL FULLY TURFED WITH NO BARE SPOTS.
- 3.7 SEEDING
- A. DO NOT PERFORM SEEDING IN WINDY CONDITIONS.
- B. SEEDING SHALL BE DISPERSED IN 2 DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.
- C. PERMANENTLY SEED AND MULCH CUT AND FILL SLOPES AS CONSTRUCTION PROCEEDS TO EXTENT CONSIDERED DESIRABLE AND PRACTICAL. IN THE EVENT IT IS NOT PRACTICAL TO SEED AREAS, SLOPES SHALL BE STABILIZED WITH STRAW MULCH AND TACKIFIER, BONDED FIBER WATER, NETTING, BLANKETS OR OTHER MEANS TO REDUCE THE EROSION POTENTIAL OF THE AREA.
- D. SEED LAWN AREAS BY SOWING EVENLY WITH APPROVED MECHANICAL SEEDER AT RATE OF MINIMUM OF 3 POUNDS PER 1,000 SQUARE FEET. CULTI-PACKER OR APPROVED SIMILAR EQUIPMENT MAY BE USED TO COVER SEED AND TO FORM SEEDBED IN ONE OPERATION. IN AREAS INACCESSIBLE TO CULTI-PACKER, LIGHTLY RAKE SEEDS GROUND WITH FLEXIBLE RAKES AND ROLL WITH WATER BALLAST ROLLER. AFTER ROLLING MULCH WITH STRAW MULCH AT THE RATE OF 2 TONS PER ACRE.
- E. SURFACE LAYER OF SOIL FOR SEEDS AREAS SHALL BE KEPT MOIST DURING GERMINATION PERIOD. WATER SEEDS AREAS TWICE FIRST WEEK TO MINIMUM DEPTH OF 6 INCHES WITH FINE SPRAY AND ONCE PER WEEK THEREAFTER AS NECESSARY TO SUPPLEMENT NATURAL RAIN TO EQUIVALENT OF 6 INCHES DEPTH.
- 3.8 SODDING
- A. CUT AND LAY SOD ON SAME DAY. ONLY HEALTHY VIGOROUS GROWING SOD SHALL BE LAID.
- B. LAY SOD ACROSS SLOPE AND TIGHTLY TOGETHER TO RESULT IN SOLID COVERAGE FREE OF GAPS.
- C. ROLL OR FIRMLY BUT LIGHTLY TAMP NEW SOD WITH SUITABLE WOODEN OR METAL TAMPER SUFFICIENTLY TO SET OR PRESS SOD INTO UNDERLYING SOIL.
- D. ALL FINISHED SODDING SHALL BE SMOOTH AND FREE OF LUMPS AND DEPRESSIONS.
- E. AFTER SODDING HAS BEEN COMPLETED, CLEAN UP AND THOROUGHLY WATER NEWLY-SODDED AREAS.
- 3.9 MAINTENANCE DURING CONSTRUCTION
- A. BEGIN MAINTENANCE OPERATIONS IMMEDIATELY AFTER EACH PLANT IS PLANTED AND CONTINUE AS REQUIRED UNTIL ACCEPTANCE. WATER, MULCH, WEED, PRUNE, SPRAY, FERTILIZE, CULTIVATE, AND OTHERWISE MAINTAIN AND PROTECT PLANTS. RESET SETTLED PLANTS TO PROPER GRADE AND POSITION, RESTORE PLANTING SAUCERS, AND REMOVE DEAD, DISEASED, OR UNHEALTHY PLANT MATERIAL. TIGHTEN AND REPAIR STAKES AND WIRES. CORRECT DEFECTIVE WORK AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT.
- B. UPON COMPLETION OF THE PLANTING OPERATIONS, CLEAN UP LANDSCAPED AREAS TO BE FREE OF STONES, CONTAINERS, TRASH, AND OTHER WASTE AND DEBRIS TO LEAVE AREA IN A NEAT AND WELL GROOMED APPEARANCE.
- C. SUPPLEMENT RAINFALL AS REQUIRED TO PROVIDE AN EQUIVALENT OF 1 INCH OF WATER PER WEEK UNTIL THE PLANTS HAVE ROOTED AND ARE ESTABLISHED.
- D. MAINTAIN ALL PLANT MATERIAL IN A HEALTHY, VIGOROUS GROWING CONDITION.
- E. MAKE WEEKLY INSPECTIONS TO DETERMINE MOISTURE CONTENT OF SOIL AND ADJUST WATERING SCHEDULE ESTABLISHED BY IRRIGATION SYSTEM INSTALLER TO FIT CONDITIONS.
- F. AFTER TURF GRASS GROWTH HAS STARTED, RESEED OR SOD AREAS THAT FAIL TO SHOW UNIFORM STAND OF GRASS IN ACCORDANCE WITH THE DRAWINGS AND AS SPECIFIED HEREIN. CONTINUE RESEEDING AND SODDING SUCH AREAS REPEATELY UNTIL AREAS ARE COVERED WITH SATISFACTORY GROWTH OF GRASS. PERFORM REMOVAL AND REPLACEMENT OR TOPSOIL CONDITIONING IF REQUIRED TO FACILITATE ESTABLISHMENT OF GRASS.
- G. WATER TURF GRASS IN SUCH MANNER AND AS FREQUENTLY AS IS DEEMED NECESSARY BY OWNER TO ASSURE CONTINUED GROWTH OF HEALTHY GRASS. WATER AREAS OF SITE IN SUCH A MANNER AS TO PREVENT EROSION DUE TO EXCESSIVE QUANTITIES APPLIED OVER SMALL AREAS AND TO AVOID DAMAGE TO FINISHED SURFACE DUE TO WATERING EQUIPMENT.
- H. PROVIDE WATER FOR EXECUTION AND MAINTENANCE AT NO EXPENSE TO OWNER. FURNISH PORTABLE TANKS, PUMPS, HOSE, PIPE, CONNECTIONS, NOZZLES, AND ANY OTHER EQUIPMENT REQUIRED TO TRANSPORT WATER FROM AVAILABLE OUTLETS AND APPLY IT TO SEEDS AREAS IN APPROVED MANNER.
- I. MOWING:
2. INITIATE MOWING OF TURF GRASS AREAS WHEN GRASS HAS ATTAINED HEIGHT OF 3 INCHES AND ROOTS ARE FIRMLY ESTABLISHED. MAINTAIN TURF GRASS HEIGHT AT 2 1/2 TO 3 INCHES AT SUBSEQUENT CUTTINGS DEPENDING ON TIME OF YEAR. REMOVE NO MORE THAN 1/3 OF GRASS LEAF AT ANY CUTTING AND CUTTING SHALL NOT OCCUR MORE THAN 10 DAYS APART.
3. MOW NATIVE GRASS AREAS NO MORE THAN 3 TIMES PER YEAR TO A HEIGHT OF NO LESS THAN 4 INCHES.
- J. REMOVE HEAVY CUTTINGS TO PREVENT DESTRUCTION OF UNDERLYING TURF. IF WEEDS OR OTHER UNDESIRABLE VEGETATION THREATEN TO SMOTHER PLANTED SPECIES, SUCH VEGETATION SHALL BE MOWED OR, IN CASE OF RANK GROWTHS, SHALL BE UPROOTED, RAKED AND REMOVED FROM AREA BY METHODS APPROVED BY OWNER.
- K. REMOVE WEEDS AND OTHER UNDESIRABLE VEGETATION BY APPLYING HERBICIDES AS RECOMMENDED BY THE MANUFACTURER OR BY UPROOTING. RAKE AND REMOVE UPROOTED VEGETATION FROM AREA BY METHODS APPROVED BY OWNER.
- L. PROTECT SEEDS AREA FROM PEDESTRIAN OR VEHICULAR TRESPASSING WHILE GRASS IS GERMINATING. PROVIDE FENCES, SIGNS, BARRIERS, OR OTHER NECESSARY TEMPORARY PROTECTIVE DEVICES. REPAIR DAMAGE RESULTING FROM TRESPASS, EROSION, WASHOUT, SETTLEMENT, OR OTHER CAUSES.
- M. REMOVE FENCES, SIGNS, BARRIERS, OR OTHER TEMPORARY PROTECTIVE DEVICES AFTER FINAL ACCEPTANCE.
- N. REMOVE AND REPLACE DISEASED, DISTRESSED, DEAD, OR REJECTED PLANTS PRIOR TO SUBSTANTIAL COMPLETION DATE.
- O. REPLACEMENTS SHALL BE PLANTS OF SAME VARIETY AND SIZE SPECIFIED ON THE DRAWINGS. FURNISH AND PLANT AS SPECIFIED HEREIN. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES WILL BE APPROVED AND PAID FOR BY OWNER.
- P. GRASSED AREAS DAMAGED DURING PROCESS OF WORK SHALL BE RESTORED OR REPAIRED TO CONDITION SATISFACTORY TO THE OWNER. FILL, GRADE, RE-FERTILIZE, REPLANT, OR MULCH AS REQUIRED TO RESTORE TO CONTRACT REQUIREMENTS.

		03-12-26	REVISED PLANNING SUBMITAL
		01-05-26	PLANNING SUBMITTAL
		12-10-25	PROGRESS SET
		10-22-25	Submit to client
REV NO	DATE	DESCRIPTION	
DWG NAME	DRAWN BY	CHKD BY	JOB NO
14057F-L	JWM	GHW	14057F



PLANT LEGEND



LANDSCAPE NOTES

- 1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND VERIFYING ALL PLANT MATERIAL SHOWN ON THE PLANS. ANY PLANT MATERIAL SUBSTITUTIONS TO BE VERIFIED AND APPROVED BY LANDSCAPE ARCHITECT OR OWNER PRIOR TO INSTALLATION.
- 2. CONTRACTOR TO PROVIDE DOUBLE SHREDDED MULCH PER DETAILS AND SPECIFICATIONS AT ALL PLANTING BEDS. PROVIDE A MIN. 3" DIAMETER MULCH BED AROUND EACH INDIVIDUAL TREE LOCATED IN MANICURED LAWN/SEED AREAS UNLESS TREES ARE INCORPORATED IN A PLANTING BED. FOR TREES LOCATED IN A WILDFLOWER PLANTING AREAS, PROVIDE A MIN. 5' DIAMETER MULCH BED AROUND EACH INDIVIDUAL TREE. MULCH COLOR SHALL BE NATURAL AND NOT DYED, AND MATCH EXISTING BEDS UNLESS OTHERWISE SPECIFIED BY THE OWNER. CONTRACTOR SHALL SUBMIT MULCH SAMPLES TO OWNER FOR APPROVAL PRIOR TO ORDERING.
- 3. ONCE FINAL GRADE IS ESTABLISHED, ALL PLANTING BEDS SHALL RECEIVE 6" DEPTH OF PLANTING SOIL MIX PER THE SPECIFICATIONS AND DETAILS. ALL SEEDED AREAS TO RECEIVE A MINIMUM OF 2" OF TOPSOIL PER THE SPECIFICATIONS. SALVAGED OR EXISTING TOPSOIL CAN BE RE-USED IF SPECIFICATIONS ARE MET AND IS APPROVED BY OWNER.
- 4. PLACEMENT OF PLANTING MATERIALS SHALL NOT AFFECT THE EXISTING DRAINAGE PATTERN ON SITE. THIS INCLUDES BUT IS NOT LIMITED TO PLACING PLANT MATERIALS IN OR NEAR SWALES OR CREATING MOUNDS THAT BLOCK THE INTENDED SURFACE DRAINAGE PATTERN.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING ALL PLANT MATERIAL AND SEEDED AREAS UNTIL SUBSTANTIAL COMPLETION OF PROJECT. SLOW RELEASE WATERING BAGS SHOULD BE USED ON ALL TREES.
- 6. ALL MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE, DURING, AND AFTER INSTALLATION.
- 12. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PROPOSED UTILITY ROUTINGS AND LOCATING ALL EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR 1) TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA 2) TO PROTECT OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD 3) TO REPAIR ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE CONSTRUCTION.
- 13. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING PER SPECIFICATIONS TO MAINTAIN HEALTHY PLANT CONDITIONS.
- 14. APPLY A PRE-EMERGENT HERBICIDE, PENDIMETHALIN OR OXADIAZON OR APPROVED SIMILAR, TO TREE, SHRUB, AND GROUND COVER AREAS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT APPLY TO SEEDED AREAS.

PLANT LIST - SUMMARY TABLE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING	QTY.
TREES						
AFA	ACER X FREEMANII 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	2.5" CAL.	B&B	AS SHOWN	5
BEN	BETULA NIGRA	RIVER BIRCH	2.5" CAL.	B&B	AS SHOWN	4
CCF	CERCIS CANADENSIS 'FOREST PANSY'	FOREST PANSY RED BUD	6' HT. CLUMP	B&B	AS SHOWN	9
AAB	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	6' HT. CLUMP	B&B	AS SHOWN	9
PIG	PICEA GLAUCA	WHITE SPRUCE	8' HT.	B&B	AS SHOWN	22
SHRUBS & PERENNIALS						
ILG	ILEX GLABRA	INKBERRY	24" HT.	CONT.	48" O.C.	50
BUV	BUXUS X "GREEN VELVET"	GREEN VELVET BOXWOOD	24" HT.	CONT.	48" O.C.	98
ITV	ITEA VIRGINICA 'LITTLE HENRY'	LITTLE HENRY SWEETSPIRE	18" HT.	CONT.	30" O.C.	70

DETENTION BASIN SEED MIX

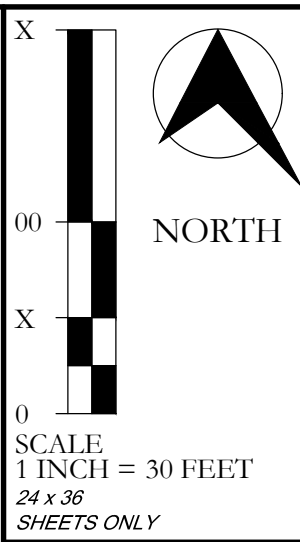
AREA: ±0.147 ACRES
RATE: 10 LBS PER ACRE
NOTE: LONG ESTABLISHMENT PERIOD REQUIRED. ADD TEMPORARY COVER TO THE SEED MIX, SUCH AS COMMON OATS, ANNUAL RYE, OR COMBINATION OF THE TWO, AS RECOMMENDED BY THE SEED SUPPLIER.

GRASSES AND GLASSLIKE PERENNIALS

BOTANICAL NAME	COMMON NAME	PERCENT
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	34.37%
ANDROPOGON GERARDII	BIG BLUESTEM	25.00%
PANICUM CLANDESTINUM	DEER-TONGUE GRASS	5.00%
ELYMUS MACGREGORII	EARLY WILD RYE	3.12%
CAREX HYSTERICINA	PORCUPINE SEDGE	2.62%
CAREX LURIDA	SHALLOW/LURID SEDGE	1.87%
SCIRPUS ATROVIRENS	DARK GREEN BULRUSH	1.56%
SCIRPUS PENDULUS	RUFIOUS BULRUSH	0.50%
JUNCUS EFFUSUS	COMMON RUSH	0.31%
SCIRPUS CYPERINUS	WOOLGRASS	0.19%

WILDFLOWERS

BOTANICAL NAME	COMMON NAME	PERCENT
ECHEINACEA PURPUREA	PURPLE CONEFLOWER	6.25%
SENNA HEBECARPA	WILD SENNA	5.56%
BIDENS ARISTOSA	TICKSEED SUNFLOWER	5.31%
VERBENA HASTATA	BLUE VERVAIN	2.19%
RATIBIDA PINNATA	GREY-HEADED CONEFLOWER	1.25%
HIBISCUS MOSCHEUTOS	SWAMP ROSE MALLOW	0.62%
ANGELICA ATROPURPUREA	ANGELICA	0.62%
ACORUS AMERICANUS	SWEETFLAG	0.62%
ASCLEPIAS INCARNATA	SWAMP MILKWEED	0.62%
LYCOPUS AMERICANUS	COMMON WATER HOREHOUND	0.44%
EUPATORIUM FISTULOSUM	HOLLOW JOE PYE	0.37%
PYCNANTHEMUM TENUIFOLIUM	NARROW LEAVED MOUNTAIN MINT	0.31%
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	0.31%
AMMANNIA COCCINEA	SCARLET TOOTHCP	0.19%
MIMULUS RINGENS	MONKEY FLOWER	0.12%



HURON CORPORATE PARK LLC
SITE LANDSCAPE PLAN
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO



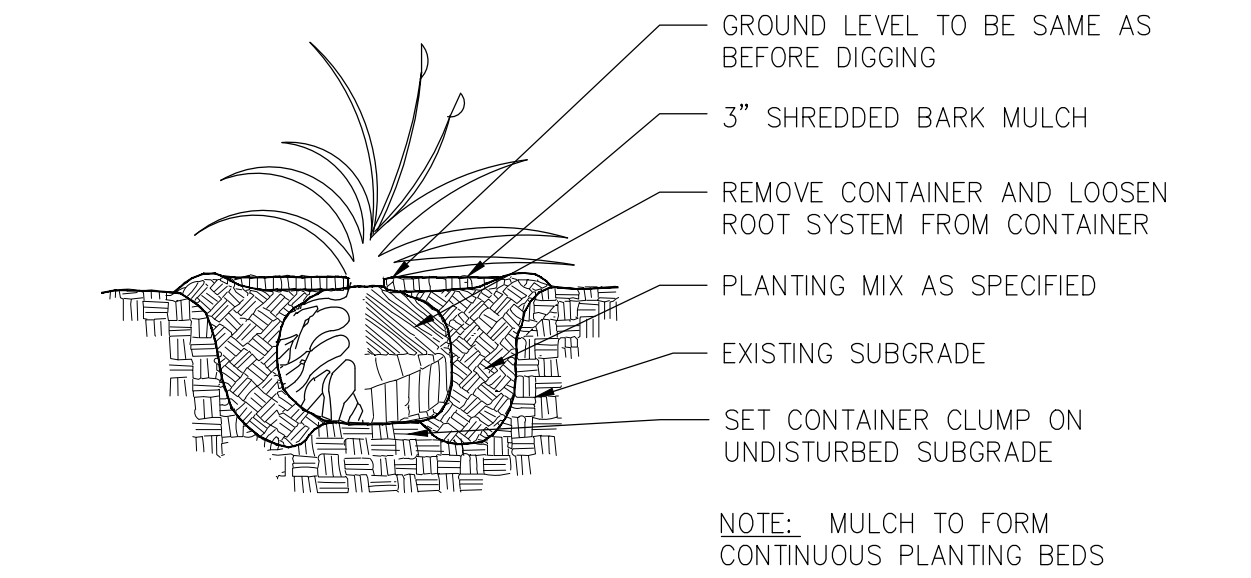
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DWG NAME	DRAWN BY	CHK'D BY
14057F-L	JWM	GHW
		JOB NO
		14057F

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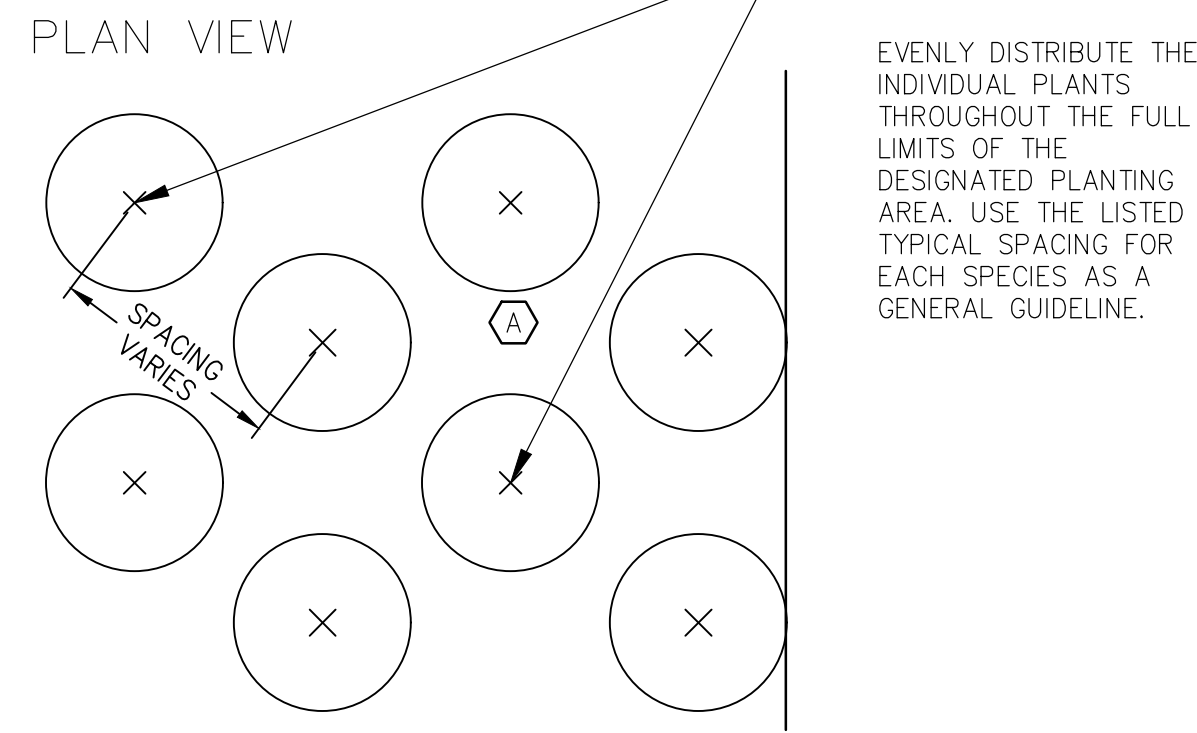
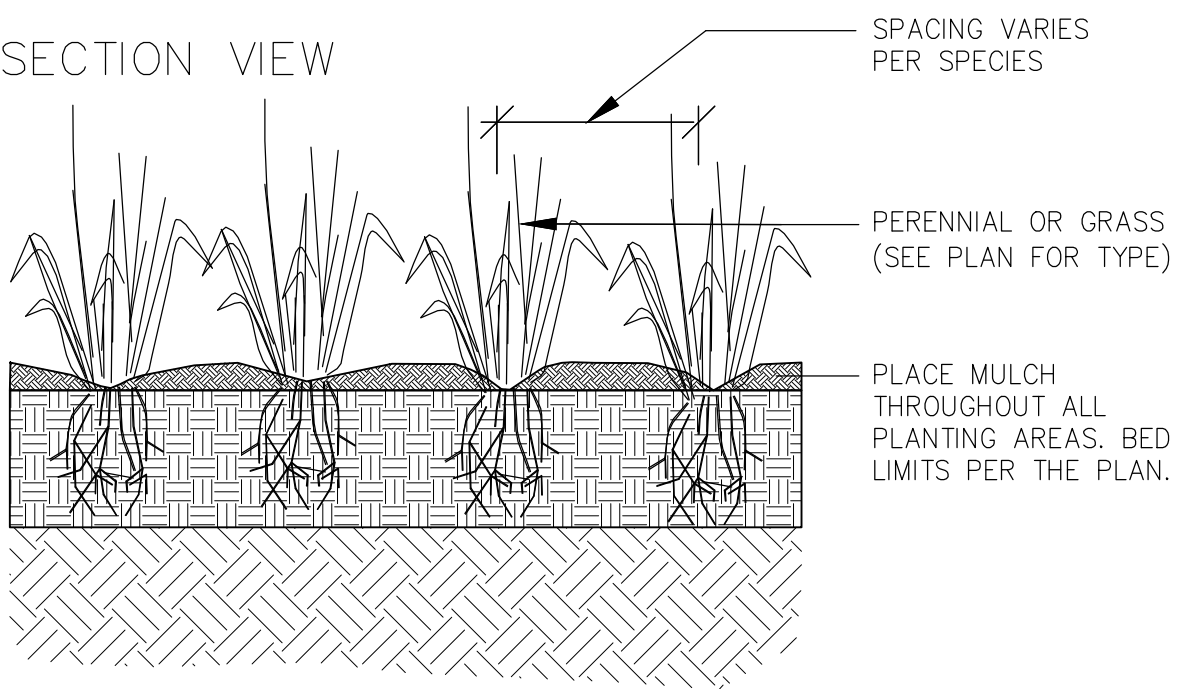
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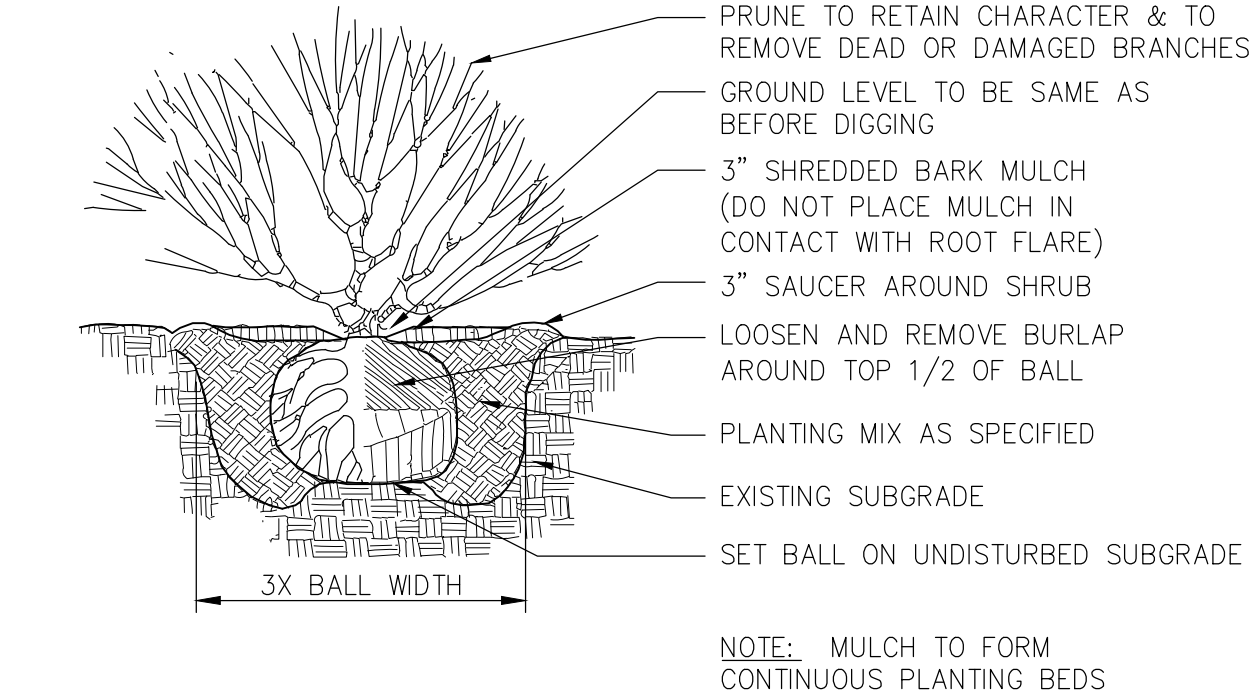
CODE	SUBJECT	REQUIRED	PROVIDED
131.04(h)	GENERAL LANDSCAPE	LIGHT INDUSTRIAL: 1 SHADE TREE PER ACRE, 1 LANDSCAPE ISLAND PER 2 ACRES, AND LANDSCAPE ISLANDS REQUIRE 250 SQ FT. 2-4 ORNAMENTAL OR EVERGREEN TREES AND 8-10 SHRUBS OR PERENNIALS. (3.38 ACRES)	9 SHADE TREES 18 ORNAMENTAL TREES 22 EVERGREEN TREES 218 SHRUBS 6 FOOT BERM
1131.05(a)(3)	PUBLIC RIGHT OF WAY PARKING LOT SCREENING	PLANTS SHALL BE SPACED EVENLY AND CONSIST OF A COMBINATION OF HEDGES, SHRUBS, PERENNIALS, AND LIVE GROUND COVER. PERIMETER LANDSCAPE YARDS SHALL BE DESIGNED TO ENHANCE THE STREETScape, YET NOT HINDER THE USE OR SAFE FLOW OF PEDESTRIAN AND VEHICULAR TRAFFIC. ANY REMAINING AREA BETWEEN THE LANDSCAPE YARD AND THE CURB NOT DEDICATED FOR WALKWAYS, ACCESSORY USES, ACCESS LANES, OR OTHER APPROVED USES SHALL BE COVERED WITH TURF OR GROUND COVER AT A MINIMUM.	3 SHADE TREES 59 SHRUBS
1131.05(b)(6)	INTERIOR PARKING LOT SCREENING	SMALL SHADE TREES OR ORNAMENTAL TREES MUST BE THE PRIMARY PLANT MATERIALS USED IN PARKING LOT ISLANDS AND LANDSCAPED AREAS. SHRUBS, HEDGES AND OTHER PLANT MATERIALS MAY BE USED TO SUPPLEMENT THE PRIMARY PLANTINGS BUT MUST NOT CREATE SIGHT LINE VISIBILITY CONCERNS FOR AUTOMOBILES AND PEDESTRIANS. THE REMAINING AREA OF A PARKING LOT ISLAND MUST BE COVERED WITH SHRUBS, TURF, LIVE GROUNDCOVER, PERENNIALS OR ORNAMENTAL GRASSES	3 SMALL SHADE TREES 39 SHRUBS
1131.06(d)	BUFFER - SOUTH (497')	TYPE B - LOW DENSITY 20 FEET WIDTH 50% LENGTH ALONG LOT LINE 3-5 ORNAMENTAL TREES (PER 200 LINEAR FEET) 6 EVERGREEN TREES (PER 200 LINEAR FEET) 30 SHRUBS (PER 200 LINER FEET) 6' FENCE	8 ORNAMENTAL TREES 15 EVERGREEN TREES 75 SHRUBS 6 FOOT BERM
1131.06(d)	BUFFER - WEST (429')	TYPE B - LOW DENSITY 10 FEET WIDTH 30% LENGTH ALONG LOT LINE 3-5 ORNAMENTAL TREES (PER 200 LINEAR FEET) 3-5 EVERGREEN TREES (PER 200 LINEAR FEET) 20-30 SHRUBS (PER 200 LINER FEET)	8 ORNAMENTAL TREES 7 EVERGREEN TREES 45 SHRUBS



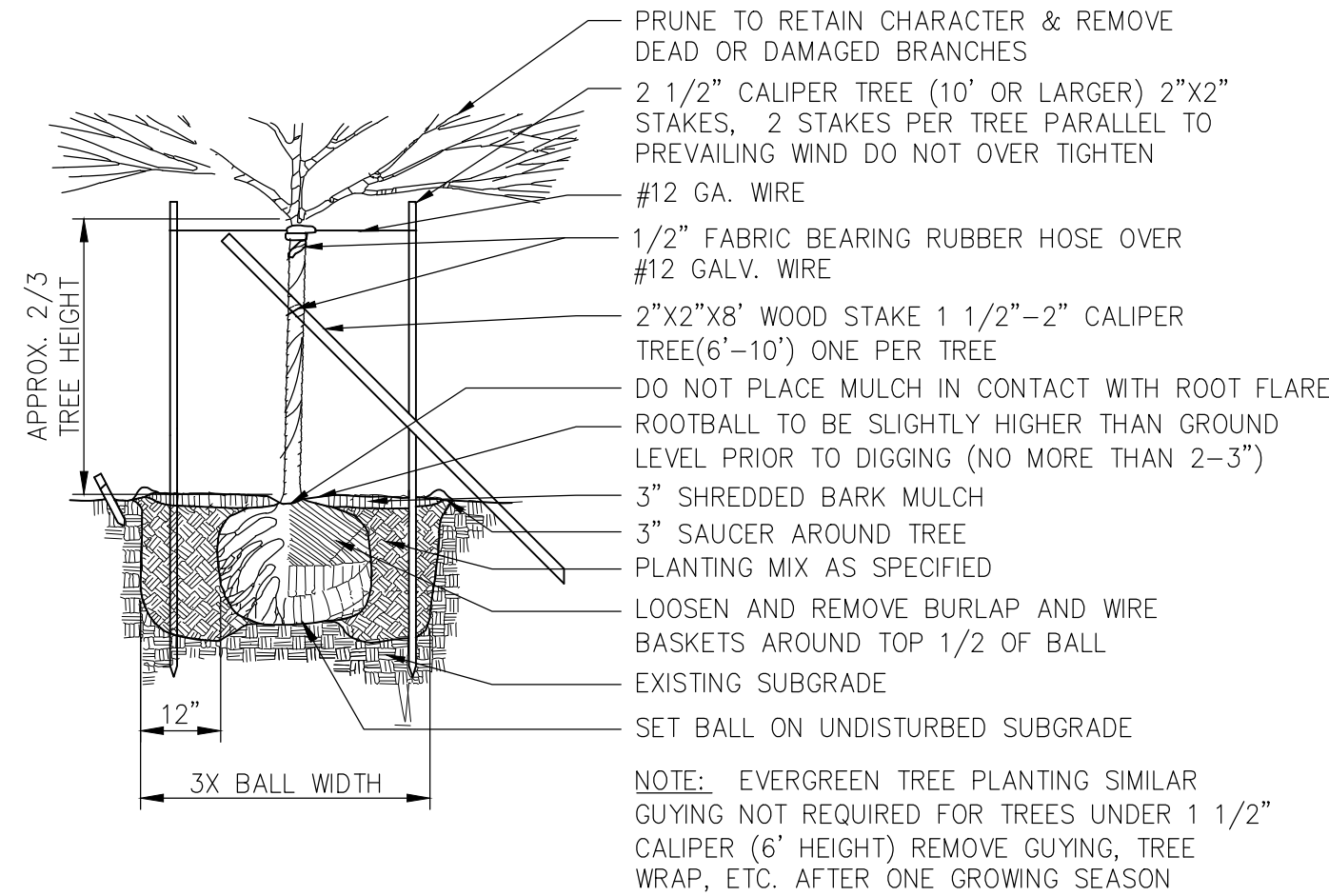
1 TYPICAL PERENNIAL PLANTING DETAIL
NOT TO SCALE



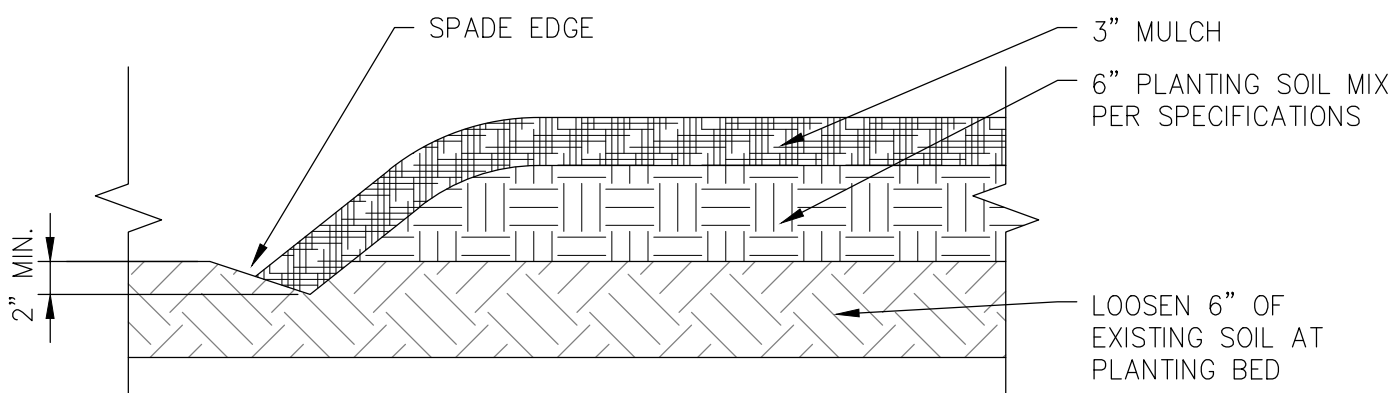
4 SHRUB AND PERENNIAL SPACING
NOT TO SCALE



2 TYPICAL SHRUB PLANTING DETAIL
NOT TO SCALE



3 TYPICAL TREE PLANTING DETAIL
NOT TO SCALE



5 LANDSCAPE BED EDGE/SOIL DEPTH (TYP.)
NOT TO SCALE

HURON CORPORATE PARK LLC
SITE LANDSCAPE DETAILS
CITY OF HURON, COUNTY OF ERIE, STATE OF OHIO

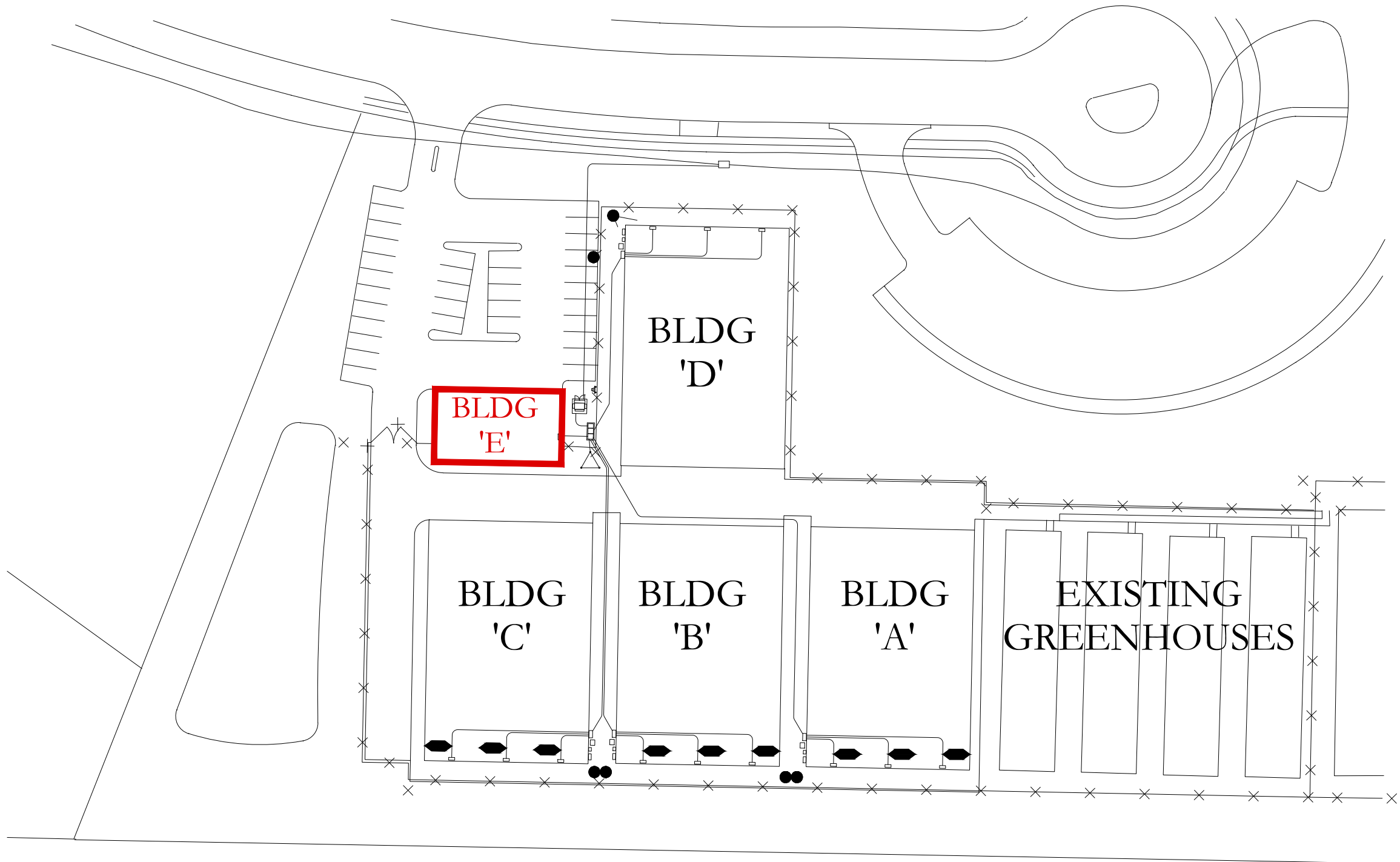


SHEET NO.
L3.0

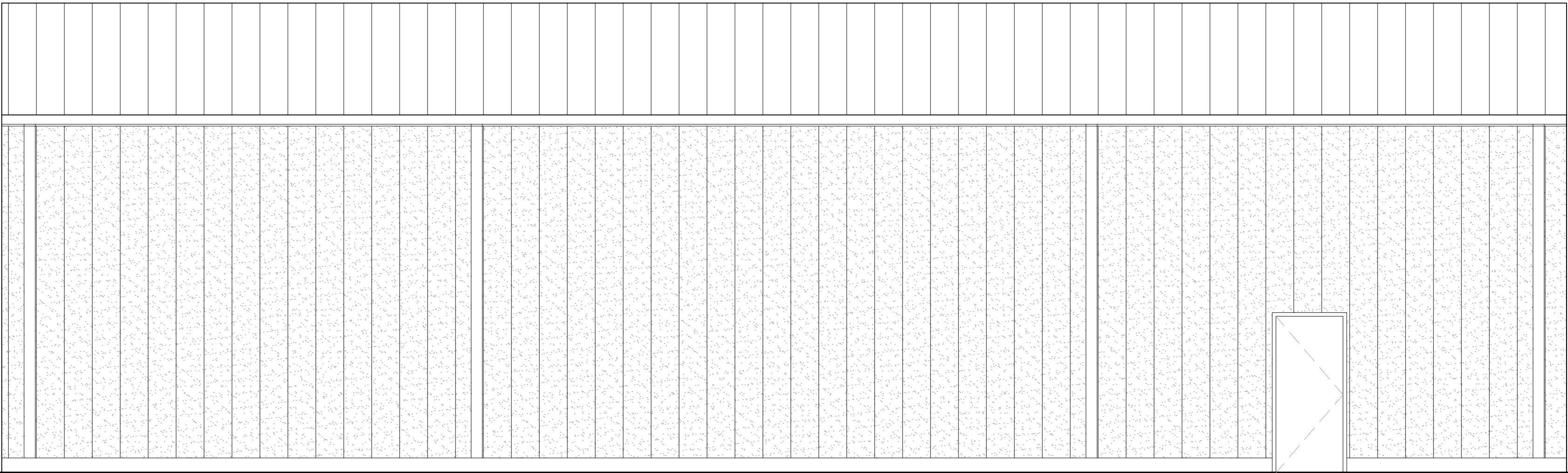
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	01-05-26	PLANNING SUBMITTAL
	12-10-25	PROGRESS SET
	10-22-25	Submit to client
REV NO	DATE	DESCRIPTION
DWG NAME	DRAWN BY	CHKD BY
14057F-L	JWM	GHW
		JOB NO
		14057F



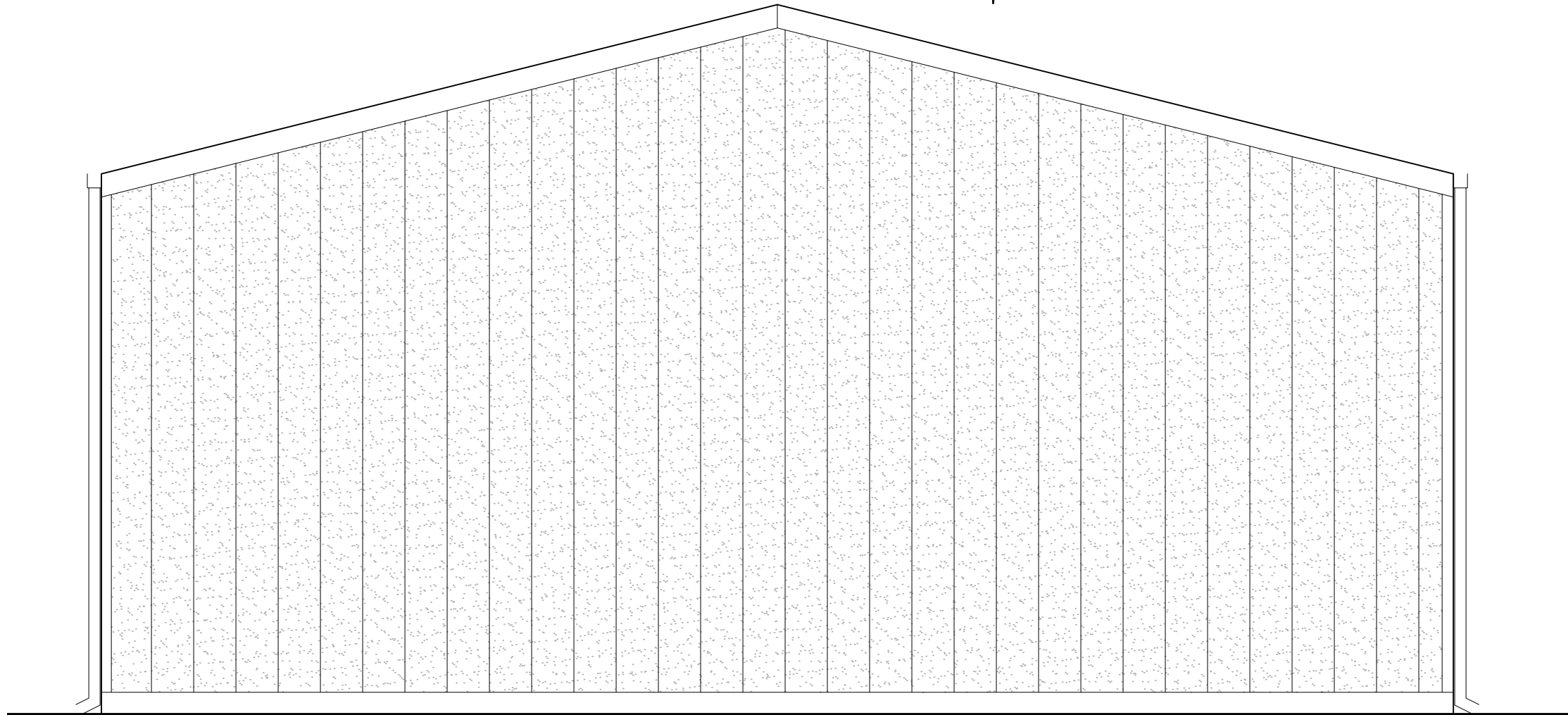
BUILDING 'E'
PROPOSED MANUFACTURER STYLE
SCALE: N.T.S.



PROPOSED SITE KEY PLAN
SCALE: N.T.S.



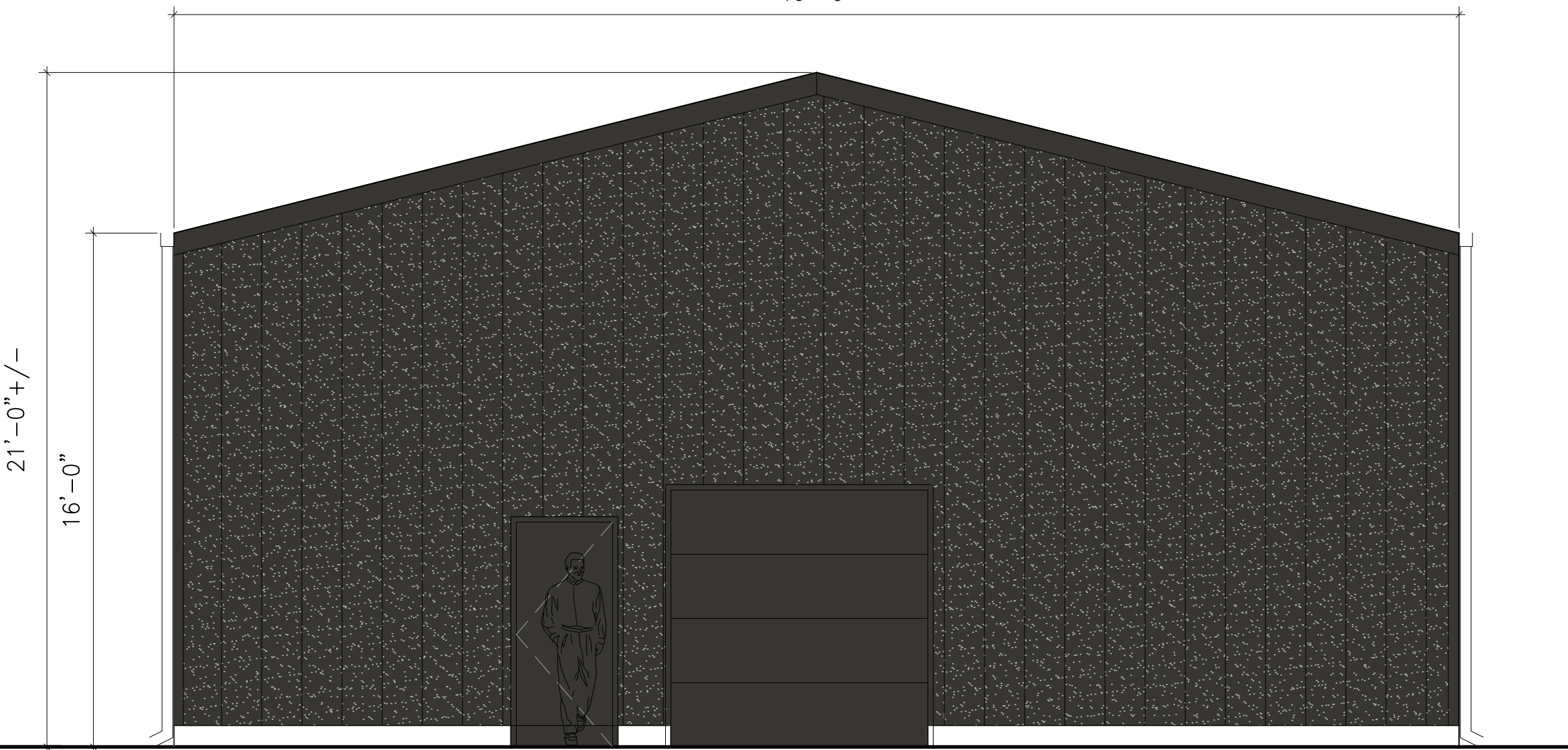
BUILDING 'E'
PROPOSED REAR ELEVATION
SCALE: 1/4"=1'-0"
70'-0"



BUILDING 'E'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"
40'-0"



BUILDING 'E'
PROPOSED FRONT ELEVATION
SCALE: 1/4"=1'-0"



BUILDING 'E'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"

REVISIONS	

THE DRAWINGS AND THE INFORMATION SHOWN REPRESENT THE ORIGINAL UNPUBLISHED WORK OF FOX ARCHITECTURAL DESIGN, LLC AND SHALL NOT BE REPRODUCED OR DUPLICATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ARCHITECT. 2026

DRB
REVIEW SET

FOX
ARCHITECTURAL DESIGN
M: 419.677.6961 E: JOSH@FOXARCHITECTURAL.COM
1717 E. PERKINS AVE. SANDUSKY, OH 44870

BUILDING 'E' PROPOSED ELEVATIONS
SITE EXPANSION PROJECT
HURON CORPORATE PARK LLC
902 UNIVERSITY DR.
HURON, OH 44839

JULY 06, 2026

JOB NO.

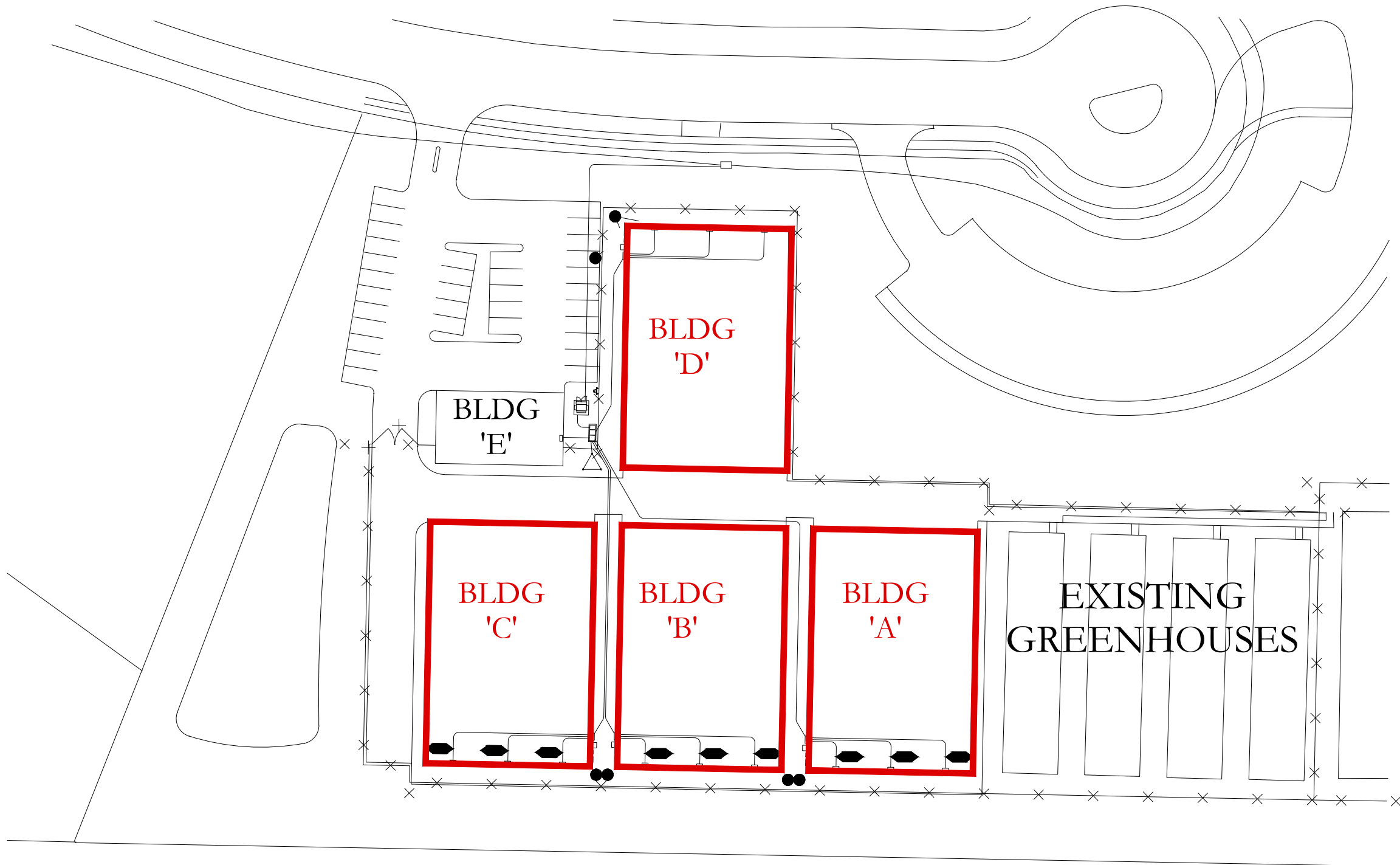
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ORIGINAL SIZE 24"x36"

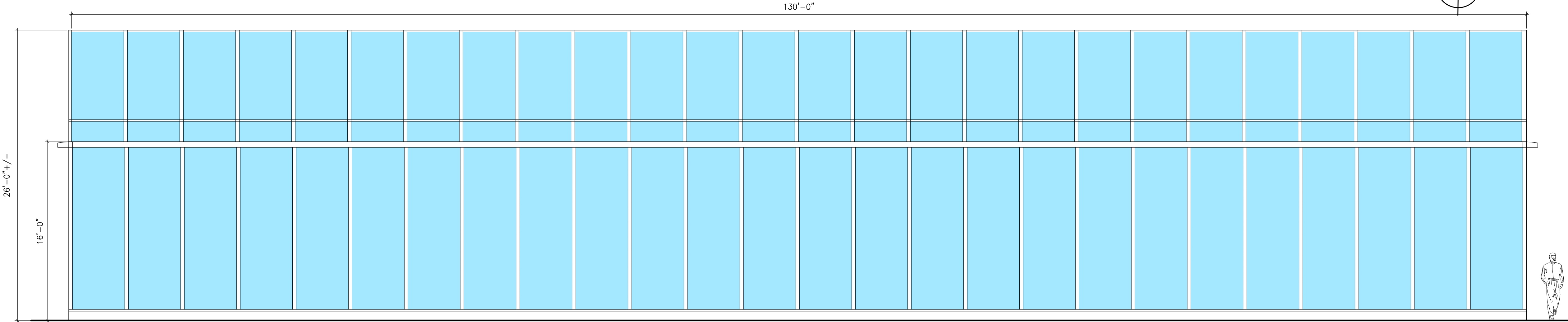
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NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11"x17"



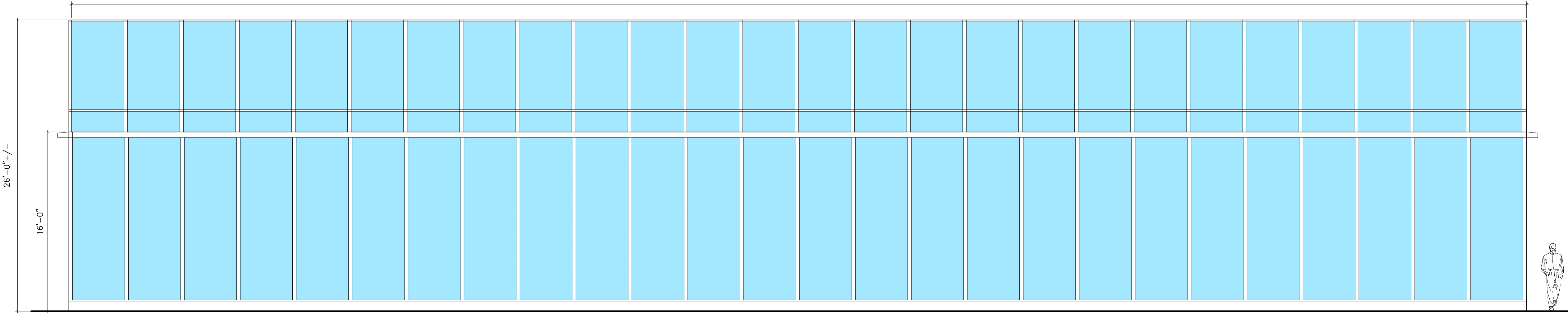
BUILDING 'A-D'
PROPOSED MANUFACTURER STYLE
SCALE: N.T.S.



PROPOSED SITE KEY PLAN
SCALE: N.T.S.



BUILDING 'A-D'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"



BUILDING 'A-D'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"

REVISIONS	

THE DRAWINGS AND THE INFORMATION SHOWN REPRESENT THE ORIGINAL UNPUBLISHED WORK OF FOX ARCHITECTURAL DESIGN, LLC AND SHALL NOT BE REPRODUCED OR DUPLICATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ARCHITECT. 2026

**DRB
REVIEW SET**



ARCHITECTURAL DESIGN
M: 419.677.6961 E: JOSH@FOXARCHITECTURAL.COM
1717 E. PERKINS AVE. SANDUSKY, OH 44870

BUILDINGS 'A-D' PROPOSED SIDE ELEVATIONS
SITE EXPANSION PROJECT
HURON CORPORATE PARK LLC
902 UNIVERSITY DR.
HURON, OH 44839

JULY 06, 2026

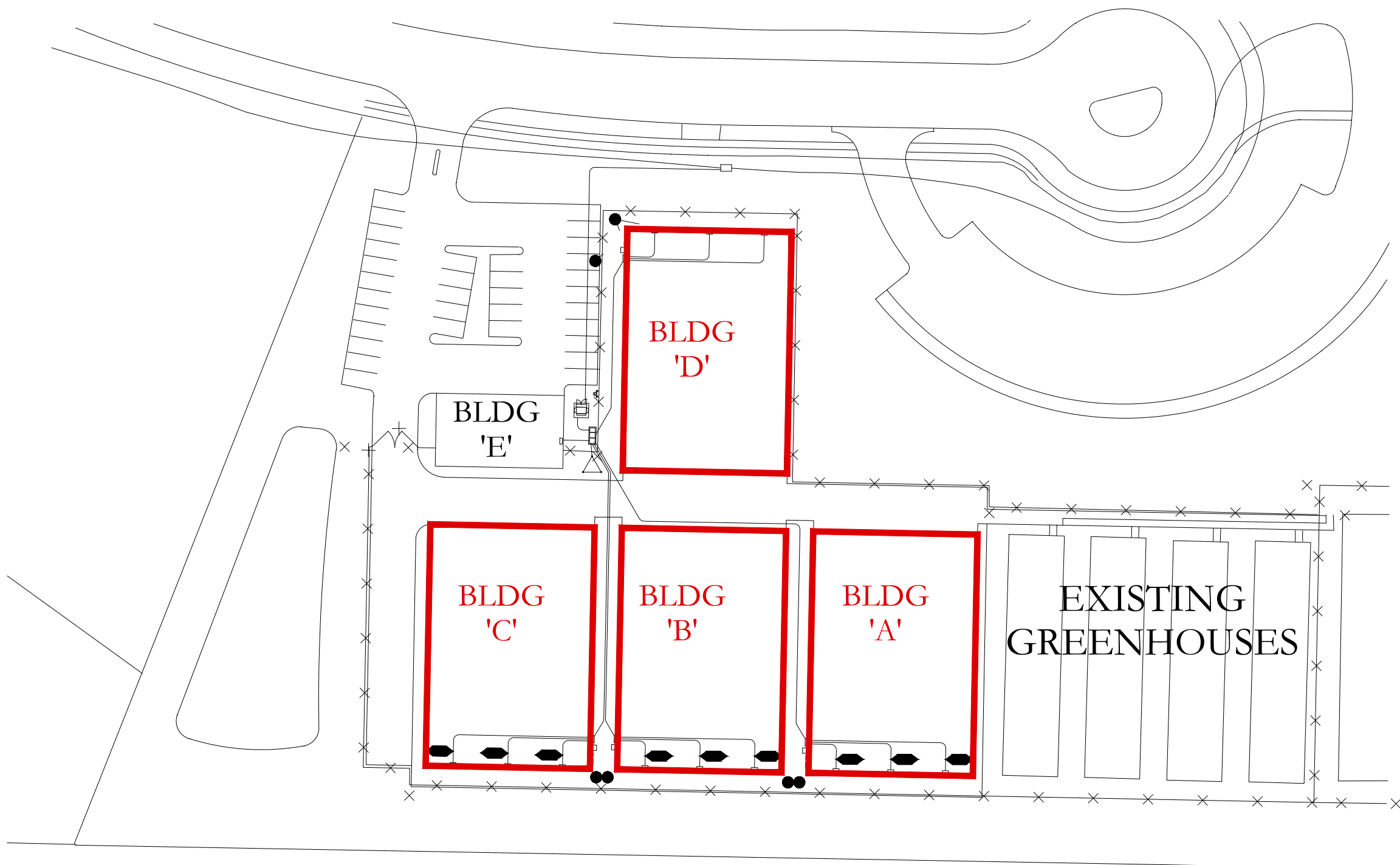
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A.I.I
ORIGINAL SIZE 24"x36"

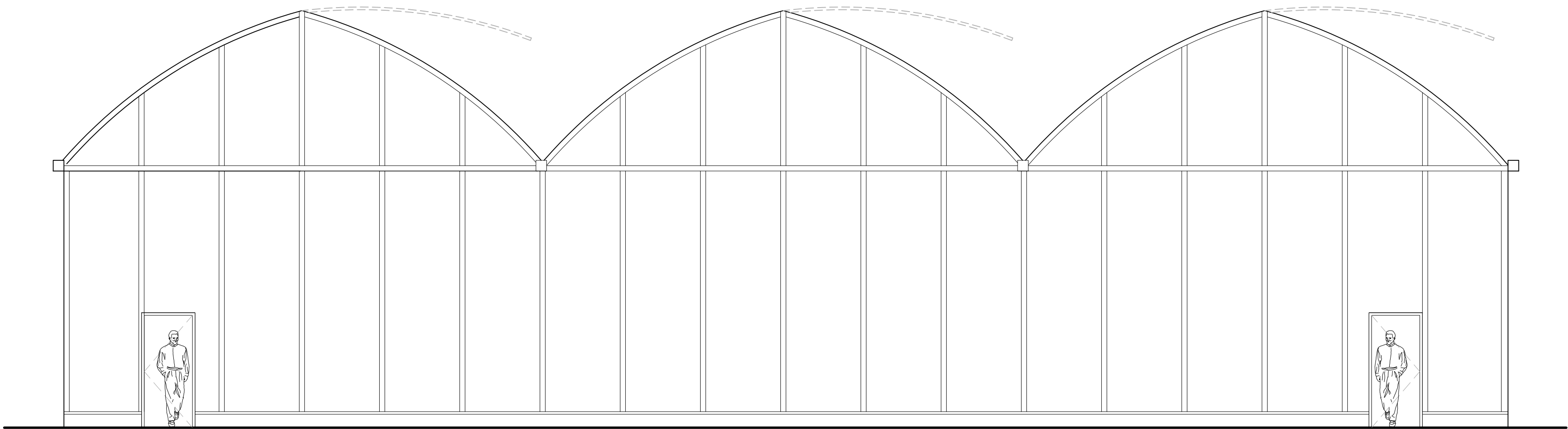
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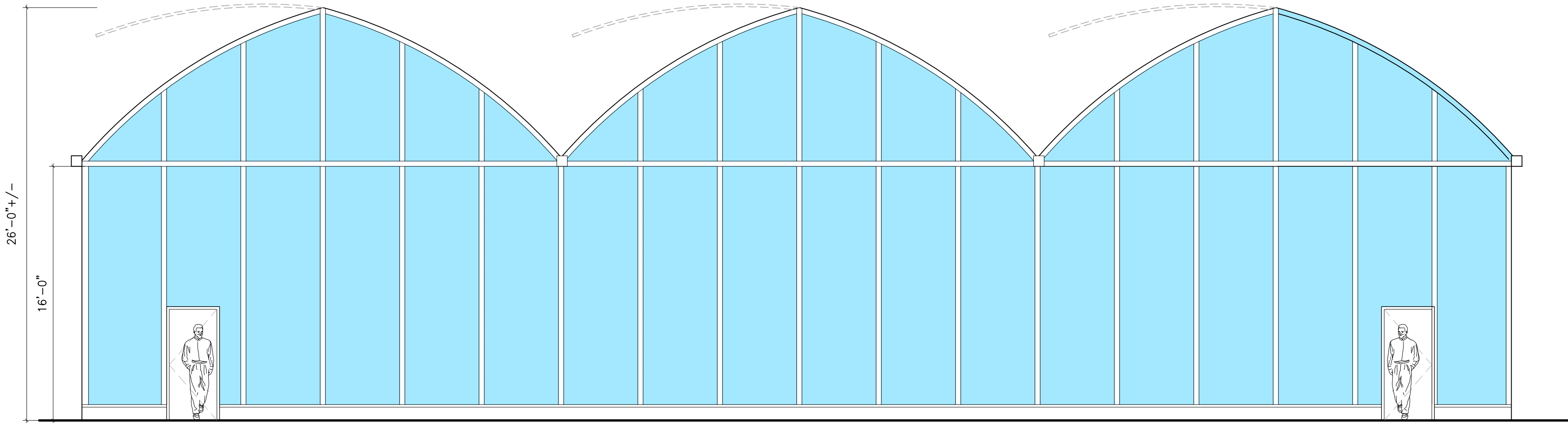
BUILDING 'A-D'
PROPOSED MANUFACTURER CORNER VIEW
SCALE: N.T.S.



PROPOSED SITE KEY PLAN
SCALE: N.T.S.



BUILDING 'A-D'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"



BUILDING 'A-D'
PROPOSED SIDE ELEVATION
SCALE: 1/4"=1'-0"

REVISIONS	

THE DRAWINGS AND THE INFORMATION SHOWN REPRESENT THE ORIGINAL UNPUBLISHED WORK OF FOX ARCHITECTURAL DESIGN, LLC AND SHALL NOT BE REPRODUCED OR DUPLICATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ARCHITECT. 2026

**DRB
REVIEW SET**



ARCHITECTURAL DESIGN
M: 419.677.6961 E: JOSH@FOXARCHITECTURAL.COM
1717 E. PERKINS AVE. SANDUSKY, OH 44870

BUILDINGS 'A-D' PROPOSED END ELEVATIONS
SITE EXPANSION PROJECT
HURON CORPORATE PARK LLC
902 UNIVERSITY DR.
HURON, OH 44839

JULY 06, 2026

JOB NO.

A1.2
ORIGINAL SIZE 24"x36"

(CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS)
NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11"x17".



Harnois Industries
1044, Principale, St Thomas de Joliette
QC, J0K 3L0, Canada
info@harnois.com - www.harnois.com

Project : PJ-9995

Customer: U1J824

LUMINOSA QUOTATION

Date 2025-10-24

Customer

Huron Corporate Park LLC
2344 University Dr E
Huron OH
44839 USA

Ship to

Huron Corporate Park LLC
2300 University Dr E
Huron OH
44839 USA



The final project may differ from this picture

PRESENTED TO Sean Cifranic

PRESENTED BY Stephane Lehoux
Sales Director
450-756-1042 #124
s.lehoux@harnois.com

**Harnois Industries, your manufacturer of steel greenhouses
for over 55 years in Quebec**

Project : PJ-9995

Customer: U1J824

LUMINOSA QUOTATION

Date 2025-10-24

Customer

Huron Corporate Park LLC
2344 University Dr E
Huron OH
44839 USA

Ship to

Huron Corporate Park LLC
2300 University Dr E
Huron OH
44839 USA

Parameters used for quote

Applicable building code: IBC 2021 ASCE 7-22

Parameters	Wind load : 109 mph - Snow load : 27 psf
Application / Usage	Retail
Cultivation	On the ground
Heated	Yes
Construction site	Huron
ZIP reference (construction site)	44839

**Engineering report annexed*

About Harnois industries

- * More than 55 years experience in steel structures
- * Over 20 000 projects erected around the world
- * Over 180 employees including a dozen technicians and 10 engineers
- * More than a product it's a whole team behind you

Luminosa Greenhouses

- * Bright, energy (cost reduction) and sustainable solution
- * High quality structures, resistant while being minimalist and uncluttered
- * Impressive air volume, especially above the gutter
- * Improved gothic geometry, better condensation control
- * More uniform tension of polyethylene roofing films





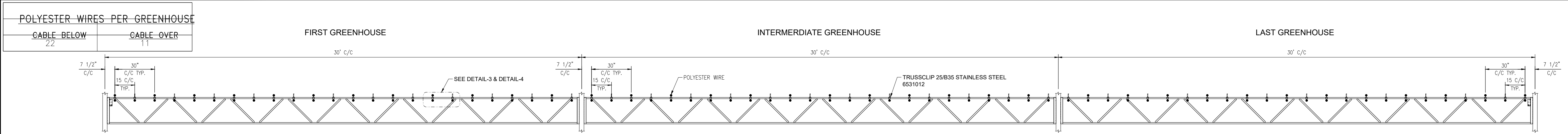
HURON CORPORATE LLC

THERMAL CURTAIN SNELDER

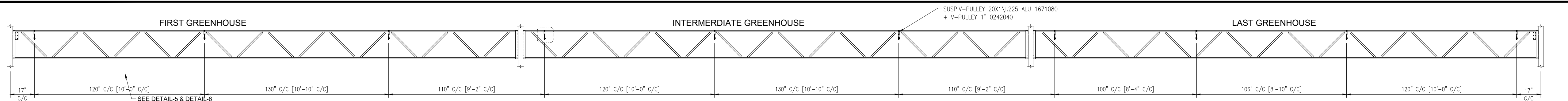
2300, UNIVERSITY DR. E
HURON
OHIO USA
44839

ORDER No. : 236540
CUSTOMER No. : U1J824
PROJECT No. : PJ-10415

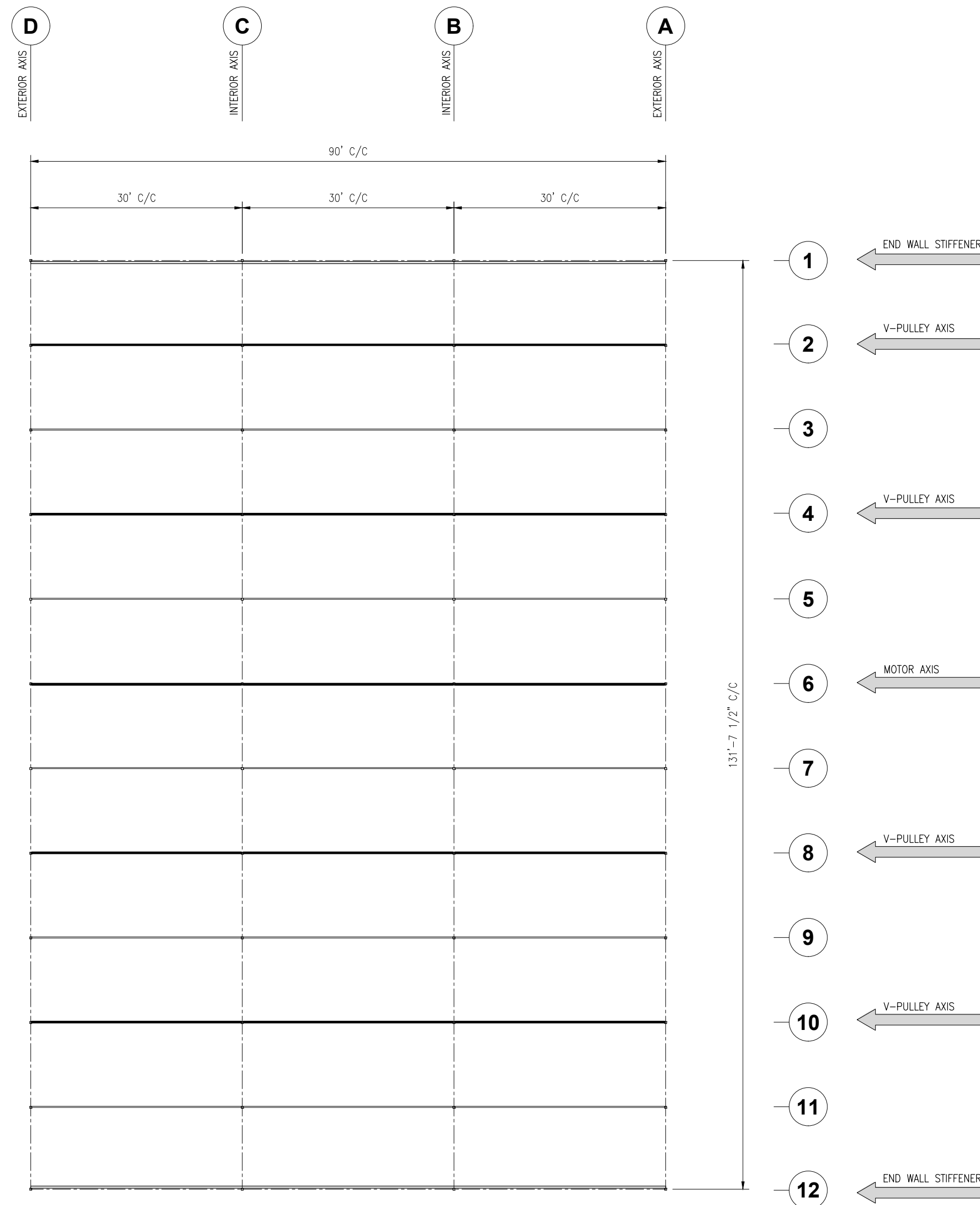
DESCRIPTION / STRUCTURE			
MODEL:	LUMINOSA S8 30' - HD16_16GI		
WIND LOAD:	109 mph		
SNOW LOAD:	37 psf HEATED GREENHOUSE		
ROOF LIVE LOAD:	28 psf		
APPLICABLE BUILDING CODE:	NATIONAL FARM BUILDING CODE OF CANADA (NFBCC)		
WIDTH:	30' C/C		
LENGHT:	132'		
SPACING:	12' C/C		
FOUNDATION:	CONCRETE PIER		
STRUCTURE COVERING:	DOUBLE POLYETHYLENE		
GABLES COVERING:	DOUBLE POLYCARBONATE		
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1			
0	EMIS POUR CONSTRUCTION	2026-07-06	LMB
#	DESCRIPTION	DATE	BY
REVISIONS			
ISSUED FOR:			
INFORMATION ☐ APPROVAL ☐ PERMIT ☐			
CONSTRUCTION ☒ AS-BUILT ☐			
STAMP:			
			
1044, rue Principale, St-Thomas (Joliette) Qc, Canada J0K 3L0 Tel.:(450) 756-1041 1-888-427-6647 Fax.:(450) 756-8389			
PROJECT NAME:			
HURON CORPORATE LLC			
PROJET No:		CUSTOMER No:	
PJ-10415		U1J824	
DRAWING TITLE:			
PRESENTATION SHEET			
DRAWN BY:		SCALE:	
LOUIS-M BUSSERES		NOT TO SCALE	
APPROVED BY:		DATE:	
-		2026-07-06	
DRAWING No.:			
HCP-E0			



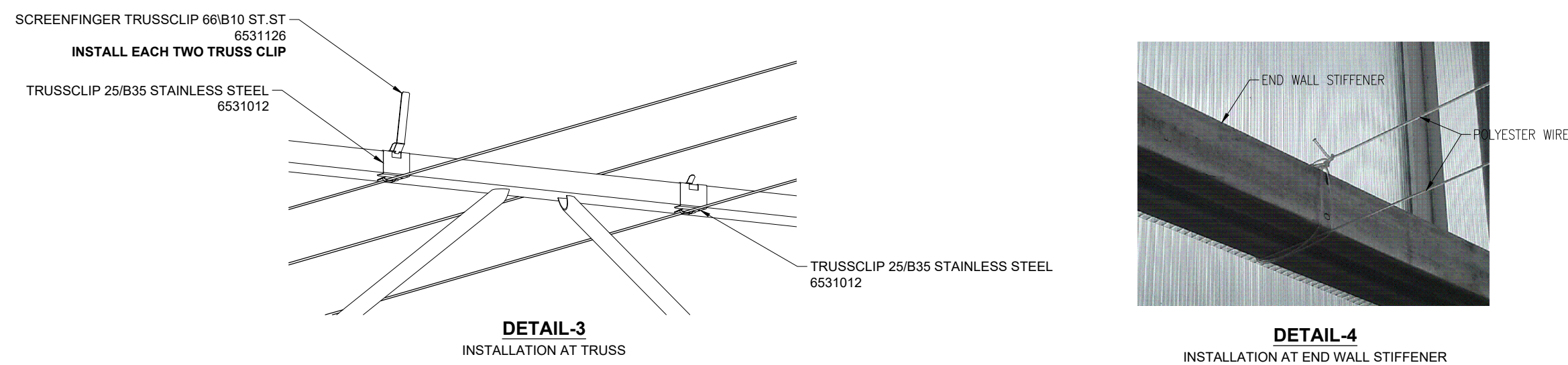
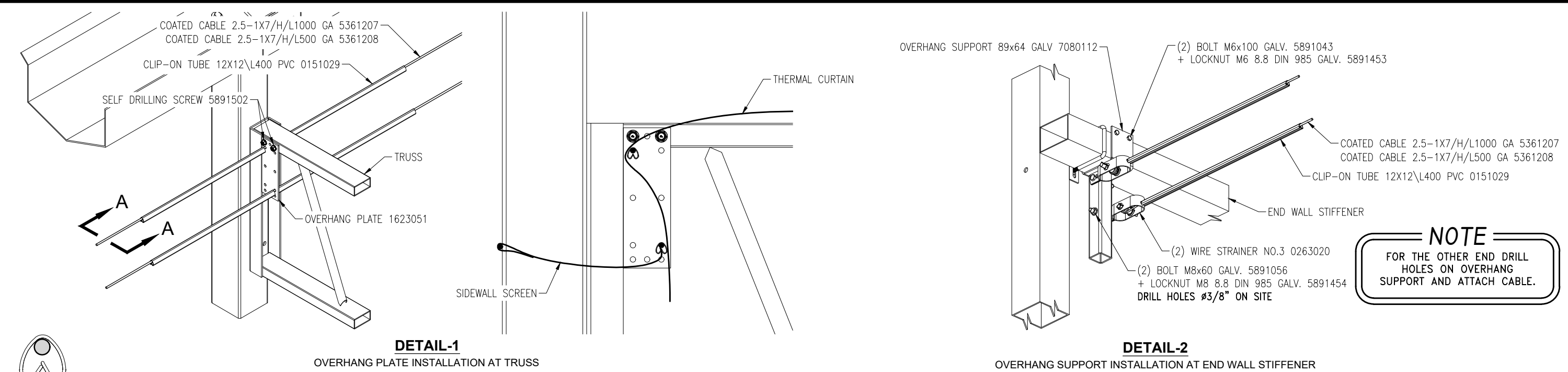
POLYESTER WIRE LOCATION



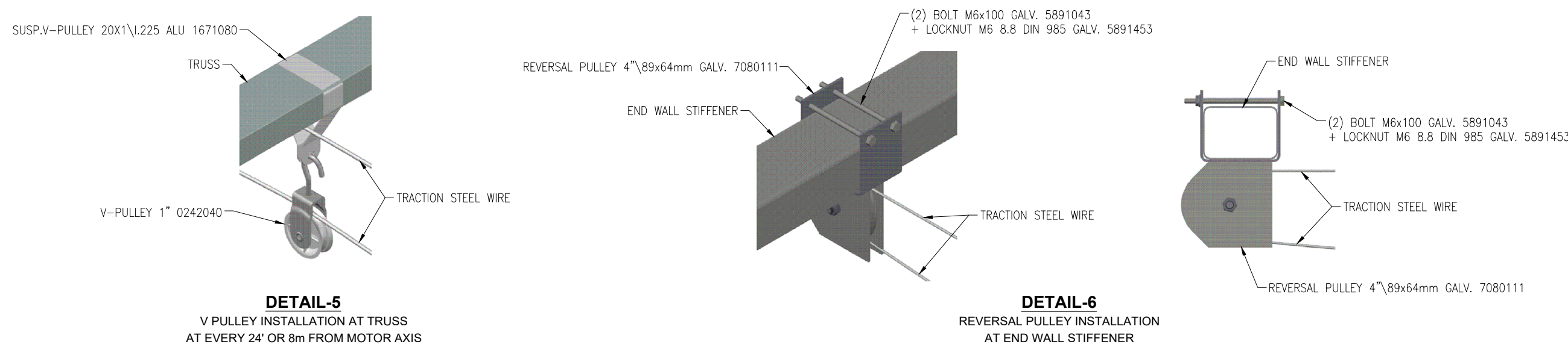
TRACTION STEEL WIRE LOCATION



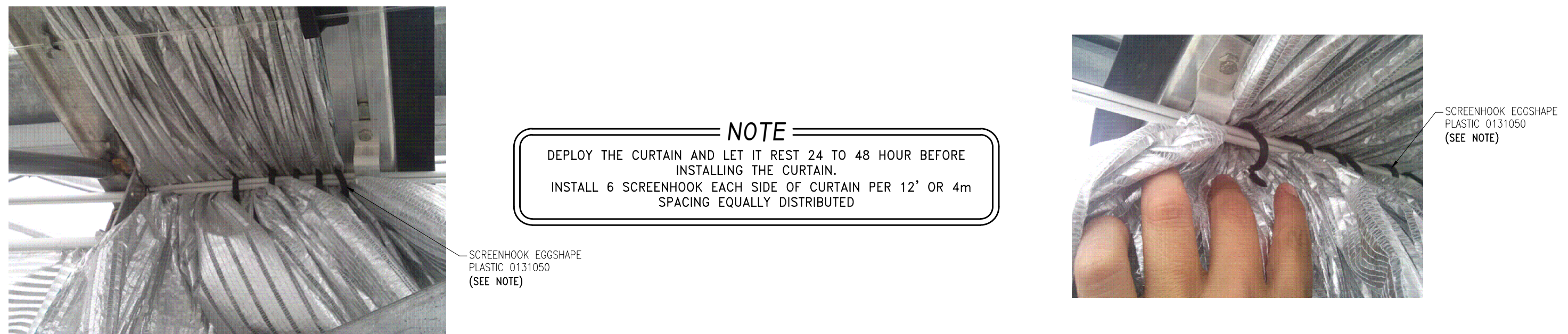
PLAN VIEW OF PROJECT



POLYESTER WIRE INSTALLATION



TRACTION STEEL WIRE INSTALLATION



SCREEN HOOK INSTALLATION

ASSEMBLY STEPS:

- 1-CONTOUR CABLES AND OVERHANG PLATES, REVERSAL PULLEY.
- 2-DRIVE SHAFT AND MOTORIZATION.
- 3-PRE-ASSEMBLY OF RUBBER SEAL ON SCREEN PROFILE.
- 4-TRUSS CLIP AND LOWER POLYESTER WIRE.
- 5-CABLES OR STRAPS TO PULL SCREEN LATER (NOT SUPPLIED)
- 6-UPPER POLYESTER WIRE.
- 7-TRACTION STEEL WIRE AND "V" PULLEY.
- 8-MULTISCREEN CLIP AND SLIP BLOCK.
- 9-STABILISE TRUSSES WITH WIRE STRAINER.
- 10-MARK FABRIC FOR WEIGHTS POSITION AND DEPLOY SCREEN THROUGH POLYESTER WIRE.
- 11-LET THE SCREEN FABRIC REST FOR 24 TO 48 HRS.
- 12-CLIP THE SCREEN IN PLACE, INSTALL THE WEIGHTS AND SCREENHOOKS

5			
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0	EMIS POUR CONSTRUCTION	2026-07-06	LMB
#	DESCRIPTION	DATE	BY

REVISIONS

ISSUED FOR:

INFORMATION ☐ APPROVAL ☐ PERMIT ☐

CONSTRUCTION ☒ AS-BUILT ☐

STAMP:



1044, rue Principale,
St-Thomas (Joliette) Qc, Canada J0K 3L0
Tel.:(450) 756-1041 1-888-427-6647
Fax.:(450) 756-8389

PROJECT NAME:

HURON CORPORATE LLC

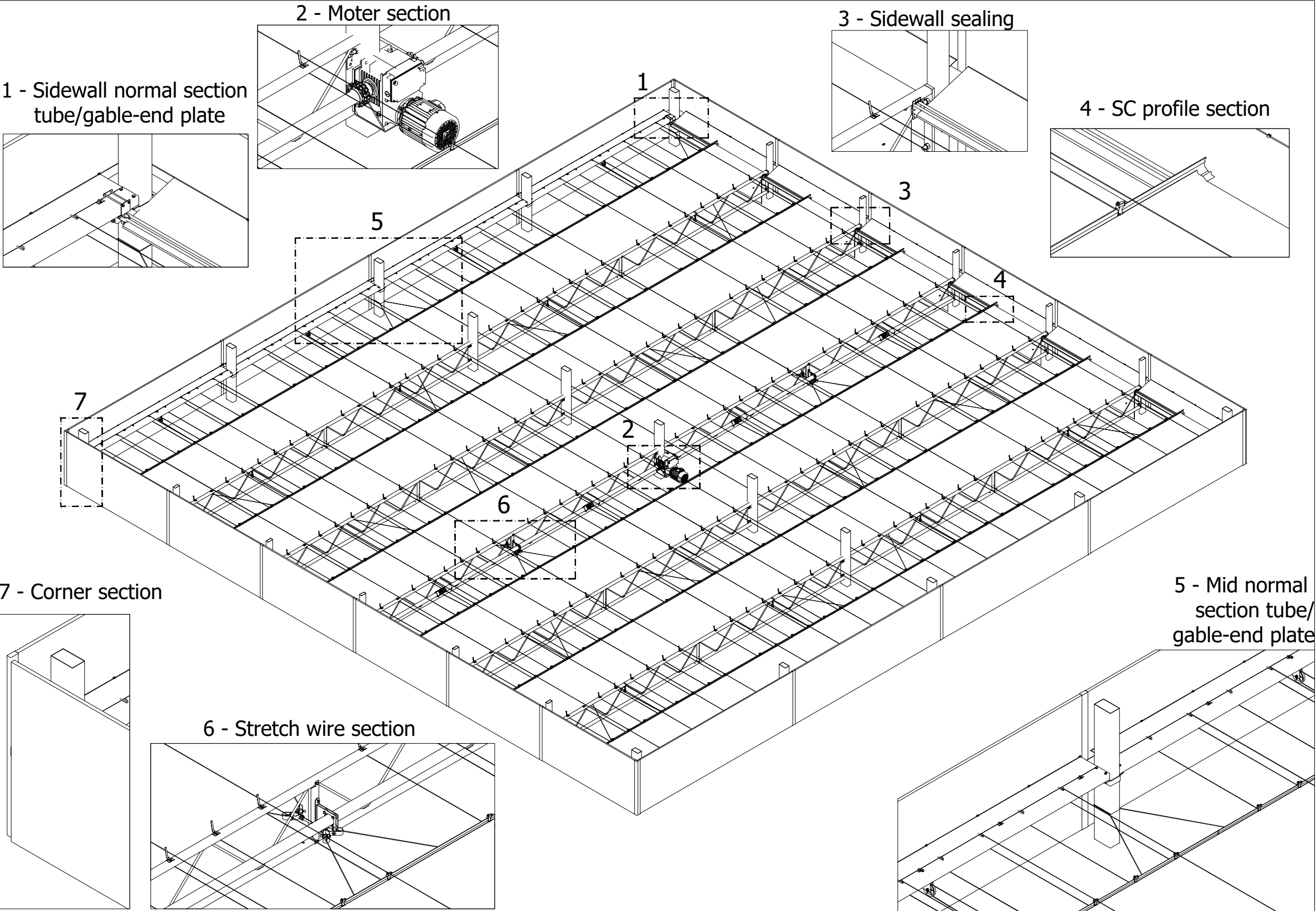
PROJET No: PJ-10415 CUSTOMER No: U1J824

DRAWING TITLE:
POLYESTER WIRE AND
TRACTION STEEL WIRE LOCATION

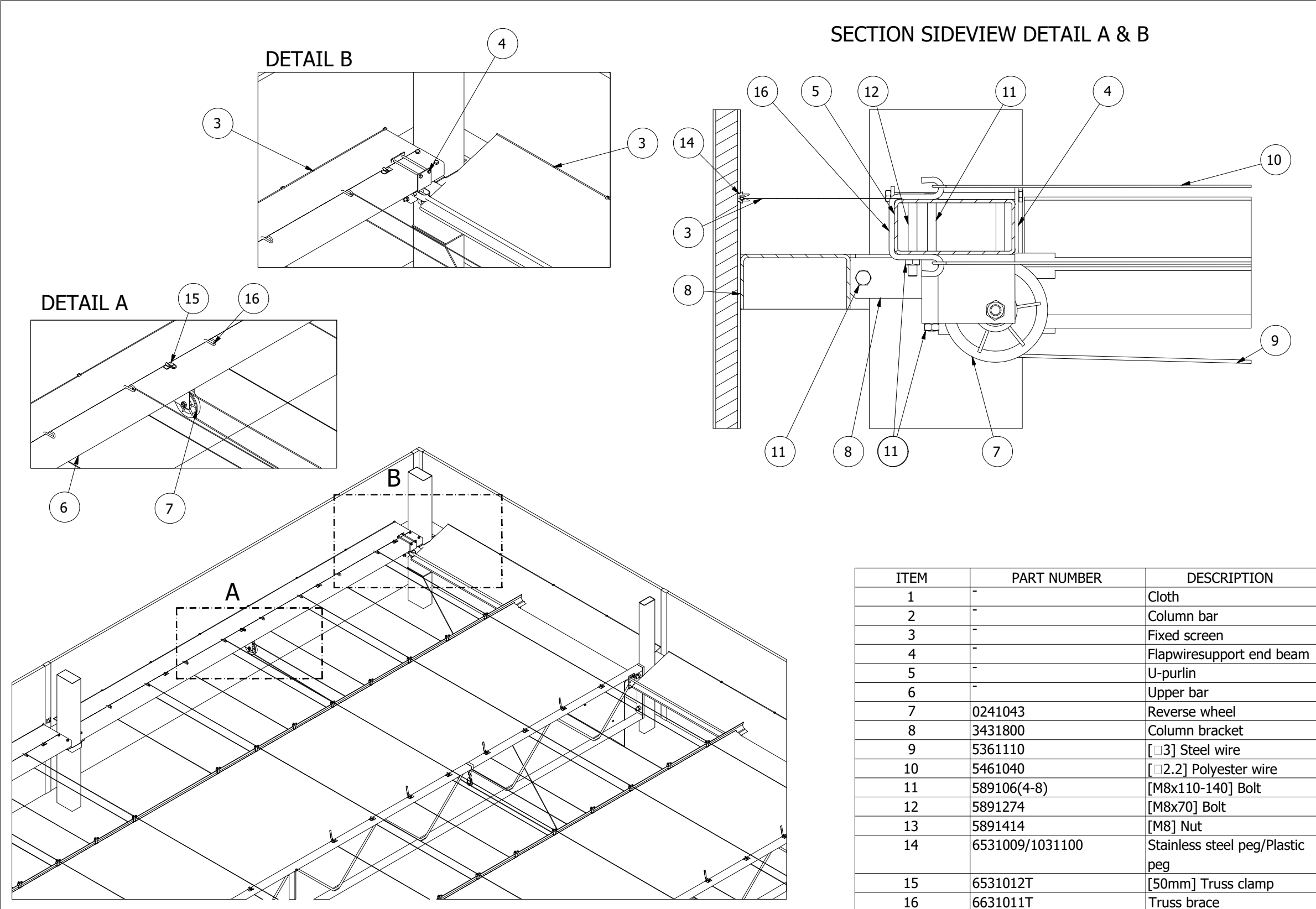
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APPROVED BY: DATE: 2026-07-06

DRAWING No.: HCP-EQES1030

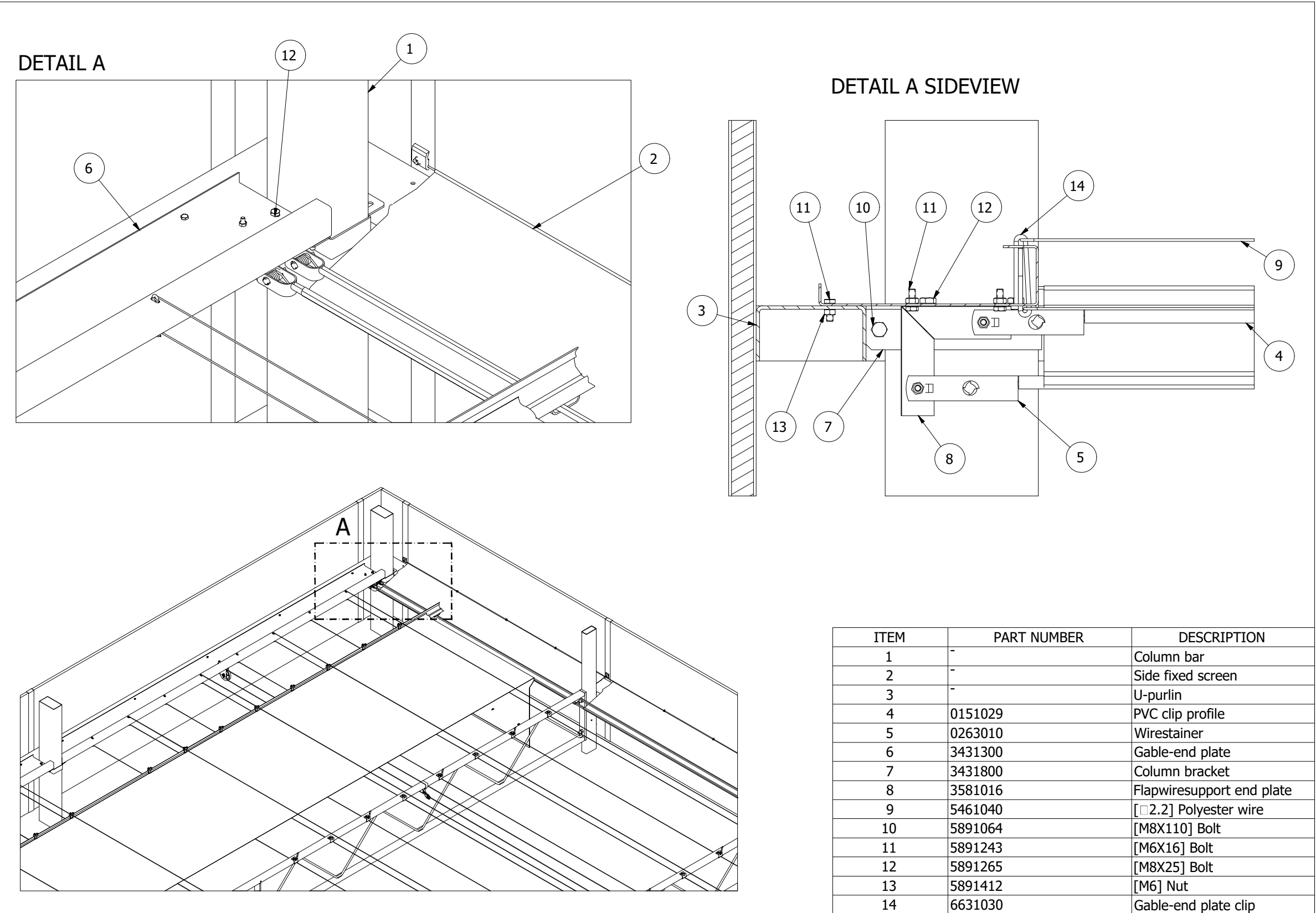


1 OUTLINE DRAWING SCREEN-WIRE SYSTEM
EQES5000



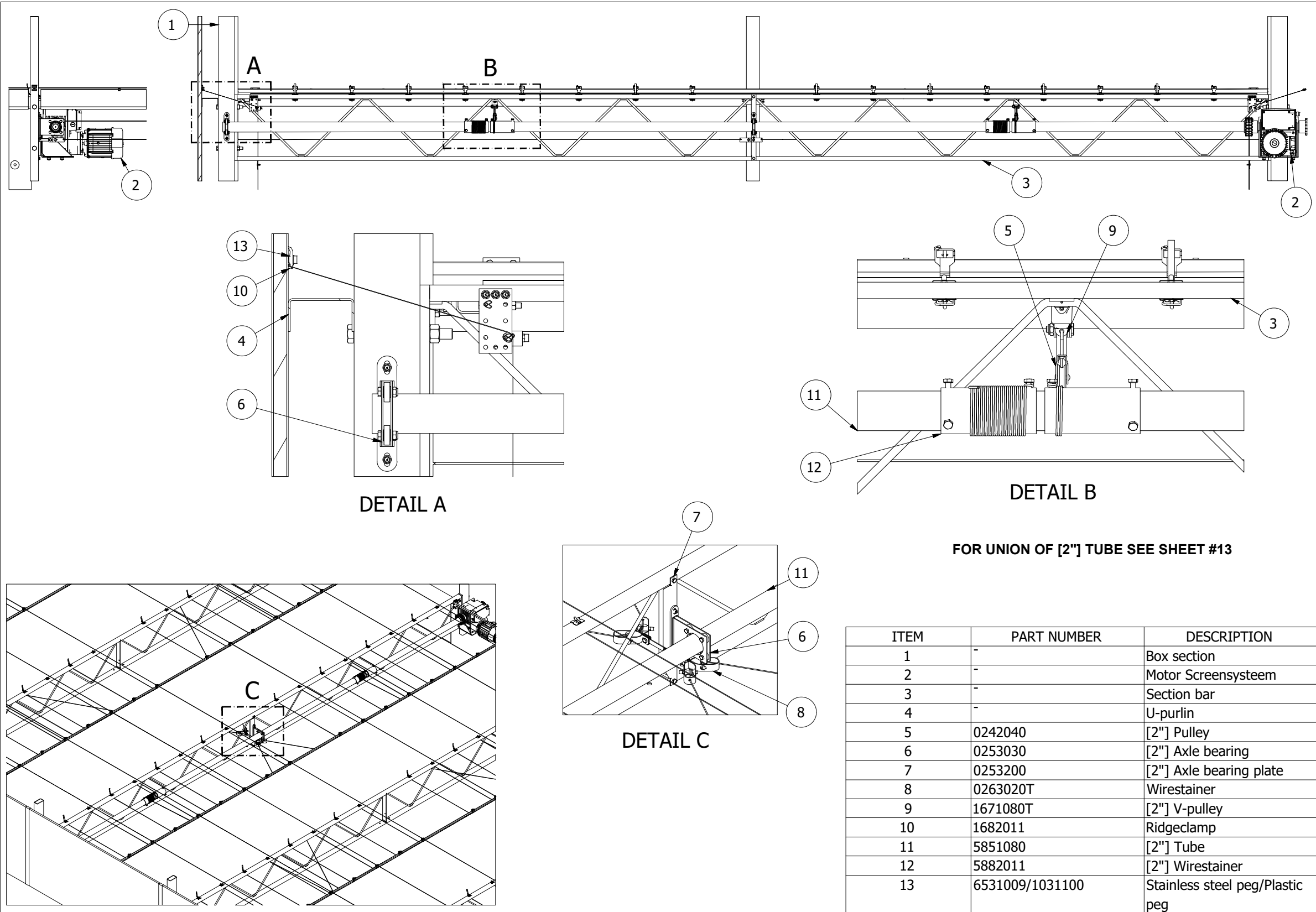
ITEM	PART NUMBER	DESCRIPTION
1	-	Cloth
2	-	Column bar
3	-	Fixed screen
4	-	Flapwiresupport end beam
5	-	U-purlin
6	-	Upper bar
7	0241043	Reverse wheel
8	3431800	Column bracket
9	5361110	[1/3] Steel wire
10	5461040	[1/2.2] Polyester wire
11	589106(4-8)	[M8x110-140] Bolt
12	5891274	[M8x70] Bolt
13	5891414	[M8] Nut
14	6531009/1031100	Stainless steel peg/Plastic peg
15	6531012T	[50mm] Truss clamp
16	6631011T	Truss brace

2 SIDEWALL NORMALS.TUBE
EQES5000



ITEM	PART NUMBER	DESCRIPTION
1	-	Column bar
2	-	Side fixed screen
3	-	U-purlin
4	0151029	PVC clip profile
5	0263010	Wirestainer
6	3431300	Gable-end plate
7	3431800	Column bracket
8	3581016	Flapwiresupport end plate
9	5461040	[1/2.2] Polyester wire
10	5891064	[M8x110] Bolt
11	5891243	[M6x116] Bolt
12	5891265	[M8x25] Bolt
13	5891412	[M6] Nut
14	6631030	Gable-end plate clip

3 SIDEWALL NORMAL SECTION GABLE-END PLATE
EQES5000



ITEM	PART NUMBER	DESCRIPTION
1	-	Box section
2	-	Motor Screensysteem
3	-	Section bar
4	-	U-purlin
5	0242040	[2"] Pulley
6	0253030	[2"] Axle bearing
7	0253200	[2"] Axle bearing plate
8	0263020T	Wirestainer
9	1671080T	[2"] V-pulley
10	1682011	Ridgeclamp
11	5851080	[2"] Tube
12	5882011	[2"] Wirestainer
13	6531009/1031100	Stainless steel peg/Plastic peg

4 MOTOR SECTION
EQES5000

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#	DESCRIPTION	DATE	BY

REVISIONS			
ISSUED FOR:			
INFORMATION	☐	APPROVAL	☐
CONSTRUCTION	☒	AS-BUILT	☐
PERMIT	☐		

STAMP:



1044, rue Principale,
St-Thomas (Joliette) Qc. Canada J0K 3L0
Tel.:(450) 756-1041 1-888-427-6647
Fax.:(450) 756-8389

PROJECT NAME:

SNELDER THERMAL SHADE

PRJCT No: - CUSTOMER No: -

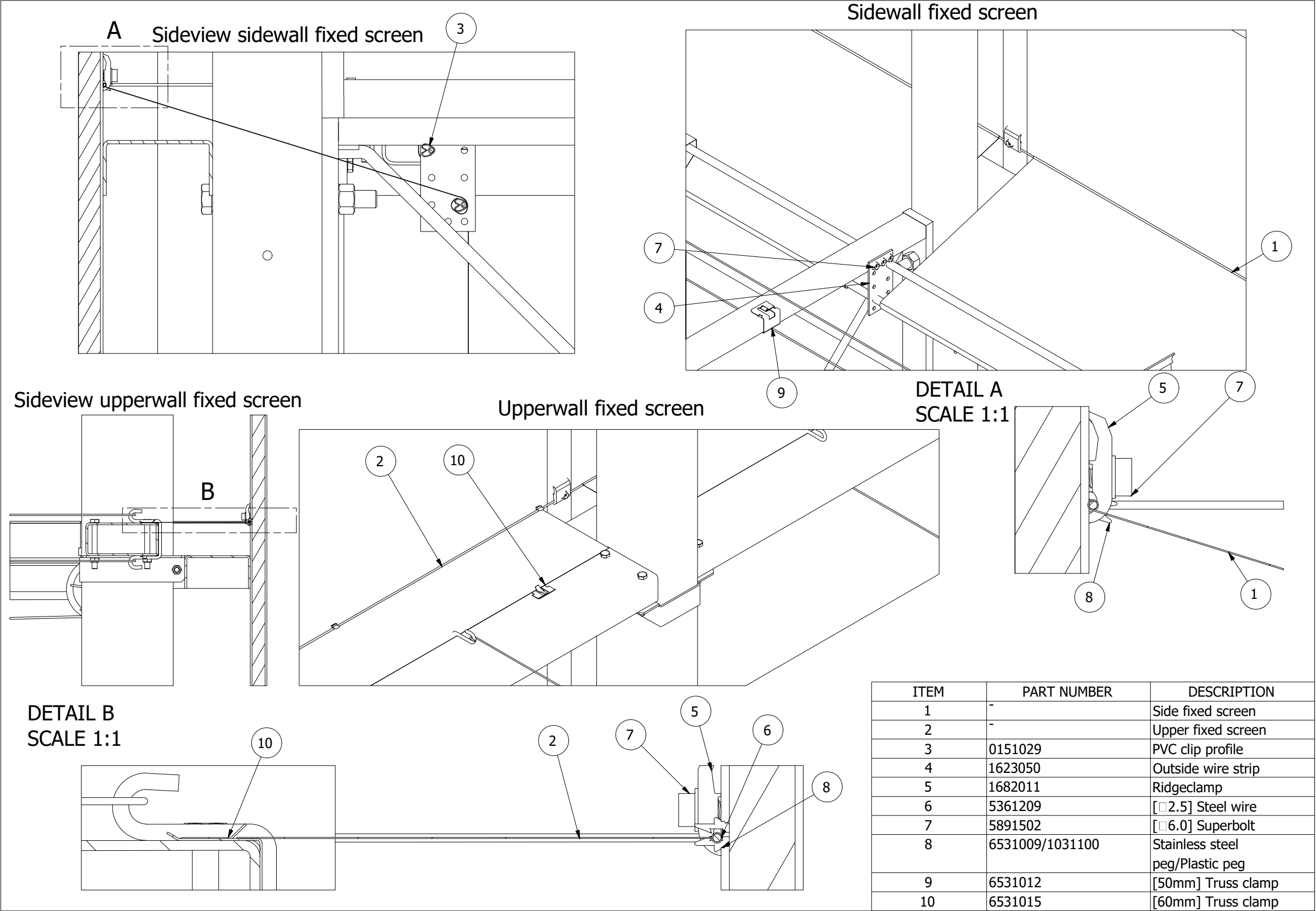
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SNELDER THERMAL SHADE DETAILS

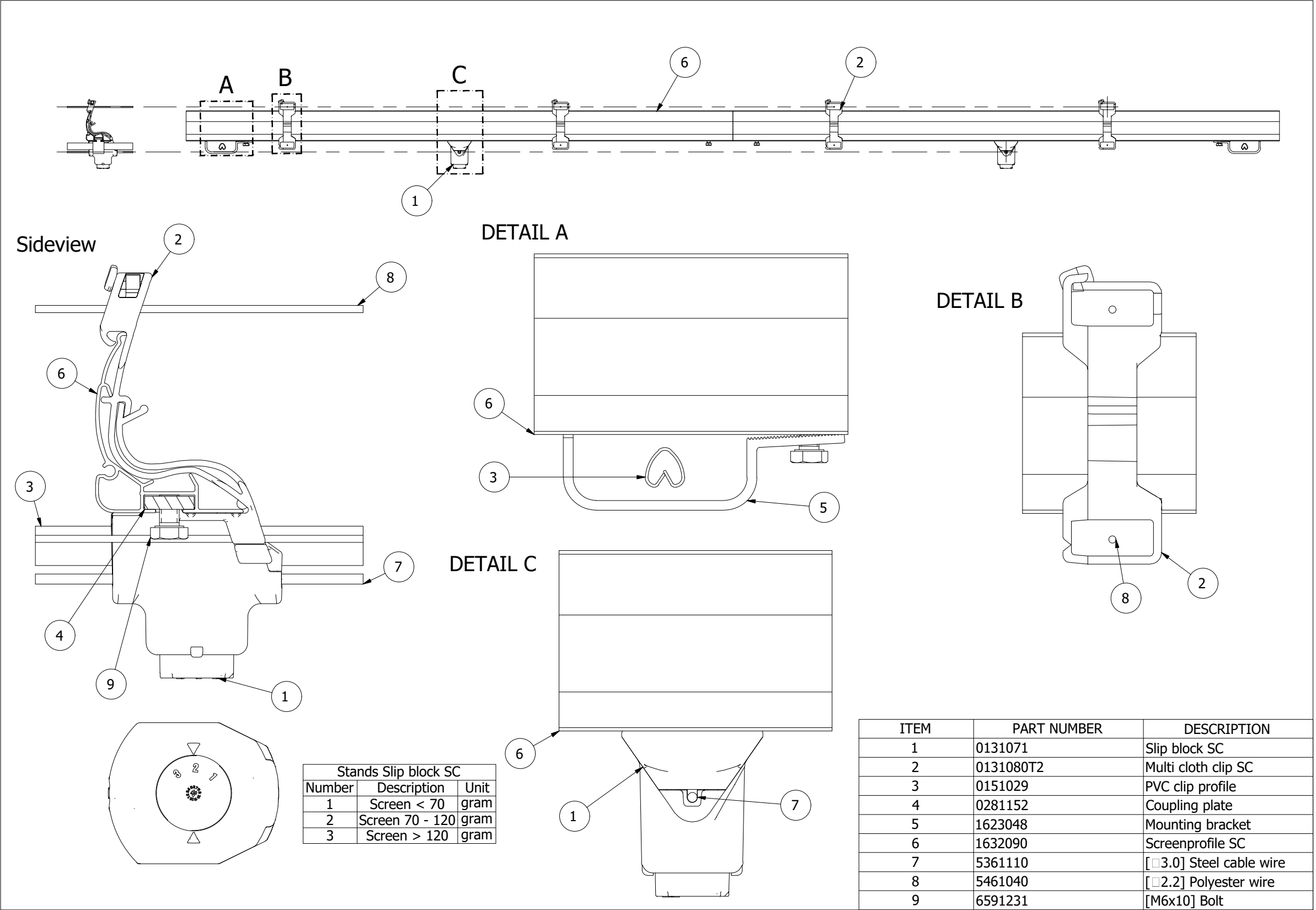
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APPROVED BY: - DATE: 2020-06-18

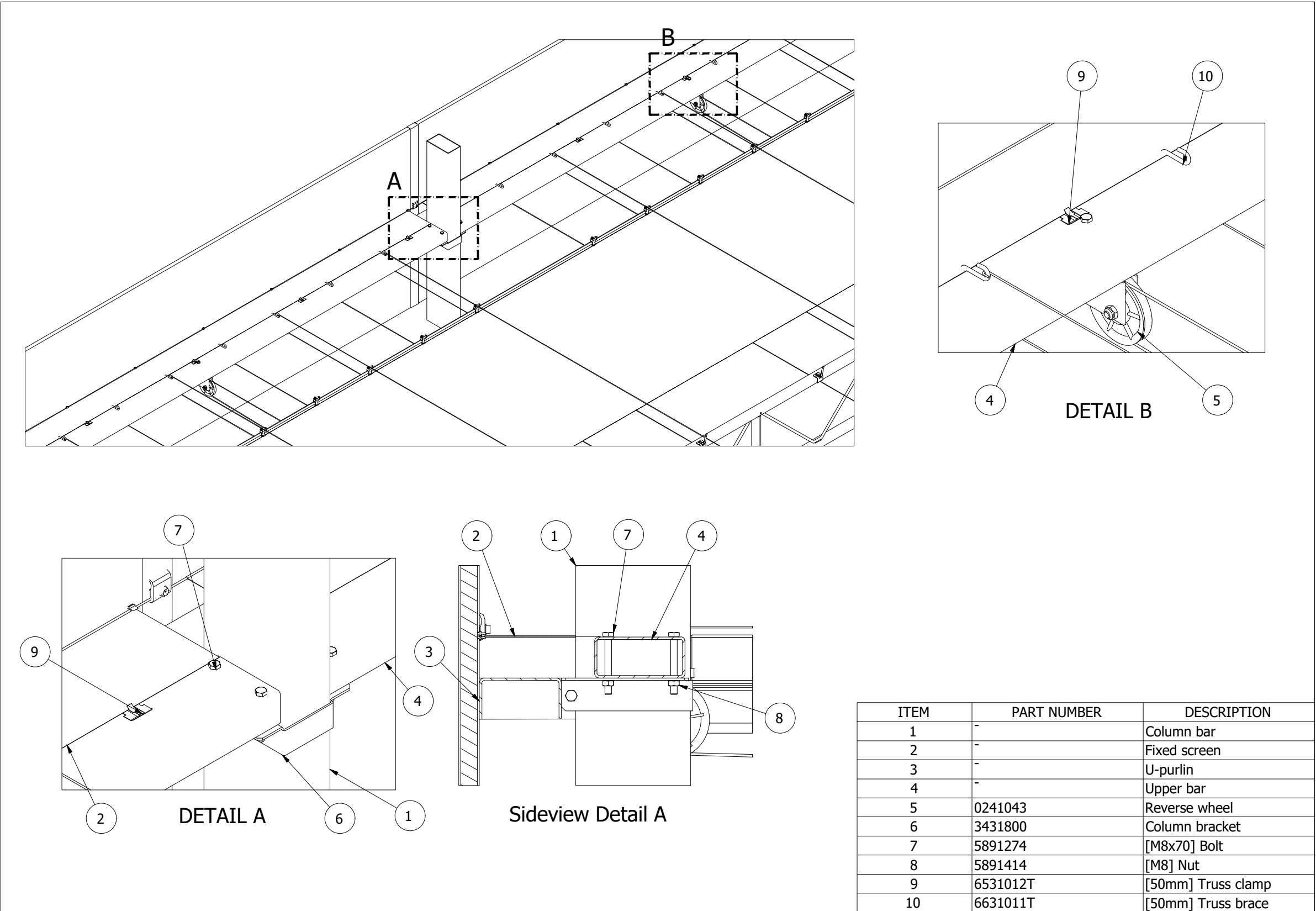
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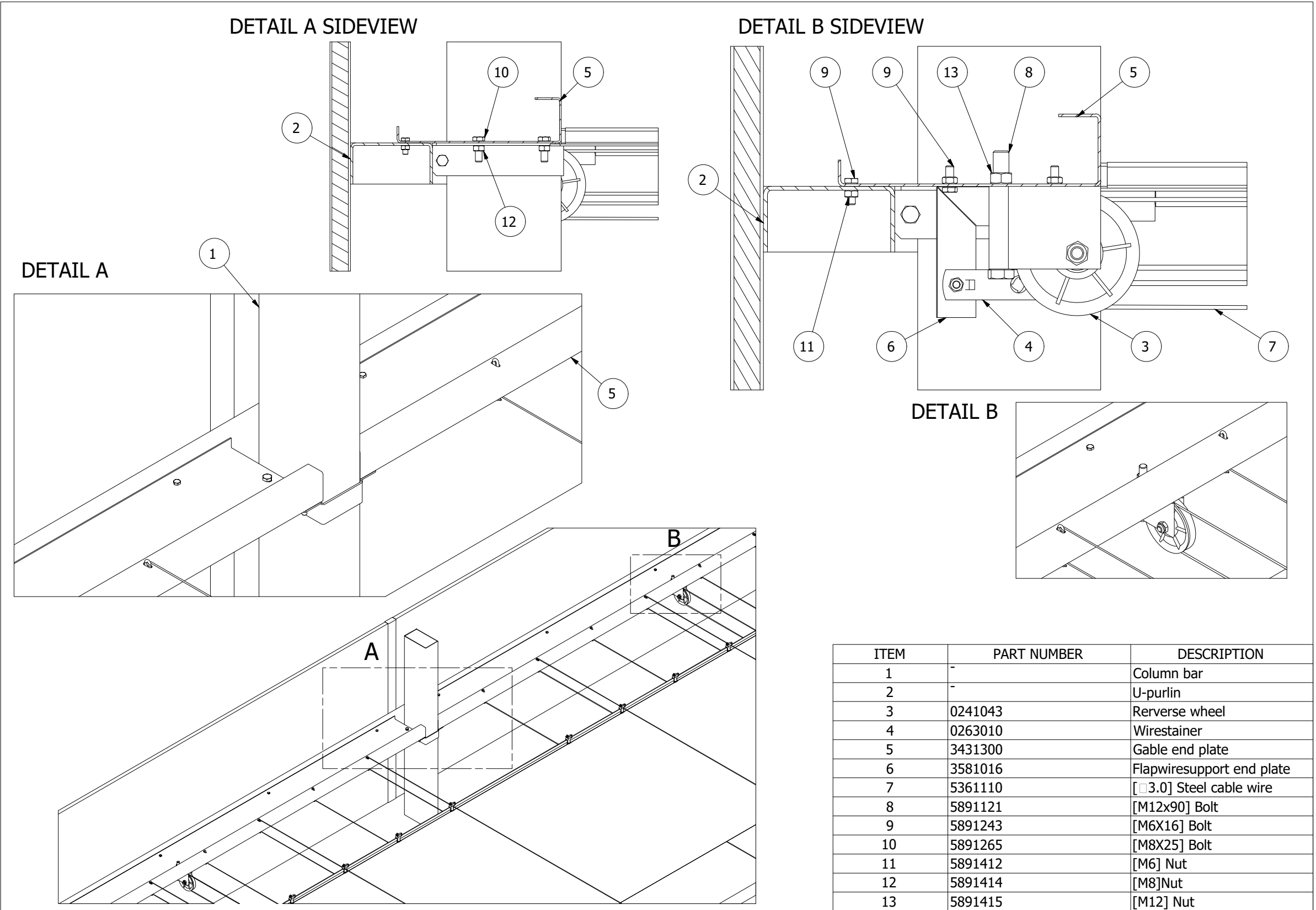
5 SIDEWALL SEALING



6 SC PROFILE SECTION



7 MID NORMALS. TUBES



8 MID NORMALS. GABLE END

5			
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#	DESCRIPTION	DATE	BY

REVISIONS			
ISSUED FOR:			
INFORMATION	☐	APPROVAL	☐
CONSTRUCTION	☒	AS-BUILT	☐

STAMP:



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St-Thomas (Joliette) Qc, Canada J0K 3L0
Tel.:(450) 756-1041 1-888-427-6647
Fax.:(450) 756-8389

PROJECT NAME:

SNELDER THERMAL SHADE

PROJECT No: CUSTOMER No:

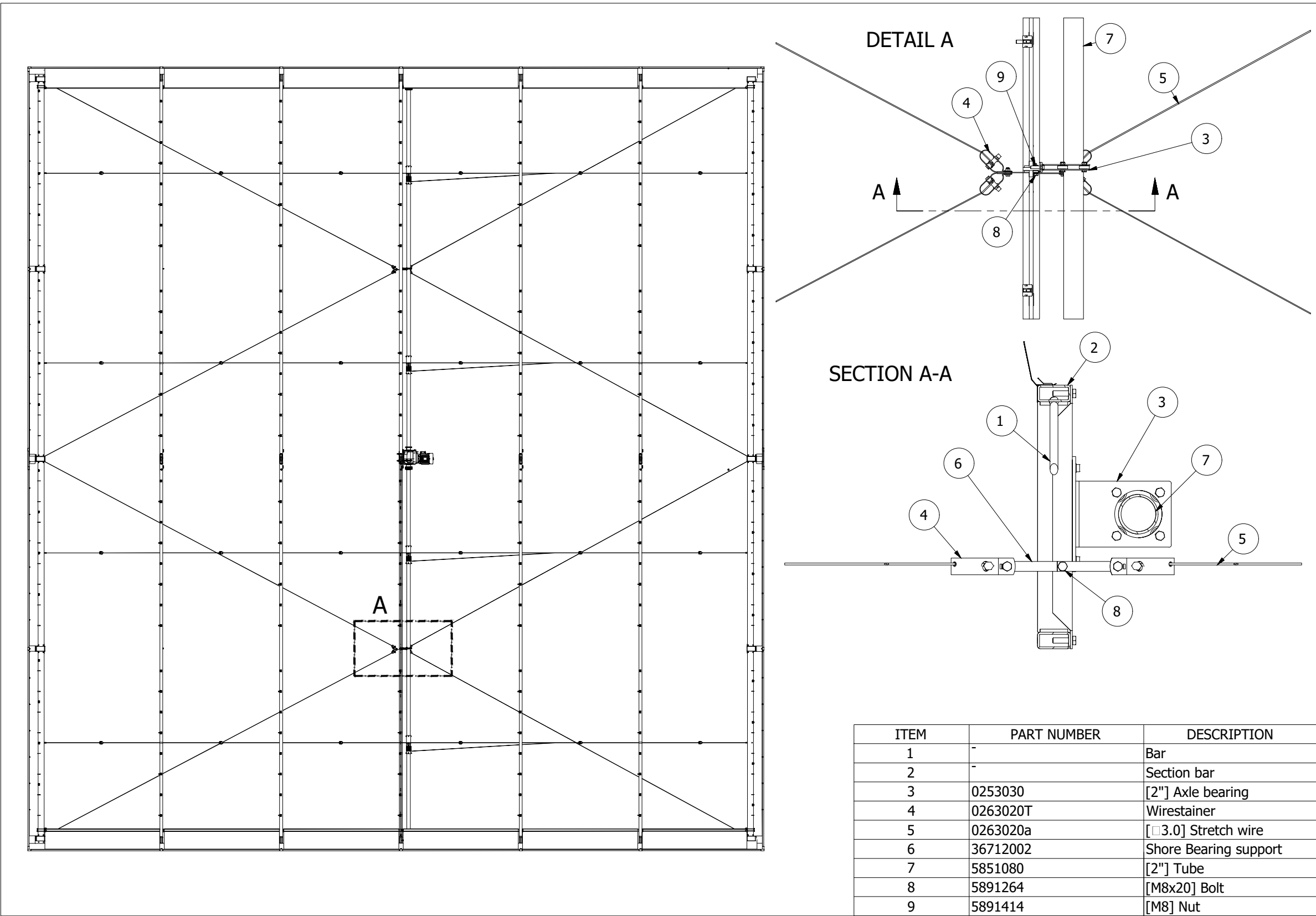
DRAWING TITLE:

**SNELDER THERMAL SHADE
DETAILS**

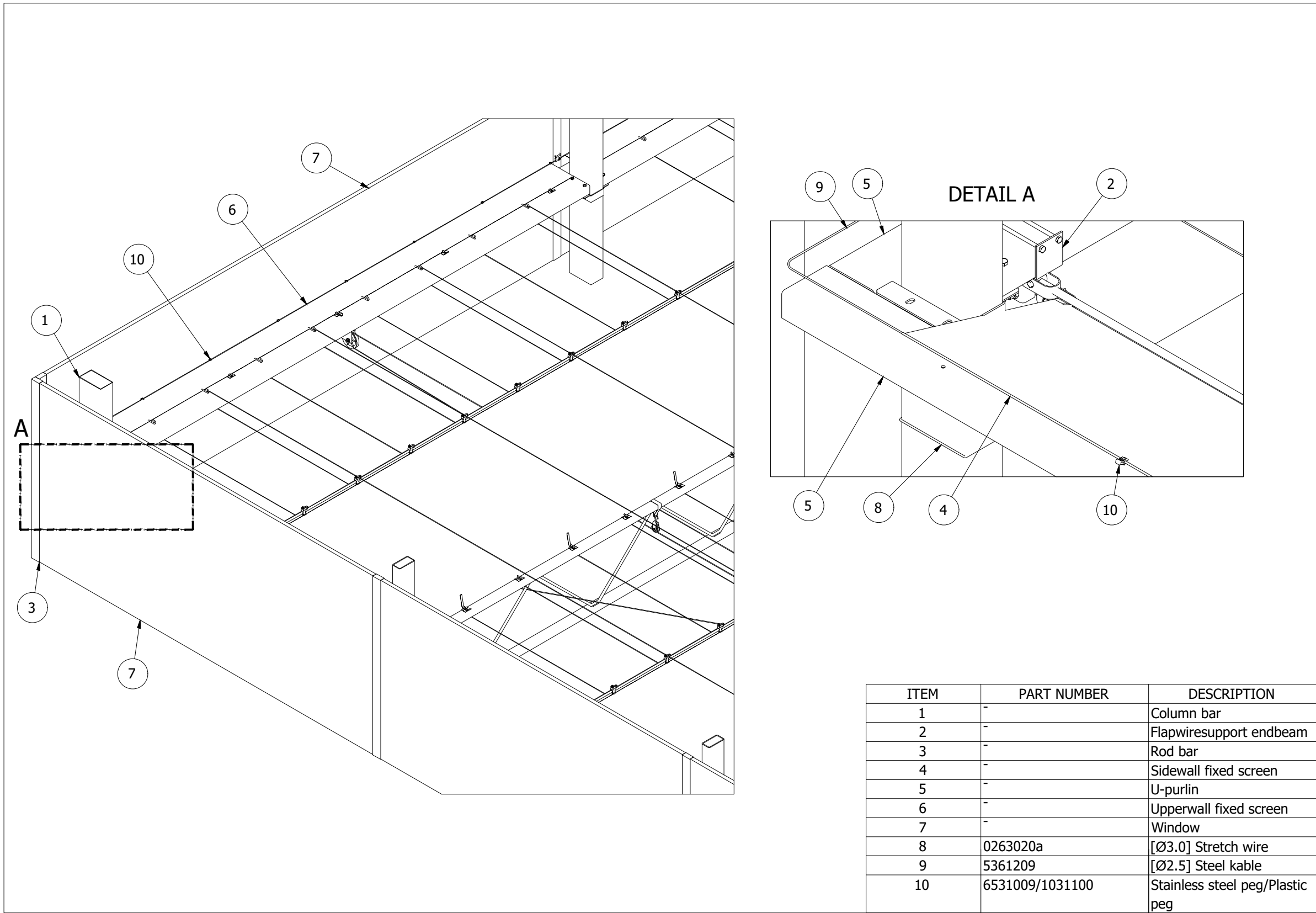
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APPROVED BY: DATE: 2020-06-18

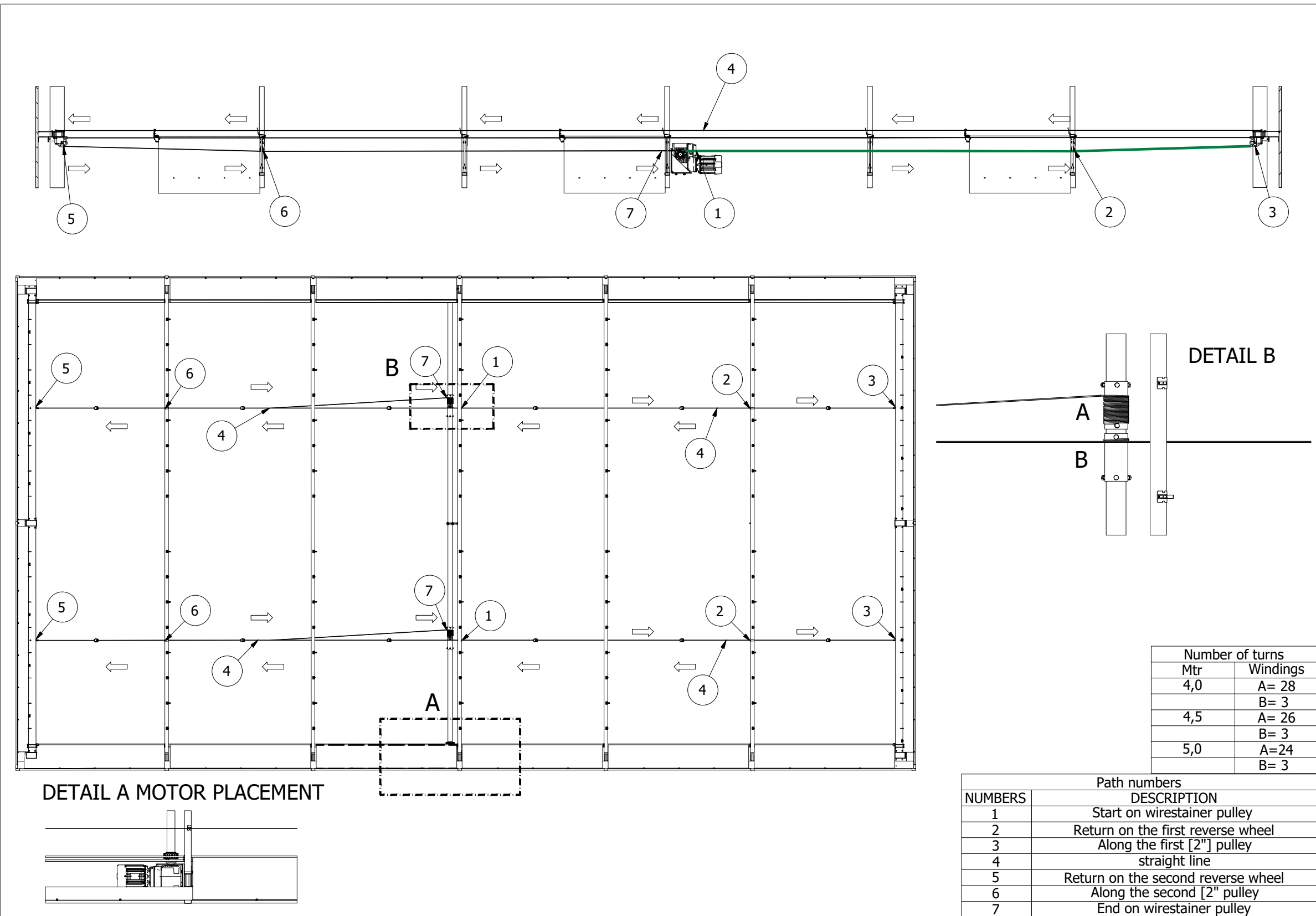
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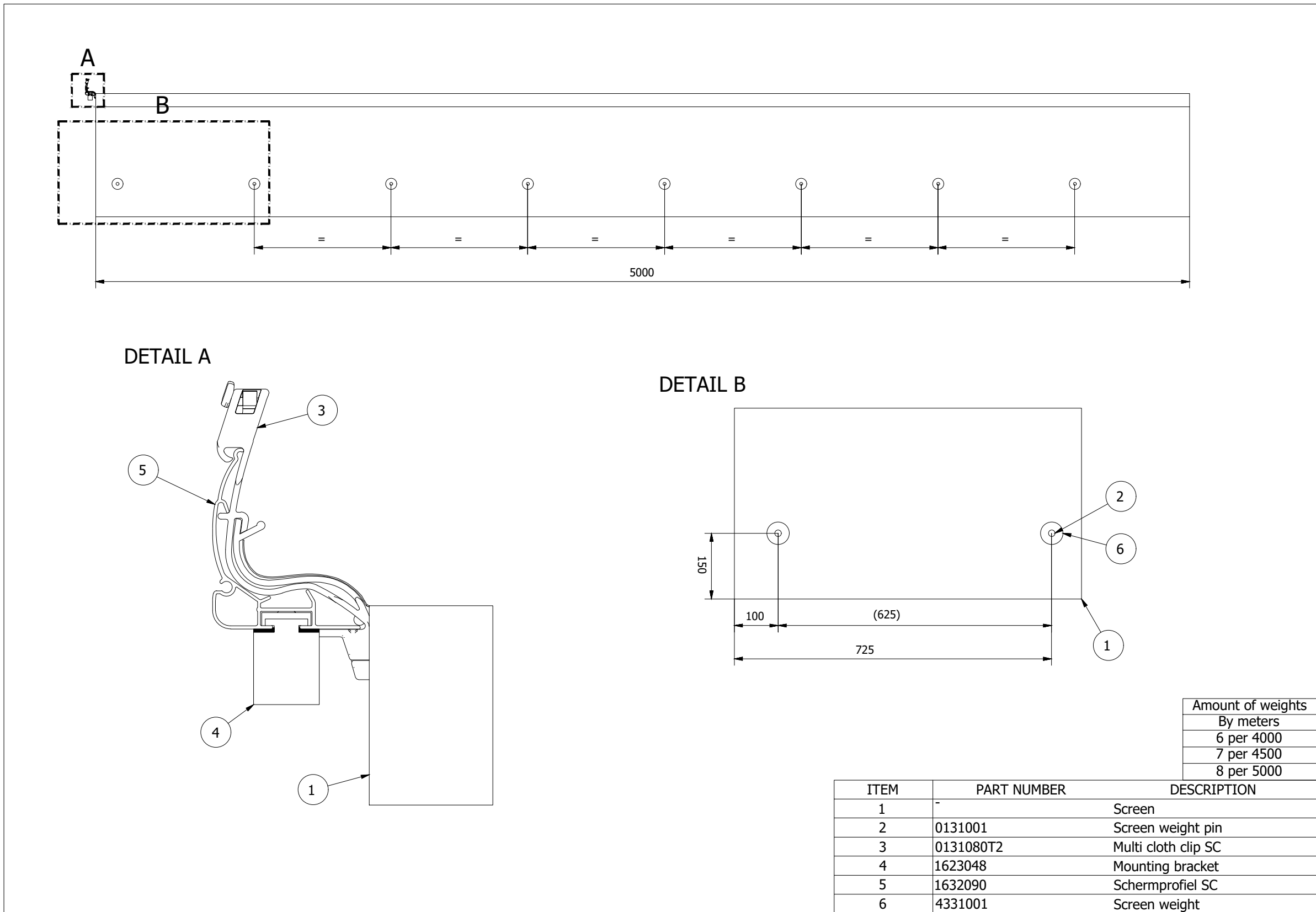
9 STRETCH WIRE SECTION
EQES5010



10 CORNER SECTION
EQES5010



11 PULLWIRE SIGHT
EQES5010



12 CLOTH DROPS
EQES5010

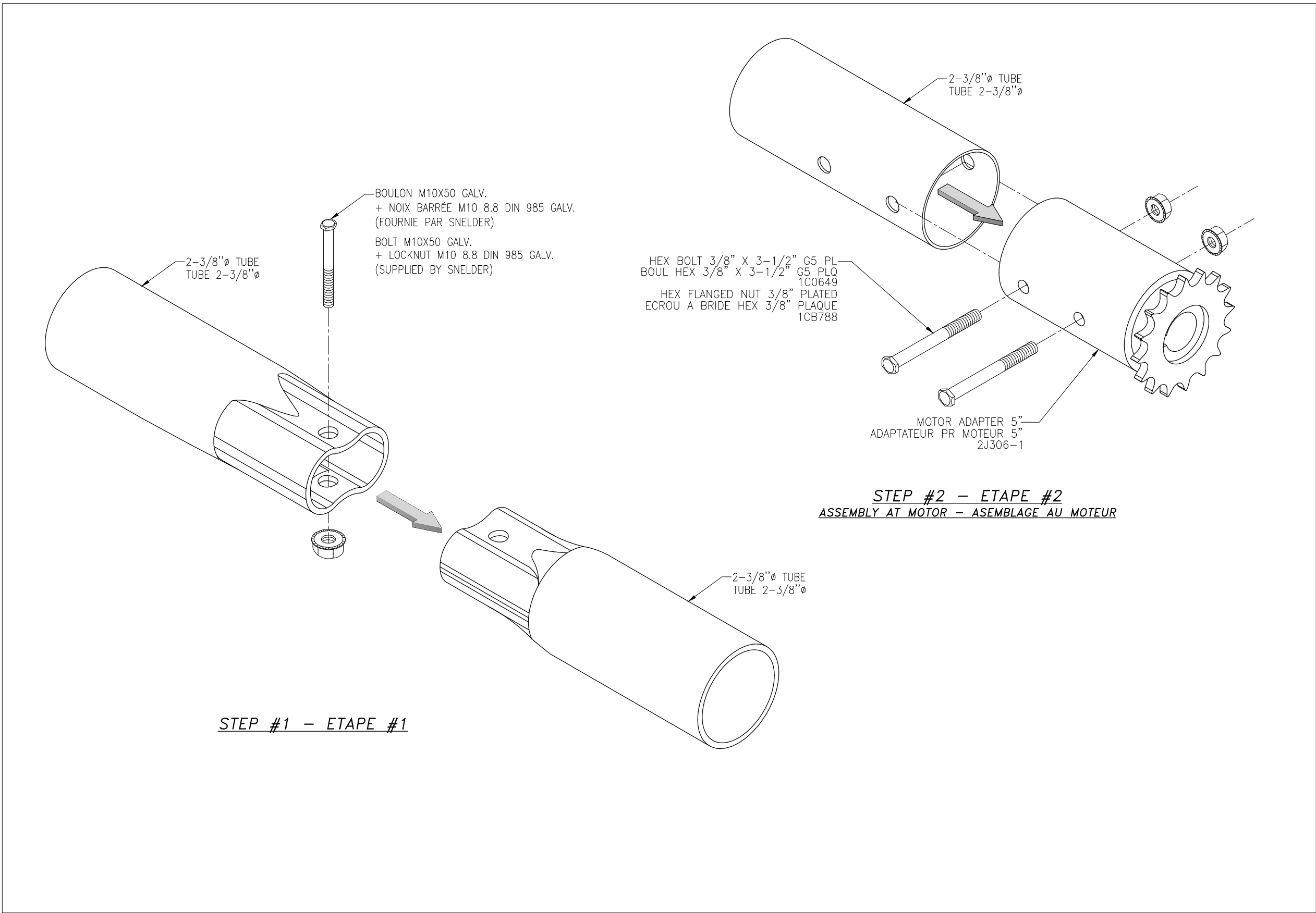
5			
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#	DESCRIPTION	DATE	BY

REVISIONS			
ISSUED FOR:			
INFORMATION	☐	APPROVAL	☐
CONSTRUCTION	☒	AS-BUILT	☐
STAMP:			

GREENHOUSES HARNois

1044, rue Principale,
St-Thomas (Joliette) Qc. Canada J0K 3L0
Tel.:(450) 756-1041 1-888-427-6647
Fax.:(450) 756-8389

PROJECT NAME:	
SNELDER THERMAL SHADE	
PROJECT No:	CUSTOMER No:
-	-
DRAWING TITLE:	
SNELDER THERMAL SHADE DETAILS	
DRAWN BY:	SCALE:
CHARLES BRANCONNIER	NOT TO SCALE
APPROVED BY:	DATE:
-	2020-06-18
DRAWING No.:	
EQES5010	



13 UNION OF Ø2-3/8" TUBES
EQES5015

5			
4			
3			
2			
1	CHANGER FACON FIXER LES 2 TUBES APPLATIR LES BOUTS & BOULONNER	2021-09-09	O.L.
0			
#	DESCRIPTION	DATE	BY

REVISIONS

ISSUED FOR:

INFORMATION

CONSTRUCTION

☐

☒

APPROVAL

AS-BUILT

☐

☐

PERMIT

STAMP:



1044, rue Principale,
St-Thomas (Joliette) Qc. Canada J0K 3L0
Tel.:(450) 756-1041 1-888-427-6647
Fax.:(450) 756-8389

PROJECT NAME:

SNELDER THERMAL SHADE

PROJET No:

CUSTOMER No:

-

-

DRAWING TITLE:

SNELDER THERMAL SHADE
DETAILS

DRAWN BY:

SCALE:

CHARLES BRANCONNIER

NOT TO SCALE

APPROVED BY:

DATE:

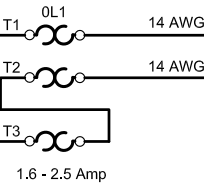
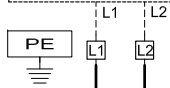
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2020-06-18

DRAWING No.:

EQES5015

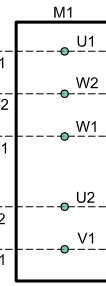
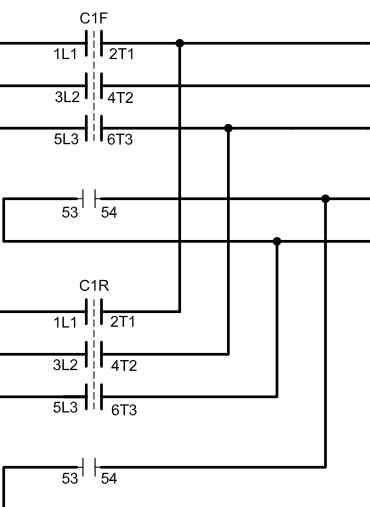
SUPPLY
120/240 VAC
1 PH



SEPARATE MOTOR OVERCURRENT, OVERLOAD AND OVERHEATING PROTECTION IS REQUIRED TO BE PROVIDED IN ACCORDANCE WITH ELECTRICAL CODE.



TO CHANGE THE DIRECTION OF THE MOTOR INVERT T2 AND T4.
ENSURE TO VERIFY THE LIMIT SWITCHES THAT WILL OPERATE THE GIVEN DIRECTION.

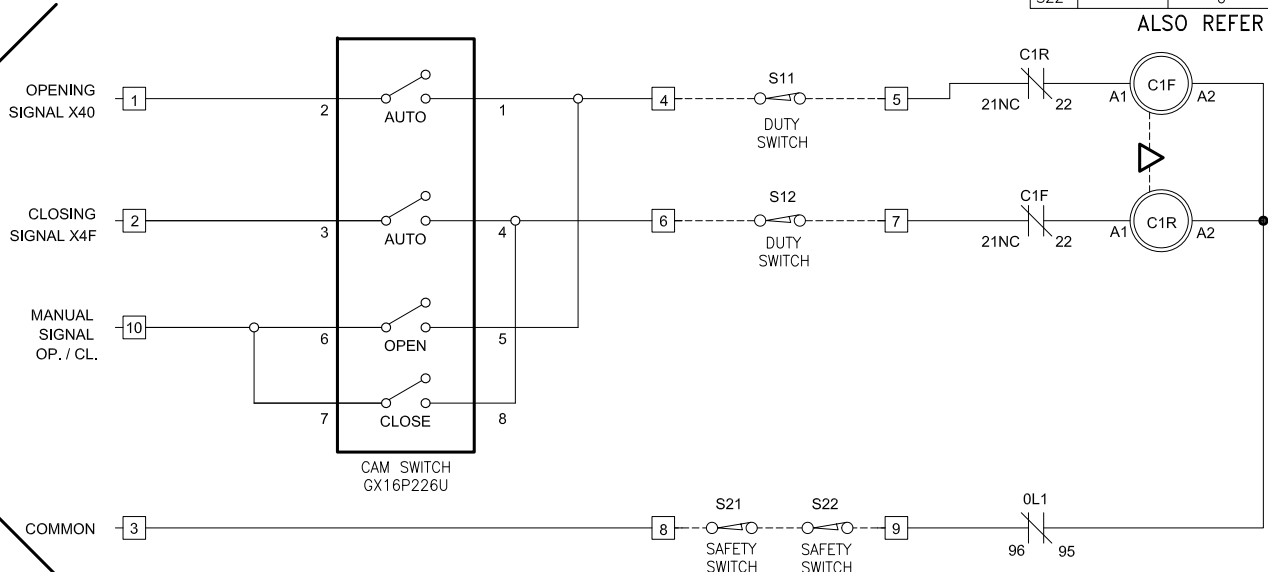


0.4 HP / 2.0 AMP
240 VAC



LIMIT SWITCHES CHART					
		SWITCH CONNECTOR			INVERTER CONNECTOR
		RLS-RPD	RLS-RSU30	RLS-RW	
S11	DUTY SWITCH	1	1	5	4
S11		2	3	6	5
S12	DUTY SWITCH	3	7	1	6
S12		4	9	2	7
S21	SAFETY SWITCH	5	4	3	8
S21		JUMPER ON 6 & 10			
S22		12			
S22		6	10	4	9

ALSO REFER TO PLAN # 8ZE1LIMITS



COMPATIBLE MOTORIZATION INFO		
HARNOIS	RIDDER	LIMIT SWITCH
RW24301	502340	RSU
RW40201	533411	RSU

0.4HP 240 VAC 1PH 2.0A

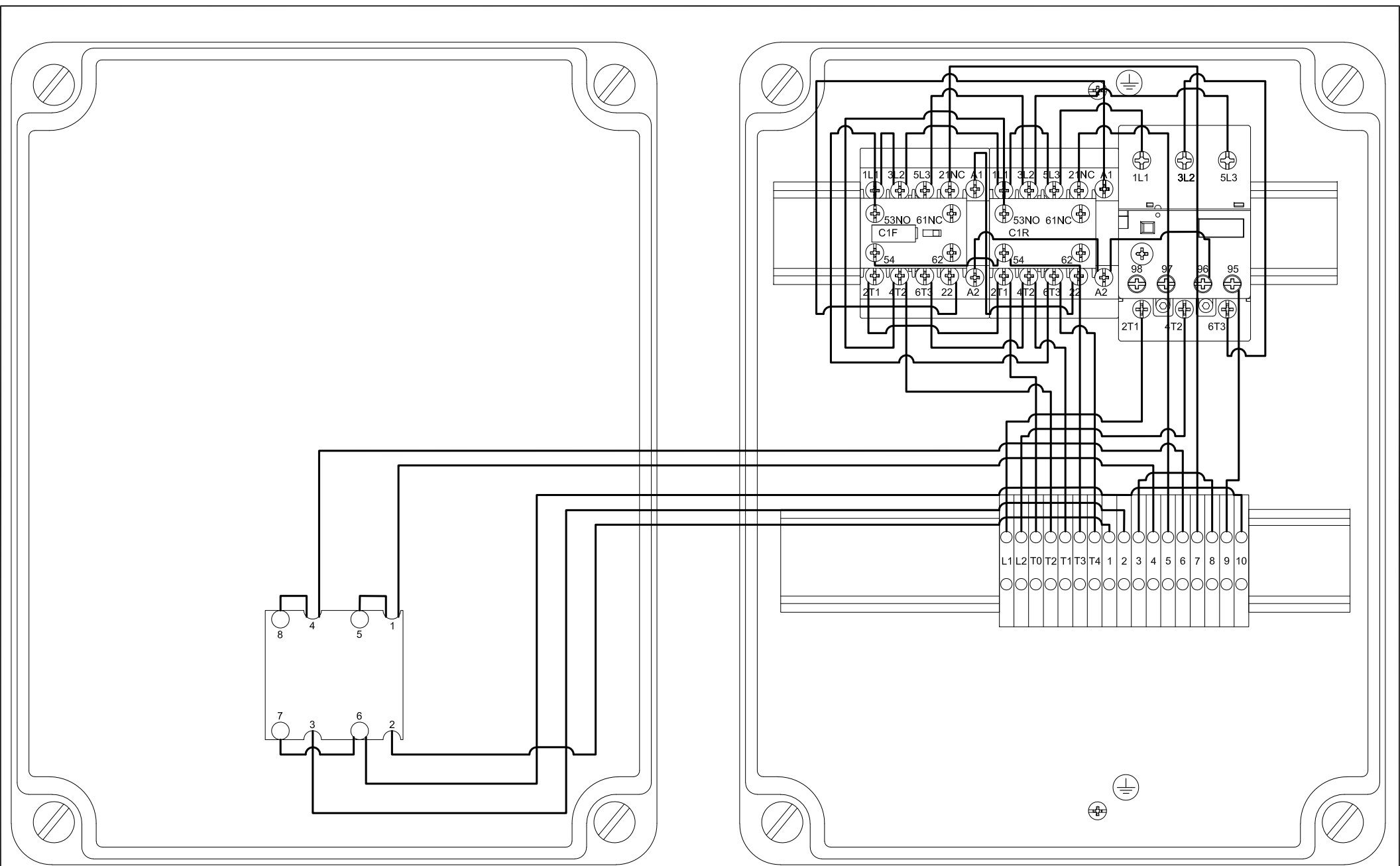
REVISIONS	DATE	BY
5		
4		
3		
2		
1		

SERPACK:	DRAWN BY: RENÉ LAFRANCE
	APPROVED BY:
	DATE: SEPT 14, 2022
REF: 8ZE140L-A	SCALE: N.T.S.

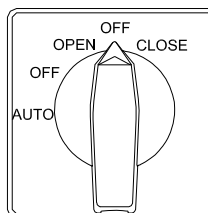


TEL.(450)756-1041
1-888-427-6647
FAX.(450)756-8389

WIRING		PLAN: 8ZE140L TYPE A
TITLE: INVERTER		
LOGICAL SCHEMATIC		
REF.: 8ZE140L		



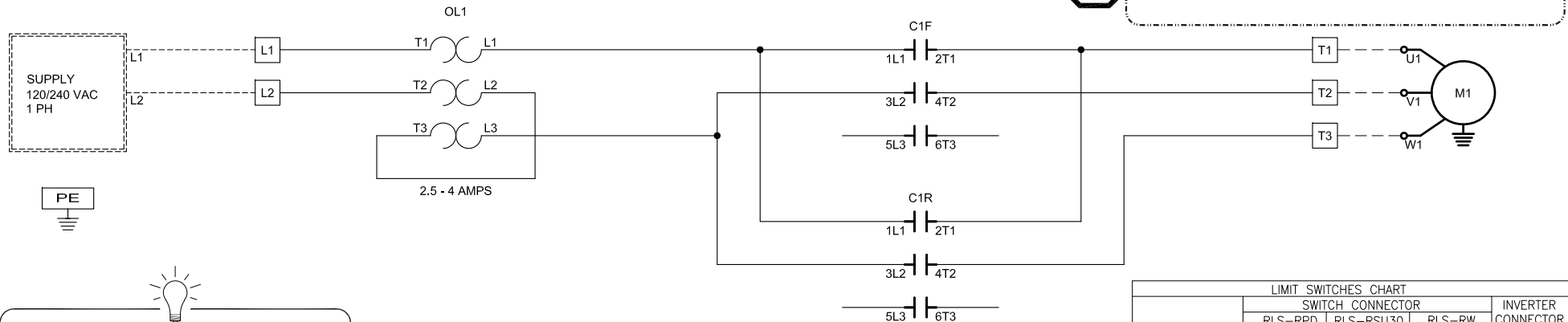
5				SERPACK:	DRAWN BY: RENÉ LAFRANCE		TEL.(450)756-1041	WIRING TITLE: INVERTER INSIDE VIEW (WIRING) REF.: 8ZE140L	PLAN: 8ZE140L TYPE B
4					APPROVED BY:		1-888-427-6647		
3					DATE: JUNE 22, 2022				
2					SCALE: N.T.S.				
1				REF: 8ZE140L-B					
	REVISIONS	DATE	BY						



www.harnois.com

5				SERPACK:	DRAWN BY: RENÉ LAFRANCE	TEL.(450)756-1041	WIRING	PLAN: 8ZE140L TYPE C
4					APPROVED BY:	1-888-427-6647		
3					DATE: JUNE 22, 2022	FAX.(450)756-8389		
2					SCALE: N.T.S.			
1								
	REVISIONS	DATE	BY	REF: 8ZE140L-C			TITLE: INVERTER FACE VIEW REF.: 8ZE140L	

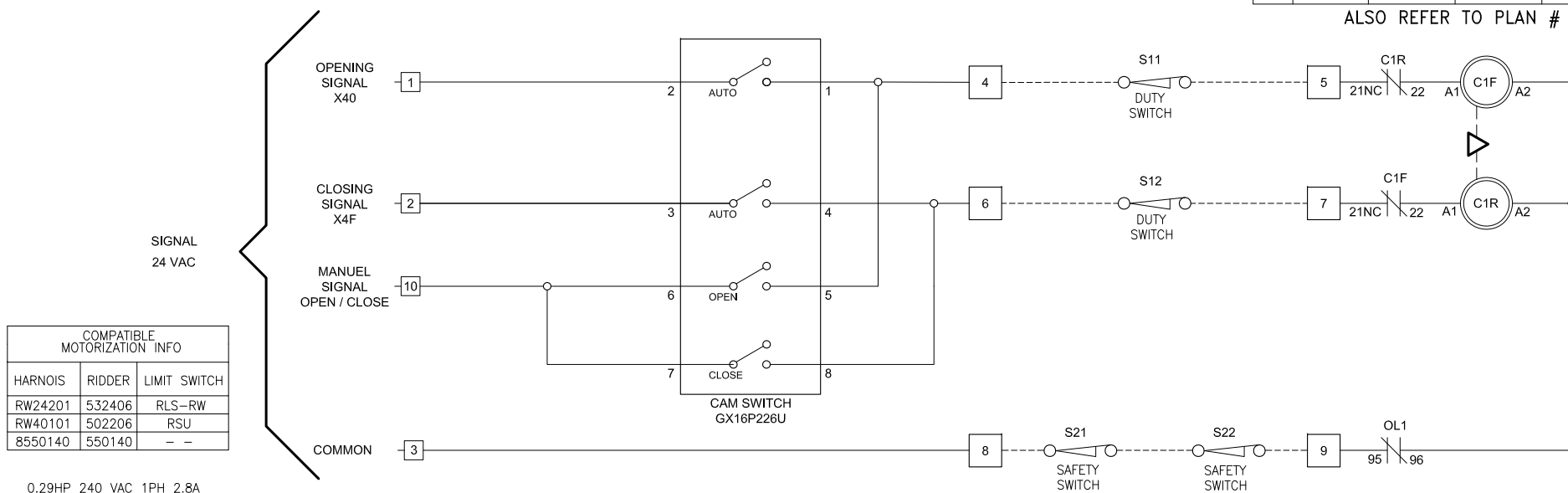




TO CHANGE THE DIRECTION OF THE MOTOR INVERT T2 AND T3.
ENSURE TO VERIFY THE LIMIT SWITCHES THAT WILL OPERATE THE GIVEN DIRECTION.

LIMIT SWITCHES CHART					
		SWITCH CONNECTOR			INVERTER CONNECTOR
		RLS-RPD	RLS-RSU30	RLS-RW	
S11	DUTY SWITCH	1	1	5	4
S11	DUTY SWITCH	2	3	6	5
S12	DUTY SWITCH	3	7	1	6
S12	DUTY SWITCH	4	9	2	7
S21	SAFETY SWITCH	5	4	3	8
S21	SAFETY SWITCH		JUMPER ON 6 & 10		
S22	SAFETY SWITCH	6	12	4	9

ALSO REFER TO PLAN # 8ZE1LIMITS

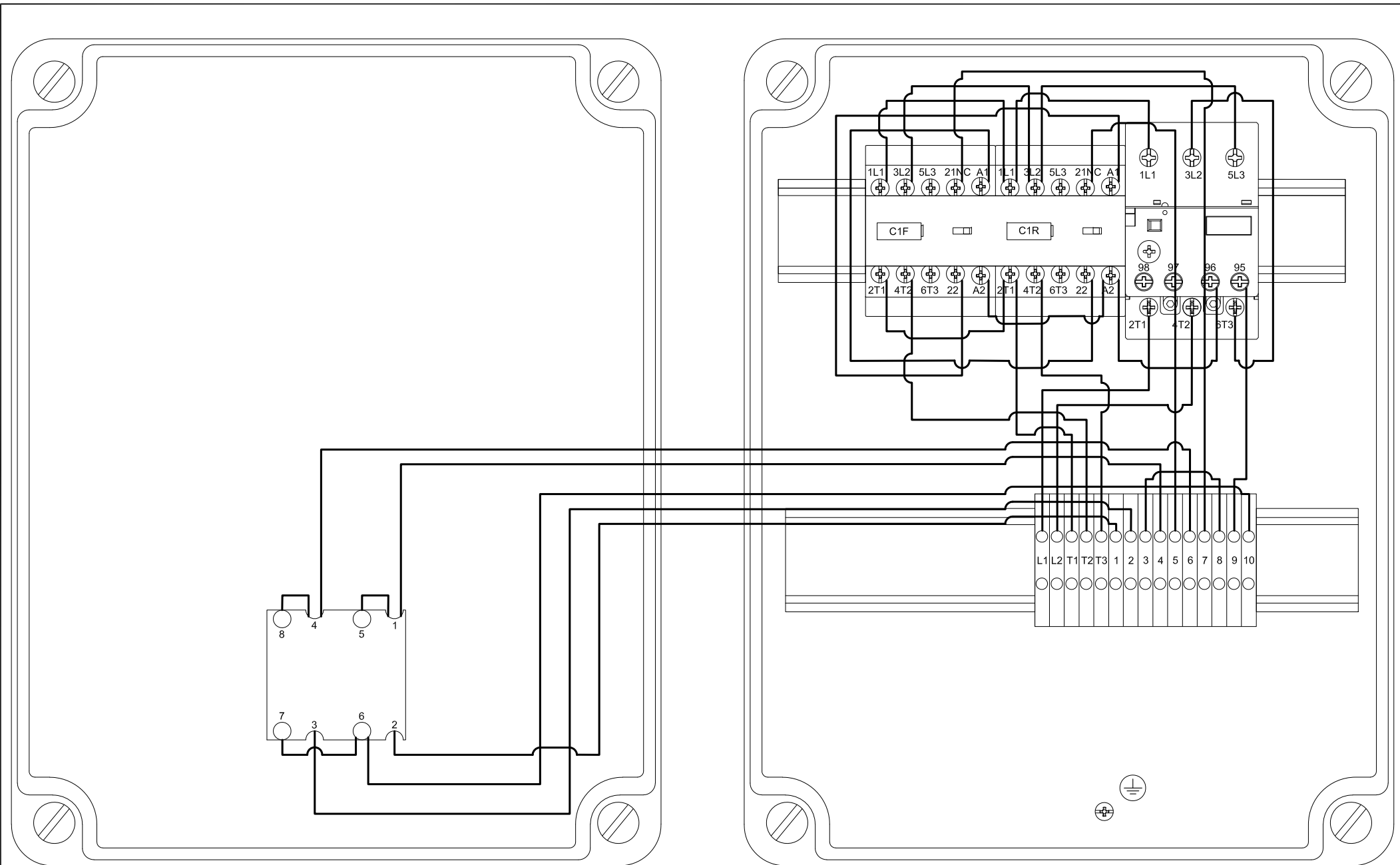


COMPATIBLE MOTORIZATION INFO		
HARNOIS	RIDDER	LIMIT SWITCH
RW24201	532406	RLS-RW
RW40101	502206	RSU
8550140	550140	- -

0.29HP 240 VAC 1PH 2.8A

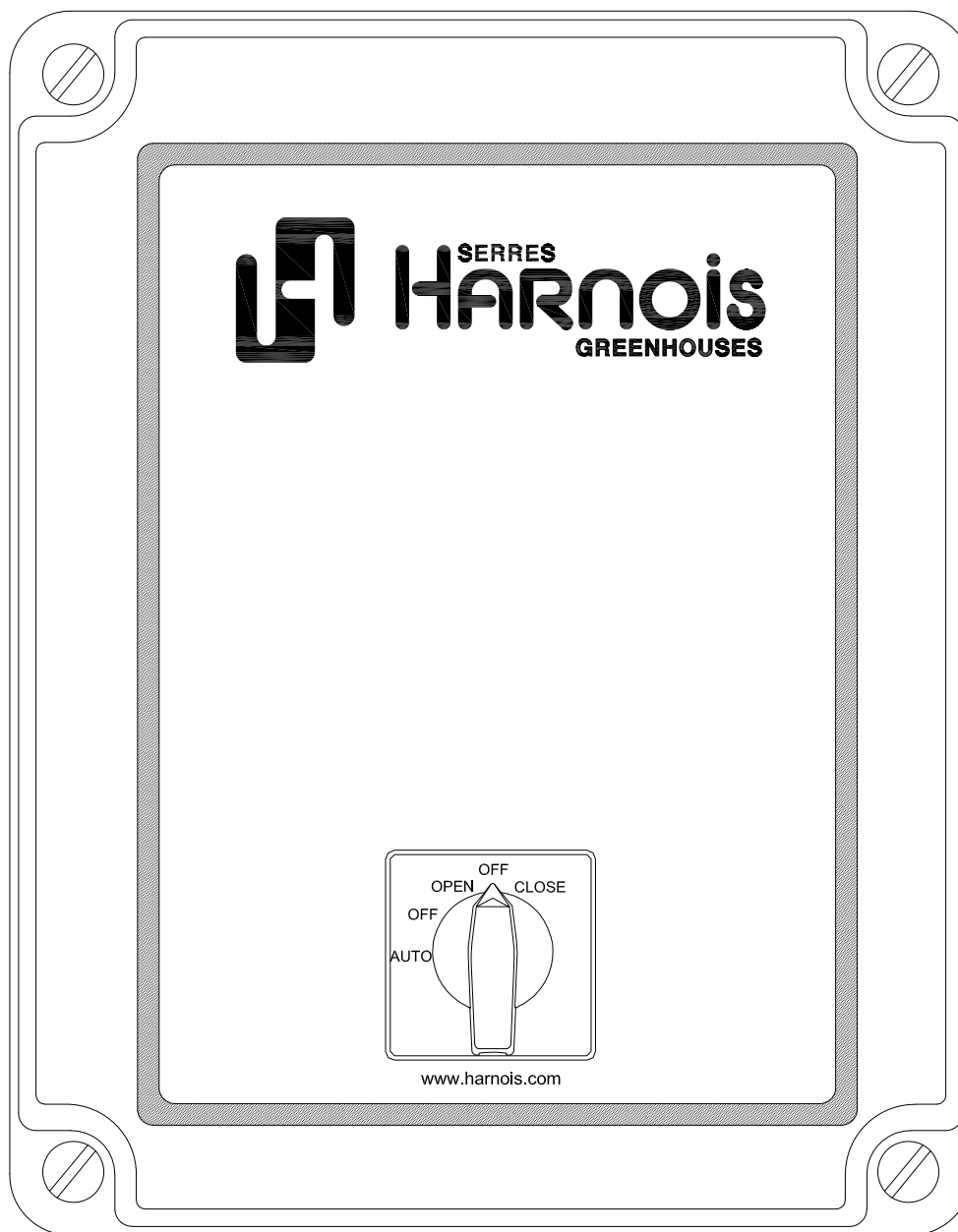
5			SERPACK:	DRAWN BY: RENÉ LAFRANCE	TEL.(450)756-1041	WIRING	PLAN: 8ZE141L TYPE A
4				APPROVED BY:	1-888-427-6647		
3				DATE: SEPT 14, 2022	FAX.(450)756-8389	TITLE: INVERTER LOGICAL SCHEMATIC REF.: 8ZE141L	
2				SCALE: N.T.S.			
1			REF: 8ZE141L-A				
REVISIONS		DATE	BY				



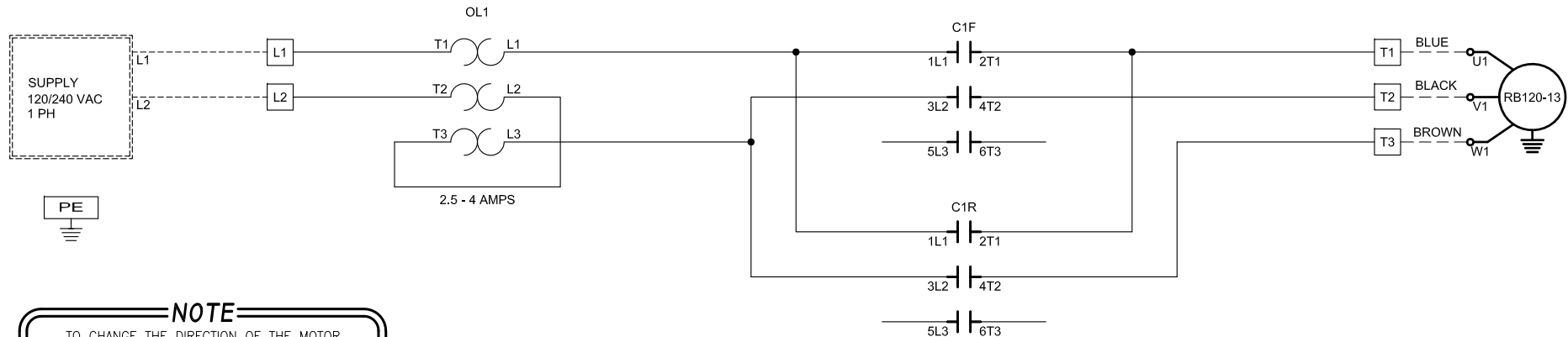


5				SERPACK:	DRAWN BY: RENÉ LAFRANCE	TEL.(450)756-1041	WIRING	PLAN: 8ZE141L
4					APPROVED BY:	1-888-427-6647		TYPE B
3					DATE: JUNE 22, 2022	FAX.(450)756-8389	TITLE: INVERTER	
2					SCALE: N.T.S.		0.29 HP / 2.8 AMP / 240 VAC / 1 PH	
1				REF: 8ZE141L-B			REF.: 8ZE141L	
	REVISIONS	DATE	BY					



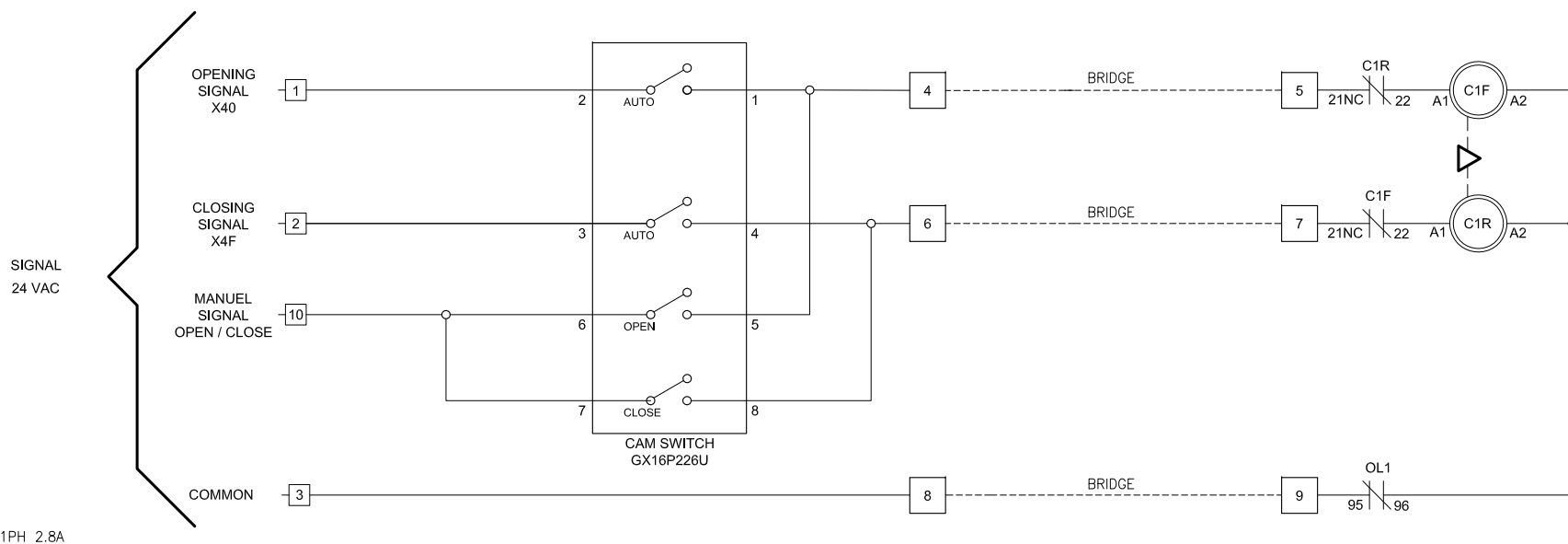


5				SERPACK:	DRAWN BY: RENÉ LAFRANCE		TEL.(450)756-1041	WIRING	PLAN: 8ZE141L
4					APPROVED BY:		1-888-427-6647		TYPE C
3					DATE: JUNE 22, 2022		FAX.(450)756-8389	TITLE: INVERTER	
2								REF.: 8ZE141L	
1				REF: 8ZE141L-C	SCALE: N.T.S.				
	REVISIONS	DATE	BY						



NOTE

TO CHANGE THE DIRECTION OF THE MOTOR
INVERT T2 AND T3.
ENSURE TO VERIFY THE LIMIT SWITCHES THAT
WILL OPERATE THE GIVEN DIRECTION.



0.29HP 240 VAC 1PH 2.8A

5					
4					
3					
2					
1					
	REVISIONS	DATE	BY		

SERPACK:	
REF: 8ZE141L-D	

DRAWN BY: RENÉ LAFRANCE	
APPROVED BY:	
DATE: DEC 13, 2022	
SCALE: N.T.S.	

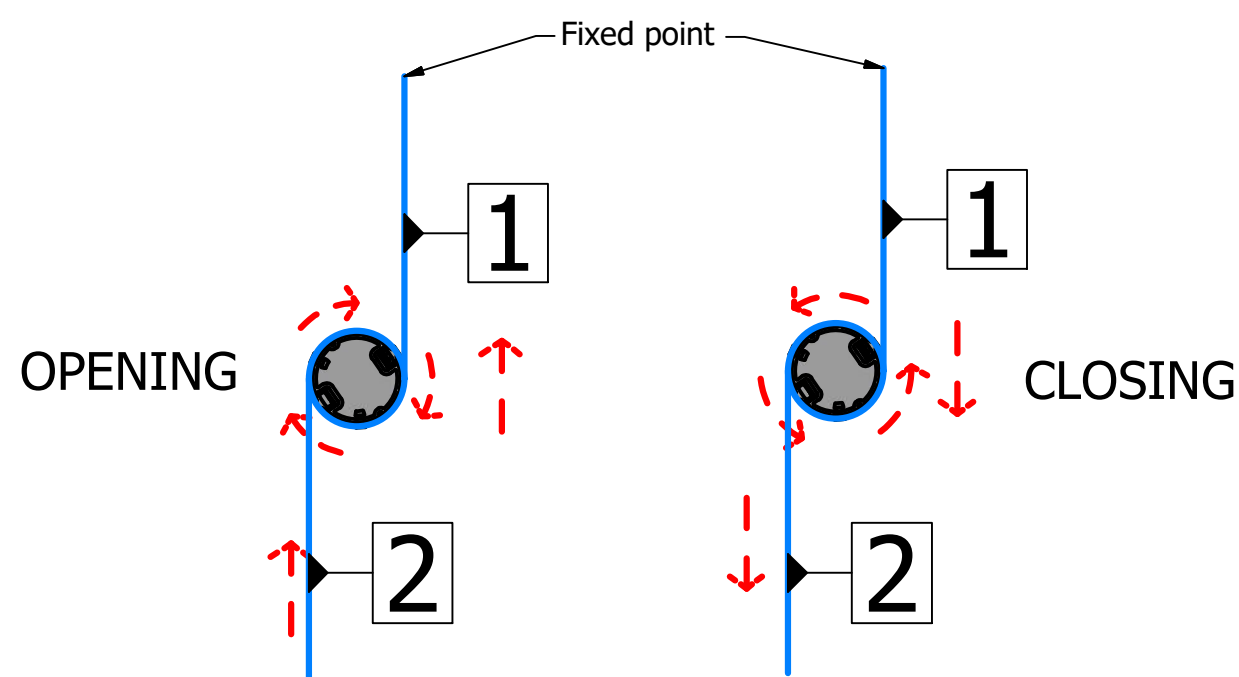
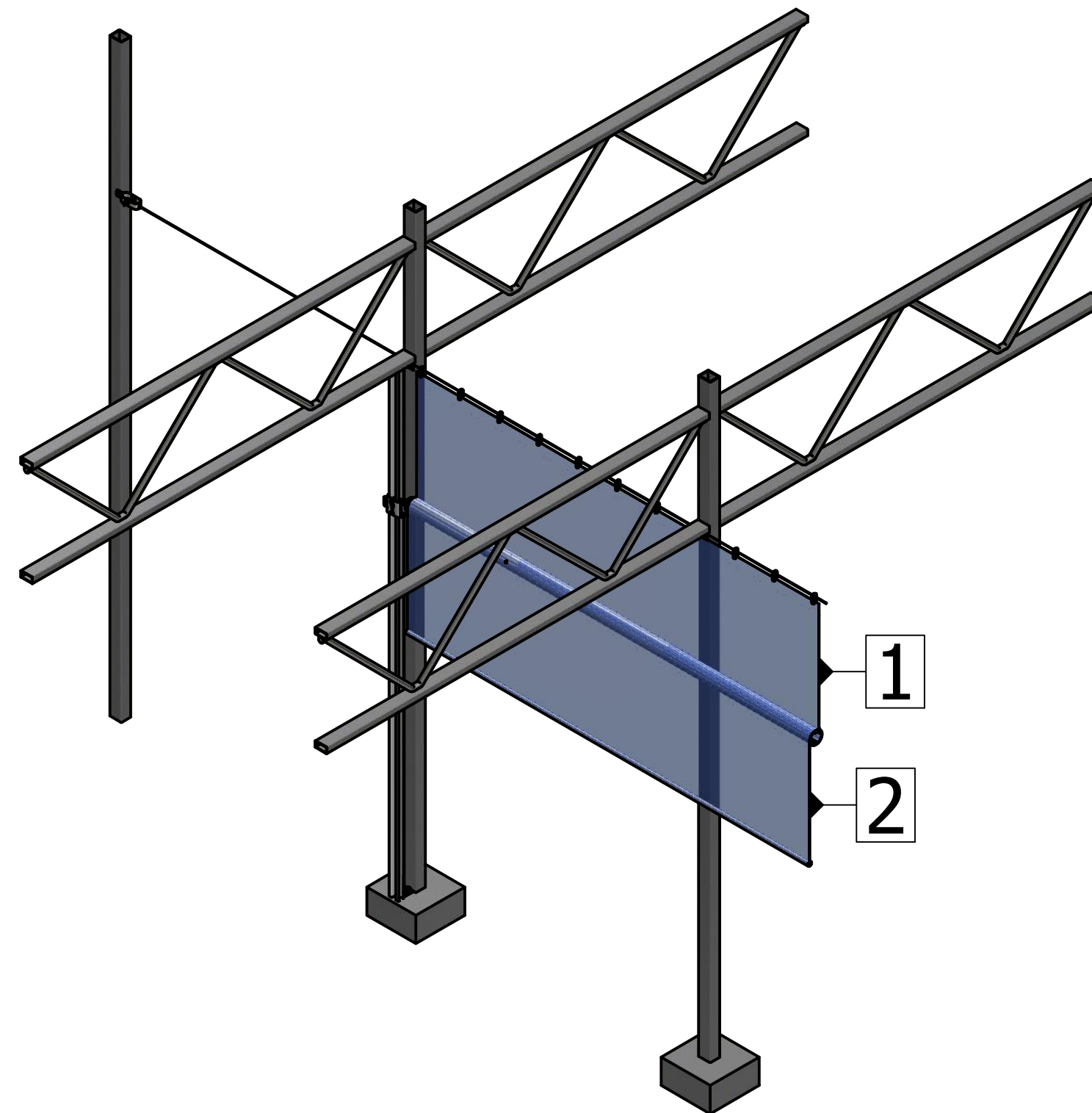
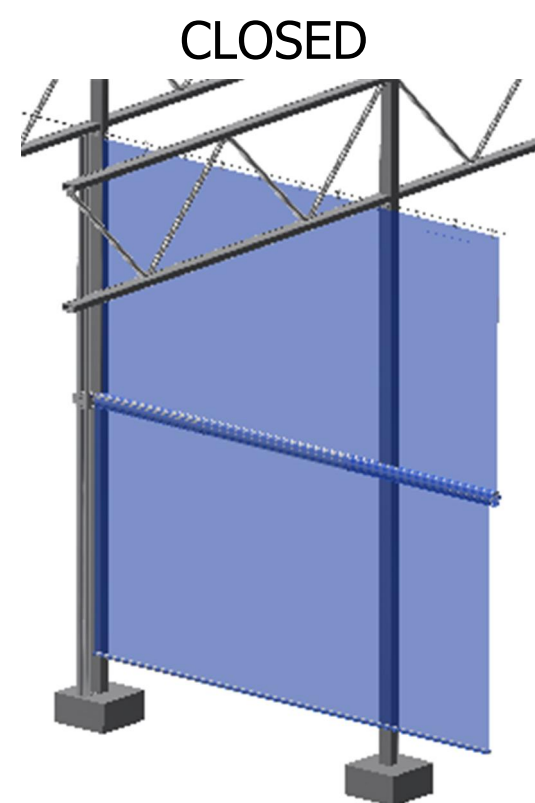
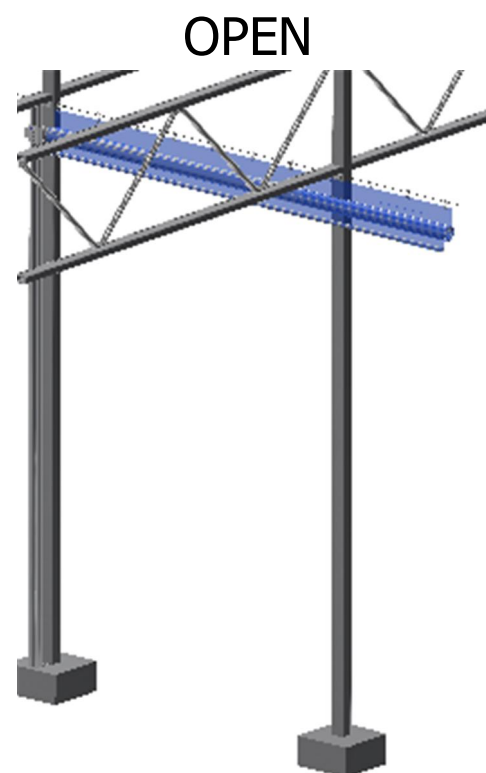


TEL.(450)756-1041
1-888-427-6647
FAX.(450)756-8389

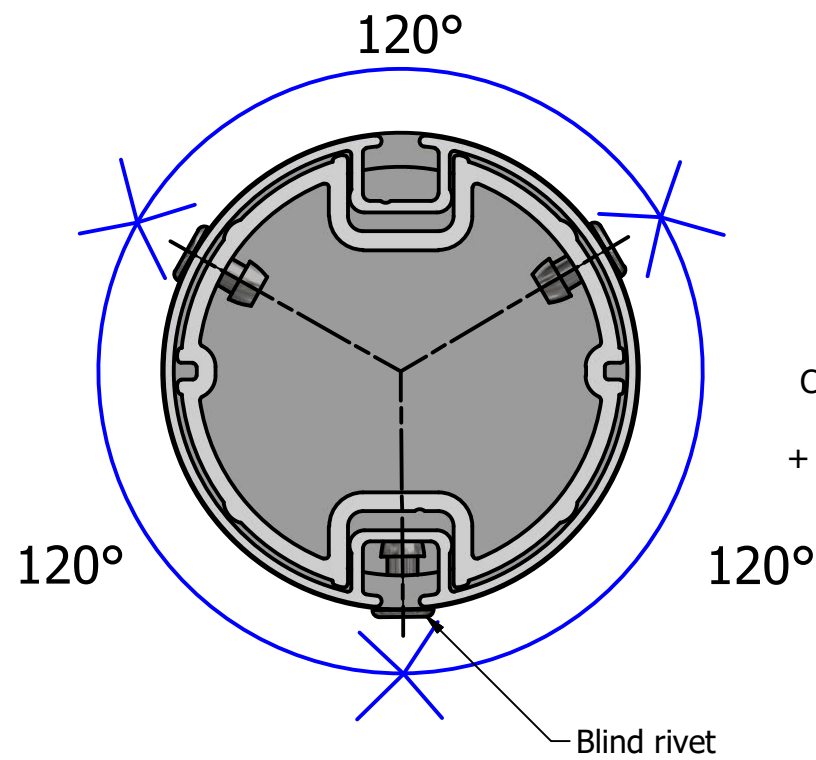
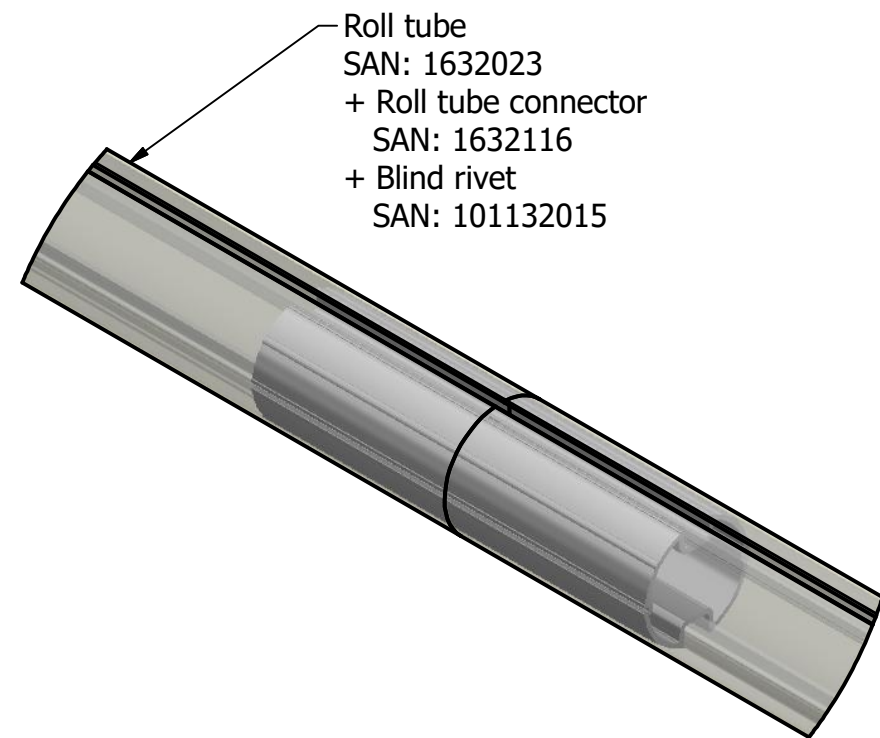
TITLE: INVERTER
LOGICAL SCHEMATIC FOR TUBULAR MOTOR ONLY
REF.: 8ZE141L + RB120-13

WIRING

PLAN:	8ZE141L TYPE D
-------	-------------------

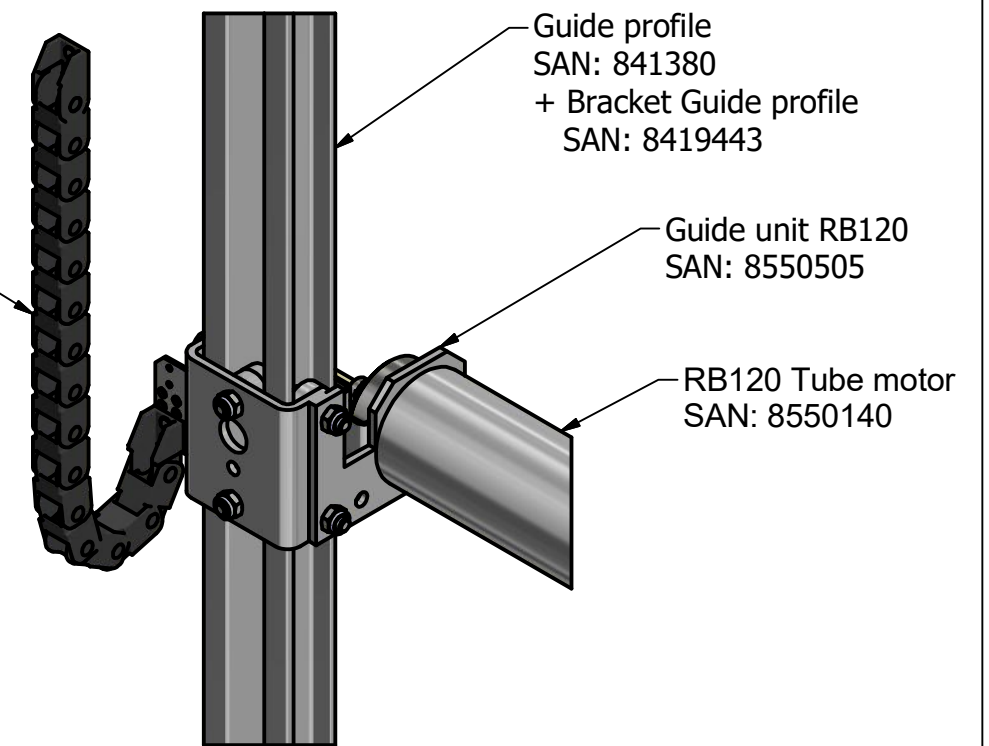


- * When Closing the system, the tube will move downwards rolling out Screen [1] and screen [2] from the fixated point.
- * When opening the system, the tube will move upwards rolling up Screen [1] and screen [2] to the fixated point.

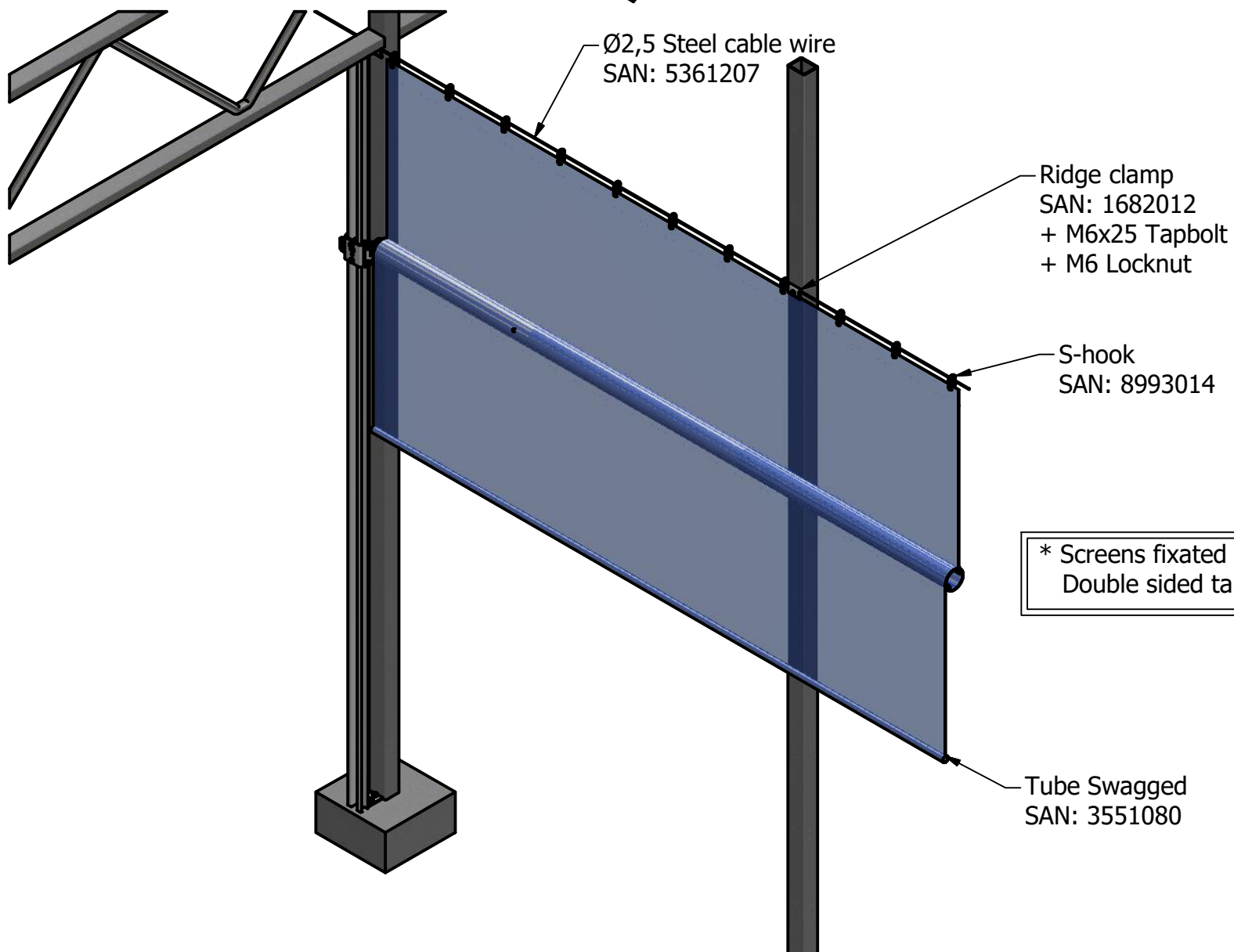


Cable carrier (CC)
SAN: 8278110
+ Mounting set CC
SAN: 8550510

MOTOR

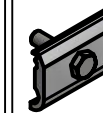


* Guide profile mounted to spant and ground block with
Bracket - SAN: 8419443
+ M8x30 Tapbolt - SAN: 5891266
+ M8 Locknut - SAN: 5891414

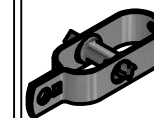


* S-Hook is used to fixate the screen to
the cable wire placed every 400mm

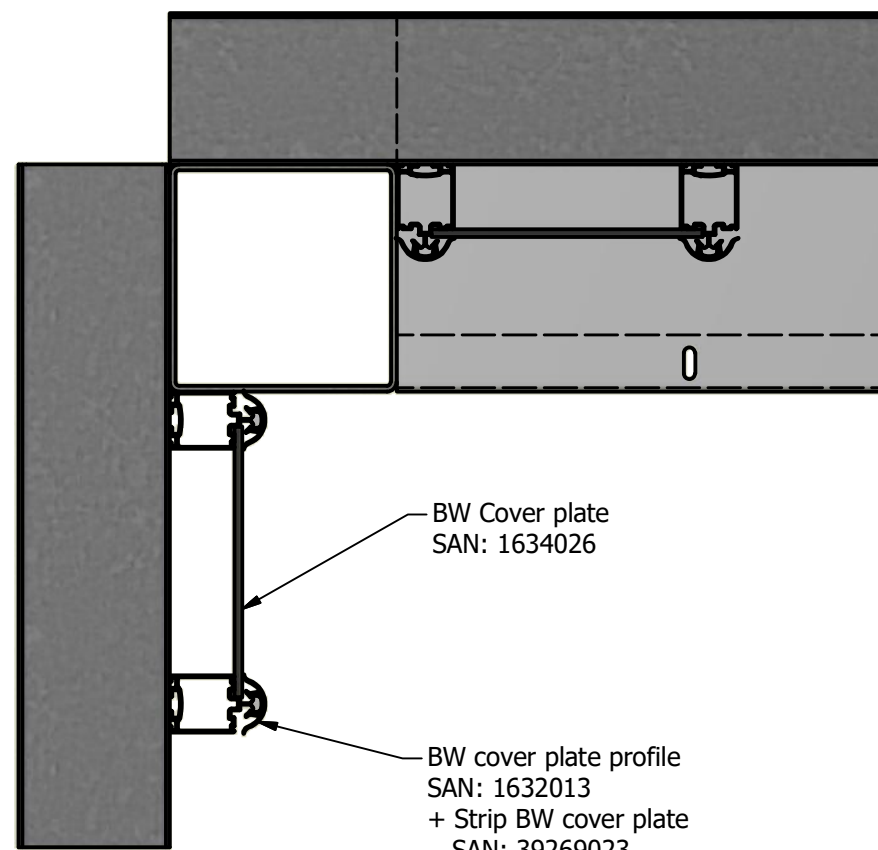
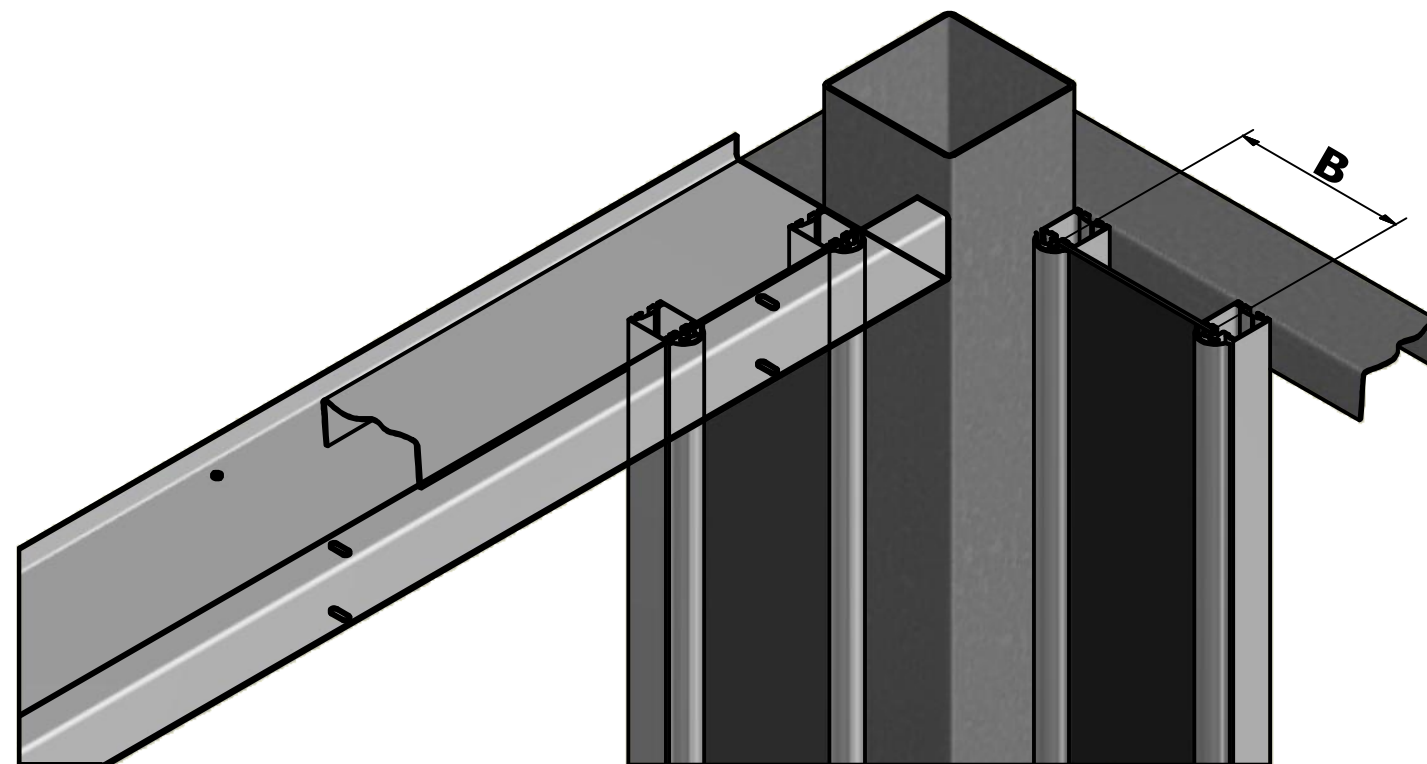
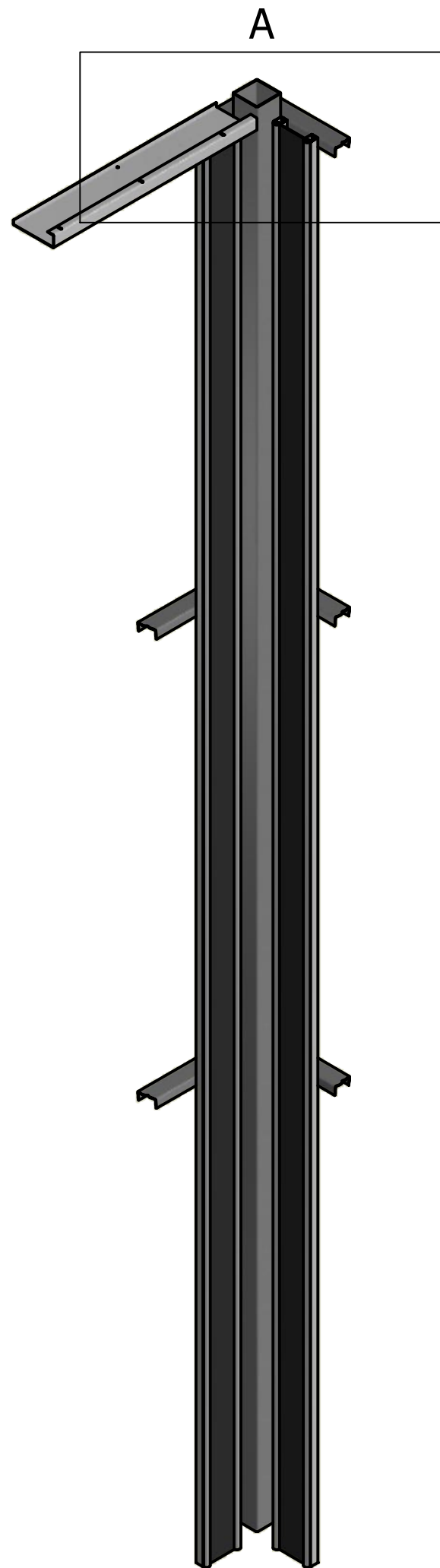
* Screens fixated to rolltube with
Double sided tape - SAN: 1634800



* Ridge clamp are mounted on column bar to
fixate stretched cable wire



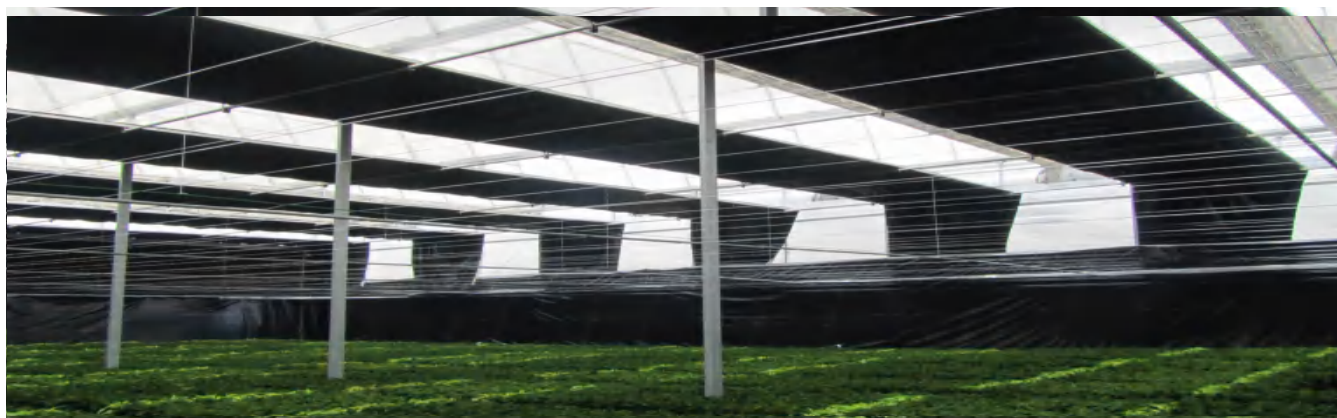
* Wire stainer - SAN: 0263020
Used to fixate stretched cable wire to begin
and end column bar



BW Cover plate
SAN: 1634026

BW cover plate profile
SAN: 1632013
+ Strip BW cover plate
SAN: 39269023

* Possible Black-white
cover sizes:
- 400mm
- 800mm



AAS99C W/B+B/B+B/W FR

BOMAN INSIDE BLACKOUT SHADING AND ENERGY-SAVING SCREEN

AAS99C W/B+B/B+B/W FR for controlling day length, blackout screens are good for the most sensitive plants. Choosing the aluminum or white upper side of screen reflects sunlight, at night the screen decrease the heat loss from the crop, the plant temperature will stay higher. The unique knitted structure of screen reduces condensation and allows them to be bundled to a small size for maximum available light.

Product information

Main Function	Inside Greenhouse
System	Sliding, Hanging
Material composition	
Pattern	Full white-blackout strips, Full blackout strips, Full white-blackout strips
Width	430cm
Flame retardant	Yes
Warranty	5years under all types of greenhouse covering, see BOMAN's limited warranty for all terms, conditions, and exclusions in writing



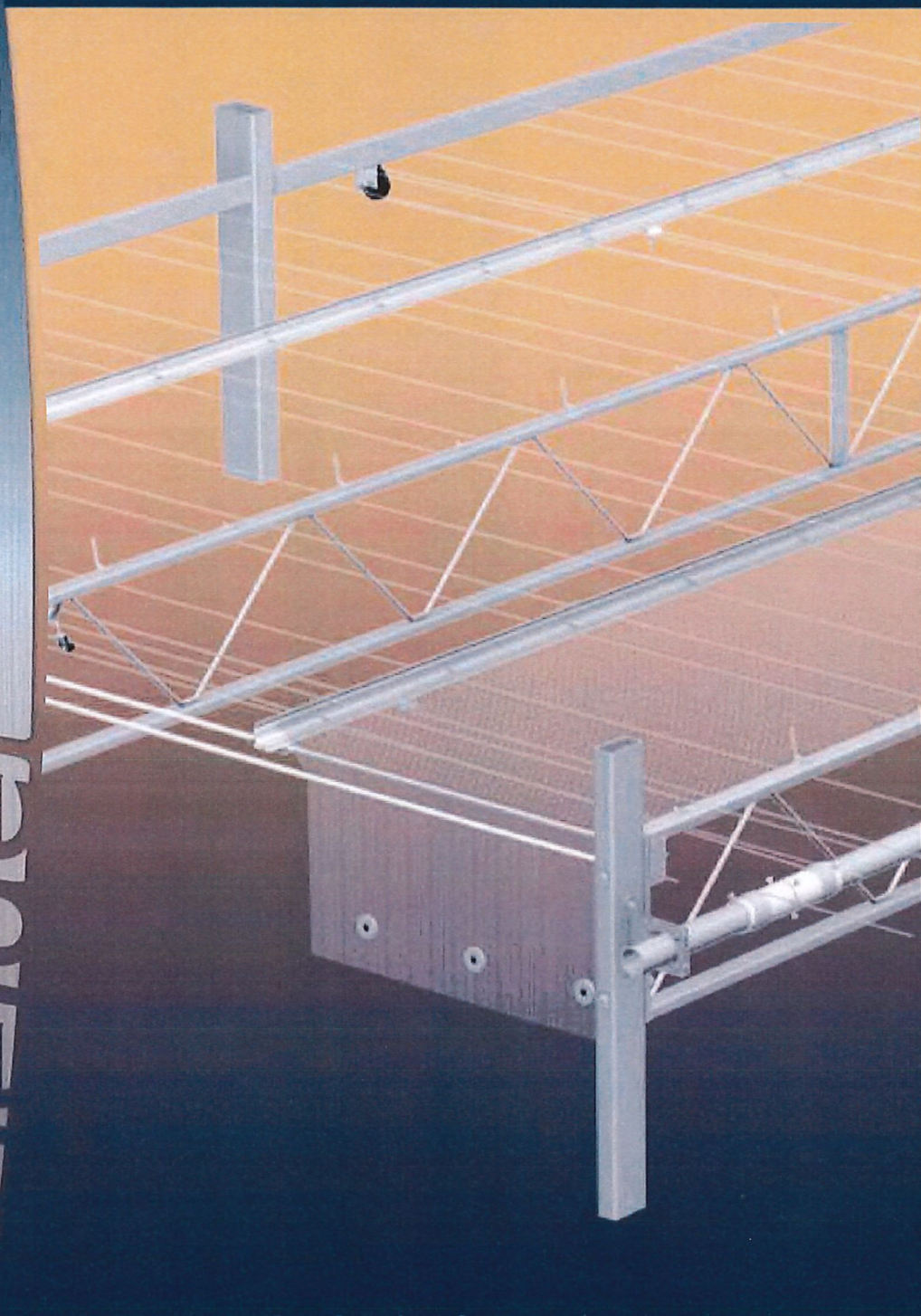
Properties	Value	Unit	Test methods
Weight		g/m ²	
Thickness		mm	
Width of strips	4.0	mm	
Tensile strength		N	ISO 13934-1
Elongation		%	ISO 13934-1
Light transmission in direct light	0.1	%	Integrated sphere
Light transmission in diffuse light	0.1	%	Integrated sphere
UV light transmission		%	
Shading level	99.9	%	
Heat preservation		%	GB/T 11048-2008 B
Energy saving	75	%	





HORIZONTALE SCHERMING

Snelder





Horizontale scherming



Bij de bouw van een kas is een goede scherminstallatie onmisbaar. Schermen zorgen immers voor een goede klimaatbeheersing en dit komt de kwaliteit van de producten ten goede. Bovendien kan een dergelijke installatie een flinke besparing in de energiekosten opleveren. Snelder kan een uitgebreid assortiment schermdoeken leveren; uiteraard afgestemd op de behoefte van de klant en diens gewaskeuze. Zo leveren we energiebesparende-, zonwerende-, verduisterende- en assimilatieschermen.

We onderscheiden twee schermssystemen:

- trek-duwsysteem
- trekdraadsysteem.

Het voordeel van het trekdraadsysteem is dat het weinig licht onderschept, terwijl de trek-/duwbuizen van het trek-duwsysteem dit wel doen. Maar het trek-duwsysteem oefent weer minder kracht op de gevels uit, en dit is een voordeel wanneer er met meerdere schermen gewerkt wordt. Snelder levert voor de beide systemen een compleet assortiment onderdelen, zoals draadgeleiders, schermprofielen, kopgevelplaten, slipblokken, afhangbeugels en spantklemmen. Van deze onderdelen produceren we het merendeel in-house.

We leveren complete scherminstallaties, inclusief doek van vooraanstaande doekleveranciers. Bovendien verzorgen we ook de aandrijving met behulp van tandheugels c.q. motorreductoren.



Horizontal shading system

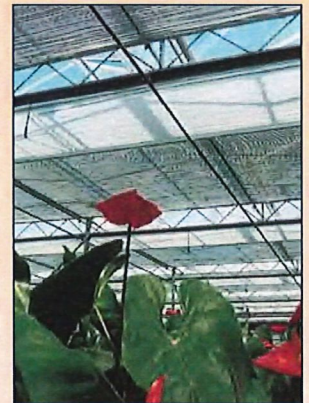
In the construction of greenhouses, a good shading installation is indispensable. Shades control the climate, benefiting the products' quality. Such an installation can be highly cost-efficient in energy consumption. Snelder can supply a comprehensive range of shade cloths; naturally tailored to the customer's requirements and his crop choice. We supply energy-efficient, heat-resistant, blackout and assimilation shades.

We make a distinction between two shading systems:

- push/pull system
- pull-wire system.

The advantage of the pull-wire system is its ability to allow for maximum light transmission, unlike the push/pull system's push/pull rods. On the other hand, the push/pull system exerts less force on the gables, which is an advantage when working with different kinds of shades. For both systems, Snelder supplies a complete range of parts, such as wire guides, screen profiles, gable wall connection plates, delay units, overhang clamps and truss clamps. We manufacture the majority of these parts in our own production facility.

Snelder supplies complete shading installations, including cloth from leading cloth suppliers and the drive mechanism (rack and pinions and motor reducers).





Horizontale schermssystemen



Trekdraadsysteem Venlo kas

Bij het trekdraad-systeem zorgt een aandrijfbuis met spanbussen, waarop staalkabels worden op- en afgewikkeld, voor de horizontale beweging van het schermprofiel tussen de tralies. Het op het dradenbed rustende doek monteren we aan het schermprofiel dat tussen de tralies beweegt.

Om een scherminstallatie energiedicht af te sluiten wordt een slipelement onder het schermprofiel gemonteerd. Dit slipelement heeft een instelbare slipkracht en compenseert het krimpen en uitzetten van de kas.



Wire screen system Venlo greenhouse

In the pull-wire system, a drive tube with wire tensioners, on which steel cables are coiled and uncoiled, takes care of the horizontal movement of the screen profile between the profiles. The cloth on the wire bed is fastened to the screen profile that moves between the profiles.

To provide an energy-tight seal for a shading installation, delay units are mounted under the shading profile. This bracket has an adjustable slip tension and compensates for greenhouse shrinkage and expansion.



Drahtschirmsystem für Venlo Gewächshäuser

Beim Seilzugsystem gewährleistet ein Antriebsrohr mit Spannbuchsen, auf das die Zugseile auf- und abgewickelt werden, die horizontale Bewegung des Schirmprofils zwischen den Gitterbindern. Das auf dem Drahtnetz ruhende Gewebe montieren wir am Schirmprofil, das zwischen den Gitterträgern angebracht ist.

Damit die Schattieranlage ohne Energieverluste abschließt, wird unter dem Schirmprofil ein Gleitblock montiert. Dieser Gleitblock hat eine einstellbare Rutschkraft und kompensiert das Schrumpfen und Ausdehnen des Gewächshauses.



Système d'écran à câble serre type venlo

Pour le système à câble de traction, un tube d'entraînement avec des manchons tendeurs sur lequel des câbles en acier sont enroulés et déroulés assure le déplacement horizontal du profilé d'ombrage entre les poutres à treillis. La toile posée sur un réseau de fils est fixée sur le profilé d'ombrage qui se déplace entre les poutres à treillis.

Afin d'éviter les pertes énergétiques de l'installation d'ombrage, un chien est monté sous le profilé d'ombrage. La force de glissement du chien est réglable, afin de compenser la contraction et le gonflement de la serre.



Sistema de tracción de los invernaderos tipo venlo

El sistema de hilos tensores tiene un tubo de accionamiento con bus tensor, en los que se enrollan o desenrollan los cables de acero, para el movimiento horizontal del perfil de pantalla entre las vigas enrejadas. La tela que descansa sobre una cama de hilos se monta sobre el perfil de pantalla que se mueve entre las vigas enrejadas.

Se monta un bloque deslizante debajo del perfil de pantalla para cerrar la instalación de la pantalla de manera que no se pierda energía. El bloque deslizante tiene una fuerza deslizante ajustable y compensa el encogido y expandido del invernadero.

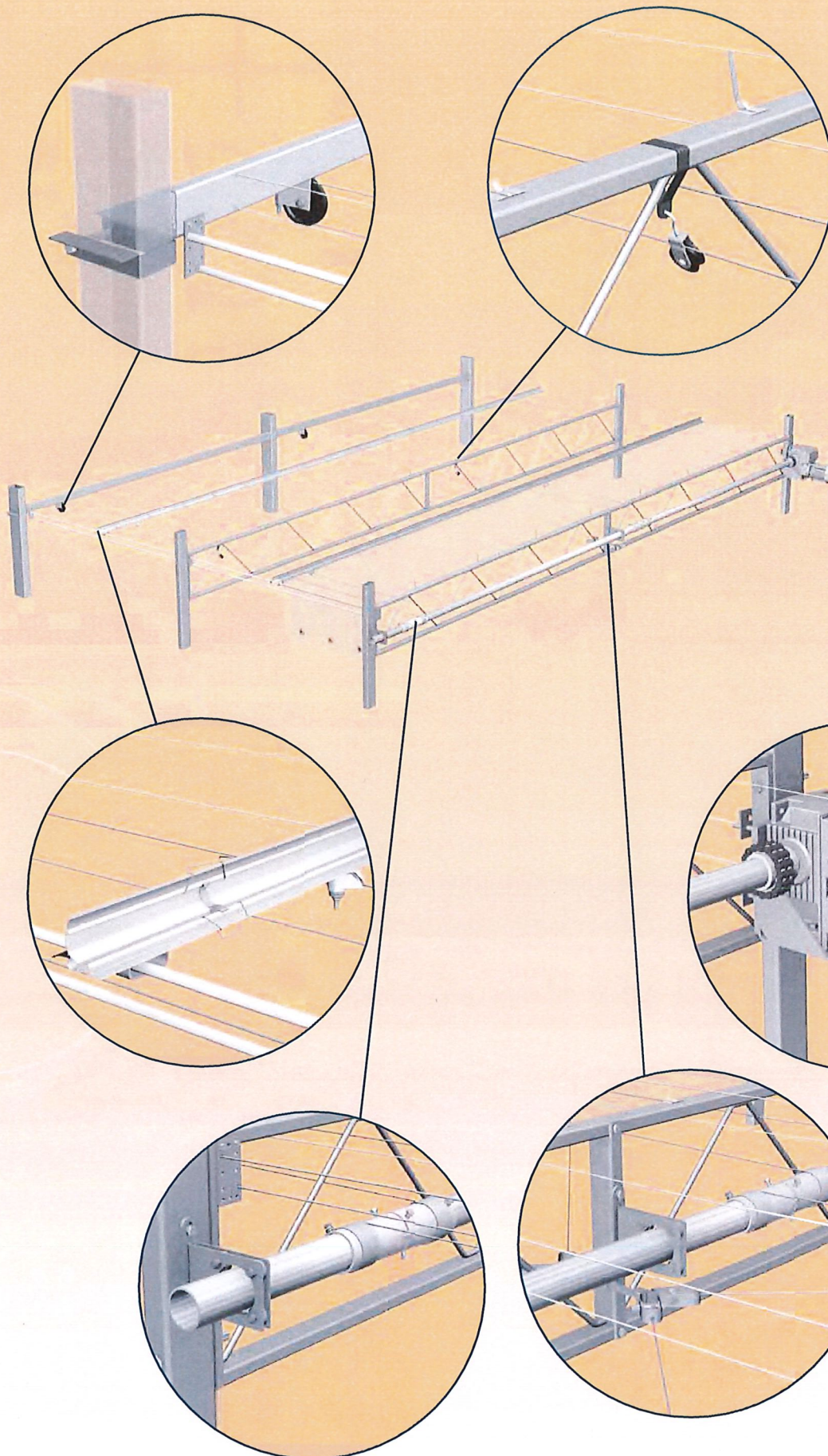


System linkowy do szklarni typu venlo

W systemie linkowym napęd z napinaczami, na które nawijane są kable stalowe, zapewnia poziomy ruch profilu zaciemniającego między kratkami. Materiał opierający się na linkach montujemy na profilu poruszającym się między kratkami.

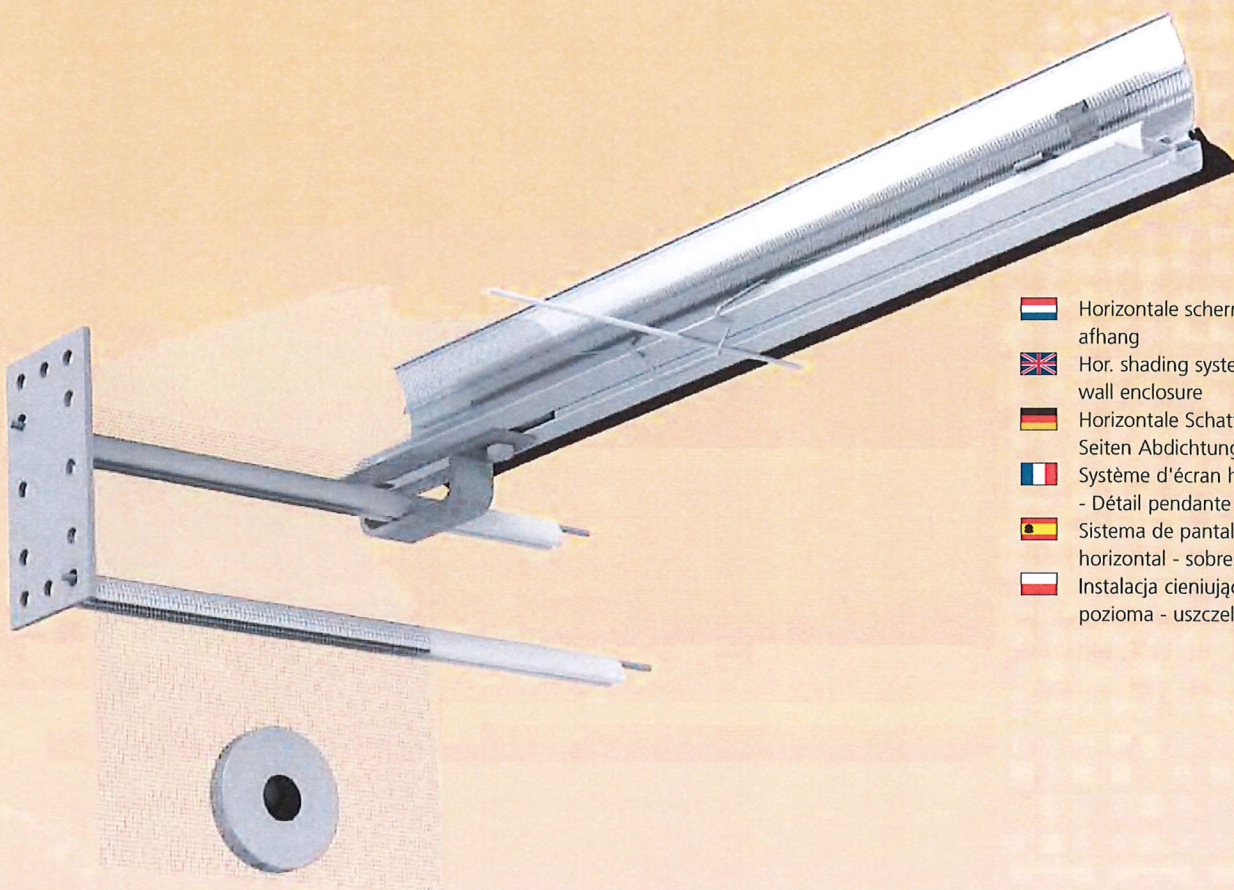
Aby instalację cieniującą zamknąć w sposób energooszczędny, pod profilem montowany jest blok ślizgowy. Blok ma regulowaną moc i kompensuje zmiany powodowane kurczeniem się szklarni.

Trekdraadsysteem Venlo kas



-  Trekdraadsysteem Venlo kas
-  Wire screen system Venlo greenhouse
-  Drahtschirmsystem für Venlo Gewächshäuser
-  Système d'écran à câble serre type venlo
-  Sistema de tracción de los invernaderos tipo venlo
-  System linkowy do szklarni typu venlo

Horizontale scherming - afhang



-  Horizontale scherming - afhang
-  Hor. shading system - Side wall enclosure
-  Horizontale Schattierungen Seiten Abdichtung
-  Système d'écran horizontal - Détail pendante
-  Sistema de pantalla horizontal - sobresaliente
-  Instalacja cieniująca pozioma - uszczelnienie

