

November 4, 2024

North Rockland High School Projects – Phase 2

MSA File No. 43045

North Rockland Highschool

Press Box- Softball

Press Box- Baseball

SED No. 50-02-01-06-0-016-036

SED No. 50-02-01-06-7-090-001

SED No. 50-02-01-06-7-091-001

NOTICE TO BIDDERS

Re: **ADDENDUM NO. 2**

THE FOLLOWING REVISIONS TO THE PROJECT MANUAL AND OR THE DRAWINGS REFERENCED HEREIN SHALL BECOME A PART OF THE CONTRACT DOCUMENTS AND SHALL SUPERSEDE ANY PRIOR OR CONFLICTING INFORMATION.

- 1) SEALED BIDS will be received until 2:00 PM. in the office of facilities, on the 7th of November 2024, at the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923, at which time and place they will be publicly opened and read. Faxed bids will NOT be accepted. Bids must be in sealed envelope(s) approximately labeled with the following label:
“North Rockland High School Projects – Phase 2 – Site Construction”
“North Rockland High School Projects – Phase 2 – Mechanical Construction”
“North Rockland High School Projects – Phase 2 – Electrical Construction”
- 2) Deliver Bids to: North Rockland Central School District
65 Chapel Street
Garnerville, NY 10923
- 3) The North Rockland Central School District is exempt from sales tax.
- 4) All requests may be sent to bidding@shilale.com. As per specification 001000 section 3.2.2, “Requests for clarification or interpretation of the bidding documents shall be submitted by the bidder in writing and shall be received by the architect at least seven (7) days prior to the date for receipt of bids.”
- 5) When is the start and completion dates for the project as well as any information on liquidated damages associated with the project.
Issued in Addendum 1, refer to the Draft Baseline Schedule provided. There are no liquidated damages in the project.
- 6) Specifications do not contain basis of design for dug out benches
Issued in Addendum 1, refer to specification section 116833 Athletic Field Equipment, item 2.02.J.2 PTBTTWM – Wall Mounted Two Tier Polybard Team Bench.
- 7) Page CS-401: there’s no size for the pipe between structures DI-3 and DI-5
For drawing C-400, pipe size to be 15” HDPE between DI-3 and DI-5.
- 8) Spec page 321813-7 calls for a 10” stone base beneath the synthetic turf. Detail 3 on page C-720 calls for 12” minimum depth drainage stone.

The stone base beneath is to be 12” minimum. Detail 3/C-720 showing 12” minimum to take precedence over spec page 321813-7 stating 10”.

9) Detail 1 on plan page S-103 calls out #4 @ 12” OC. Details 2 and 3 on S-301 call out #5 @ 12” OC. #5 rebar is to be used. Details 2 and 3 on S-301 specifying #5 are to take precedence over detail 1 on S-103 specifying #4.

10) Page C-714: detail 2 shows the concrete ramps being 5” thick, while detail 3 shows them at 6”. Concrete ramp to be 5” thick. Detail 2/C-714 showing 5” thick to take precedence over 3/C-714 showing them at 6” thick.

11) Regarding the Aluminum double gates between the columns:

- A. Please provide more details or specifications on the material(s) as well as the baluster sizes, frame sizes and rail sizes for the gate including grade of aluminum materials.
Fence and gates to be basis of design. See attached cut sheet for Echelon fence.
- B. The gates should not be mounted directly to the columns, as this could damage the brick. We need to mount tubular posts next to the columns and then mount the gates to the columns.
The gates are to be mounted to the columns base bid, same as the existing entrance gate on site. Substitutions for consideration can be submitted as per specification section 012500 Substitution Procedures.
- C. Please provide more information about the gate operating system and card readers. We couldn’t locate these in the electrical drawings.
See attached revised drawing CE-004. Electrical Contractor to provide and install a card reader at each gate with location to be selected and confirmed by Owner on site. Refer to the gates shown on details 1/A150 and 5/A-150. Power to be provided as per drawing CE-004.
- D. Besides the gates at the columns, plans show aluminum picket fence panels but there is no info regarding materials, manufacturer model, or anything other than the drawing.
Fence and gates to be basis of design. See attached cut sheet for Echelon fence.
- E. Are the aluminum gates and the fence panels to be aluminum color only or black powder coated to match the chain link fence around the site?
Black powder coated to match the chain link fence.

12) Allowance No. 11 has been added to the drawings. Site Contractor to carry an allowance of \$15,000 for pin lettering signage at the Field Hockey Press Box. See revised drawing A-131 showing the new signage. Signage to read “RED RAIDERS” on the front elevation below the windows. See revised drawing A-001 and revised specifications 003002S Bid Form – Site Contractor and 012100 Allowances.

13) Alternate No. 3 has been revised. The previous scope of work listed in Alternate No. 3 “Provide four portable bleachers at the Baseball Field” will not be an alternate and will be part of the base bid scope provided by the “Grandstand/Bleacher State Contract”. Alternate No. 3 will be replaced with, “Site Contractor to provide a deduct alternate to omit all windscreens from the project.” Revise and change the verbiage on Alternate-3 to “deduct alternate to omit all windscreen from project”. See revised drawing A-001 and revised specifications 003002S Bid Form – Site Contractor and 012300 Alternates.

14) Alternate No. 7 is added to the project. In place of asphalt paving, Site Contractor to provide 100’ of concrete paving centered on scoreboard structure and continuous between outfield walls. Labeled as Alternate No. 4 on C-300, this note is now Alternate No. 7. See revised drawing A-001 and revised specifications 003002S Bid Form – Site Contractor and 012300 Alternates.

- 15) Alternate No. 8 is added to the project. Site Contractor to provide and install netting for baseball field in front of the grandstands. As part of Alternate 8, provide necessary cables, hardware, and netting to extend backstop netting over baseball dugouts through to supporting pole on outfield end of dugouts. This alternate shall apply to the baseball field only – no changes to softball backstop netting. Alternate shall include necessary field labor to anchor bottom of netting along roof of dugout. Netting system is delegated design. See revised drawing A-001 and revised specifications 003002S Bid Form – Site Contractor and 012300 Alternates.
- 16) Alternate No. 9 is added to the project. Assistive Listening for Sound System. Electrical Contractor to provide price to include assistive listening along with the base bid sound system. This price is to provide assistive listening at one field/press box. The Owner can purchase this alternate multiple times to provide for one or more fields (baseball, softball or field hockey). See revised drawings A-001 and CE-505, and revised specifications 003002E Bid Form – Electrical Contractor and 012300 Alternates.
- 17) 003002S Bid Form – Site Contractor has been revised to include line items for all Site Contractor related Allowances.
- 18) Five foot wide gates are to be used throughout. Drawing C-712 dimensions a 4' gate. This will be a 5' gate.
- 19) See attached revised drawing A-131. Surface mount railings require coordination for blocking beneath the roof sheathing. Note is added for blocking for cable railings. The blocking needs to be installed in the premanufactured press box. The cable railing is to be provided by the press box manufacturer and be field installed by the manufacturer. Also, the revised drawing shows steel plates in the foundation wall as connection points for anchoring. The anchoring will be part of the delegated design and submitted with the shop drawings.
- 20) See attached revised A-504. Detail 3 has been added showing the flashing at the base of the Press box.
- 21) See attached revised drawing M-001, M-002, M-105, M-401. RTU controls have been revised. Attached for reference is the Omnia Trane Package. The School District will purchase the Roof Top HVAC units on state contract from the manufacturer. The District will also purchase the controls package parts, installation & programming on state contract from the Districts BMS provider. The Mechanical contractor's scope is to demolish existing unit and install new units, H-1, F-2, B-2, B-3. Including all removals, rigging, installation, tie-ins, testing balancing, start-up, coordination, commissioning and work stated contract documents, and all dripline contractors, Mechanical, Electrical.
- 22) See attached revised drawing M-002. Legend has been added to include IH-1 to coordinate with drawing CE-104 provided in Addendum 1.
- 23) See attached revised drawing CE-001. Legend has been added to include fixture S, sconce lighting at outfields, to coordinate with drawings CE-101 and CE-102 provided in Addendum 1.
- 24) Clarification for drawing CE-105. Details 3 & 4 on CE-105 are void and have been moved and updated to drawing CE-106 issued in Addendum 1.
- 25) See attached revised specification section 131210 Pre-Engineered Structures. Specification has been revised to coordinate with changes shown in A-131 issued in Addendum 1. Overall size of the press boxes have also been updated in the specification to match as shown in the plans. Size to be 8'x12' instead of 8'x18'.
- 26) Electrical Contractor is responsible for all electrical physical connections to the press boxes including conduit.

27) Material Finishes on A-110, A-111, A-120 and A-121 are to be revised as follows: Item 6 Chairs: are to be revised from Hussey VIP to Interkal Chairs. Item 9 Stucco: item to be removed entirely.

28) See attached revised specification section 017839 Project Record Documents. Section 1.9 Project Record Survey has been added to require submission of a S&S final survey to be done by surveyor.

29) On plan page C-301, the bleacher pad on the first base line is called out as 15'x40', but the dimensions show 17.17'x40', please clarify.

First base side concrete pad is 17.17' to match walk width. Third base side concrete pad is only 15'.

30) Please clarify if epoxy rebar is required for all concrete work.

All steel reinforcement for concrete work is to be epoxy coated.

31) On plan page C-420, the existing water line that runs from the parking lot to the maintenance building conflicts with the drainage/utility work that is proposed. We suggest replacing the existing water line to complete the proposed work. Please clarify and see attached plans for reference.

Existing 3" poly water line is unlikely to survive replacement of adjacent utilities. Contractor shall include in base bid expected costs to replace line in kind anywhere line connected be maintained.

32) As per the work completed in phase 1, the above-mentioned water line extends across the gravel road to a hose bib and isn't connected to the building. Please clarify if we're supposed to have this connected to the building or a hose bib once the work is completed.

Existing 3" poly water line is tapped at baseball first base line for new water hydrant. Existing water line and temporary hydrant continuing east toward running track shall be removed and disposed.

33) Specification section 011200-6, Temporary Facilities - Section F #3 - who is responsible for what materials?

Specification section 011200 Multiple Contract Summary provides the responsibilities per contract (Site, Electrical & Mechanical). Under each trade's section lists the Temporary Facilities that they are responsible for. On page 6, under item 1.8.F.3, these items are the Electrical Contractor's responsibility. The item is stating that for all temporary facilities that each contract is providing (Site, Electrical, HVAC), the Electrical Contractor is responsible for providing the electrical connections. The Site Contractor is still responsible for providing their own temporary facilities.

34) See attached revised drawing C-716. Details 1, 2, 3, 6 & 7 regarding the pitching mounds have been revised.

35) See attached new specification sections 321813.1 Synthetic Grass Surfacing– Softball/Baseball, 321813.2 Synthetic Grass Surfacing – Multiuse Field, 321813.3 Synthetic Grass Surfacing – Turf At Spectator and 000030 Table of Contents. Specification section 321813 Synthetic Grass Surface has been split into 3 separate specification sections for each type of field.

36) Drawing M105, note 3 states "Perform complete balancing test of ducts and branches serving the new units. See reference drawings for location of existing duct, diffusers, etc in each space." Please advise where we can find these reference drawings.

See attached revised drawing M-105. Note 3 has been revised.

37) Please clarify model number for type B lighted bollards. Drawing C-302 states (15) bollards spaced at 40' along path. It is assumed electrical drawing CE-103 for electrical hockey field installation is to be used for quantities, please confirm. Type UL fixture is shown on schedule but not on drawings, please clarify/confirm is fixture is required.

The bollard layout along the path to be (15) bollards spaced at 40'. The layout shown on drawing C-302 to take precedence over bollards at path shown on CE-103 issued in Addendum 1. In addition to the bollards at the walkway, Electrical Contractor is to provide and install 15 light poles along the path to provide a minimum of 1

footcandle on the walking surface. See attached Cirko Lyre cutsheet for reference. Exact locations to be provided with a future lighting layout. These additional pole fixtures to be on its own switching.
Regarding Fixture Type UL. See attached revised drawing CE-105. The drawing has been updated to show the locations of the Type UL fixture.

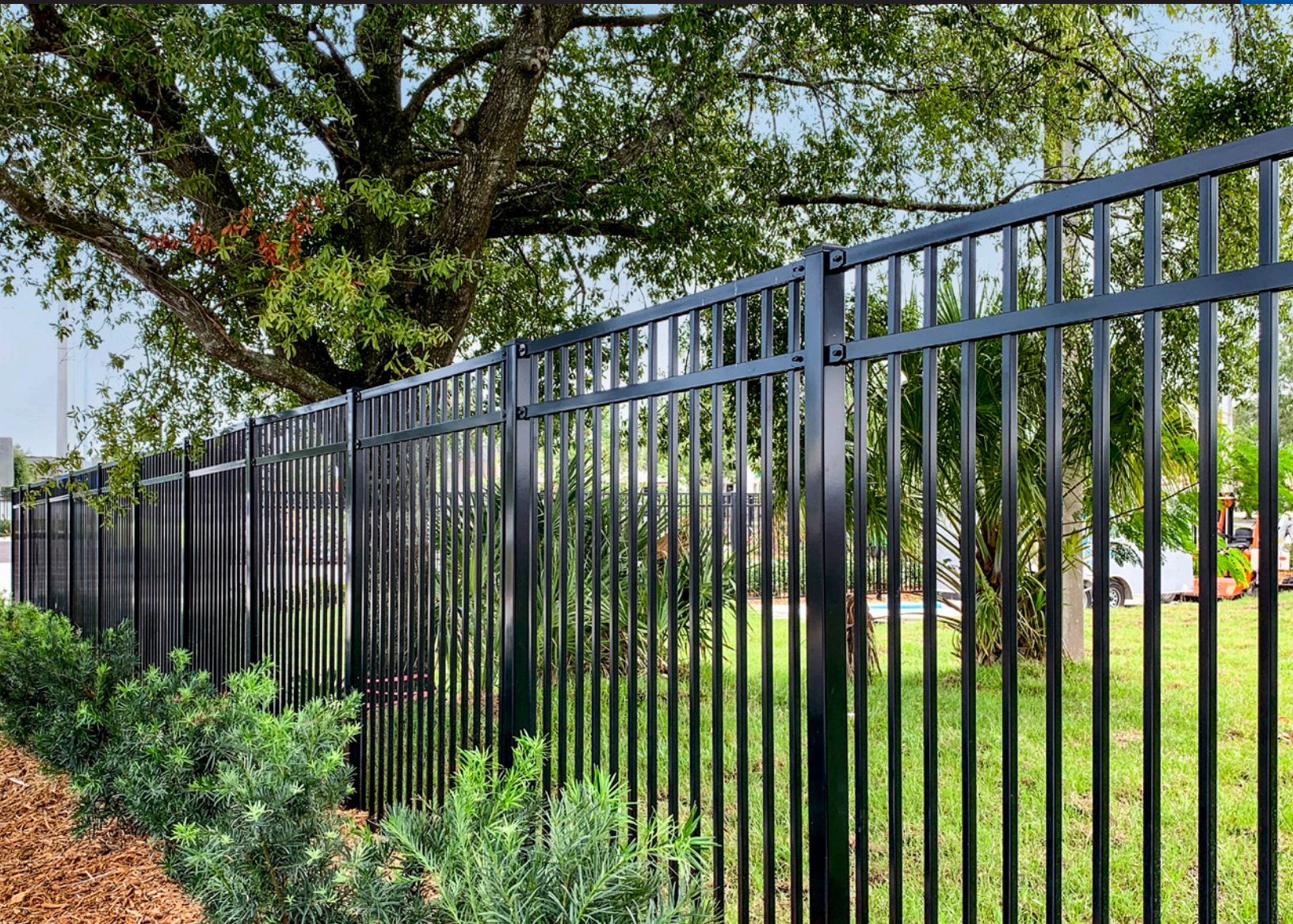
38) See attached revised drawings CE-101, CE-102, CE-104, CE-401, CE-403 and S-103.

END OF ADDENDUM NO. 2

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ECHELON II

Industrial Ornamental Aluminum Fence



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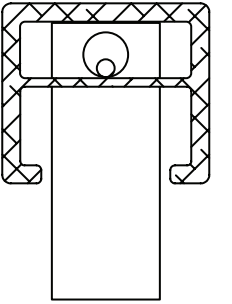
Echelon II is the strongest and most durable aluminum fence available in the industry. The ForeRunner rail design enables this fence to have several attributes uncommon to typical aluminum fences. Echelon II aluminum fence has a unique post design with an internal reinforcing web which increases the strength of the overall fence significantly.

The unrivaled strength and durability of Echelon II is International Building Code (IBC) compliant.

- Exceeds all IBC 2018 Handrail & Guards load requirements
- Standard 8 ft. panels yield project savings
- Unique rail design for strength and maximum load capacity

FORERUNNER® LOCKING SYSTEM

Ameristar engineered the Echelon II ForeRunner rail to maximize strength. The innovative design of the ForeRunner rail contains an internally-secured rod that allows for variable pitch connection and high-angle biasability and eliminates the need for external fasteners.



Rail Cross Section

Increased security

The ForeRunner rail, with an internal retaining rod, prevents the attachment from being compromised. Fasteners are not exposed.

Aesthetic details

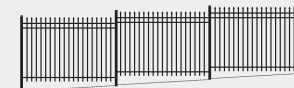
The “Good Neighbor Design” rod follows the ForeRunner centerline, providing a clean and uninterrupted look void of visible screws or rivets.

RAKEABLE VS STAIR-STEP

Having a unique picket to rail connection allows Echelon products a minimum biasability of 10%, eliminating any possible security risks due to large gaps under the fence panels.



FULLY RAKEABLE PANELS



STAIR-STEPPING PANELS



GROMMET

Aesthetic appearance while preventing moisture collection

INTERNAL RETAINING ROD

Variable pitch connection system provides ease of installation, high-angle biasability and eliminates unsightly external fasteners

FORERUNNER RAIL

Reengineered for optimal performance and strength

REINFORCED POST

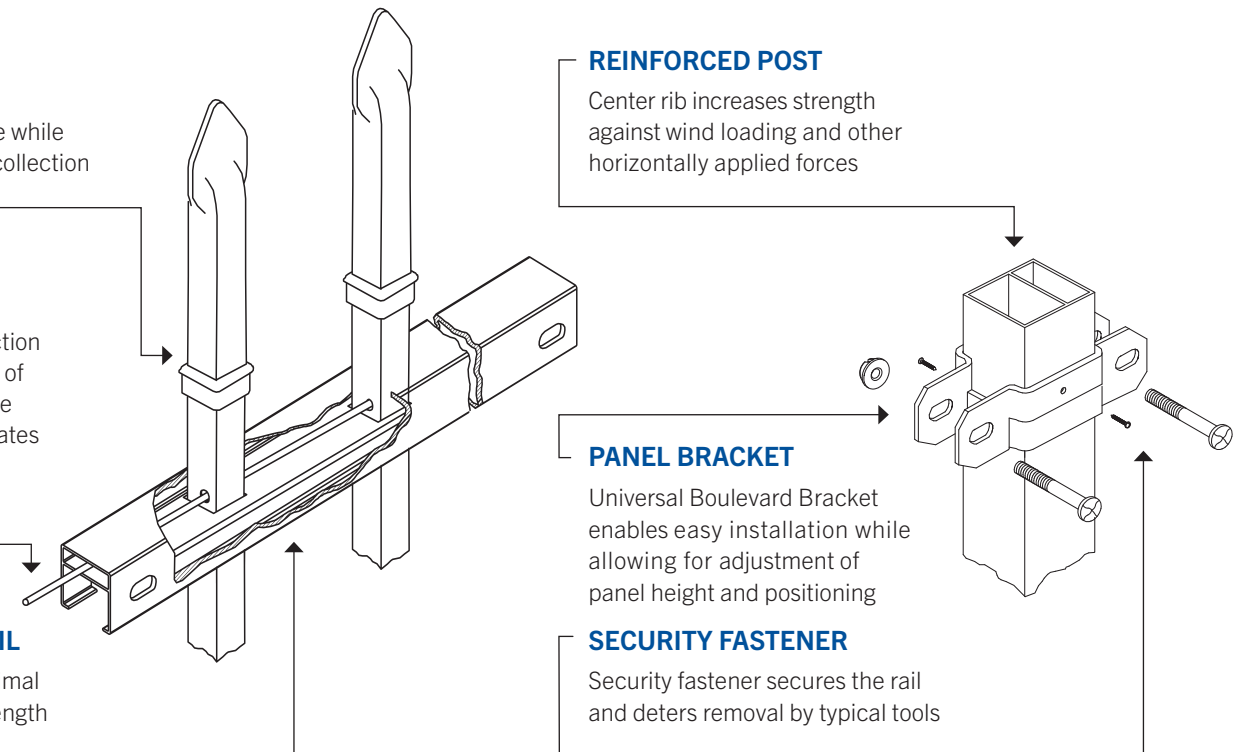
Center rib increases strength against wind loading and other horizontally applied forces

PANEL BRACKET

Universal Boulevard Bracket enables easy installation while allowing for adjustment of panel height and positioning

SECURITY FASTENER

Security fastener secures the rail and deters removal by typical tools



NO RIVETS. NO SCREWS. NO WELDS.

PICKETS

1" SQ. X .062" /
.125" WALL*
*Invincible Only

RAILS

1.75" X 1.75" X (.070" SIDE & TOP WALL)
FORERUNNER® RAILS

POSTS

2.5" SQ X .080"
3" SQ X .125"
4" SQ X .250"

HEIGHTS

4', 5', 6', 7', 8', 9', 10'



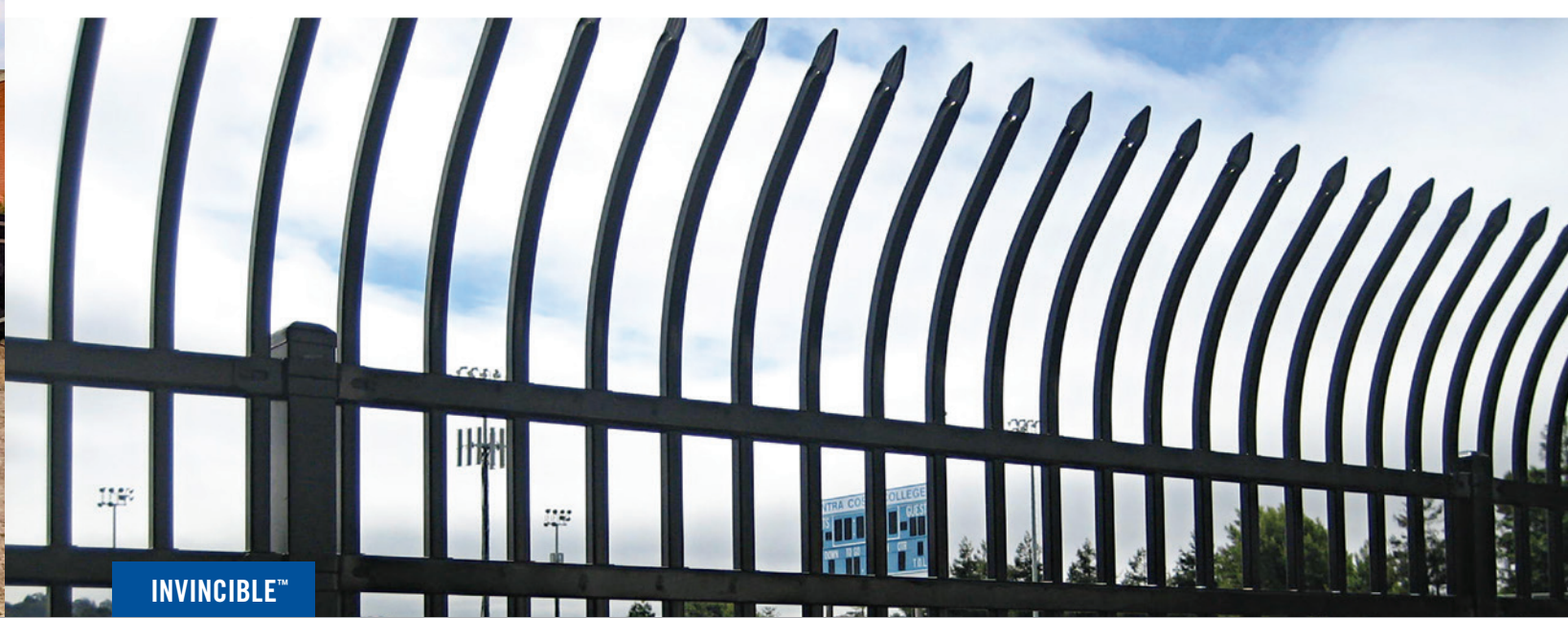
CLASSIC™



MAJESTIC™



GENESIS™



INVINCIBLE™

STYLES



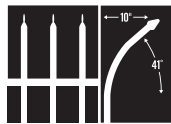
CLASSIC™



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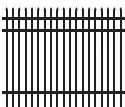
Note: Classic, Majestic, Genesis & Invincible 3- & 4-rail panels are IBC compliant.

BOTTOM OPTION

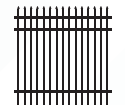


STANDARD
BOTTOM
RAIL

PANEL LENGTH

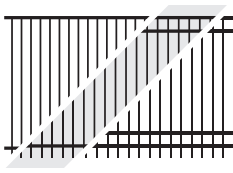


8' OPTION



6' OPTION

PANELS



2-RAIL, 3-RAIL & 4-RAIL
PANELS AVAILABLE

Note: 4-rail is standard for heights 8' and over,
3-rail is standard for heights 4' thru 7' &
2-rail is standard for heights 4' thru 6'.

COLORS



BLACK



BRONZE



SAND



WHITE

Custom colors also available.
Refer to color sample for actual color.

ADORNMENTS



BALL CAP



RING
(internally
secured)

POST STRENGTH & SECURITY

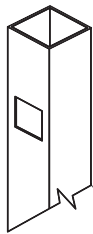
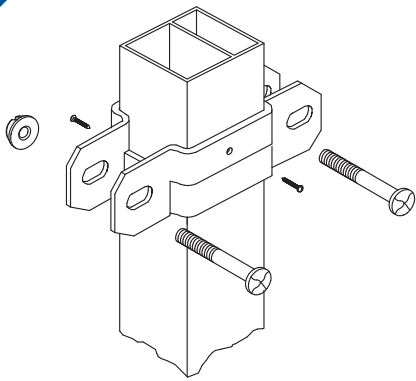
There are many advantages to choosing Echelon II® reinforced posts over standard punched posts made by typical aluminum fence manufacturers.

Echelon II® Posts

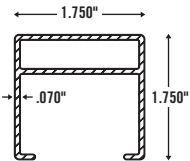
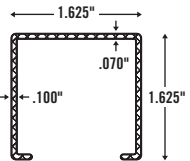
- Provide unparalleled strength due to a reinforced web profile design
- Require a single post (non-punched) for all line, end & corner posts (one post)
- Wrap-around brackets are secured to the rail with a tamper proof fastener, ensuring the greatest level of security

Standard Punched Posts

- ✗ Are weakened by removal of material from side-wall, yielding a vulnerable design
- ✗ Require different posts for all line, end & corner posts (multiple posts)
- ✗ The rail is inserted into the post and secured using a single screw — providing no level of security

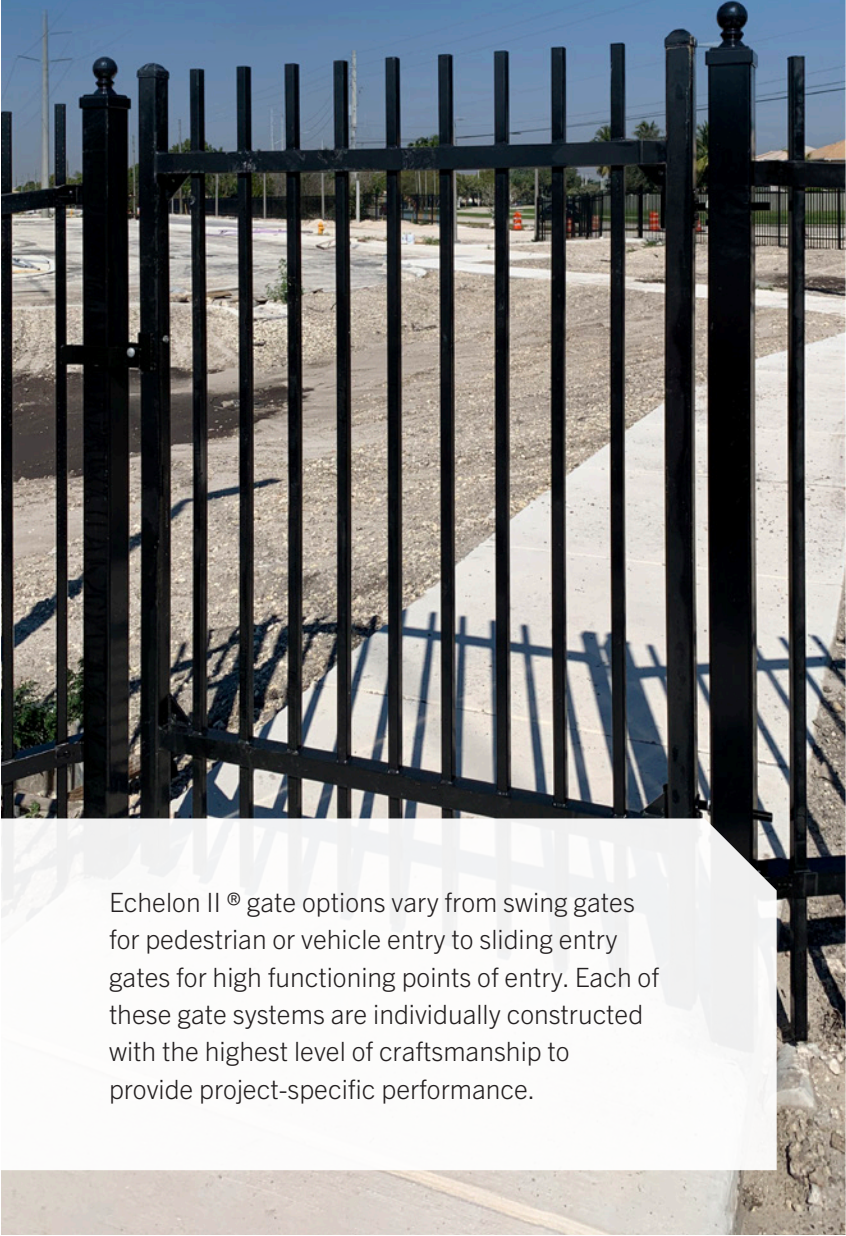


RAIL STRENGTH COMPARISON

STRUCTURAL PARAMETERS		FORERUNNER™ ECHELON II	U-CHANNEL COMPETITORS
Architectural Profile of rail shape. Vertical Design Loads are per rail. (For capacity of fence panel, multiply by number of rails)			
T_{eff} = Effective Wall Thickness (inches)		.070	.100 / .070
S_v = Section Modulus (inches vertical)		.125	.135
S_h = Section Modulus (inches horizontal)		.260	.260
Vertical Load Data PV_f = Ultimate Vertical	6' span	243#	262#
	8' span	182#	182#
Horizontal Load Data PH_f = Ultimate Horizontal	6' span	505#	499#
	8' span	379#	373#
Vertical Load Data* PV_d = Vertical Design Load @ 66° F_y	6' span	145#	145#
	8' span	109#	109#
Horizontal Load Data* PH_d = Horizontal Design Load @ 66° F_y	6' span	303#	299#
	8' span	227#	224#

* Recommended load value for safe structural design / allowable strength = .66° F

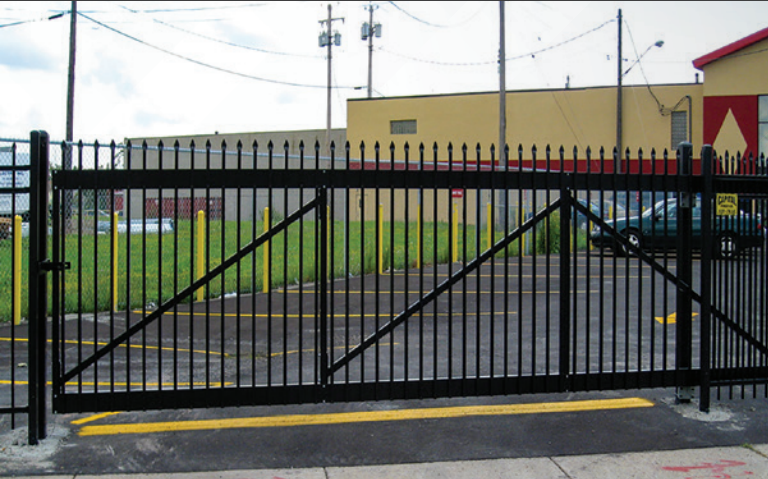
GATE SYSTEMS



Echelon II ® gate options vary from swing gates for pedestrian or vehicle entry to sliding entry gates for high functioning points of entry. Each of these gate systems are individually constructed with the highest level of craftsmanship to provide project-specific performance.



SWING GATE



SLIDE GATE



EXODUS GATE

Echelon fence systems are protected to endure the elements and are maintenance free.



Echelon fence systems are backed by over 40 years of excellence in the fencing industry.



Ameristar is committed to providing products that meet the Buy American Act.



Why Choose Ameristar?

KNOWLEDGE AND EXPERIENCE

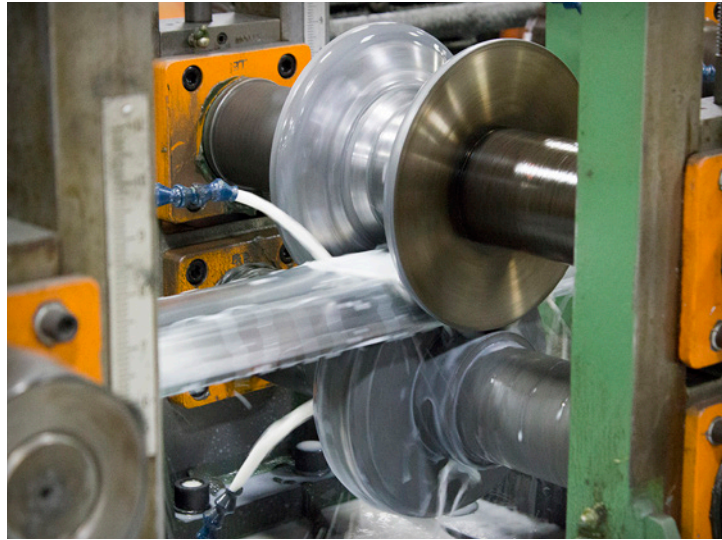
For over 40 years we've delivered aesthetically pleasing, high-quality and innovative fencing products with superior design strength and easy installation.

PROVEN CAPABILITIES

Our integrated in-house processes, extensive raw materials and finished goods inventory translate into quality, on-time delivery.

INDUSTRY LEADERSHIP

We continually raise the bar in manufacturing customer-focused solutions. Our high standards produce premium products that go beyond merely meeting minimum industry standards.



FENCE PRODUCTS

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TRANE OMNIA R1 PROPOSAL

North Rockland High School



- ☐ NO EXCEPTIONS TAKEN
☐ REVISE AND RESUBMIT
☒ MAKE CORRECTIONS AS NOTED
☐ REJECTED

No exceptions taken, corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general compliance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correcting all quantities and dimensions; selecting fabrication process and techniques of construction; coordination his work with that of other trades; and performing his work in a safe and satisfactory manner.

GPI | Engineering
Design
Planning
Construction Inspection
845.368.4050 **GPINET.COM**
Greenman-Pedersen, Inc.
2 Executive Boulevard, Suite 202
Suffern, NY 10901

DATE: 11/1/2024 BY: efaccioli

Proposal Prepared For:

North Rockland Central School District
65 Chapel St
Garnerville, NY 10923

Local Trane Office:

Trane U.S. Inc.
19 Chapin Road, Bldg B, Suite 200
Pine Brook, NJ 07058

Local Trane Representatives:

Stav Shadmi
Systems Sales Account Manager
Cell: (973) 303-8271

Michael Dunham
Systems Sales Account Manager
Cell: (862) 235-5122

Omnia Proposal Number: B6-uZ0AAK-24-007

Date: October 31, 2024

Prepared For:

North Rockland Central School District

Date: October 31, 2024**COOP Proposal Number:** B6-uZ0AAK-24-007**Job Name:**

North Rockland HS Fields - Phase 2 & HVAC

COOP & Federal Contract ID: OMNIA Racine #3341**Delivery Terms:**

Freight Allowed and Prepaid - F.O.B. Factory

Payment Terms: Net 30 Days

Trane U.S. Inc. is pleased to provide the following proposal for your review and approval.

Tag Data - Performance Climate Changer (CSAA) (Qty: 3)

Item	Tag(s)	Qty	Description	Model Number
A1	H-1	1	Performance Climate Changer	CSAA014UB
A2	B-2	1	Performance Climate Changer	CSAA014UB
A3	B-3	1	Performance Climate Changer	CSAA012UB

Product Data - Performance Climate Changer (CSAA)**Items:** A1, A2, A3 **Qty:** 3 **Tag(s):** H-1, B-2, B-3**Unit level options**

Outdoor Performance Climate Changers
 6in. integral base frame
 Short circuit current rating 5 kA
 Curb extension and adapter curb (Field Installed by Contractor)
 Unit is of modular construction and will ship in two (2) sections

Controls and VFD/starter

Supply fan motorized impeller control panel – left hand
 Return fan motorized impeller control panel – left hand

Warranty

Startup & 2 Year Labor Warranty by NJ Trane Service

Fan section (Pos #1)

1 Return fan
 Standard transmitter flow meter
 Door- right hand
 Bottom inlet
 Back exhaust damper with hood

Air mixing section (Pos #2)

Back damper - high velocity opposed
 TRAQ outdoor air damper with hood – right hand
 TRAQ outdoor air damper with hood – left hand
 Door – right hand

Flat filter section (Pos #3)

4in. cartridge- MERV 14 (Field Installed by Contractor)
 Door - right hand

Coil section (Pos #4)

Hot water heating coil with copper tubes, aluminum fins, and galvanized steel casing
 Coil connection – left hand
 Drain pan – left hand
 Door – right hand
 36-inch pipe cabinet – left hand

Coil section (Pos #5)

Chilled water-cooling coil with copper tubes, aluminum fins, and galvanized steel casing
 Propylene Glycol
 Coil connection – left hand
 Drain pan – left hand
 Door – right hand
 36-inch pipe cabinet – left hand

Fan section (Pos #6)

Supply fan

2 Fans
 Standard transmitter flow meter
 Motorized impeller
 Fan status current sensor
 Door - right side
 Bottom rectangular discharge

include the following
 disconnects and vfds, adapter curb, spare parts, start up,

1. NOT Included: Disconnect, supply and return smoke detectors, water piping specialties, external vibration isolation, rigging/receiving, installation, spare parts, microprocessor controller, sensors, actuators, valves, switches.
2. Units are of modular construction and will ship in five (5) sections.

Tag Data – VRF ODU – Single Phase – P Series (Qty: 3)

Item	Tag(s)	Qty	Description
B1	ACCU-1,2,3	3	VRF ODU – Single Phase – P Series

Product Data - Ductless Split (P Series)

Item: B1 Qty: 3 Tag(s): ACCU-1, ACCU-2, ACCU-3

TRUA0121KA70NA – Outdoor Heat Pump
 TAR-41MAAU - Wired Programmable Wall Controller
 QSMS2401M – 24" Fan Stand
 WB-KIT – Low Ambient Kit
 HG-A5 – Hail Guards

Tag Data - VRF Controls (Qty: 1)

Item	Tag(s)	Qty	Description
C1	AHU-1,2,3	3	VRF Indoor Unit – P Series

Product Data – VRF Indoor Unit

Item: C2 Qty: 3 Tag(s): AHU-1, AHU-2, AHU-3

TPKA0A0121LA10A - Wall Mounted Indoor Unit
 GOBI-II-REFCO – Condensate pump w/ drain pan sensor

Not Included: Control integration/wiring, smoke detectors, refrigeration tees, filter boxes, flow switches, secondary drain pans, secondary condensate overflow sensors, external condensate pumps (unless otherwise noted), **disconnects**, refrigerant piping specialties, hangers, refrigerant piping, insulation, isolation valves, additional refrigerant, roof rails or curbs, condensing unit mounting brackets, humidity sensors, external vibration isolation, rigging/receiving, spare parts, service labor, installation labor, extended warranty, labor warranty.

Ductless Warranty/Technical Installation Support

- A. Site Review by Ductless Technical Specialist
 1. Pre-construction meeting with Trane Ductless Technical Specialist required to review site conditions, installation requirements, best practices, and pre-startup requirements.
 2. At least (1) jobsite review during installation with Trane Ductless Technical Specialist required.
 3. Installing Contractor must provide updated piping layout required to complete the Diamond System Builder design file.
 4. Owner-Training by Trane Service Department is not included unless otherwise noted.
- B. VRF City-Multi Start-Up Assistance by Ductless Technical Specialist
 1. **No start-up assistance included on Nv&P-Series Mini-Splits unless otherwise noted.**
 2. Trane can provide a Ductless Technical Specialist to supervise the startup of up to 2 systems.
 3. Installing Contractor MUST have technicians on-site to perform mechanical start-up under the supervision of Trane. Technician must be equipped with Maintenance Tool and Laptop.
 4. Installing Contractor must contact Ductless Technical Specialist to schedule VRF Start-Up Supervision no less than 2 weeks before requested start-up date.
 5. Installing contractor must submit completed Component Location Sheet and Prestart Checklist to Ductless Technical Specialist no later than 3-days prior to requested start-up date.
 6. Installing Contractor must verify system installations meet Trane-Mitsubishi requirements including but not limited to service clearances, pressure tests, vacuum tests, electrical power to units, wiring/piping connections, and refrigerant charge prior to start-up.
 7. No installation labor will be completed by Trane personnel unless otherwise noted.
 8. City Multi and Nv&P-Series Service/Maintenance Tools not included unless otherwise noted.
 9. Any additional labor required from Trane to complete start-up procedure will be billed separately.

Responsibilities of DTS at Assisted Start-Up:

1. Provide support to installing contractor as system start-up data is pulled into Maintenance Tool
2. Update Diamond System Builder per marked-up as-built provided by Installing Contractor
3. Population of TE-200/TW-50 if applicable (any integration and programming by others)

Responsibilities of Installing Contractor at Assisted Start-Up:

1. Electrical Testing on outdoor units
2. Physical inspection of the outdoor units
3. Troubleshoot indoor units if there is an issue
4. Handling of additional refrigerant and adding of trim charge
5. Setting addresses on the Indoor units, Outdoor units, Controllers, and Branch Controllers (if applicable)
6. Performing of vacuum and pressure tests

C. Warranty

1. VRF City-Multi Standard Warranty is 1 year parts, 7 year compressor from the time of startup. VRF City-Multi Extended 10-Year Parts/Compressor Warranty will be applied if the following requirements are met:
 - a. Installing Contractor completes a certified Trane-Mitsubishi 3-day City-Multi Installation/Service Course, and documents attendees and date of completion.
 - b. The system is designed by a certified Diamond Designer using Diamond System Builder™
 - c. The contractor generates a complete and approved METUS Extended Warranty Process Report from the Diamond System Builder software.
 (See Trane-Mitsubishi Warranty Policy for details.)
2. **Installing Contractor is responsible for completion of Diamond System Builder warranty filing and final submission to METUS Extended Warranty Department.**
3. Nv&P Series Standard Warranty is 5 year parts, 7 year compressor from the time of startup. Nv&P Series Extended 10-Year Parts/Compressor Warranty will be applied if the product is installed in a residential application and registered within 90 days of installation. See Nv-Series and P-Series Limited Warranty Policies for details.
4. No labor warranty is included here unless otherwise noted. Please contact your Trane Account Manager for availability.

Supplementary Guidelines

- A. Purchasing Contractor and/or Consulting Engineer must validate unit voltages, model numbers, quantities, required accessories, and unit configurations prior to order.
- B. Consulting Engineer/Architect and Installing Contractor must approve equipment submittals and system design prior to order, including but not limited to all code/standard compliances, system application (heat pump vs. heat recovery), service clearances, refrigerant concentration compliance, load analysis, unit configuration, and installation requirements.
- C. Outdoor condensing units must be installed on stands at a minimum height of 12". Ground installation or raised pads are not acceptable.
- D. Insulation is required on all condensate piping and refrigerant piping including liquid lines, low pressure gas lines, and high pressure gas lines.
- E. All M-Net Control Wiring must be 16AWG, 2-conductor, stranded, shielded cable (MA controllers allow 22-16AWG wire)
- F. All BC-Controllers must have condensate drain line installed.
- G. All Linear Expansion Valve kits require 208V/1ph power.
- H. Additional units/accessories not included in the scope will be at an additional cost.
- I. All TQ*YP Water Source units require a **field-supplied** flow switch and strainer. Water quality must be adequately maintained. See the METUS installation manual for full details.

Disclaimer:

To protect our climate and reduce emissions from hydrofluorocarbons (HFCs), the American Innovation & Manufacturing (AIM) Act directs the U.S. Environmental Protection Agency (EPA) to phase down the supply of HFCs. This proposal includes Mitsubishi Electric Trane HVAC Mini Split heat pump products that must comply with the AIM Act by transitioning to a next-generation refrigerants with less than 700 GWP. R-454B has a global warming potential of 466 and will replace the proposed R-410A mini split systems quoted on this project when R-410A unit inventory is depleted. The AIM act mandates that manufacturers must discontinue manufacturing R-410A mini split heat pumps by December 31st, 2024, and discontinue selling them by December 31st, 2025. As such, Trane will begin to phase down the sale and distribution of R-410A mini splits in the 2025 calendar year and transition to R-454B mini splits when R-410A unit inventory is depleted. The above proposal includes R-410A product that will be subject to this transition. This proposal is only valid for the items listed on the proposal and is only valid until R-410A unit inventory is depleted. At such time, this proposal will need to be updated to include R-454B units. Please contact your Trane Sales Representative for an updated proposal.

Alternate #1**Tag Data - Performance Climate Changer (CSAA) (Qty: 1)**

Item	Tag(s)	Qty	Description	Model Number
D1	F-2	1	Performance Climate Changer	CSAA025UB

Item: D1 Qty: 1 Tag(s): F-2**Unit level options**

Outdoor Performance Climate Changer
 6in. integral base frame
 Short circuit current rating 5 kA
 Curb extension and adapter curb (Field Installed by Contractor)
 Unit is of modular construction and will ship in two (5) sections

Controls and VFD/starter

Supply VFD per fan
 Exhaust VFD per fan
 Energy wheel starter

Warranty

Startup & 2 Year Labor Warranty by NJ Trane Service

Fan section (Pos #1)

Exhaust fan
 2 fans
 Transmitter flow meter
 Fan status current sensor
 NEMA premium compliant open drip proof (ODP)
 Inverter balance with shaft grounding
 Spring isolated
 Direct drive plenum fan
 Door – right hand

Controls sections (Pos #2 & 9)

Starter/VFD section

Air mixing section (Pos #3)

Filter transducer and pressure gage
 TRAQ outdoor air damper with hood – back hand
 4in. cartridge - MERV 14 Filter (Field Installed by Contractor)
 Door - right hand

Wheel (Pos #5)

Energy recovery wheel
 Exhaust air bypass damper
 Outside air bypass damper
 Recirculation damper
 2" filter frame MERV 13 filter (Field installed by Contractor)
 Filter transducer and gage
 Doors - right hand

Air mixing section (Pos #7)

Back opening
 Bottom opening
 Door - right hand

Air mixing section (Pos #8)

Front opening
 Top opening
 Door - right hand

Coil section (Pos #10)

Hot water heating coil w/copper tubes, aluminum fins, and galvanized steel casing
 Coil connection – left hand
 Drain pan – left hand
 Door – right hand
 36-inch pipe cabinet – left hand

Coil section (Pos #11)

Chilled water-cooling coil w/copper tubes, aluminum fins, and galvanized steel casing
 Coil connection – left hand

Drain pan – left hand
Door – right hand
36-inch pipe cabinet – left hand
Fan section (Pos #12)
Supply fan
2 fans
NEMA premium compliant open drip proof (ODP)
Inverter balance with shaft grounding
Spring isolated
Transmitter flow meter
Direct drive plenum fan
Fan status current sensor
Bottom rectangular discharge
Door - right hand

1. NOT Included: Disconnect, supply and return smoke detectors, water piping specialties, external vibration isolation, rigging/receiving, installation, spare parts, microprocessor controller, sensors, actuators, valves, switches.
2. Units are of modular construction and will ship in five (5) sections.

include the following
disconnects and vfds, adapter curb, spare parts, start up,

COORDINATION NOTES AND SCOPE WORK REQUIRED (BY OTHERS)1. Trane RTU's

- a. The installation contractor is responsible for field installing all items as noted in the scope of work.
- b. These units will ship in multiple pieces for field rigging and assembly by others. Shipping splits are referenced within the scope.
- c. Trane is not including any controls work or material whatsoever. All unit controllers, valves, actuators, sensors and any scope related to ATC are to be furnished and installed by others.
- d. Smoke dampers and airflow stations are not provided. All work pertaining to fire alarm systems are not included by Trane.
- e. Several duct drops exist under each air handling unit with dampers and actuators. As per the district's request the new curbs will not include dampers, actuators or HW reheat coils. All zones will be in either heating or cooling mode.
- f. Extension adapter curbs will be provided by Trane and installed by contractor. Extension adapter curbs will be provided without dampers, actuators or reheat coils. Installing contractor will be responsible for field cutting the supply and return openings to match existing. Reference Drawing A-500 for details.
- g. Installing contractor to procure and field install disconnect for each RTU.
- h. Installing contractor is responsible for balancing all rooftop air handling units.
- i. Installing contractor to reference Owner-Furnished/Contractor-Installed Product Requirements shown in Spec "Section 016400 – Owner Furnished Products".

2. Trane Ductless Split Systems:

- a. Ductless split system material will ship to the installing contractor's shop address, so material does not get misplaced onsite.
- b. Installing contractor to review and become familiar with Ductless Warranty/Technical Installation Support terminology as provided in this scope of work.

3. General Coordination:

- a. Contractor is responsible for coordinating a crane based on their installation schedule.
- b. Contractor to handle external piping through unit mounted pipe chase for both hot water and chilled water coils.
- c. Contractor to account for lifting, trucking, offloading and storage of Trane equipment as necessary.
- d. Contractor is responsible for installing all ship loose items denoted as "Field installed by Contractor".

PROJECT PRICING

Total Net Price for H1, B2, B3 (Excluding Sales Tax) \$ To Follow

Total Net Price for P/P Bond (Excluding Sales Tax) \$ To Follow

- Current estimated lead time is 27-28 weeks from date of release.

Total Net Price for Alternate F2 (Excluding Sales Tax) \$ To Follow

Total Net Price for P/P Bond (Excluding Sales Tax) \$ To Follow

- Current estimated lead time is 32-33 weeks from date of release.

Tax Status: Taxable ☐ Exempt ☐	IF EXEMPT PLEASE SUBMIT COMPLETED TAX EXEMPTION CERTIFICATE WITH YOUR SIGNED PROPOSAL OR WITH YOUR PURCHASING DOCUMENTS, KEEP YOUR ORIGINAL ON FILE IN THE OFFICE. YOU WILL BE CHARGED TAX IF A VALID EXEMPTION CERTIFICATE IS NOT ON FILE BEFORE EQUIPMENT, PARTS OR SERVICES ARE PROVIDED. SEE WWW.TAXSITES.COM/STATE-LINKS.HTML FOR TAX FORMS.
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Sincerely,

Stav Shadmi / Michael Dunham

Trane U.S. Inc.

19 Chapin Road, Bldg B, Suite 200
Pine Brook, NJ 07058

This proposal is subject to your acceptance of the following Trane terms and conditions.

TERMS AND CONDITIONS – COMMERCIAL INSTALLATION

"Company" shall mean Trane U.S. Inc. for Work performed in the United States or Trane Canada ULC for Work performed in Canada.

1. Acceptance; Agreement. These terms and conditions are an integral part of Company's offer and form the basis of any agreement (the "Agreement") resulting from Company's proposal (the "Proposal") for the commercial goods and/or services described (the "Work"). **COMPANY'S TERMS AND CONDITIONS AND EQUIPMENT PRICES ARE SUBJECT TO PERIODIC CHANGE OR AMENDMENT.** The Proposal is subject to acceptance in writing by the party to whom this offer is made or an authorized agent ("Customer") delivered to Company within 30 days from the date of the Proposal. Prices in the Proposal are subject to change at any time upon notice to Customer. If Customer accepts the Proposal by placing an order, without the addition of any other terms and conditions of sale or any other modification, Customer's order shall be deemed acceptance of the Proposal subject to Company's terms and conditions. If Customer's order is expressly conditioned upon Company's acceptance or assent to terms and/or conditions other than those expressed herein, return of such order by Company with Company's terms and conditions attached or referenced serves as Company's notice of objection to Customer's terms and as Company's counteroffer to provide Work in accordance with the Proposal and the Company terms and conditions. If Customer does not reject or object in writing to Company within 10 days, Company's counteroffer will be deemed accepted. Notwithstanding anything to the contrary herein, Customer's acceptance of the Work by Company will in any event constitute an acceptance by Customer of Company's terms and conditions. This Agreement is subject to credit approval by Company. Upon disapproval of credit, Company may delay or suspend performance or, at its option, renegotiate prices and/or terms and conditions with Customer. If Company and Customer are unable to agree on such revisions, this Agreement shall be cancelled without any liability, other than Customer's obligation to pay for Work rendered by Company to the date of cancellation.

2. Connected Services. In addition to these terms and conditions, the Connected Services Terms of Service ("Connected Services Terms"), available at <https://www.trane.com/TraneConnectedServicesTerms>, as updated from time to time, are incorporated herein by reference and shall apply to the extent that Company provides Customer with Connected Services, as defined in the Connected Services Terms.

3. Title and Risk of Loss. All Equipment sales with destinations to Canada or the U.S. shall be made as follows: FOB Company's U.S. manufacturing facility or warehouse (full freight allowed). Title and risk of loss or damage to Equipment will pass to Customer upon tender of delivery of such to carrier at Company's U.S. manufacturing facility or warehouse.

4. Pricing and Taxes. Unless otherwise noted, the price in the Proposal includes standard ground transportation and, if required by law, all sales, consumer, use and similar taxes legally enacted as of the date hereof for equipment and material installed by Company. Tax exemption is contingent upon Customer furnishing appropriate certificates evidencing Customer's tax-exempt status. Company shall charge Customer additional costs for bonds agreed to be provided. Equipment sold on an uninstalled basis and any taxable labor/labour do not include sales tax and taxes will be added. Within thirty (30) days following Customer acceptance of the Proposal without addition of any other terms and conditions of sale or any modification, Customer shall provide notification of release for immediate production at Company's factory. Prices for Work are subject to change at any time prior to shipment to reflect any cost increases related to the manufacture, supply, and shipping of goods. This includes, but is not limited to, cost increases in raw materials, supplier components, labor, utilities, freight, logistics, wages and benefits, regulatory compliance, or any other event beyond Company's control. If such release is not received within 6 months after date of order receipt, Company reserves the right to cancel any order. If shipment is delayed due to Customer's actions, Company may also charge Customer storage fees. Company shall be entitled to equitable adjustments in the contract price to reflect any cost increases as set forth above and will provide notice to Customer prior to the date for which the increased price is to be in effect for the applicable customer contract. In no event will prices be decreased.

5. Exclusions from Work. Company's obligation is limited to the Work as defined and does not include any modifications to the Work site under the Americans With Disabilities Act or any other law or building code(s). In no event shall Company be required to perform work Company reasonably believes is outside of the defined Work without a written change order signed by Customer and Company.

6. Performance. Company shall perform the Work in accordance with industry standards generally applicable in the area under similar circumstances as of the time Company performs the Work. Company may refuse to perform any Work where working conditions could endanger property or put at risk the safety of persons. Unless otherwise agreed to by Customer and Company, at Customer's expense and before the Work begins, Customer will provide any necessary access platforms, catwalks to safely perform the Work in compliance with OSHA or state industrial safety regulations.

7. Payment. Customer shall pay Company's invoices within net 30 days of invoice date. Company may invoice Customer for all equipment or material furnished, whether delivered to the installation site or to an off-site storage facility and for all Work performed on-site or off-site. No retention shall be withheld from any payments except as expressly agreed in writing by Company, in which case retention shall be reduced per the contract documents and released no later than the date of substantial completion. Under no circumstances shall any retention be withheld for the equipment portion of the order. If payment is not received as required, Company may suspend performance and the time for completion shall be extended for a reasonable period of time not less than the period of suspension. Customer shall be liable to Company for all reasonable shutdown, standby and start-up costs as a result of the suspension. Company reserves the right to add to any account outstanding for more than 30 days a service charge equal to 1.5% of the principal amount due at the end of each month. Customer shall pay all costs (including attorneys' fees) incurred by Company in attempting to collect amounts due and otherwise enforcing these terms and conditions. If requested, Company will provide appropriate lien waivers upon receipt of payment. Customer agrees that, unless Customer makes payment in advance, Company will have a purchase money security interest in all equipment from Company to secure payment in full of all amounts due Company and its order for the equipment, together with these terms and conditions, form a security agreement. Customer shall keep the equipment free of all taxes and encumbrances, shall not remove the equipment from its original installation point and shall not assign or transfer any interest in the equipment until all payments due Company have been made.

8. Time for Completion. Except to the extent otherwise expressly agreed in writing signed by an authorized representative of Company, all dates provided by Company or its representatives for commencement, progress or completion are estimates only. While Company shall use commercially reasonable efforts to meet such estimated dates, Company shall not be responsible for any damages for its failure to do so. Delivery dates are approximate and not guaranteed. Company will use commercially reasonable efforts to deliver the Equipment on or before the estimated delivery date, will notify Customer if the estimated delivery dates cannot be honored, and will deliver the Equipment and services as soon as practicable thereafter. In no event will Company be liable for any damages or expenses caused by delays in delivery.

9. Access. Company and its subcontractors shall be provided access to the Work site during regular business hours, or such other hours as may be requested by Company and acceptable to the Work site' owner or tenant for the performance of the Work, including sufficient areas for staging, mobilization, and storage. Company's access to correct any emergency condition shall not be restricted. Customer grants to Company the right to remotely connect (via phone modem, internet or other agreed upon means) to Customer's building automation system (BAS) and/or HVAC equipment to view, extract, or otherwise collect and retain data from the BAS, HVAC equipment, or other building systems, and to diagnose and remotely make repairs at Customer's request.

10. Completion. Notwithstanding any other term or condition herein, when Company informs Customer that the Work has been completed, Customer shall inspect the Work in the presence of Company's representative, and Customer shall either (a) accept the Work in its entirety in writing, or (b) accept the Work in part and specifically identify, in writing, any exception items. Customer agrees to re-inspect any and all excepted items as soon as Company informs Customer that all such excepted items have been completed. The initial acceptance inspection shall take place within ten (10) days from the date when Company informs Customer that the Work has been completed. Any subsequent re-inspection of excepted items shall take place within five (5) days from the date when Company informs Customer that the excepted items have been completed. Customer's failure to cooperate and complete any of said inspections within the required time limits shall constitute complete acceptance of the Work as of ten (10) days from date when Company informs Customer that the Work, or the excepted items, if applicable, has/have been completed.

11. Permits and Governmental Fees. Company shall secure (with Customer's assistance) and pay for building and other permits and governmental fees, licenses, and inspections necessary for proper performance and completion of the Work which are legally required when bids from Company's subcontractors are received, negotiations thereon concluded, or the effective date of a relevant Change Order, whichever is later. Customer is responsible for necessary approvals, easements, assessments and charges for construction, use or occupancy of permanent structures or for permanent changes to existing facilities. If the cost of such permits, fees, licenses and inspections are not included in the Proposal, Company will invoice Customer for such costs.

12. Utilities During Construction. Customer shall provide without charge to Company all water, heat, and utilities required for performance of the Work.

13. Concealed or Unknown Conditions. In the performance of the Work, if Company encounters conditions at the Work site that are (i) subsurface or otherwise concealed physical conditions that differ materially from those indicated on drawings expressly incorporated herein or (ii) unknown physical conditions of an unusual nature that differ materially from those conditions ordinarily found to exist and generally recognized as inherent in construction activities of the type and character as the Work, Company shall notify Customer of such conditions promptly, prior to significantly disturbing same. If such conditions differ materially and cause an increase in Company's cost of, or time required for, performance of any part of the Work, Company shall be entitled to, and Customer shall consent by Change Order to, an equitable adjustment in the Contract Price, contract time, or both.

14. Pre-Existing Conditions. Company is not liable for any claims, damages, losses, or expenses, arising from or related to conditions that existed in, on, or upon the Work site before the Commencement Date of this Agreement ("Pre-Existing Conditions"), including, without limitation, damages, losses, or expenses involving Pre-Existing Conditions of building envelope issues, mechanical issues, plumbing issues, and/or indoor air quality issues involving mold/mould and/or fungi. Company also is not liable for any claims, damages, losses, or expenses, arising from or related to work done by or services provided by individuals or entities that are not employed by or hired by Company.

15. Asbestos and Hazardous Materials. Company's Work and other services in connection with this Agreement expressly excludes any identification, abatement, cleanup, control, disposal, removal or other work connected with asbestos, polychlorinated biphenyl ("PCB"), or other hazardous materials (hereinafter, collectively, "Hazardous Materials"). Customer warrants and represents that, except as set forth in a writing signed by Company, there are no Hazardous Materials on the Work site

that will in any way affect Company's Work and Customer has disclosed to Company the existence and location of any Hazardous Materials in all areas within which Company will be performing the Work. Should Company become aware of or suspect the presence of Hazardous Materials, Company may immediately stop work in the affected area and shall notify Customer. Customer will be exclusively responsible for taking any and all action necessary to correct the condition in accordance with all applicable laws and regulations. Customer shall be exclusively responsible for and, to the fullest extent permitted by law, shall indemnify and hold harmless Company (including its employees, agents and subcontractors) from and against any loss, claim, liability, fees, penalties, injury (including death) or liability of any nature, and the payment thereof arising out of or relating to any Hazardous Materials on or about the Work site, not brought onto the Work site by Company. Company shall be required to resume performance of the Work in the affected area only in the absence of Hazardous Materials or when the affected area has been rendered harmless. In no event shall Company be obligated to transport or handle Hazardous Materials, provide any notices to any governmental agency, or examine the Work site for the presence of Hazardous Materials.

16. Force Majeure. Company's duty to perform under this Agreement is contingent upon the non-occurrence of an Event of Force Majeure. If Company shall be unable to carry out any material obligation under this Agreement due to an Event of Force Majeure, this Agreement shall at Company's election (i) remain in effect but Company's obligations shall be suspended until the uncontrollable event terminates or (ii) be terminated upon 10 days' notice to Customer, in which event Customer shall pay Company for all parts of the Work furnished to the date of termination. An "Event of Force Majeure" shall mean any cause or event beyond the control of Company. Without limiting the foregoing, "Event of Force Majeure" includes: acts of God; acts of terrorism, war or the public enemy; flood; earthquake; tornado; storm; fire; civil disobedience; pandemic insurrections; riots; labor/labour disputes; labor/labour or material shortages; sabotage; restraint by court order or public authority (whether valid or invalid), and action or non-action by or inability to obtain or keep in force the necessary governmental authorizations, permits, licenses, certificates or approvals if not caused by Company; and the requirements of any applicable government in any manner that diverts either the material or the finished product to the direct or indirect benefit of the government.

17. Customer's Breach. Each of the following events or conditions shall constitute a breach by Customer and shall give Company the right, without an election of remedies, to terminate this Agreement or suspend performance by delivery of written notice: (1) Any failure by Customer to pay amounts when due; or (2) any general assignment by Customer for the benefit of its creditors, or if Customer becomes bankrupt or insolvent or takes the benefit of any statute for bankrupt or insolvent debtors, or makes or proposes to make any proposal or arrangement with creditors, or if any steps are taken for the winding up or other termination of Customer or the liquidation of its assets, or if a trustee, receiver, or similar person is appointed over any of the assets or interests of Customer; (3) Any representation or warranty furnished by Customer in this Agreement is false or misleading in any material respect when made; or (4) Any failure by Customer to perform or comply with any material provision of this Agreement. Customer shall be liable to Company for all Work furnished to date and all damages sustained by Company (including lost profit and overhead).

18. Indemnity. To the fullest extent permitted by law, Company and Customer shall indemnify, defend and hold harmless each other from any and all claims, actions, costs, expenses, damages and liabilities, including reasonable attorneys' fees, resulting from death or bodily injury or damage to real or tangible personal property, to the extent caused by the negligence or misconduct of their respective employees or other authorized agents in connection with their activities within the scope of this Agreement. Neither party shall indemnify the other against claims, damages, expenses or liabilities to the extent attributable to the acts or omissions of the other party. If the parties are both at fault, the obligation to indemnify shall be proportional to their relative fault. The duty to indemnify will continue in full force and effect, notwithstanding the expiration or early termination hereof, with respect to any claims based on facts or conditions that occurred prior to expiration or termination.

19. Limitation of Liability. NOTWITHSTANDING ANYTHING TO THE CONTRARY, IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT CONSEQUENTIAL, OR PUNITIVE OR EXEMPLARY DAMAGES (INCLUDING WITHOUT LIMITATION BUSINESS INTERRUPTION, LOST DATA, LOST REVENUE, LOST PROFITS, LOST DOLLAR SAVINGS, OR LOST ENERGY USE SAVINGS, INCLUDING CONTAMINANTS LIABILITIES, EVEN IF A PARTY HAS BEEN ADVISED OF SUCH POSSIBLE DAMAGES OR IF SAME WERE REASONABLY FORESEEABLE AND REGARDLESS OF WHETHER THE CAUSE OF ACTION IS FRAMED IN CONTRACT, NEGLIGENCE, ANY OTHER TORT, WARRANTY, STRICT LIABILITY, OR PRODUCT LIABILITY). In no event will Company's liability in connection with the provision of products or services or otherwise under this Agreement exceed the entire amount paid to Company by Customer under this Agreement.

20. CONTAMINANTS LIABILITY

The transmission of COVID-19 may occur in a variety of ways and circumstances, many of the aspects of which are currently not known. HVAC systems, products, services and other offerings have not been tested for their effectiveness in reducing the spread of COVID-19, including through the air in closed environments. **IN NO EVENT WILL COMPANY BE LIABLE UNDER THIS AGREEMENT OR OTHERWISE FOR ANY INDEMNIFICATION, ACTION OR CLAIM, WHETHER BASED ON WARRANTY, CONTRACT, TORT OR OTHERWISE, FOR ANY BODILY INJURY (INCLUDING DEATH), DAMAGE TO PROPERTY, OR ANY OTHER LIABILITIES, DAMAGES OR COSTS RELATED TO CONTAMINANTS (INCLUDING THE SPREAD, TRANSMISSION, MITIGATION, ELIMINATION, OR CONTAMINATION THEREOF) (COLLECTIVELY, "CONTAMINANT LIABILITIES") AND CUSTOMER HEREBY EXPRESSLY RELEASES COMPANY FROM ANY SUCH CONTAMINANTS LIABILITIES.**

21. Patent Indemnity. Company shall protect and indemnify Customer from and against all claims, damages, judgments and loss arising from infringement or alleged infringement of any United States patent by any of the goods manufactured by Company and delivered hereunder, provided that in the event of suit or threat of suit for patent infringement, Company shall promptly be notified and given full opportunity to negotiate a settlement. Company does not warrant against infringement by reason of Customer's design of the articles or the use thereof in combination with other materials or in the operation of any process. In the event of litigation, Customer agrees to reasonably cooperate with Company. In connection with any proceeding under the provisions of this Section, all parties concerned shall be entitled to be represented by counsel at their own expense.

22. Limited Warranty. Company warrants for a period of 12 months from the date of substantial completion ("Warranty Period") commercial equipment manufactured and installed by Company against failure due to defects in material and manufacture and that the labor/labour furnished is warranted to have been properly performed (the "Limited Warranty"). Trane equipment sold on an uninstalled basis is warranted in accordance with Company's standard warranty for supplied equipment. **Product manufactured by Company that includes required startup and is sold in North America will not be warranted by Company unless Company performs the product start-up.** Substantial completion shall be the earlier of the date that the Work is sufficiently complete so that the Work can be utilized for its intended use or the date that Customer receives beneficial use of the Work. If such defect is discovered within the Warranty Period, Company will correct the defect or furnish replacement equipment (or, at its option, parts therefor) and, if said equipment was installed pursuant hereto, labor/labour associated with the replacement of parts or equipment not conforming to this Limited Warranty. Defects must be reported to Company within the Warranty Period. Exclusions from this Limited Warranty include damage or failure arising from: wear and tear; corrosion, erosion, deterioration; Customer's failure to follow the Company-provided maintenance plan; refrigerant not supplied by Company; and modifications made by others to Company's equipment. Company shall not be obligated to pay for the cost of lost refrigerant. Notwithstanding the foregoing, all warranties provided herein terminate upon termination or cancellation of this Agreement. No warranty liability whatsoever shall attach to Company until the Work has been paid for in full and then said liability shall be limited to the lesser of Company's cost to correct the defective Work and/or the purchase price of the equipment shown to be defective. Equipment, material and/or parts that are not manufactured by Company ("Third-Party Product(s)") are not warranted by Company and have such warranties as may be extended by the respective manufacturer. **CUSTOMER UNDERSTANDS THAT COMPANY IS NOT THE MANUFACTURER OF ANY THIRD-PARTY PRODUCT(S) AND ANY WARRANTIES, CLAIMS, STATEMENTS, REPRESENTATIONS, OR SPECIFICATIONS ARE THOSE OF THE THIRD-PARTY MANUFACTURER, NOT COMPANY AND CUSTOMER IS NOT RELYING ON ANY WARRANTIES, CLAIMS, STATEMENTS, REPRESENTATIONS, OR SPECIFICATIONS REGARDING THE THIRD-PARTY PRODUCT THAT MAY BE PROVIDED BY COMPANY OR ITS AFFILIATES, WHETHER ORAL OR WRITTEN. THE WARRANTY AND LIABILITY SET FORTH IN THIS AGREEMENT ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND/OR OTHERS ARISING FROM COURSE OF DEALING OR TRADE. COMPANY MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. ADDITIONALLY, COMPANY MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING PREVENTING, ELIMINATING, REDUCING OR INHIBITING ANY MOLD, FUNGUS, BACTERIA, VIRUS, MICROBIAL GROWTH, OR ANY OTHER CONTAMINANTS (INCLUDING COVID-19 OR ANY SIMILAR VIRUS) (COLLECTIVELY, "CONTAMINANTS"), WHETHER INVOLVING OR IN CONNECTION WITH EQUIPMENT, ANY COMPONENT THEREOF, SERVICES OR OTHERWISE. IN NO EVENT SHALL COMPANY HAVE ANY LIABILITY FOR THE PREVENTION, ELIMINATION, REDUCTION OR INHIBITION OF THE GROWTH OR SPREAD OF SUCH CONTAMINANTS INVOLVING OR IN CONNECTION WITH ANY EQUIPMENT, THIRD-PARTY PRODUCT, OR ANY COMPONENT THEREOF, SERVICES OR OTHERWISE AND CUSTOMER HEREBY SPECIFICALLY ACKNOWLEDGES AND AGREES THERETO.**

23. Insurance. Company agrees to maintain the following insurance while the Work is being performed with limits not less than shown below and will, upon request from Customer, provide a Certificate of evidencing the following coverage:

Commercial General Liability	\$2,000,000 per occurrence
Automobile Liability	\$2,000,000 CSL
Workers Compensation	Statutory Limits

If Customer has requested to be named as an additional insured under Company's insurance policy, Company will do so but only subject to Company's manuscript additional insured endorsement under its primary Commercial General Liability policies. In no event does Company waive its right of subrogation.

24. Commencement of Statutory Limitation Period. Except as to warranty claims, as may be applicable, any applicable statutes of limitation for acts or failures to act shall commence to run, and any alleged cause of action stemming therefrom shall be deemed to have accrued, in any and all events not later than the last date that Company or its subcontractors physically performed work on the project site.

25. General. Except as provided below, to the maximum extent provided by law, this Agreement is made and shall be interpreted and enforced in accordance with the laws of the state or province in which the Work is performed, without regard to choice of law principles which might otherwise call for the application of a different state's or province's law. Any dispute arising under or relating to this Agreement that is not disposed of by agreement shall be decided by litigation in a court of competent jurisdiction located in the state or province in which the Work is performed. Any action or suit arising out of or related to this Agreement must be commenced within one year after the cause of action has accrued. To the extent the Work site is owned and/or operated by any agency of the Federal Government, determination of any substantive issue of law shall be according to the Federal common law of Government contracts as enunciated and applied by Federal judicial bodies and boards of contract appeals of the Federal Government. This Agreement contains all of the agreements, representations and understandings of the parties and supersedes all previous understandings, commitments or agreements, oral or written, related to the subject matter hereof. This Agreement may not be amended, modified or terminated except by a writing signed by the parties hereto. No documents shall be incorporated herein by reference except to the extent Company is a signatory thereon. If any term or condition of this Agreement is invalid, illegal or incapable of being enforced by any rule of law, all other terms and conditions of this Agreement will nevertheless remain in full force and effect as long as the economic or legal substance of the transaction contemplated hereby is not affected in a manner adverse to any party hereto. Customer may not assign, transfer, or convey this Agreement, or any part hereof, or its right, title or interest herein, without the written consent of the Company. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of Customer's permitted successors and assigns. This Agreement may be executed in several counterparts, each of which when executed shall be deemed to be an original, but all together shall constitute but one and the same Agreement. A fully executed facsimile copy hereof or the several counterparts shall suffice as an original.

26. Equal Employment Opportunity/Affirmative Action Clause. Company is a federal contractor that complies fully with Executive Order 11246, as amended, and the applicable regulations contained in 41 C.F.R. Parts 60-1 through 60-60, 29 U.S.C. Section 793 and the applicable regulations contained in 41 C.F.R. Part 60-741; and 38 U.S.C. Section 4212 and the applicable regulations contained in 41 C.F.R. Part 60-250 Executive Order 13496 and Section 29 CFR 471, appendix A to subpart A, regarding the notice of employee rights in the United States and with Canadian Charter of Rights and Freedoms Schedule B to the Canada Act 1982 (U.K.) 1982, c. 11 and applicable Provincial Human Rights Codes and employment law in Canada.

27. U.S. Government Work.

The following provision applies only to direct sales by Company to the US Government. The Parties acknowledge that all items or services ordered and delivered under this Agreement are Commercial Items as defined under Part 12 of the Federal Acquisition Regulation (FAR). In particular, Company agrees to be bound only by those Federal contracting clauses that apply to "commercial" suppliers and that are contained in FAR 52.212-5(e)(1). Company complies with 52.219-8 or 52.219-9 in its service and installation contracting business.

The following provision applies only to indirect sales by Company to the US Government. As a Commercial Item Subcontractor, Company accepts only the following mandatory flow down provisions in effect as of the date of this subcontract: 52.203-19; 52.204-21; 52.204-23; 52.219-8; 52.222-21; 52.222-26; 52.222-35; 52.222-36; 52.222-50; 52.225-26; 52.247-64. If the Work is in connection with a U.S. Government contract, Customer certifies that it has provided and will provide current, accurate, and complete information, representations and certifications to all government officials, including but not limited to the contracting officer and officials of the Small Business Administration, on all matters related to the prime contract, including but not limited to all aspects of its ownership, eligibility, and performance. Anything herein notwithstanding, Company will have no obligations to Customer unless and until Customer provides Company with a true, correct and complete executed copy of the prime contract. Upon request, Customer will provide copies to Company of all requested written communications with any government official related to the prime contract prior to or concurrent with the execution thereof, including but not limited to any communications related to Customer's ownership, eligibility or performance of the prime contract. Customer will obtain written authorization and approval from Company prior to providing any government official any information about Company's performance of the work that is the subject of the Proposal or this Agreement, other than the Proposal or this Agreement.

28. Limited Waiver of Sovereign Immunity. If Customer is an Indian tribe (in the U.S.) or a First Nation or Band Council (in Canada), Customer, whether acting in its capacity as a government, governmental entity, a duly organized corporate entity or otherwise, for itself and for its agents, successors, and assigns: (1) hereby provides this limited waiver of its sovereign immunity as to any damages, claims, lawsuit, or cause of action (herein "Action") brought against Customer by Company and arising or alleged to arise out of the furnishing by Company of any product or service under this Agreement, whether such Action is based in contract, tort, strict liability, civil liability or any other legal theory; (2) agrees that jurisdiction and venue for any such Action shall be proper and valid (a) if Customer is in the U.S., in any state or United States court located in the state in which Company is performing this Agreement or (b) if Customer is in Canada, in the superior court of the province or territory in which the work was performed; (3) expressly consents to such Action, and waives any objection to jurisdiction or venue; (4) waives any requirement of exhaustion of tribal court or administrative remedies for any Action arising out of or related to this Agreement; and (5) expressly acknowledges and agrees that Company is not subject to the jurisdiction of Customer's tribal court or any similar tribal forum, that Customer will not bring any action against Company in tribal court, and that Customer will not avail itself of any ruling or direction of the tribal court permitting or directing it to suspend its payment or other obligations under this Agreement. The individual signing on behalf of Customer warrants and represents that such individual is duly authorized to provide this waiver and enter into this Agreement and that this Agreement constitutes the valid and legally binding obligation of Customer, enforceable in accordance with its terms.

29. Building Automation Systems and Network Security. Customer and Trane acknowledge that Building Automation System (BAS) and connected networks security requires Customer and Trane to maintain certain cybersecurity obligations. Customer acknowledges that upon completion of installation and configuration of the BAS, the Customer maintains ownership of the BAS and the connected network equipment. Except for any applicable warranty obligations, Customer is solely responsible for the maintenance and security of the BAS and related networks and systems. In the event there is a service agreement between Trane and Customer, Trane will provide the services as set forth in the service agreement.

In order to maintain a minimum level of security for the BAS, associated networks, network equipment and systems, Customer's cybersecurity responsibilities include without limitation:

1. Ensure that the BAS, networks, and network equipment are physically secure and not accessible to unauthorized personnel.
2. Ensure the BAS remains behind a secure firewall and properly segmented from all other customer networks and systems, especially those with sensitive information.
3. Keep all Inbound ports closed to any IP Addresses in the BAS.
4. Remove all forwarded inbound ports and IP Addresses to the BAS.
5. Maintain user login credentials and unique passwords, including the use of strong passwords and the removal of access for users who no longer require access.
6. Where remote access is desired, utilize a secure method such as Trane Connect Secure Remote Access or your own VPN.
7. For any Trane services requiring remote data transfer and/or remote user access, configure the BAS and related firewall(s) per instructions provided by Trane. This typically includes configuring Port 443 and associated firewall(s) for Outbound only.
8. Perform regular system maintenance to ensure that your BAS is properly secured, including regular software updates to your BAS and related network equipment (i.e., firewalls).

Any and all claims, actions, losses, expenses, costs, damages, or liabilities of any nature due to Customer's failure to maintain BAS security responsibilities and/or industry standards for cybersecurity are the sole responsibility of the Customer.

1-26.251-10(0123)
Supersedes 1-26.251-10(1221)

SECURITY ADDENDUM

This Addendum shall be applicable to the sale, installation and use of Trane equipment and the sale and provision of Trane services. "Trane" shall mean Trane U.S. Inc. for sales and services in the United States, or Trane Canada ULC for sales and services in Canada.

1. **Definitions.** All terms used in this Addendum shall have the meaning specified in the Agreement unless otherwise defined herein. For the purposes of this Addendum, the following terms are defined as follows:

“**Customer Data**” means Customer account information as related to the Services only and does not include HVAC Machine Data or personal data. Trane does not require, nor shall Customer provide personal data to Trane under the Agreement. Such data is not required for Trane to provide its Equipment and/or Services to the Customer.

“**Equipment**” shall have the meaning set forth in the Agreement.

“**HVAC Machine Data**” means data generated and collected from the product or furnished service without manual entry. HVAC Machine Data is data relating to the physical measurements and operating conditions of a HVAC system, such as but not limited to, temperatures, humidity, pressure, HVAC equipment status. HVAC Machine Data does not include Personal Data and, for the purposes of this agreement, the names of users of Trane’s controls products or hosted applications shall not be Personal Data, if any such user chooses to use his/her name(s) in the created accounts within the controls product (e.g., firstname.lastname@address.com). HVAC Machine Data may be used by Trane: (a) to provide better support services and/or products to users of its products and services; (b) to assess compliance with Trane terms and conditions; (c) for statistical or other analysis of the collective characteristics and behaviors of product and services users; (d) to backup user and other data or information and/or provide remote support and/or restoration; (e) to provide or undertake: engineering analysis; failure analysis; warranty analysis; energy analysis; predictive analysis; service analysis; product usage analysis; and/or other desirable analysis, including, but not limited to, histories or trends of any of the foregoing; and (f) to otherwise understand and respond to the needs of users of the product or furnished service. “**Personal Data**” means data and/or information that is owned or controlled by Customer, and that names or identifies, or is about a natural person, such as: (i) data that is explicitly defined as a regulated category of data under any data privacy laws applicable to Customer; (ii) non-public personal information (“NPI”) or personal information (“PI”), such as national identification number, passport number, social security number, social insurance number, or driver’s license number; (iii) health or medical information, such as insurance information, medical prognosis, diagnosis information, or genetic information; (iv) financial information, such as a policy number, credit card number, and/or bank account number; (v) personally identifying technical information (whether transmitted or stored in cookies, devices, or otherwise), such as IP address, MAC address, device identifier, International Mobile Equipment Identifier (“IMEI”), or advertising identifier; (vi) biometric information; and/or (vii) sensitive personal data, such as, race, religion, marital status, disability, gender, sexual orientation, geolocation, or mother’s maiden name.

“**Security Incident**” shall refer to (i) a compromise of any network, system, application or data in which Customer Data has been accessed or acquired by an unauthorized third party; (ii) any situation where Trane reasonably suspects that such compromise may have occurred; or (iii) any actual or reasonably suspected unauthorized or illegal Processing, loss, use, disclosure or acquisition of or access to any Customer Data.

“**Services**” shall have the meaning set forth in the Agreement.

2. **HVAC Machine Data; Access to Customer Extranet and Third Party Systems.** If Customer grants Trane access to HVAC Machine Data via web portals or other non-public websites or extranet services on Customer’s or a third party’s website or system (each, an “Extranet”), Trane will comply with the following:
 - a. **Accounts.** Trane will ensure that Trane’s personnel use only the Extranet account(s) designated by Customer and will require Trane personnel to keep their access credentials confidential.
 - b. **Systems.** Trane will access the Extranet only through computing or processing systems or applications running operating systems managed by Trane that include: (i) system network firewalls; (ii) centralized patch management; (iii) operating system appropriate anti-malware software; and (iv) for portable devices, full disk encryption.
 - c. **Restrictions.** Unless otherwise approved by Customer in writing, Trane will not download, mirror or permanently store any HVAC Machine Data from any Extranet on any medium, including any machines, devices or servers.
 - d. **Account Termination.** Trane will terminate the account of each of Trane’s personnel in accordance with Trane’s standard practices after any specific Trane personnel who has been authorized to access any Extranet (1) no longer needs access to HVAC Machine Data or (2) no longer qualifies as Trane personnel (e.g., the individual leaves Trane’s employment).
 - e. **Third Party Systems.** Trane will provide Customer prior notice before it uses any third party system that stores or may otherwise have access to HVAC Machine Data, unless (1) the data is encrypted and (2) the third party system will not have access to the decryption key or unencrypted “plain text” versions of the HVAC Machine Data.
3. **Customer Data; Confidentiality.** Trane shall keep confidential, and shall not access or use any Customer Data and information that is marked confidential or by its nature is considered confidential (“Customer Confidential Information”) other than for the purpose of providing the Equipment and Services, and will disclose Customer Confidential Information only: (i) to Trane’s employees and agents who have a need to know to perform the Services, (ii) as expressly permitted or instructed by Customer, or (iii) to the minimum extent required to comply with applicable law, provided that Trane (1) provides Customer with prompt written notice prior to any such disclosure, and (2) reasonably cooperate with Customer to limit or prevent such disclosure.
4. **Customer Data; Compliance with Laws.** Trane agrees to comply with laws, regulations governmental requirements and industry standards and practices relating to Trane’s processing of Customer Confidential Information (collectively, “**Laws**”).
5. **Customer Data; Information Security Management.** Trane agrees to establish and maintain an information security and privacy program, consistent with applicable HVAC equipment industry practices that complies with this Addendum and applicable Laws

("Information Security Program"). The Information Security Program shall include appropriate physical, technical and administrative safeguards, including any safeguards and controls agreed by the Parties in writing, sufficient to protect Customer systems, and Customer's Confidential Information from unauthorized access, destruction, use, modification or disclosure. The Information Security Program shall include appropriate, ongoing training and awareness programs designed to ensure that Trane's employees and agents, and others acting on Trane's, behalf are aware of and comply with the Information Security Program's policies, procedures, and protocols.

6. Monitoring. Trane shall monitor and, at regular intervals consistent with HVAC equipment industry practices, test and evaluate the effectiveness of its Information Security Program. Trane shall evaluate and promptly adjust its Information Security Program in light of the results of the testing and monitoring, any material changes to its operations or business arrangements, or any other facts or circumstances that Trane knows or reasonably should know may have a material impact on the security of Customer Confidential Information, Customer systems and Customer property.
7. Audits. Customer acknowledges and agrees that the Trane SOC2 audit report will be used to satisfy any and all audit/inspection requests/requirements by or on behalf of Customer. Trane will make its SOC2 audit report available to Customer upon request and with a signed nondisclosure agreement.
8. Information Security Contact. Trane's information security contact is Local Sales Office.
9. Security Incident Management. Trane shall notify Customer after the confirmation of a Security Incident that affects Customer Confidential Information, Customer systems and Customer property. The written notice shall summarize the nature and scope of the Security Incident and the corrective action already taken or planned.
10. Threat and Vulnerability Management. Trane regularly performs vulnerability scans and addresses detected vulnerabilities on a risk basis. Periodically, Trane engages third-parties to perform network vulnerability assessments and penetration testing. Vulnerabilities will be reported in accordance with Trane's cybersecurity vulnerability reported process. Trane periodically provides security updates and software upgrades.
11. Security Training and Awareness. New employees are required to complete security training as part of the new hire process and receive annual and targeted training (as needed and appropriate to their role) thereafter to help maintain compliance with Security Policies, as well as other corporate policies, such as the Trane Code of Conduct. This includes requiring Trane employees to annually re-acknowledge the Code of Conduct and other Trane policies as appropriate. Trane conducts periodic security awareness campaigns to educate personnel about their responsibilities and provide guidance to create and maintain a secure workplace.
12. Secure Disposal Policies. Policies, processes, and procedures regarding the disposal of tangible and intangible property containing Customer Confidential Information so that wherever possible, Customer Confidential Information cannot be practicably read or reconstructed.
13. Logical Access Controls. Trane employs internal monitoring and logging technology to help detect and prevent unauthorized access attempts to Trane's corporate networks and production systems. Trane's monitoring includes a review of changes affecting systems' handling authentication, authorization, and auditing, and privileged access to Trane production systems. Trane uses the principle of "least privilege" (meaning access denied unless specifically granted) for access to customer data.
14. Contingency Planning/Disaster Recovery. Trane will implement policies and procedures required to respond to an emergency or other occurrence (i.e. fire, vandalism, system failure, natural disaster) that could damage Customer Data or any system that contains Customer Data. Procedures include the following
 - (i) data backups; and
 - (ii) formal disaster recovery plan. Such disaster recovery plan is tested at least annually.
15. Return of Customer Data. If Trane is responsible for storing or receiving Customer Data, Trane shall, at Customer's sole discretion, deliver Customer Data to Customer in its preferred format within a commercially reasonable period of time following the expiration or earlier termination of the Agreement or, such earlier time as Customer requests, securely destroy or render unreadable or undecipherable each and every original and copy in every media of all Customer's Data in Trane's possession, custody or control no later than [90 days] after receipt of Customer's written instructions directing Trane to delete the Customer Data.
16. Background checks Trane shall take reasonable steps to ensure the reliability of its employees or other personnel having access to the Customer Data, including the conducting of appropriate background and/or verification checks in accordance with Trane policies.
17. DISCLAIMER OF WARRANTIES. EXCEPT FOR ANY APPLICABLE WARRANTIES IN THE AGREEMENT, THE SERVICES ARE PROVIDED "AS IS", WITH ALL FAULTS, AND THE ENTIRE RISK AS TO SATISFACTORY QUALITY, PERFORMANCE, ACCURACY AND EFFORT AS TO SUCH SERVICES SHALL BE WITH CUSTOMER. TRANE DISCLAIMS ANY AND ALL OTHER EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES WITH RESPECT TO THE SERVICES AND THE SERVICES PROVIDED HEREUNDER, INCLUDING ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE SERVICES WILL OPERATE ERROR-FREE OR UNINTERRUPTED OR RETURN/RESPONSE TO INQUIRIES WITHIN ANY SPECIFIC PERIOD OF TIME.

	Date: 6/7/2023	Description: CIRLY-32-4-70-T2-1-TP-BLK-LNSHLD	Line Item#: 1
	Project: NORTH ROCKLAND CSD SITE LIGHTING		Go to Bill of Materials
			Type: HEAD
Powered by 4submittal.com			



CIRKO LYRE



- Thin aerial design
- White screen-printed tempered glass
- Prewired

URBAN | AMBIANCE - RESIDENTIAL | CIRKO LYRE



www.ragni-lighting.com

Regulation specific to France: Decree of 27/12/2018 relating to the prevention, reduction and limitation of light nuisance: product configuration to be defined according to the nature of the project.

Information subject to change without notice: Last updated 03/12/2021



CIRKO LYRE is an ambiance luminaire with a harmonious design. Consisting of a circular body decorated with relief patterns and placed on curved and twisted arms. CIRKO LYRE offers both ambient and residential lighting. Compatible with Zhaga standards, it is IP66 and its impact energy corresponds to index IK08.

URBAN | AMBIANCE - RESIDENTIAL | CIRKO LYRE



CIRKO

LYRE

LUMINAIRE'S SPECIFICATIONS

- Prewired
- Cable gland
- White screen-printed tempered glass
- IP66 vent

8 to 48 LED PCB - From 970 to 13800 lm (see attached Cirko Yoke datasheet for details on power, light intensity and available photometries)

Electric class	I and II
Protection index (Optical unit)	IP66
Shock resistance (Optical unit)	IK08
Materials - Protection	Tempered glass

Operating temperature: -77°F to +95°F (up to +50° under conditions).

Ecodesign

Luminaire designed in compliance with the environmental criteria of energy efficiency, recyclable and interoperability.

As a member of the Zhaga community, Ragni integrates electronic elements in this product conforming to the Zhaga standard, which ensures its scalability.

Member of the Global Compact since 2018, Ragni is committed to working towards the 17 Sustainable Development Goals (SDG 11, 12, 13, 15).

Luminaire guaranteed free of hazardous substances.

Luminaire eligible for the energy savings certificate.

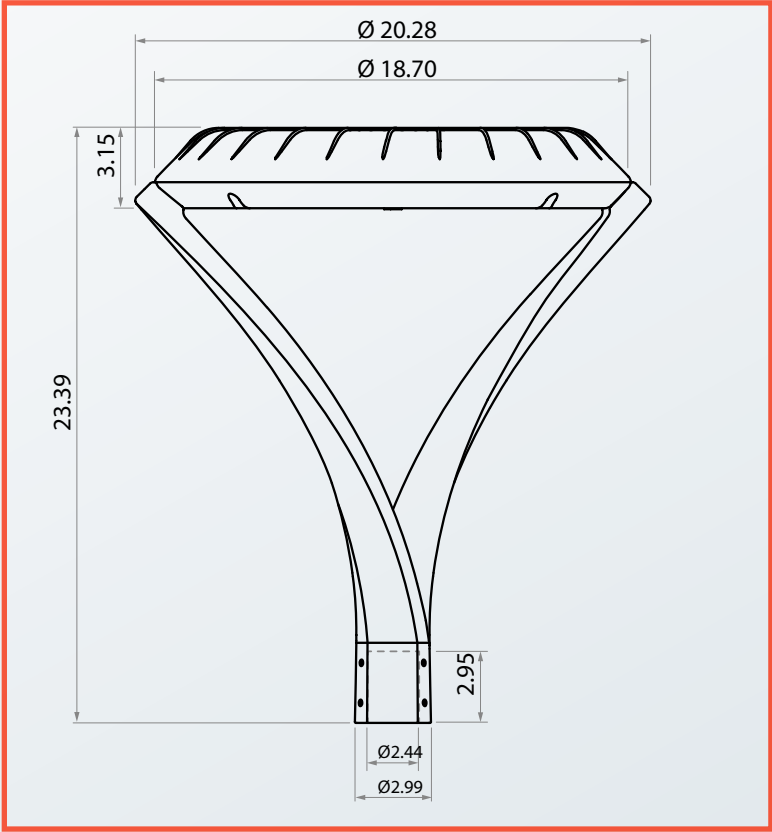


Conformities

IEC/EN 60598-1 / IEC/EN 60598-2-3 / NF EN 60529 / NF EN 62262 / IEC/EN 55015 / IEC/EN 61547 / IEC/EN 61000-3-2 / IEC/EN 61000-3-3 / IEC/EN 62493 / IEC/EN 62031 / IEC/EN 62471 / IEC/EN 61347-1 / IEC/EN 61347-2-13 / NF EN 13201-3 / NF EN 13201-4 / EN 13032-1+A1 & prEn 13032-4 / LM79 / NF EN 12981

All informations are subject to change without notice. Last update 03/12/2021

Dimensions (in)



Weight (lbs)	17.64
EPA (ft2)	0.75
Protection index (Electrical housing)	IP66
Shock resistance (Body)	IK10
Materials - Body and yoke	Aluminium

OPTIONS

- Over/under voltage protection
- Surge protector
- Possibility of lighting management (control, automatic lowering of intensity etc.)
- Presence detector
- NTC sensor
- Photocell



All informations are subject to change without notice.

6/7/23, 9:11 AM

<https://submittal.info/wjm/WJMSubmitSheet.asp>**ROUND TAPERED STEEL (RT)****POLE SHAFT**

The pole shaft is one or two section design, each section being fabricated from standard 11 gauge (0.1196") steel. The pole shaft material is a weldable grade hot rolled commercial quality carbon steel with a guaranteed minimum yield strength of 55,000 psi after fabrication. Each section is one-piece construction with a full length longitudinal weld and is round tapered in cross-section having a uniform taper of 0.14 inches of diameter change per foot of length.

BASE PLATE

The anchor base is fabricated from structural quality hot rolled carbon steel plate that meets or exceeds a minimum yield strength of 36,000 psi. The anchor base telescopes the pole shaft and is circumferentially welded top and bottom. All welds are performed in accordance with the American Welding Society specification AWS D1.1, latest edition.

**STEEL POLE LEAD TIME 8 TO 12 WEEKS
VS.
ALUMINUM POLES, 16 TO 22 WEEKS**

HANDHOLE

An oval reinforced gasketed handhole, having a nominal 3" x 5.0" inside opening, located 1'-6" above base, is standard on all poles. Optional 5" x 8" and 4" x 10" handholes are available (see options). A grounding provision is located inside the handhole ring.

ANCHOR BOLT

Anchor bolts are fabricated from commercial quality hot rolled carbon steel bar that meets or exceeds a minimum yield strength of 55,000 psi. Four properly sized anchor bolts, each with two regular hex nuts and washers, are furnished and shipped with all poles unless otherwise specified. Anchor bolts shall have the threaded end galvanized a minimum of 8 inches in accordance with ASTM A-153. Fully galvanized anchor bolts are available upon request.

FINISH

Standard - All exterior metal surfaces are mechanically cleaned to remove all oxides and contaminants prior to coating. The standard finish is a polyester thermosetting powder coating applied to the surface of the substrate to a minimum of 3 mils for all color finishes. Galvanizing is available upon request.



RT6101125-BK-2-BC					
CATALOG LOGIC		CODE	EXPLANATION		
Series:		RT	Round Tapered Steel Poles		
Base Diameter:		610	6.1" Base Bottom Diameter		
Gauge:		11	11 gauge thickness		
Nominal Height:		25	25 feet tall		
Finish:		BK	Black Finish Color		
Mounting Designation:		2	2 3/8" OD Tenon		
Options:		BC	Base Cover		
HEIGHT (ft.)	POLE SHAFT (in.) x (in.) x (ft.) 6.0 x 2.6 x 25.0	GUAGE	HANDHOLE SIZE (in.)	ANCHOR BOLT (in.) x (in.) x (in.)	BOLT CIRCLE (in.)
25		11	3" x 5.0"	0.75 x 30 x 3	9.5
EPA	80 MPH (ft. ²)	90 MPH (ft. ²)	100 MPH (ft. ²)	WEIGHT	SHIP WT. (lbs.)
	16	13	10		173

[HOME](#)[PRINT](#)[START OVER](#)[NEW POLE](#)



Date: 6/7/2023

Project:
NORTH ROCKLAND CSD SITE
LIGHTING

Description:
RT6101125-BK-2-BC

Line Item#: 2
[Go to Bill of Materials](#)

Type: POLE

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6/7/23, 9:11 AM

<https://submittal.info/wjm/WJMSubmitSheet.asp>

Terms and Conditions of Sale

TERMS

Net 30 days from the date of Company's invoice unless otherwise specified. A 1-1/2% per month late charge will be added to accounts past due.

PRICES

Published prices are subject to change without notice. Possession of price sheets in no way obligates Company to sell to the Purchaser possessing such price sheet. All orders are subject to final approval and acceptance by the Company. Once accepted and approved, orders will be billed at prices currently in effect at the time of invoicing, or at prices quoted by the Company and accepted by the Purchaser if the order involves an item or items covered by special quotation. THE MINIMUM INVOICE CHARGE SHALL BE \$50.00 NET.

DELIVERY

All goods sold are deliverable F.O.B. WJM, Inc., East Bernard, Texas 77435.

TAXES

The Company's prices do not include Federal, State or municipal sales, use, excise, or similar taxes. Consequently, the Company reserves the right to add to the sales price of its product any present or future sales, use, excise or other similar tax which shall be paid by the Purchaser, or in lieu thereof, the Purchaser shall provide the Company with a tax exemption certificate acceptable to the taxing authorities.

FREIGHT

All of the Company's products are priced and sold F.O.B. WJM, Inc., East Bernard, Texas 77435. Transportation charges will be prepaid by the Company and added to the net sales price unless specified by the Purchaser.

ROUTING

The Company will specify the method and routing of all products to ensure the most efficient and economical shipment in behalf of the Purchaser. The Purchaser will assume charges for special services such as cartage, air freight, express or multiple deliveries on one order.

CANCELLATION

The written consent of the Company shall be obtained prior to a cancellation of any order. Cancellation of an order may subject the Purchaser to a cancellation charge based upon expenses already incurred and commitments made by the Company.

RETURNED GOODS

Specific written request and arrangements must be made in advance for Purchaser to obtain credit or replacement on material returned. On material accepted for return, Purchaser must prepay return shipment and pay minimum restocking charge of 40% plus any charge necessary to rework goods to a resaleable condition. Custom fabricated products by special order are not subject to return.

DELAYS, DAMAGE OR LOSS

The Company is not and shall not be liable for delays in shipment or delivery of its products when caused by strikes, riots, hurricanes, civil disorder, fires, material shortage, breakdown in manufacturing facilities or any other cause beyond its reasonable control. Any claims for damages, loss or shortage in transit must be made by the Purchaser to the delivering carrier. The risk of loss passes to the Purchaser upon delivery to the carrier.

LIMITED WARRANTY

The Company warrants to Purchaser that its products will be free from defects in material and workmanship for a period of one year from the date of shipment by the Company (*the "Warranty Period"*). This Warranty specifically excludes fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with the movement of air currents around the product. If during the Warranty period, the product proves defective in material or workmanship, the Company shall correct any defect, at its option, either by repairing any defective parts or by making available at the Company's plant a repaired or replacement part at no charge to the Purchaser, if the Purchaser promptly notifies the Company and furnishes proof of Purchase. The liability of the Company under this Warranty, or for any loss or damage arising out of, or connected with, the design, manufacturing, sale or use of its products, whether the claim is based on contract or negligence, shall not exceed the price allocable to the value of the product or part which gives rise to the claim and upon expiration of the Warranty Period all such liability shall terminate. The Company shall not be liable for special or consequential damages including, but not limited to, loss of profits or revenue, loss of use of the product, cost of substitute products or labor charges to remove or reinstall the defective product, nor any product transportation expenses to and from the Company's plant if factory repair or replacement is necessary. No warranty is made with respect to parts or auxiliary equipment not manufactured by the Company. The foregoing Warranty is exclusive and in lieu of all other warranties whether written, oral, express or implied and shall constitute the sole and exclusive remedy of the Purchaser and liability of the Company. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. The Company's products are not sold as a "consumer product" under 15 U.S.C. 62301.

GENERAL

WJM, Inc. reserves the right to change any feature of its published specifications without notice to promote product improvement and/or allow for material availability. The contract for the sale of goods by WJM shall be performable in Wharton County, Texas.

Prices subject to change without notice

SERIES 0 BIDDING REQUIREMENTS AND CONTRACT FORMS

SECTION	TITLE
000010	TITLE PAGE
000020	ARCHITECT'S CERTIFICATION
000030	TABLE OF CONTENTS
000040	LIST OF DRAWINGS
000300	NOTICE TO BIDDERS
001000	INSTRUCTIONS TO BIDDERS, AIA DOC. A701
001200	SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
002100	HIGHWAY LETTER
003000 S	SITE BID FORM
003001 M	MECHANICAL BID FORM
003002 E	ELECTRICAL BID FORM
003100	BID SECURITY FORM, AIA DOC. A310
003126	EXISTING HAZARDOUS MATERIAL INFORMATION
004000	EQUIVALENCY FORM
004250	REFERENCE FORM
004500	CONTRACTOR'S QUALIFICATION STATEMENT, AIA DOC. A305
005000	AGREEMENT FORM, AIA DOC. A132-2019
005000	INSURANCE AND BOND, AIA DOC. A132 2019 – EXHIBIT A
005001	RIDER ATTACHED TO AIA DOCUMENT 132
005002	SAMPLE INSURANCE REQUIREMENTS CAPITAL CONSTRUCTION
006100	PERFORMANCE BOND FORM, AIA DOC. A312
006101	PAYMENT BOND FORM, AIA DOC. A312
007000	GENERAL CONDITIONS, AIA DOC. A232 2019
008100	MODIFICATION TO GENERAL CONDITIONS
008150	UNIFORM SAFETY STANDARDS FOR SCHOOL CONSTRUCTION AND MAINTENANCE PROJECTS
008300	WAGE RATE REQUIREMENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION	TITLE
011000	SUMMARY
011200	MULTIPLE CONTRACT SUMMARY
012100	ALLOWANCES
012200	UNIT PRICES
012300	ALTERNATES
012500	SUBSTITUTION PROCEDURES
012501	REQUEST FOR SUBSTITUTION FORM
012600	CONTRACT MODIFICATION PROCEDURES
012900	PAYMENT PROCEDURES
013100	PROJECT MANAGEMENT & COORDINATION
013101	REQUEST FOR INFORMATION FORM
013200	CONSTRUCTION PROGRESS DOCUMENTATION
013300	SUBMITTAL PROCEDURES
014000	QUALITY REQUIREMENTS
014001.A	STATEMENT OF SPECIAL INSPECTIONS (HIGH SCHOOL)
014001.B	STATEMENT OF SPECIAL INSPECTIONS (SOFTBALL/PRESS BOX)
014001.C	STATEMENT OF SPECIAL INSPECTIONS (BASEBALL/PRESS BOX)
014200	REFERENCES
015000	TEMPORARY FACILITIES AND CONTROLS
016000	PRODUCT REQUIREMENTS
016400	OWNER FURNISHED PRODUCTS
017300	EXECUTION
017419	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
017700	CLOSEOUT PROCEDURES
017823	OPERATION & MAINTENANCE DATA
017839	PROJECT RECORD DOCUMENTS
017900	DEMONSTRATIONS AND TRAINING

019113 GENERAL COMMISSIONING REQUIREMENTS

DIVISION 02 – EXISTING CONDITIONS

SECTION	TITLE
020500	REPORTS OF EXPLORATION
020800	ASBESTOS ABATEMENT
024113	SELECTIVE SITE DEMOLIITON

DIVISION 03 – CONCRETE

SECTION	TITLE
031100	CONCRETE FORMWORK
033001	CAST IN PLACE CONCRETE
034133	PRECAST PRESTRESSED CONCRETE

DIVISION 04 – MASONRY

SECTION	TITLE
042000	UNIT MASONRY

DIVISION 05 – METALS

SECTION	TITLE
051200	STRUCTURAL STEEL
055213	PIPE AND TUBE RAILING

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION	TITLE
071800	TRAFFIC COATINGS, PEDESTRIAN TRAFFIC ROOFING
075113	BUILT-UP ASPHALT ROOFING
075323	ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING
078443	JOINT FIRESTOPPING
079200	JOINT SEALANTS

DIVISION 10 – SPECIALTIES

SECTION	TITLE
101423	PANEL SIGNAGE
101453	TRAFFIC SIGNAGE
104416	FIRE EXTINGUISHERS
107500	FLAGPOLES

DIVISION 11 – EQUIPMENT

SECTION	TITLE
116833	ATHLETIC FIELD EQUIPMENT
116843	EXTERIOR SCOREBOARDS

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION	TITLE
131210	PRE-ENGINEERED STRUCTURES
133416	PERMANENT GRANDSTAND BLEACHERS

DIVISION 14 – CONVEYING SYSTEMS

SECTION	TITLE
144200	WHEELCHAIR LIFTS

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

SECTION	TITLE
230009	MECHANICAL SELECTIVE REMOVALS AND DEMOLITION
230523	VALVES
230529	PIPE HANGERS AND SUPPORTS
230550	VIBRATION ISOLATION
230553	PIPE AND VALVE IDENTIFICATION
230593	CLEANING AND TESTING
230594	BALANCING OF SYSTEMS
230719	PIPING INSULATION
230900	INSTRUMENTATION AND CONTROL FOR HVAC
230924	MODIFICATION TO DIRECT DIGITAL BUILDING CONTROL SYSTEM
230993	SEQUENCE OF OPERATIONS
232000	HVAC PIPING
232001	STRAINERS
232003	THERMOMETERS AND GAUGES
233113	METAL DUCTWORK
234100	AIR FILTERS
237313	AIR HANDLING UNITS
238126	SPLIT-SYSTEM AIR-CONDITIONERS
238216	COILS
238323	RADIANT HEATING ELECTRIC PANELS

DIVISION 26 – ELECTRICAL

SECTION	TITLE
260009	ELECTRICAL SELECTIVE DEMOLITION
260010	SUPPLEMENTAL REQUIREMENTS FOR ELECTRICAL
260519	ELECTRICAL POWER CONDUCTORS AND CABLES
260526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
260544	SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
260553	IDENTIFICATION FOR ELECTRICAL SYSTEMS
260923	LIGHTING CONTROL DEVICES
260943	RELAY-BASED LIGHTING CONTROLS
262213	LOW-VOLTAGE DISTRIBUTION TRANSFORMERS
262416	PANELBOARDS
262726	WIRING DEVICES
262813	FUSES
262816	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
262913	MANUAL AND MAGNETIC MOTOR CONTROLLERS
265119	LED INTERIOR LIGHTING
265213	EMERGENCY AND EXIT LIGHTING

265619	LED EXTERIOR LIGHTING
265868	EXTERIOR ATHLETIC LIGHTING

DIVISION 31 – EARTHWORK

SECTION	TITLE
310000	EARTHWORK
311000	SITE PREPARATION
311001	EARTHWORK – SITE WORK
312317	SITE TRENCHING
312500	EROSION AND SEDIMENT CONTROL

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION	TITLE
321216	ASPHALT PAVING
321313	CONCRETE PAVING
321613	CONCRETE CURBS
321723	PAVEMENT MARKINGS
321813.1	SYNTHETIC GRASS SURFACING– SOFTBALL/BASEBALL
321813.2	SYNTHETIC GRASS SURFACING – MULTIUSE FIELD
321813.3	SYNTHETIC GRASS SURFACING – TURF AT SPECTATOR
323113	CHAIN LINK FENCES AND GATES
323223	SEGMENTAL RETAINING WALLS
329200	TURF AND GRASSES
329223	SODDING
329300	EXTERIOR PLANTS

DIVISION 33 – UTILITIES

SECTION	TITLE
331000	WATER DISTRIBUTION PIPING
333000	SANITARY SEWER SYSTEM
334100	STORM DRAINAGE SYSTEM

PART 1 - GENERAL

1.01 GENERAL

- A. Pursuant to, and in compliance with, your Advertisement for Bids and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed to the undersigned prior to the opening Bids, whether received by the undersigned or not, we

(CONTRACTOR NAME)

hereby proposes to furnish all plant, labor, supplies, materials and equipment for North Rockland High School Fields Phase 2 & HVAC Upgrades – Sitework, as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled "North Rockland High School Fields Phase 2 & HVAC Upgrades – Sitework at 106 Hammond Rd, Thiells, NY 10984 for the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923 ", all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following prices:

1. _____ Dollars

(Write out in words)

(_____) Base Bid for all work.

_____ Consecutive Calendar Days for substantial completion _____ with base bid.

The undersigned further proposes and agrees hereby to commence work with an adequate force and equipment immediately after being notified in writing to do so, and to achieve substantial completion for all work as required by the plans and specifications within the number of consecutive calendar days as itemized above.

- A. North Rockland High School Fields Phase 2 & HVAC Upgrades – Sitework

Total Project Sitework (\$ _____)

B. ALTERNATES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased or decreased by the amounts indicated below.

Alternate No. 3:

Site contractor to provide a deduct alternate to omit all windscreens from the project. (\$ _____)

Alternate No. 6:

Site contractor to provide a price to include turf paint remover machine to owner. (\$ _____)

Alternate No. 7:

In place of asphalt paving, site contractor to provide 100' of concrete paving centered on scoreboard structure and continuous between outfield walls. (\$ _____)

Alternate No.8:

Site contractor to provide and install netting for baseball field in front of the grandstands. (\$ _____)

C. ALLOWANCES

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.

Allowance No.4

Remove existing drainage pipes found in existing fields and cap discovered water pipes. (\$5,000)

Allowance No.5

Site Testing (\$5,000)

Allowance No.8

Site contractor SWPPP inspections (\$20,000)

Allowance No.9

Include 100 CY of rock removal (\$)

Allowance No.10

Scope and clean existing drain pipes (\$10,000)

Allowance No.11

Site contractor to provide pin lettering signage at Field Hockey press box (\$15,000)

1.02 TIME OF COMPLETION

- A. It is agreed by the undersigned that after receipt of Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work on _____ 2024. Substantial completion will be _____ 2024. The punch list work will be completed by _____ 2024 and performed after school hours.

1.03 BID SECURITY

- A. Attached hereto is Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 UNIT PRICES

- A. For work to be supplied or omitted at the price rate stipulated herein should the volume of work be increased, the following unit prices will be established as the limitations for such items of work, and each unit price shall include material, labor and services of each and everything necessary or required to complete for like work in kind, quality and function.

No unit prices at this time.

1.06 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly

disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and

3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

Resolved that _____

(Name of Individual)

be authorized to sign and submit the bid or proposal of this corporation for the following project

_____ and to include in such bid or proposal the certificate as to non-collusion required by Section One Hundred Three (d) (103d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalty of perjury.

The foregoing is a true and correct cop of the resolution by

Corporation at a meeting of its Board of Directors held on the _____ day of _____, 20____.

(SEAL OF THE CORPORATION)

Secretary

1.07 ACCEPTANCE

- A. When this Proposal is accepted, the undersigned agrees to enter into Contract with the Owner as provided in the Form of Agreement.

1.08 AFFIRMS

- A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.09 TYPE OF BUSINESS

- A. The undersigned hereby represents that it is a _____ (Corporation, Partnership, or an Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under laws of New York State and it is authorized to do business in this State.

1.10 PLACE OF BUSINESS

- A. The following is the name and address of the person to whom all notices required in the connection with this Proposal may be telephoned, mailed or delivered.

(Name)

(Address)

(Telephone)

1.11 EXECUTION OF CONTRACT

- A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10)

days, will execute the Form of Agreement with the Owner.

1.12 ADDENDA

- A. Any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____

1.13 ASBESTOS

- A. The Contractor certifies that no asbestos or asbestos-containing material will be incorporated into the Work of this Contract.

(Sign Bid Here)

Dated _____, 20____

Legal Name of Person, Partnership
or Corporation

By _____

Title _____

Address _____

PART 1 - GENERAL

1.01 GENERAL

- A. Pursuant to, and in compliance with, your Advertisement for Bids and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed to the undersigned prior to the opening Bids, whether received by the undersigned or not, we

(CONTRACTOR NAME)

hereby proposes to furnish all plant, labor, supplies, materials and equipment for North Rockland High School Fields Phase 2 & HVAC Upgrades – Electrical Construction, as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled “North Rockland High School Fields Phase 2 & HVAC Upgrades – Electrical Construction at 106 Hammond Rd, Thiells, NY 10984 for the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923 ”, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following prices:

1. _____ Dollars

(Write out in words)

(_____) Base Bid for all work.

_____ Consecutive Calendar Days for substantial completion _____ with base bid.

The undersigned further proposes and agrees hereby to commence work with an adequate force and equipment immediately after being notified in writing to do so, and to achieve substantial completion for all work as required by the plans and specifications within the number of consecutive calendar days as itemized above.

- A. North Rockland High School Fields Phase 2 & HVAC Upgrades – Electrical Construction

Total Project Electrical Construction (\$ _____)

B. ALTERNATES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased or decreased by the amounts indicated below.

Alternate No. 1

Existing RTU F2 to be removed and replaced with new. (\$ _____)

Alternate No. 4

Electrical Contractor to provide electrical connections for field hockey press box. (\$ _____)

Alternate No. 5:

Electrical Contractor to remove and replace existing transformer. (\$ _____)

Alternate No. 9:

Electrical Contractor to provide price to include assistive listening per press box along with the base bid sound system.
(\$ _____) per press box

C. ALLOWANCES

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.

Allowance No. 7

Electrical Contractor testing. (\$10,000 _____)

1.02 TIME OF COMPLETION

- A. It is agreed by the undersigned that after receipt of Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work on _____ 2024. Substantial completion will be _____ 2024. The punch list work will be completed by _____ 2024 and performed after school hours.

1.03 BID SECURITY

- A. Attached hereto is Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 UNIT PRICES

- A. For work to be supplied or omitted at the price rate stipulated herein should the volume of work be increased, the following unit prices will be established as the limitations for such items of work, and each unit price shall include material, labor and services of each and everything necessary or required to complete for like work in kind, quality and function.

No unit prices at this time.

1.06 NON-COLLUSIVE BIDDING CERTIFICATION

- A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

Resolved that _____

(Name of Individual)

be authorized to sign and submit the bid or proposal of this corporation for the following project

_____ and to include in such bid or proposal the certificate as to non-collusion required by Section One Hundred Three (d) (103d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalty of perjury.

The foregoing is a true and correct cop of the resolution by

 Corporation at a meeting of its Board of Directors held on the
 _____ day of _____, 20____.

(SEAL OF THE CORPORATION)

 Secretary

1.07 ACCEPTANCE

- A. When this Proposal is accepted, the undersigned agrees to enter into Contract with the Owner as provided in the Form of Agreement.

1.08 AFFIRMS

- A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.09 TYPE OF BUSINESS

- A. The undersigned hereby represents that it is a _____
 (Corporation, Partnership, or an Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under laws of New York State and it is authorized to do business in this State.

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- A. The following is the name and address of the person to whom all notices required in the connection with this Proposal may be telephoned, mailed or delivered.

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 (Address)

 (Telephone)

1.11 EXECUTION OF CONTRACT

- A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.12 ADDENDA

- A. Any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____

Addendum # _____

Dated _____

1.13 ASBESTOS

- A. The Contractor certifies that no asbestos or asbestos-containing material will be incorporated into the Work of this Contract.

(Sign Bid Here)

Dated _____, 20____

Legal Name of Person, Partnership
or Corporation

By _____

Title _____

Address _____

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Existing RTU F2 to be removed and replaced with new.
 - 1. Base Bid: Existing RTU F2 to remain.

2. Alternate: HVAC Contract to remove and replace with new F2 roof top unit, as indicated on Drawing and as specified in Sections. Electrical Contract to disconnect existing electrical connections and make connections for new RTU. General Contract to provide structural reinforcing for new unit.
- B. Alternate No. 2: Provide double batting tunnel at softball field and baseball field in lieu of base bid.
 1. Base Bid: Provide single batting tunnel at softball and baseball field.
- C. Alternate No. 3: Site contractor to provide a deduct alternate to omit all windscreens from project.
- D. Alternate No. 4: Electrical Contractor to provide electrical connections for field hockey press box.
- E. Alternate No. 5: Electrical Contractor to remove and replace existing transformer.
- F. Alternate No. 6: Site contractor to provide a price to include turf paint remover machine to owner.
- G. Alternate No. 7: In place of asphalt paving, site contractor to provide 100' of concrete paving centered on scoreboard structure and continuous between outfield walls.
- H. Alternate No. 8: Site contractor to provide and install netting for baseball field in front of the grandstands.
- I. Alternate No. 9: Electrical Contractor to provide price to include assistive listening along with the base bid sound system.

END OF SECTION 012300

SECTION 131210 – PRE-ENGINEERED STRUCTURES

A. GENERAL

1. *Press box Support Structure*
 - a. Independently supported but connected to rear of grandstand.
 - b. Support structure to be 8' wide by 12' long
2. *Press Box*
 - a. Basis of Design for Press Box by GT Grandstands
 - b. Dimension: 8' wide by 12'-0" long with one interior compartment
 - c. Press Box to be of open construction, allowing inspection of electrical wiring, switches and other components without destructive disassembly

B. MATERIALS/FINISHES

1. *Press Box Support Structure*
 - a. Steel
 - 1) Galvanized
 - 2) Structural shapes meet one of the following ASTM specifications: A36, A36/A572 grade 50, A572 grade 50, A52950, or A500 grade B.
 - 3) Shop connections are seal welds or bolted
 - 4) After fabrication, all steel is hotdipped galvanized to ASTMA123 specifications.
 - b. Aluminum
 - 1) Aluminum Angle: Structural fabrication with aluminum angle, 6061-T6 alloy, mill finish
 - 2) Shop connections are seal welds or bolted
2. *Press Box:*
 - a. All materials shall be new and shall comply with ASTM specifications.

1) Floor Construction

- a) Welded Framing
 - i. Main support to be MC10X8.4 galvanized steel floor frame sized to support structure.
- b) Joist
 - i. W9x9 galvanized steel joist.
- c) Bottom Board
 - i. 26 gauge corrugated panel underbelly with galvalume finish for support of insulation. G-90 rated. Panels attached to steel floor frame with #14x7/8" LapTek screws at ends of panels and at intermediate supports.
- d) Insulation
 - i. R-30 Fiberglass, BATT insulation with vapor barrier.
- e) Decking
 - i. Floor to be mill finish interlocking Aluminum Decking System, extruded aluminum alloy 6063T6, mill finish. Decking system attached to steel floor frame with mechanical fasteners at end of plank and at intermediate supports.

2) Wall Construction

- a) Welded Framing
 - i. 3.5 inch x 3.5 inch x 11 gauge square tubing with maximum span of 14 feet on front wall and maximum span of 6 feet on back wall. Treated with metal primer after welding.
- b) Stud Framing
 - i. 362S137-43 steel studs with maximum spacing of 2 feet for all walls with siding. Provide blocking for Jomy Ladder and other devices.
 - ii. 362T125-43 channel top and bottom plates.

Spans greater than these require engineered calculations for design. All steel studs treated with metal primer after welding.
- c) Headers
 - i. As span and design load requires
- d) Insulation
 - i. R-13 Fiberglass BATT insulation with vapor barrier
1-1/2" Thick R8 XPS rigid insulation
- e) Interior Finish
 - i. Prefinished 5/8" vinyl coated gypsum panels, Class A rated. Panels attached to metal studs using drywall adhesive-GDWA, or equal. When using adhesive application, panels are screwed at floor and ceiling line spacing fasteners 6 inches to 8 inches apart.
 - ii. Cove Base, vinyl 4 inches.
- f) Exterior Finish
 - i. 26 gauge "R" panel pre-finished ribbed steel exterior siding as manufactured by MBCI, or equal, with Kynar 500 finish (color as selected from standard color list).
 - ii. Wall panels attached to welded framing and studs using #14 x 7/8" lap screws with washer at the top, midpoint, and bottom of panels. Lap screws (1/4"-14x7/8" Lap Tek) are placed at each end of panels, at the intermediate supports and at the midpoint between supports.
 - iii. Base trim and corner trim to be installed in accordance with manufacturer's instruction and match exterior panel.

3) Roof Construction

- a) Welded Frame
 - i. 3.5 inch x 3.5 inch x 3/16" square tube. Treated with metal primer after welding.
- b) Rafters
 - i. 3 inch x 2 inch x 18 gauge rectangle tube with maximum spacing of 2 feet. Treated with metal primer after welding.
- c) Roof
 - i. (2) 5/8" Type 'X' plywood deck sheathing.
 - ii. 5/8" Securock cement roof board.
 - iii. Liquid applied roof. Tremco AlphaGuard MT.
- d) Fascia

- i. 26 gauge steel prefinished trim with Kynar 500 finish (color as selected) to match metal siding.
- e) Insulation
 - i. 5/8" Type 'X' Roof deck sheathing with vapor barrier.
 - ii. High Density R-30 BATT insulation
- f) Ceiling
 - i. 5/8" gypsum ceiling board, class a rated – taped and bedded with spray texture finish.
 - ii. Ceiling height 8 feet minimum.
- g) Provide and install Jomy ladder system.
- h) Provide and install SS cable guard rail system.

4) Exterior Doors

- a) Insulated FRP door, U-value of 0.29 with aluminum extrusion wrap around frames (paint to match siding), hydraulic closer, weather strip, aluminum threshold and exterior commercial lever handled lockset, interior panic bar exit device.
- b) Dimensions 3 feet by 6 feet 8 inches.

5) Interior Door (Not Used)

6) Interior Walls (Not Used)

7) Windows

- a) Frame: Extruded aluminum frame with thermal break extrusions horizontal sliding unit..
- b) Sash: Tilt toward inside for easy cleaning.
- c) 3/4" insulated tempered safety glass with low E, U-value of 0.24 .
- d) Dimensions of each unit: Dependent on compartment size. At interior wall locations or structural support locations the dimension between windows shall be no greater than 6 inches.
- e) Frame color white.

8) Scorers' Work Bench

- a) High Pressure Decorated Laminated (HPDL) countertop 18 inches wide by length of compartment space with support arms maximum spacing 48 inches, 29 inches above floor.

9) Electrical

- a) Service Entrance Panel
 - i. "Square D" QO112M100 with main disconnect; rated at 120/240v, single phase, 100 amp capacity.
- b) Wiring
 - i. All wiring to be encased in thin all EMT conduit min. 12thhn copper wire. . N.E.C. breaker box to be 100 amp surface mounted on wall with 1.5 inch rigid

conduit to be stubbed out at back wall of press box ready for service line to be connected. (Service line to Press Box is responsibility of Owner).

c) Lighting Fixtures

- i. Lithonia #2GT8232A12-120-GE10IS, 2 foot x 4 foot low-profile fluorescent light with acrylic diffusers; or equal. Fixtures are mounted directly over countertop and will maximize the full length of compartment space.
- ii. Provide and install exterior lighting on filming deck.

d) Receptacles

- i. Electrical outlets to be installed per NEC and shall be standard duty.
- ii. All outlets to be surface mounted and grounding type on wall.
- iii. Provide (2) dedicated 20 AMP WPG FIO outlets on roof.

e) Sound, Telephone, Clock, Field Communication:

- i. Empty double outlet boxes per N.E.C. with 3/4 inch conduit stubbed out bottom of Press Box for use of Owner.
- ii. Outlet boxes to be flush mounted into wall.
- iii. Any wiring completed on site will be responsibility of such contractor for inspections. Quantity. Two will be provided. Owner shall indicate additional boxes needed.

Submittal drawing shall indicate devices and circuitry.

10) Mechanical

- a) Provide and install AC/Heat unit in pre-engineered structure.
- b) Loose pack all exterior mounted devices and perform final set up on site.

11) Filming Area/Observation Deck

- a) Provide (2) 20AMP WP dedicated outlets.

C. WARRANTY

1) The Press Box shall be under warranty for a period of one year beginning at date of Substantial Completion for portion of the project installed by GT Grandstands. The Press Box is warranted to be free from defect in materials and workmanship in the course of manufacture. This warranty excludes any other defects resulting from abnormal use in service, accidental or intentional damage or any occurrences beyond manufacturer's control.

END OF SECTION 131210

SECTION 321813.1 – SYNTHETIC GRASS SURFACING – **SOFTBALL/BASEBALL**
FIELDS (Bid Addendum 02)

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide labor, materials, services and equipment necessary to furnish and install synthetic surfacing work as indicated and as specified herein, includes, but not limited to:
 - 1. Preparation of stone base and underdrain system.
 - 2. Surfacing of athletic field.
 - 3. Installation of lines, yard markers, and logos.

1.2 RELATED SECTIONS

- A. Section 116833 – Athletic Field Equipment
- B. Section 311001 – Earthwork-Site Work

1.3 SUBMITALS

- A. Submit the following within 72 hours of bid opening, as requested:
 - 1. Most recent installation/reference list for all projects of similar scope to this project completed in the last three years.
 - 2. Required 3rd party insurance policy, demonstrating that all of the requirements outlined in Section 1.4 Quality Assurance are met. Actual policy must be submitted.
 - 3. One (1) 12" x 12" sample of proposed synthetic turf carpet and one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system. Also submit product data and testing documents demonstrating that proposed system meets or exceeds all specified requirements.
- B. Submit the following prior to the ordering of materials:
 - 1. Material Certificates and Samples: Provide certificate for each material from material producer that will be used for this project. Each material certificate must be stamped and checked as approved by the Field Builder before submittal to the Architect.
 - 2. Provide to the Architect materials samples of the following: Two (2) 12" x 12" samples of synthetic turf carpet and color yarn samples, (2) 1-lb. bagged samples infill material.
 - 3. Prior to order of materials, the Field Builder shall submit a sample warranty, seam layout plan, striping plan and any details of construction that deviate from the plans and specifications.
- C. Quality Control Submittals

1. Test Reports

- a. Submit certified copies of independent, third-party laboratory test reports for synthetic turf playfield system components as follows:
 - (1) Pile height, face width and total fabric weight per ASTM D418 or D5848.
 - (2) Primary and secondary backing weights per ASTM D418 or D5848.
 - (3) Tuft bind per ASTM D1335.
 - (4) Grab tear strength per ASTM D1682 or D5034.
 - (5) Pill burn test per ASTM D2859.
 - b. Submit necessary test data from the Installer to the Owner indicating that the finished field meets the required shock attenuation as per ASTM F355.
2. Existing Installation Listing: Provide a list, including project name, owner's representative name and telephone number for a minimum of ten fields of 65,000 SF or more installed in the United States during the past two years with the same turf manufacturer, including the same infill products, fiber, and fiber manufacturer proposed for this project.
 3. Dynamic Base Stone Acceptance: Prior to beginning installation of synthetic turf surfacing, arrange for a representative of the synthetic turf manufacturer and installer shall inspect the dynamic base stone. The manufacturer and the installer must certify the acceptance of the dynamic base stone for the purpose of obtaining the manufacturer's warranty for the finished synthetic playing surface.
 4. Lead Components – As part of the approval process of the submitted product, the synthetic turf playfield system supplier must certify in writing that no lead or lead chromate components are utilized in the manufacturing of the turf.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. The latest edition of the following standards as referenced herein shall be applicable.
 1. National Federation of State High School Associations (NFHS), "Rules Book" for the following sports:
 - a. Baseball
 - b. Softball
- B. Factory Mutual Research Corporation: P7825 Approval Guide – Factory Mutual Research Corporation, current edition
- C. American Society for Testing and Materials Standards
 1. ASTM C88 – "Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate"

2. ASTM D418 – “Standard Method of Testing Pile Yarn Floor Covering Construction”
3. ASTM D422 – “Standard Test Method for Particle Size Analysis of Soils”
4. ASTM D698 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/cubic foot)”
5. ASTM D1338 – “Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings”
6. ASTM D1557 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/cubic foot)”
7. ASTM D1577 – “Standard Test Method for Linear Density of Textile Fibers”
8. ASTM D1682 – “Standard Method of Tests for Breaking Load and Elongation of Textile Fabrics”
9. ASTM D2256 – “Standard Test Method for Tensile Properties of Yarns by the Single Strand Method”
10. ASTM D2859 – “Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials”
11. ASTM D2922 – “Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods”
12. ASTM D3385 – “Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer”
13. ASTM D5034 – “Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)”
14. ASTM D5848 – “Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings”
15. ASTM F355 – “Standard Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials”
16. ASTM F355-10 – “Procedure A: Testing Services Including Test Number TSI 1202”
17. ASTM F1015 – “Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces”
18. ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity”
19. ASTM F1551 – “Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials”
20. ASTM F1936 – “Standard Test Method for Shock Absorbing Properties of North American Football Field Playing Systems as Measured in the Field”

1.5 QUALITY ASSURANCE

- A. Provide a qualified installation foreman to coordinate and review the component parts of the artificial turf system. Submit a resume of experience for Architect’s approval prior to starting work.
- B. Granulated Infilled Artificial Turf:
 1. Factory-trained technicians skilled in the installation of athletic-caliber infilled synthetic turf systems will undertake the placement of the turf. Special brushing equipment and techniques will be used in the installation.
 2. The designated installation crew shall have installed a minimum of ten high quality, stadium grade granulated infilled synthetic turf systems of 65,000 square feet or greater in the past three years.

3. A notarized letter from the Field Builder that the installation crew and foreman are factory certified must be submitted prior to the start of turf installation.
- C. Provide a colored striping plan detailing lines, numbers and letters. Coordinate with Owner or Owner's Representative and Architect to get final approval of all designated colors, dimensions and logo/lettering designs.
- D. The Field Builder shall meet the following criteria:
 1. Manufacturer/Field Builder's Experience:
 - a. The Turf Manufacturer and the Field Builder must be experienced in the manufacturing and installation of this type of artificial turf system and provide project references of the synthetic grass system being installed at 100 similar exterior sites in the United States over the last 5 years, a minimum of 65,000 square feet each.
 - b. The Field Builder must have actively been in business, under its current name and ownership for at least the past ten years; and must have a minimum of 25 athletic fields still in use in the United States for a minimum of the past 10 years.
 - c. The Field Builder must provide competent workmen skilled in this type of artificial turf installation. The designated Supervisory personnel on the project must be certified, in writing, by the Field Builder as competent in the installation of this material, including gluing or sewing seams and proper installation of the infill mixture. The Field Builder shall have a qualified job foreman on site to certify the installation and warranty compliance
- E. Warranty - The Prime Contractor and/or Manufacturer shall provide a total **eight (8)** year warranty to the Owner that includes the following in writing in the warranty document:
 1. The turf warranty shall be from a single source and shall provide full coverage for all defects in all materials and workmanship of the synthetic turf for its intended usability and playability for the specified warranty period from the Date of Final Completion and acceptance of the turf field. The turf manufacturer must verify that their on-site representative has inspected the installation and that the work conforms to the Manufacturer's requirements.
 2. In addition to the required Turf Contractor's/Manufacturer's single source warranty, an additional prepaid insurance policy supported from a third party, A.M. Best, A-rated or better domestic insurance carrier shall be provided for the initial eight-year warranty period. The insurance policy should comply with the following:
 - a. Be written specifically naming the field or fields being constructed as part of this project requiring payment of a claim be made directly to the Owner of said field. Evidence of such coverage must be submitted and approved.
 - b. The value of the insured warranty shall be \$1,000,000 for each insured warranty with a \$5,000,000 annual aggregate.
 - c. Only true 3rd party warranties are acceptable. Letters of credit submitted as a policy will be rejected as an acceptable substitution to true 3rd party insurance policy.
 - d. Three copies of the actual 3rd party insurance policy must be provided with the warranty as part of the initial synthetic turf approval submittal package.

3. The turf warranty shall include general wear and damage caused from ultra-violet degradation. Vandalism and Acts of God beyond the control of the synthetic turf manufacturer shall be excluded.
4. The turf warranty shall specifically list what components and properties are covered by the warranty. The list shall include, but not be limited to any and all defects or failures relating to construction of the synthetic turf system, drainage through the synthetic turf system, synthetic turf seam rupture, synthetic turf yarn ultra-violet stability, excessive wear and tensile strength.
5. The turf warranty shall cover defects in the workmanship of installation and further warrants that the installation was done in accordance with both the Manufacturer's recommendations and any written directives of the Manufacturer's on-site representative.
6. The turf warranty shall include all necessary materials, labor, transportation costs, etc., to complete repairs or replacements and dispose of removed materials. The warranty shall guarantee the availability of the same or better replacement materials for the synthetic turf system for the warranty period.
7. The turf warranty shall be non-prorated and shall not place limits on the amount of field's usage.
8. The turf warranty cannot include any form of deductible amount.
9. The turf warranty shall clearly define the conditions under which the Manufacturer considers the warranty to be void.
10. The turf warranty shall define the typical time frame within which repairs will be initiated by the synthetic turf contractor, once notice has been received requesting repairs.
11. The turf warranty shall guarantee that adhesive bonded or sewed seams of all system components remain permanent, tight, secure and hazard free for the entire athletic field playing surface. In addition, all inlaid markings shall remain in place throughout the duration of the warranty period.
12. The turf warranty shall guarantee the installed synthetic turf system's drainage capability shall allow water flow through the entire turf and infill of not less than 10 inches per hour.
13. The warranty shall guarantee the G-max ratings at the completion of construction and for the duration of the warranty as described in this specification.

F. MAINTENANCE

1. The synthetic turf contractor shall provide training for the Owner regarding the recommended maintenance program for the synthetic turf field. The training shall include a detailed review of the turf maintenance manual required to be provided by the synthetic turf manufacturer.
2. The synthetic turf contractor shall provide training for the Owner's facility maintenance staff in the use of the field groomer and all other equipment to be utilized for maintenance of the synthetic turf field.
3. Extra Materials: Upon final completion, provide the following materials directly to the Owner in the minimum quantities specified:
 - a. Turf fabric – 100 SF of each color used in playing field areas and logos, excluding the field line colors, with at least one piece of each color being 5' wide by 10' long.

- b. 4" Wide Colored Fabric – Minimum 100 LF of each color specified for inlaid line striping.
- c. 2000 pounds ground rubber in weatherproof bags.
- d. Minimum one 15' x 10' piece of each type of green turf used on the Project.
- e. Velcro replacement sections attic stock as outlined below.

PART 2 - PRODUCTS

2.1 SYNTHETIC GRASS SYSTEM

A. Synthetic Grass System Description – **INFIELD, WARNING TRACK, AND BULLPENS**

- 1. Face Yarn Type: Multifilament system consisting of multifilament polyethylene slit fiber with thatch layer.
- 2. Pile Weight: 42 oz/sy minimum. It is acceptable to increase pile weight to meet minimum total product weight required for this turf system.
- 3. Primary Backing: Minimum 7+ oz/sy, double layered polypropylene fabric treated with U.V. inhibitors. It is acceptable to increase primary backing weight to meet minimum total product weight required for this turf system.
- 4. Secondary Backing: Minimum 16+ oz/sy urethane permanently locking fiber tufts in place. It is acceptable to increase secondary backing weight to meet minimum total product weight required for this turf system.
- 5. Total Product Weight: Total weight of system pile, primary backing and secondary backing to be minimum 65+ oz/sy.
- 6. Yarn Linear Density: Minimum 9,000 denier for slit film fiber and 4,500 denier for thatch fiber.
- 7. Yarn Thickness: Minimum 110 microns for slit film fiber and 100 microns for thatch fiber.
- 8. Pile Height (Finished): Minimum 2.0" nominal finish height.
- 9. Color: See drawings (as approved by Owner).
- 10. Construction: Broadloom tufted
- 11. Stitch Rate: Maximum 13/3".
- 12. Tufting Gauge: Maximum 3/8".
- 13. Backing: Non-perforated porous or perforated system.
- 14. Turf Permeability: >20" per hour.
- 15. Yarn Break Strength: >8 lbs nominal for slit film fiber and >20 lbs. nominal for monofilament fiber.
- 16. Yarn Maximum Elongation: 40% nominal.
- 17. Tuft Bind Without infill: Minimum 9 lbs.
- 18. Grab Tear (Width): Minimum 200 lbs.
- 19. Grab tear (Length): Minimum 200 lbs.
- 20. Flamability (Pill Burn): Pass.
- 21. Infill Composition: Minimum 3 lbs each /sf ambient or cryogenic SBR crumb rubber particles and rounded or sub-angular, uniformly sized silica sand.
- 22. Infill Depth: Minimum 1.50" deep at installation.
- 23. Finished Roll Width: The carpet shall be delivered in 15-footwide rolls with 4" lines tufted into each roll where appropriate.
- 24. Markings: Provide all necessary game markings including mid lines, circles, goal boxes, etc. All markings shall conform to NFHS standards for baseball and softball.

25. Warranty: Total of 8 years from date of Final Completion.
26. Manufacturers of synthetic turf athletic surfacing complying with these specifications include Shaw Sportsturf (Telephone #609-977-3961), A-Turf (Telephone #888-777-6910) and Field Turf (Telephone #800-724-2969).

B. Synthetic Grass System Description – OUTFIELD AND INFIELD “GREEN” TURF

1. Face Yarn Type: Multifilament system consisting of multiple monofilament strands and multifilament polyethylene slit fiber.
2. Pile Weight: 46 oz/sy minimum. It is acceptable to increase pile weight to meet minimum total product weight required for this turf system.
3. Primary Backing: Minimum 8 oz/sy, double layered polypropylene fabric treated with U.V. inhibitors. It is acceptable to increase primary backing weight to meet minimum total product weight required for this turf system.
4. Secondary Backing: Minimum 20 oz/sy urethane permanently locking fiber tufts in place. It is acceptable to increase secondary backing weight to meet minimum total product weight required for this turf system.
5. Total Product Weight: Total weight of system pile, primary backing and secondary backing to be minimum 74 oz/sy.
6. Yarn Linear Density: Minimum 5,000 denier for slit film fiber and 7200 denier for monofilament fiber.
7. Yarn Thickness: Minimum 100 microns for slit film fiber and 300 microns for monofilament fiber.
8. Pile Height (Finished): Minimum 2.25” nominal finish height.
9. Color: Green (as approved by Owner).
10. Construction: Broadloom tufted
11. Stitch Rate: Maximum 13/3”.
12. Tufting Gauge: Maximum 3/4”.
13. Backing: Non-perforated porous or perforated system.
14. Turf Permeability: >20” per hour.
15. Yarn Break Strength: >8 lbs nominal for slit film fiber and >20 lbs. nominal for monofilament fiber.
16. Yarn Maximum Elongation: 40% nominal.
17. Tuft Bind Without infill: Minimum 9 lbs.
18. Grab Tear (Width): Minimum 200 lbs.
19. Grab tear (Length): Minimum 200 lbs.
20. Flamability (Pill Burn): Pass.
21. Infill Composition: Minimum 3 lbs each /sf ambient or cryogenic SBR crumb rubber particles and rounded or sub-angular, uniformly sized silica sand.
22. Infill Depth: Minimum 1.75” deep at installation.
23. Finished Roll Width: The carpet shall be delivered in 15-footwide rolls with 4” lines tufted into each roll where appropriate.
24. Markings: Provide all necessary game markings including mid lines, circles, goal boxes, etc. All markings shall conform to NCAA standards for boys and girls soccer, field hockey and boys and girls lacrosse.
25. Warranty: Total of 12 years (8-year standard warranty plus 4-year supplemental warranty) from date of Final Completion.
26. Manufacturers of synthetic turf athletic surfacing complying with these specifications include Shaw Sportsturf (Telephone #609-977-3961), A-Turf (Telephone #888-777-6910) and Field Turf (Telephone #800-724-2969).

C. Synthetic Grass System Description – BATTER/CATCHER BOX AND MOUND LANDING STRIP

1. **Provide removeable sections of turf with Velcro adhered to the perimeter of each piece for mound landing strip, two batter's boxes, and catcher's box on each the baseball field and the softball field. Removeable systems not required within bullpens. Provide two (2) complete sets per field of the replaceable turf sections.**
 2. Face Yarn Type: Multifilament system consisting of multifilament polyethylene slit fiber with thatch layer.
 3. Pile Weight: 42 oz/sy minimum. It is acceptable to increase pile weight to meet minimum total product weight required for this turf system.
 4. Primary Backing: Minimum 7+ oz/sy, double layered polypropylene fabric treated with U.V. inhibitors. It is acceptable to increase primary backing weight to meet minimum total product weight required for this turf system.
 5. Secondary Backing: Minimum 16+ oz/sy urethane permanently locking fiber tufts in place. It is acceptable to increase secondary backing weight to meet minimum total product weight required for this turf system.
 6. Total Product Weight: Total weight of system pile, primary backing and secondary backing to be minimum 65+ oz/sy.
 7. Yarn Linear Density: Minimum 9,000 denier for slit film fiber and 4,500 denier for thatch fiber.
 8. Yarn Thickness: Minimum 110 microns for slit film fiber and 100 microns for thatch fiber.
 9. Pile Height (Finished): Minimum 2.0" nominal finish height.
 10. Color: See drawings (as approved by Owner).
 11. Construction: Broadloom tufted
 12. Stitch Rate: Maximum 13/3".
 13. Tufting Gauge: Maximum 3/8".
 14. Backing: Non-perforated porous or perforated system.
 15. Turf Permeability: >20" per hour.
 16. Yarn Break Strength: >8 lbs nominal for slit film fiber and >20 lbs. nominal for monofilament fiber.
 17. Yarn Maximum Elongation: 40% nominal.
 18. Tuft Bind Without infill: Minimum 9 lbs.
 19. Grab Tear (Width): Minimum 200 lbs.
 20. Grab tear (Length): Minimum 200 lbs.
 21. Flamability (Pill Burn): Pass.
 22. Infill Composition: Minimum 3 lbs each /sf ambient or cryogenic SBR crumb rubber particles and rounded or sub-angular, uniformly sized silica sand.
 23. Infill Depth: Minimum 1.50" deep at installation.
 24. Finished Roll Width: The carpet shall be delivered in 15-footwide rolls with 4" lines tufted into each roll where appropriate.
 25. Markings: Provide all necessary game markings including mid lines, circles, goal boxes, etc. All markings shall conform to NFHS standards for baseball and softball.
 26. Warranty: No warranty required for replaceable turf sections of high wear locations.
 27. Manufacturers of synthetic turf athletic surfacing complying with these specifications include Shaw Sportsturf (Telephone #609-977-3961), A-Turf (Telephone #888-777-6910) and Field Turf (Telephone #800-724-2969).
- D. Resilient Infill: A resilient infill system, consisting of minimum weights per square foot of rubber or a rubber and sand mixture as specified above engineered to provide the look, feel, footing and shock absorption of a natural grass field in ideal conditions.

1. Sand Particulate. The sand provided as a component of the infill mixture shall be rounded or sub-angular silica sand to minimize abrasion to the athlete and synthetic grass fibers.
2. Rubber Particulate. The rubber provided as a component of the infill mixture shall be ground SBR crumb rubber mixture.

2.2 VERTICAL DRAINAGE BASE MATERIALS

- E. Excavation: Existing natural grass field shall be excavated to the depth established by the Architect and as shown on the excavation plan. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to each sideline in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.
- F. Geotextile Filter Fabric: Non-woven polypropylene geotextile fabric shall be chemically and biologically inert and shall be Mirafi 140N or approved equal.
- G. Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe with geotextile wrap) shall be installed under a 10" layer of free draining base aggregate. The drainage pipe will be installed in a herringbone pattern every 15 feet on center and shall be connected to perimeter collector lines as shown on drawings. End connectors shall be fabricated for use with 4" drain pipe. Material to be similar to ADS Advantage pipe or approved equivalent.
- H. Stone Base Courses: The following gradation of stone is a typical and recommended specification. The synthetic turf base installer is required to focus on achieving the planarity, porosity and compaction requirements to provide a sound crushed stone base for synthetic turf installation above. The final base course materials shall be approved by the synthetic turf manufacturer and contractor prior to installation at the project site.
 1. The free-draining base aggregate base layer shall consist of a consistent depth of open graded material. Base drainage aggregate used must achieve a 95% minimum overall compaction rate. Material shall conform to the AASHTO #57 limestone classification.
 2. The choker material shall be AASHTO #8. 200 sieve must not exceed 7% passing.

2.3 SEAMS

- A. Adhesives for bonding tufted synthetic turf shall be two-component fast-set urethane adhesive obtained from a single manufacturer and be equivalent to Ultrabond Turf PU 2K as manufactured by Mapei Corporation, Deerfield Beach, FL (800) 992-6273, or one-part moisture-cured polyurethane obtained from a single manufacturer and be equivalent to 34-G as manufactured by Synthetic Surfaces, Inc., Scotch Plains, NJ (908) 233-6803, or approved equal as designated by the Field Builder.
 1. Seaming Tape: Tape for securing seams in the tufted synthetic turf and inlaid lines shall be high quality tape made with a minimum roll width of 12 inches.

- B. Sewn seams: If seams are to be sewn, they must be sewn with high quality cord/thread as recommended by Field Builder.
- C. Line Painting: No line painting will be allowed. All markings are to be factory tufted or inlaid at the project site.
- D. Panel/Roll Seams: Provide 99% sewn installation; gluing of rolls shall not be acceptable. Minimal gluing will be permitted to repair problem areas, corner completions, and to cut in any logos or inlaid lines as required. All panel seams shall be sewn using double bagger stitches and polyester thread. Make all seams flat, tight, and permanent with separation or fraying.

PART 3 - EXECUTION

3.1 SYNTHETIC FIELD SURFACE

- A. The synthetic turf base contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Field Builder's on-site representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.
- B. Sub-Grade: The sub grade shall be shaped to mirror the slope of the finished synthetic turf surface as indicated on the grading plan. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate. Areas which cannot achieve the minimum compaction shall be over-excavated and structural fill shall be installed and re-compacted to the minimum compaction required.
- C. Install geotextile fabric over the prepared sub-grade. Provide a 36" minimum overlap at all seams. Fabric shall first be installed in the drainage trenches prior to installation of perimeter collector lines. After backfilling of all trenches is complete, the entire field shall be covered with fabric prior to the base aggregate application.
- D. Trenching, Drainage Pipe Installation and Backfilling: All piping shall be as specified and connected by Field Builder's couplers, plugs etc.
 - 1. The base grade shall be shaped to mirror the finished grade and approved by the Architect and/or Owner's Representative. The base contractor shall begin layout and trenching for the drainage network as indicated on the drainage plan and all details that apply. Collector lines shall be installed before lateral lines and shall begin with the deepest elevations. Collector lines shall be connected to discharge outlet at the onset of operations. Trenching progress shall work upward in elevation to allow for immediate discharge of water from the entire field in the event of a rainfall.
 - 2. No trenches, with or without pipe, shall be permitted, to remain unfilled overnight and/or while crews are not progressively working on site.
 - 3. All perimeter trenches must be dug in accordance with the field drainage plan details.
 - 4. After all collector and lateral lines have been installed, the base contractor shall repair any sub grade undulations prior to installing geotextile fabric.

- E. Concrete Header Curb and Pressure Treated Wood Turf Nailer: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.
1. The 12" x 12" concrete header curb shall be installed in accordance with the Drawings and/or Shop Drawings and these Specifications. The foundation of the concrete header curb shall be a compacted free draining aggregate. Future water entering the foundation shall have a free draining path directly to the perimeter collector pipe.
 2. Install a pressure treated wood 2" x 4" nailer. Pressure treated wood nailer shall be set at a distance equal to the synthetic turf finished pile height below top of the curb by means of a Tapcon or ramset every 12 inches. This shall be the responsibility of the base contractor.
- F. Base Drainage Aggregate: The installation of the base drainage aggregate shall only begin after the drainage pipe installation has been inspected and approved by Owner's Representative. Installation of the free draining base aggregate shall follow procedures that protect the base grade soils and drainage pipe. The drainage pipe network and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.
1. The base grade subsoil shall be dry before undertaking the placement of base aggregate.
 2. Delivery trucks shall enter the field only from the designated entrance point. Base course stone shall be dumped closest to the entrance first and continuously worked towards the furthest point of the field. Extreme care must be taken not to disturb sub grade or drainage network.
 3. Track-type dozers shall push out the stone from behind the pile onto and toward the field center. Dozers shall only traffic the aggregate they are spreading.
 4. Bulldozer blades shall be equipped with a laser-guided hydraulic system. Care shall be taken not to disturb or contact the base grade soils with the dozer blades or tracks. All equipment trafficking over the drainage aggregate shall ensure there is a minimum depth of 9" of aggregate between the geotextile fabric and the dozer track ground contact position.
 5. When the aggregate spreading is completed, the surface shall be further-firmed by a 5-ton roller. Static vibration shall not be part of this process.
 6. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.
 7. After the drainage stone has been uniformly spread throughout the surface, the surface shall receive a final laser finished grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 8. The free-draining base course must be installed to a depth as recommended by the Field Manufacturer and shall be independently tested for an overall compaction rate of 95% proctor.

- G. Choker Levels: The base drainage stone final elevations shall mirror the proposed choker layer final grade material. Care shall be taken not to allow the coarser aggregate to surface into the profile or finished grade of the choker layer.
1. The choker layer shall be applied using high flotation grading equipment. The choker material shall be evenly spread throughout the proposed field surface to the final pre-pad or pre-turf elevations.
 2. After the choker material has been uniformly spread throughout the surface by the described method, the surface shall receive a final laser finish grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 3. Care shall be taken throughout the installation not to force the choker material into the porosity of the base aggregate below.
 4. Final choke layer must be installed to design grades with a finished surface tolerance deviating no more than ¼ inch over 10 feet in all directions. The base contractor must provide a topographical survey with a minimum of 200 shots demonstrating finished grade meets all written requirements.
 5. Final layer of stone must be installed at a depth as recommended by the field manufacturer. Finished aggregate base must be proof-rolled by means of 2- to 5-ton roller. The finished aggregate base must achieve an overall compaction rate of 95% proctor in accordance with ASTM D1557. It shall also be flush with top of pressure treated wood nailer.
 6. The synthetic turf base contractor is required to string line the entire field every five feet to identify high and low spots. And identified high and low spots must be eliminated prior to installation of the synthetic turf. The base layer topography must be accepted by the synthetic turf manufacturer and installer prior to installing the synthetic turf grass system above.
- H. Base Acceptance: The Architect and/or Owner's Representative must jointly approve the base before the turf installation can begin.
- I. Synthetic Turf and Infill Materials
1. After a final inspection of the base by the field builder and the Owner's Representative, the synthetic turf installation shall begin. The first roll shall begin with the longest perpendicular cross-field distance. No head seams shall be permitted in the inbound playing surface.
 2. The rolls of turf shall be rolled out a minimum of four hours prior to starting seaming procedures and allowed to relax/expand.
 - a. All visible wrinkles shall be stretched out before seaming.
 - b. Seams shall be flat, tight and permanent with no separation or fraying.
 - c. Synthetic turf yarn fabric that is trapped or glued between seams shall be freed from the seams by hand or other approved method to an upright position prior to the commencement of brushing and topdressing procedures.
 - d. All synthetic turf seams shall be assembled as follows: The full width rolls shall be laid out across the field. Utilizing standard state of the art adhering or sewing procedures, each roll shall be attached to the next.

- e. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed perpendicular to the playing field. The yard lines, game markings, sidelines, etc. of all applicable sports shall be tufted into carpet by the manufacturer wherever possible.
- 3. After all seaming is completed and inlaid lines, logos and lettering have been installed; the infill materials shall be spread evenly, using a drop spreader or top dresser.
 - a. Granulated infill material shall be applied in a uniform rate of multiple applications until the specified infill depth is achieved.
 - b. Infill material shall be brushed between infill applications with a motorized rotary broom and pull-type groomer brush simultaneously.
 - c. A minimum infill rate of material per square foot as indicated in Part 2 of this specification is required.
- J. Tufted and Inlaid Lines
 - 1. Layout and descriptions of tufted and inlaid lines shall conform to the NFHS standards and approved by the Owner prior to installation.
 - 2. Inlaid lines and field markings shall be cut in using seaming methods recommended by the field builder.
- K. Synthetic Turf Perimeter Attachment:
 - 1. After final trimming of the turf, the turf shall be screwed or nailed to the pressure treated wood nailer system as per the field builder's recommendations.

3.2 FIELD LAYOUT

- A. Field layout shall be as shown on the record drawings. Typically, the final approved striping and seaming plan used to manufacture and install the field is acceptable. Any Owner-approved changes that take place during the installation must be marked in red and resubmitted.

3.3 CLOSEOUT

- A. The Field Builder must verify that a qualified representative has inspected the installation and that the finished field surface conforms to the field builder's requirements.
- B. The field builder must submit three (3) copies of its standard maintenance manual to the owner.
- C. Field builder must train Owner's designated field personnel in proper grooming and care procedures. This includes training field personnel how to properly use grooming equipment as well as make minor repairs.

3.4 CLEAN UP

- A. Field builder shall provide the labor, supplies and equipment as necessary for final cleaning of surface and installed items.
- B. All usable remnants of new material shall be neatly rolled up and turned over to the Owner at a place and area designated by the Owner.
- C. During the contract and at intervals as directed by the Architect and as synthetic turf installation is completed, clear the site of all extraneous materials, rubbish, or debris and leave the site in a clean, safe, well-draining, neat condition.
- D. Surface, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.5 G-MAX AND INFILL DEPTH TESTING

- A. Verification of installed infill depth and G-max testing to be performed by an independent testing firm retained and paid for by the Contractor. The testing firm must be approved by the Owner prior to Contractor authorizing any testing work.
 - 1. Infill Depth: Measurement of infill to verify depth shall be taken at a minimum of ten locations throughout each installed playfield area. The amount of installed infill shall in all cases meet the minimum specified depth with an allowable tolerance of plus/minus 1/8".
 - 2. G-Max: Testing shall be performed to verify that shock attenuation properties of the field meet the requirements indicated in this specification. Upon construction completion of the synthetic turf playfield, in place G-Max testing of the synthetic turf system shall be performed in accordance with ASTM F355 and ASTM F1936. G-Max ratings shall fall between 100 and 135 at all test locations with the average of all G-Max readings not exceeding 125.
- B. The Owner shall periodically test the playfield area for G-Max properties throughout the entire warranty period of the synthetic turf playfield at their own expense. If test results show that G-Max readings exceed 165 at any location, the synthetic turf contractor shall take all steps necessary to correct the condition. The synthetic turf contractor shall provide the Owner with adequate information to describe the corrective measures to be utilized and shall follow-up in writing confirming that the work provided was successful.

END OF SECTION 321813.1

SECTION 321813.2 – SYNTHETIC GRASS SURFACING – **MULTIUSE FIELD**

(Bid Addendum 02)

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide labor, materials, services and equipment necessary to furnish and install synthetic surfacing work as indicated and as specified herein, includes, but not limited to:
 - 1. Preparation of stone base and underdrain system.
 - 2. Surfacing of athletic field.
 - 3. Installation of lines, yard markers, and logos.

1.2 RELATED SECTIONS

- A. Section 116833 – Athletic Field Equipment
- B. Section 311001 – Earthwork-Site Work

1.3 SUBMITTALS

- A. Submit the following within 72 hours of bid opening, as requested:
 - 1. Most recent installation/reference list for all projects of similar scope to this project completed in the last three years.
 - 2. Required 3rd party insurance policy, demonstrating that all of the requirements outlined in Section 1.4 Quality Assurance are met. Actual policy must be submitted.
 - 3. One (1) 12" x 12" sample of proposed synthetic turf carpet and one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system. Also submit product data and testing documents demonstrating that proposed system meets or exceeds all specified requirements.
- B. Submit the following prior to the ordering of materials:
 - 1. Material Certificates and Samples: Provide certificate for each material from material producer that will be used for this project. Each material certificate must be stamped and checked as approved by the Field Builder before submittal to the Architect.
 - 2. Provide to the Architect materials samples of the following: Two (2) 12" x 12" samples of synthetic turf carpet and color yarn samples, (2) 1-lb. bagged samples infill material.
 - 3. Prior to order of materials, the Field Builder shall submit a sample warranty, seam layout plan, striping plan and any details of construction that deviate from the plans and specifications.
- C. Quality Control Submittals

1. Test Reports

- a. Submit certified copies of independent, third-party laboratory test reports for synthetic turf playfield system components as follows:
 - (1) Pile height, face width and total fabric weight per ASTM D418 or D5848.
 - (2) Primary and secondary backing weights per ASTM D418 or D5848.
 - (3) Tuft bind per ASTM D1335.
 - (4) Grab tear strength per ASTM D1682 or D5034.
 - (5) Pill burn test per ASTM D2859.
 - b. Submit necessary test data from the Installer to the Owner indicating that the finished field meets the required shock attenuation as per ASTM F355.
2. Existing Installation Listing: Provide a list, including project name, owner's representative name and telephone number for a minimum of ten fields of 65,000 SF or more installed in the United States during the past two years with the same turf manufacturer, including the same infill products, fiber, and fiber manufacturer proposed for this project.
 3. Dynamic Base Stone Acceptance: Prior to beginning installation of synthetic turf surfacing, arrange for a representative of the synthetic turf manufacturer and installer shall inspect the dynamic base stone. The manufacturer and the installer must certify the acceptance of the dynamic base stone for the purpose of obtaining the manufacturer's warranty for the finished synthetic playing surface.
 4. Lead Components – As part of the approval process of the submitted product, the synthetic turf playfield system supplier must certify in writing that no lead or lead chromate components are utilized in the manufacturing of the turf.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern. The latest edition of the following standards as referenced herein shall be applicable.
 1. National Federation of State High School Associations (NFHS), "Rules Book" for the following sports:
 - a. Soccer
 - b. Girl's Lacrosse
 - c. Boy's Lacrosse
 - d. Field Hockey
 2. US Lacrosse, "Official Rules for Girl's and Women's Lacrosse" for Women's Lacrosse.
- B. Factory Mutual Research Corporation: P7825 Approval Guide – Factory Mutual Research Corporation, current edition

C. American Society for Testing and Materials Standards

1. ASTM C88 – “Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate”
2. ASTM D418 – “Standard Method of Testing Pile Yarn Floor Covering Construction”
3. ASTM D422 – “Standard Test Method for Particle Size Analysis of Soils”
4. ASTM D698 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/cubic foot)”
5. ASTM D1338 – “Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings”
6. ASTM D1557 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/cubic foot)”
7. ASTM D1577 – “Standard Test Method for Linear Density of Textile Fibers”
8. ASTM D1682 – “Standard Method of Tests for Breaking Load and Elongation of Textile Fabrics”
9. ASTM D2256 – “Standard Test Method for Tensile Properties of Yarns by the Single Strand Method”
10. ASTM D2859 – “Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials”
11. ASTM D2922 – “Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods”
12. ASTM D3385 – “Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer”
13. ASTM D5034 – “Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)”
14. ASTM D5848 – “Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings”
15. ASTM F355 – “Standard Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials”
16. ASTM F355-10 – “Procedure A: Testing Services Including Test Number TSI 1202”
17. ASTM F1015 – “Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces”
18. ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity”
19. ASTM F1551 – “Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials”
20. ASTM F1936 – “Standard Test Method for Shock Absorbing Properties of North American Football Field Playing Systems as Measured in the Field”

1.5 QUALITY ASSURANCE

- A. Provide a qualified installation foreman to coordinate and review the component parts of the artificial turf system. Submit a resume of experience for Architect’s approval prior to starting work.
- B. Granulated Infilled Artificial Turf:
 1. Factory-trained technicians skilled in the installation of athletic-caliber infilled synthetic turf systems will undertake the placement of the turf. Special brushing equipment and techniques will be used in the installation.

2. The designated installation crew shall have installed a minimum of ten high quality, stadium grade granulated infilled synthetic turf systems of 65,000 square feet or greater in the past three years.
 3. A notarized letter from the Field Builder that the installation crew and foreman are factory certified must be submitted prior to the start of turf installation.
- C. Provide a colored striping plan detailing lines, numbers and letters. Coordinate with Owner or Owner's Representative and Architect to get final approval of all designated colors, dimensions and logo/lettering designs.
- D. The Field Builder shall meet the following criteria:
1. Manufacturer/Field Builder's Experience:
 - a. The Turf Manufacturer and the Field Builder must be experienced in the manufacturing and installation of this type of artificial turf system and provide project references of the synthetic grass system being installed at 100 similar exterior sites in the United States over the last 5 years, a minimum of 65,000 square feet each.
 - b. The Field Builder must have actively been in business, under its current name and ownership for at least the past ten years; and must have a minimum of 25 athletic fields still in use in the United States for a minimum of the past 10 years.
 - c. The Field Builder must provide competent workmen skilled in this type of artificial turf installation. The designated Supervisory personnel on the project must be certified, in writing, by the Field Builder as competent in the installation of this material, including gluing or sewing seams and proper installation of the infill mixture. The Field Builder shall have a qualified job foreman on site to certify the installation and warranty compliance
- E. Warranty - The Prime Contractor and/or Manufacturer shall provide a total **twelve (12)** year warranty to the Owner that includes the following in writing in the warranty document:
1. The turf warranty shall be from a single source and shall provide full coverage for all defects in all materials and workmanship of the synthetic turf for its intended usability and playability for the specified warranty period from the Date of Final Completion and acceptance of the turf field. The turf manufacturer must verify that their on-site representative has inspected the installation and that the work conforms to the Manufacturer's requirements.
 2. In addition to the required Turf Contractor's/Manufacturer's single source warranty, an additional prepaid insurance policy supported from a third party, A.M. Best, A-rated or better domestic insurance carrier shall be provided for the initial eight-year warranty period. The insurance policy should comply with the following:
 - a. Be written specifically naming the field or fields being constructed as part of this project requiring payment of a claim be made directly to the Owner of said field. Evidence of such coverage must be submitted and approved.
 - b. The value of the insured warranty shall be \$1,000,000 for each insured warranty with a \$5,000,000 annual aggregate.

- c. Only true 3rd party warranties are acceptable. Letters of credit submitted as a policy will be rejected as an acceptable substitution to true 3rd party insurance policy.
 - d. Three copies of the actual 3rd party insurance policy must be provided with the warranty as part of the initial synthetic turf approval submittal package.
 - e. The 3rd party warranty shall be limited to the initial eight (8) year portion of the synthetic turf system warranty. The additional two (2) year warranty required for the aggregate ten (10) year warranty after the initial eight (8) year duration is completed shall then convert to a standard single source company warranty provided by the Manufacturer covering, but not solely limited to addressing issues such as seam repair, maintenance of specified G-max standards, U.V degradation of fibers, general fiber failure, etc.
3. The turf warranty shall include general wear and damage caused from ultra-violet degradation. Vandalism and Acts of God beyond the control of the synthetic turf manufacturer shall be excluded.
 4. The turf warranty shall specifically list what components and properties are covered by the warranty. The list shall include, but not be limited to any and all defects or failures relating to construction of the synthetic turf system, drainage through the synthetic turf system, synthetic turf seam rupture, synthetic turf yarn ultra-violet stability, excessive wear and tensile strength.
 5. The turf warranty shall cover defects in the workmanship of installation and further warrants that the installation was done in accordance with both the Manufacturer's recommendations and any written directives of the Manufacturer's on-site representative.
 6. The turf warranty shall include all necessary materials, labor, transportation costs, etc., to complete repairs or replacements and dispose of removed materials. The warranty shall guarantee the availability of the same or better replacement materials for the synthetic turf system for the warranty period.
 7. The turf warranty shall be non-prorated and shall not place limits on the amount of field's usage.
 8. The turf warranty cannot include any form of deductible amount.
 9. The turf warranty shall clearly define the conditions under which the Manufacturer considers the warranty to be void.
 10. The turf warranty shall define the typical time frame within which repairs will be initiated by the synthetic turf contractor, once notice has been received requesting repairs.
 11. The turf warranty shall guarantee that adhesive bonded or sewed seams of all system components remain permanent, tight, secure and hazard free for the entire athletic field playing surface. In addition, all inlaid markings shall remain in place throughout the duration of the warranty period.
 12. The turf warranty shall guarantee the installed synthetic turf system's drainage capability shall allow water flow through the entire turf and infill of not less than 10 inches per hour.
 13. The warranty shall guarantee the G-max ratings at the completion of construction and for the duration of the warranty as described in this specification.

F. MAINTENANCE

1. The synthetic turf contractor shall provide training for the Owner regarding the recommended maintenance program for the synthetic turf field. The training

shall include a detailed review of the turf maintenance manual required to be provided by the synthetic turf manufacturer.

2. The synthetic turf contractor shall provide training for the Owner's facility maintenance staff in the use of the field groomer and all other equipment to be utilized for maintenance of the synthetic turf field.
3. Extra Materials: Upon final completion, provide the following materials directly to the Owner in the minimum quantities specified:
 - a. Turf fabric – 100 SF of each color used in playing field areas and logos, excluding the field line colors, with at least one piece of each color being 5' wide by 10' long.
 - b. 4" Wide Colored Fabric – Minimum 100 LF of each color specified for inlaid line striping.
 - c. 2000 pounds ground rubber in weatherproof bags.
 - d. Minimum one 15' x 10' piece of each type of green turf used on the Project.

PART 2 - PRODUCTS

2.1 SYNTHETIC GRASS SYSTEM

A. Synthetic Grass System Description

1. Face Yarn Type: Multifilament system consisting of multiple monofilament strands and multifilament polyethylene slit fiber.
2. Pile Weight: 46 oz/sy minimum. It is acceptable to increase pile weight to meet minimum total product weight required for this turf system.
3. Primary Backing: Minimum 8 oz/sy, double layered polypropylene fabric treated with U.V. inhibitors. It is acceptable to increase primary backing weight to meet minimum total product weight required for this turf system.
4. Secondary Backing: Minimum 20 oz/sy urethane permanently locking fiber tufts in place. It is acceptable to increase secondary backing weight to meet minimum total product weight required for this turf system.
5. Total Product Weight: Total weight of system pile, primary backing and secondary backing to be minimum 74 oz/sy.
6. Yarn Linear Density: Minimum 5,000 denier for slit film fiber and 7200 denier for monofilament fiber.
7. Yarn Thickness: Minimum 100 microns for slit film fiber and 300 microns for monofilament fiber.
8. Pile Height (Finished): Minimum 2.25" nominal finish height.
9. Color: Green (as approved by Owner).
10. Construction: Broadloom tufted
11. Stitch Rate: Maximum 13/3".
12. Tufting Gauge: Maximum 3/4".
13. Backing: Non-perforated porous or perforated system.
14. Turf Permeability: >20" per hour.
15. Yarn Break Strength: >8 lbs nominal for slit film fiber and >20 lbs. nominal for monofilament fiber.
16. Yarn Maximum Elongation: 40% nominal.
17. Tuft Bind Without infill: Minimum 9 lbs.

18. Grab Tear (Width): Minimum 200 lbs.
 19. Grab tear (Length): Minimum 200 lbs.
 20. Flamability (Pill Burn): Pass.
 21. Infill Composition: Minimum 3 lbs each /sf ambient or cryogenic SBR crumb rubber particles and rounded or sub-angular, uniformly sized silica sand.
 22. Infill Depth: Minimum 1.75" deep at installation.
 23. Finished Roll Width: The carpet shall be delivered in 15-footwide rolls with 4" lines tufted into each roll where appropriate.
 24. Markings: Provide all necessary game markings including mid lines, circles, goal boxes, etc. All markings shall conform to NCAA standards for boys and girls soccer, field hockey and boys and girls lacrosse.
 25. Warranty: Total of 12 years (8-year standard warranty plus 4-year supplemental warranty) from date of Final Completion.
 26. Manufacturers of synthetic turf athletic surfacing complying with these specifications include AstroTurf (Telephone #800-723-8873), A-Turf (Telephone #888-777-6910) and Field Turf (Telephone #800-724-2969).
- B. Resilient Infill: A resilient infill system, consisting of minimum weights per square foot of rubber or a rubber and sand mixture as specified above engineered to provide the look, feel, footing and shock absorption of a natural grass field in ideal conditions.
1. Sand Particulate. The sand provided as a component of the infill mixture shall be rounded or sub-angular silica sand to minimize abrasion to the athlete and synthetic grass fibers.
 2. Rubber Particulate. The rubber provided as a component of the infill mixture shall be ground SBR crumb rubber mixture.

2.2 VERTICAL DRAINAGE BASE MATERIALS

- C. Excavation: Existing natural grass field shall be excavated to the depth established by the Architect and as shown on the excavation plan. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to each sideline in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.
- D. Geotextile Filter Fabric: Non-woven polypropylene geotextile fabric shall be chemically and biologically inert and shall be Mirafi 140N or approved equal.
- E. Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe with geotextile wrap) shall be installed under a 10" layer of free draining base aggregate. The drainage pipe will be installed in a herringbone pattern every 15 feet on center and shall be connected to perimeter collector lines as shown on drawings. End connectors shall be fabricated for use with 4" drain pipe. Material to be similar to ADS Advantage pipe or approved equivalent.
- F. Stone Base Courses: The following gradation of stone is a typical and recommended specification. The synthetic turf base installer is required to focus on achieving the planarity, porosity and compaction requirements to provide a sound crushed stone base for synthetic turf installation above. The final base course materials shall be approved by the synthetic turf manufacturer and contractor prior to installation at the project site.

1. The free-draining base aggregate base layer shall consist of a consistent depth of open graded material. Base drainage aggregate used must achieve a 95% minimum overall compaction rate. Material shall conform to the AASHTO #57 limestone classification.
2. The choker material shall be AASHTO #8. 200 sieve must not exceed 7% passing.

2.3 SEAMS

- A. Adhesives for bonding tufted synthetic turf shall be two-component fast-set urethane adhesive obtained from a single manufacturer and be equivalent to Ultrabond Turf PU 2K as manufactured by Mapei Corporation, Deerfield Beach, FL (800) 992-6273, or one-part moisture-cured polyurethane obtained from a single manufacturer and be equivalent to 34-G as manufactured by Synthetic Surfaces, Inc., Scotch Plains, NJ (908) 233-6803, or approved equal as designated by the Field Builder.
 1. Seaming Tape: Tape for securing seams in the tufted synthetic turf and inlaid lines shall be high quality tape made with a minimum roll width of 12 inches.
- B. Sewn seams: If seams are to be sewn, they must be sewn with high quality cord/thread as recommended by Field Builder.
- C. Line Painting: No line painting will be allowed. All markings are to be factory tufted or inlaid at the project site.
- D. Panel/Roll Seams: Provide 99% sewn installation; gluing of rolls shall not be acceptable. Minimal gluing will be permitted to repair problem areas, corner completions, and to cut in any logos or inlaid lines as required. All panel seams shall be sewn using double bagger stitches and polyester thread. Make all seams flat, tight, and permanent with separation or fraying.

PART 3 - EXECUTION

3.1 SYNTHETIC FIELD SURFACE

- A. The synthetic turf base contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Field Builder's on-site representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.
- B. Sub-Grade: The sub grade shall be shaped to mirror the slope of the finished synthetic turf surface as indicated on the grading plan. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate. Areas which cannot achieve the minimum compaction shall be over-excavated and structural fill shall be installed and re-compacted to the minimum compaction required.
- C. Install geotextile fabric over the prepared sub-grade. Provide a 36" minimum overlap at all seams. Fabric shall first be installed in the drainage trenches prior to installation of perimeter collector lines. After backfilling of all trenches is complete, the entire field shall be covered with fabric prior to the base aggregate application.

- D. Trenching, Drainage Pipe Installation and Backfilling: All piping shall be as specified and connected by Field Builder's couplers, plugs etc.
1. The base grade shall be shaped to mirror the finished grade and approved by the Architect and/or Owner's Representative. The base contractor shall begin layout and trenching for the drainage network as indicated on the drainage plan and all details that apply. Collector lines shall be installed before lateral lines and shall begin with the deepest elevations. Collector lines shall be connected to discharge outlet at the onset of operations. Trenching progress shall work upward in elevation to allow for immediate discharge of water from the entire field in the event of a rainfall.
 2. No trenches, with or without pipe, shall be permitted, to remain unfilled overnight and/or while crews are not progressively working on site.
 3. All perimeter trenches must be dug in accordance with the field drainage plan details.
 4. After all collector and lateral lines have been installed, the base contractor shall repair any sub grade undulations prior to installing geotextile fabric.
- E. Concrete Header Curb and Pressure Treated Wood Turf Nailer: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.
1. The 12" x 12" concrete header curb shall be installed in accordance with the Drawings and/or Shop Drawings and these Specifications. The foundation of the concrete header curb shall be a compacted free draining aggregate. Future water entering the foundation shall have a free draining path directly to the perimeter collector pipe.
 2. Install a pressure treated wood 2" x 4" nailer. Pressure treated wood nailer shall be set at a distance equal to the synthetic turf finished pile height below top of the curb by means of a Tapcon or ramset every 12 inches. This shall be the responsibility of the base contractor.
- F. Base Drainage Aggregate: The installation of the base drainage aggregate shall only begin after the drainage pipe installation has been inspected and approved by Owner's Representative. Installation of the free draining base aggregate shall follow procedures that protect the base grade soils and drainage pipe. The drainage pipe network and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.
1. The base grade subsoil shall be dry before undertaking the placement of base aggregate.
 2. Delivery trucks shall enter the field only from the designated entrance point. Base course stone shall be dumped closest to the entrance first and continuously worked towards the furthest point of the field. Extreme care must be taken not to disturb sub grade or drainage network.
 3. Track-type dozers shall push out the stone from behind the pile onto and toward the field center. Dozers shall only traffic the aggregate they are spreading.

4. Bulldozer blades shall be equipped with a laser-guided hydraulic system. Care shall be taken not to disturb or contact the base grade soils with the dozer blades or tracks. All equipment trafficking over the drainage aggregate shall ensure there is a minimum depth of 9" of aggregate between the geotextile fabric and the dozer track ground contact position.
 5. When the aggregate spreading is completed, the surface shall be further-firmed by a 5-ton roller. Static vibration shall not be part of this process.
 6. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.
 7. After the drainage stone has been uniformly spread throughout the surface, the surface shall receive a final laser finished grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 8. The free-draining base course must be installed to a depth as recommended by the Field Manufacturer and shall be independently tested for an overall compaction rate of 95% proctor.
- G. Choker Levels: The base drainage stone final elevations shall mirror the proposed choker layer final grade material. Care shall be taken not to allow the coarser aggregate to surface into the profile or finished grade of the choker layer.
1. The choker layer shall be applied using high flotation grading equipment. The choker material shall be evenly spread throughout the proposed field surface to the final pre-pad or pre-turf elevations.
 2. After the choker material has been uniformly spread throughout the surface by the described method, the surface shall receive a final laser finish grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 3. Care shall be taken throughout the installation not to force the choker material into the porosity of the base aggregate below.
 4. Final choke layer must be installed to design grades with a finished surface tolerance deviating no more than ¼ inch over 10 feet in all directions. The base contractor must provide a topographical survey with a minimum of 200 shots demonstrating finished grade meets all written requirements.
 5. Final layer of stone must be installed at a depth as recommended by the field manufacturer. Finished aggregate base must be proof-rolled by means of 2- to 5-ton roller. The finished aggregate base must achieve an overall compaction rate of 95% proctor in accordance with ASTM D1557. It shall also be flush with top of pressure treated wood nailer.
 6. The synthetic turf base contractor is required to string line the entire field every five feet to identify high and low spots. And identified high and low spots must be eliminated prior to installation of the synthetic turf. The base layer topography must be accepted by the synthetic turf manufacturer and installer prior to installing the synthetic turf grass system above.

H. Base Acceptance: The Architect and/or Owner's Representative must jointly approve the base before the turf installation can begin.

I. Synthetic Turf and Infill Materials

1. After a final inspection of the base by the field builder and the Owner's Representative, the synthetic turf installation shall begin. The first roll shall begin with the longest perpendicular cross-field distance. No head seams shall be permitted in the inbound playing surface.
2. The rolls of turf shall be rolled out a minimum of four hours prior to starting seaming procedures and allowed to relax/expand.
 - a. All visible wrinkles shall be stretched out before seaming.
 - b. Seams shall be flat, tight and permanent with no separation or fraying.
 - c. Synthetic turf yarn fabric that is trapped or glued between seams shall be freed from the seams by hand or other approved method to an upright position prior to the commencement of brushing and topdressing procedures.
 - d. All synthetic turf seams shall be assembled as follows: The full width rolls shall be laid out across the field. Utilizing standard state of the art adhering or sewing procedures, each roll shall be attached to the next.
 - e. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed perpendicular to the playing field. The yard lines, game markings, sidelines, etc. of all applicable sports shall be tufted into carpet by the manufacturer wherever possible.
3. After all seaming is completed and inlaid lines, logos and lettering have been installed; the infill materials shall be spread evenly, using a drop spreader or top dresser.
 - a. Granulated infill material shall be applied in a uniform rate of multiple applications until the specified infill depth is achieved.
 - b. Infill material shall be brushed between infill applications with a motorized rotary broom and pull-type groomer brush simultaneously.
 - c. A minimum infill rate of material per square foot as indicated in Part 2 of this specification is required.

J. Tufted and Inlaid Lines

1. Layout and descriptions of tufted and inlaid lines shall conform to the NFHS standards and approved by the Owner prior to installation.
2. Inlaid lines and field markings shall be cut in using seaming methods recommended by the field builder.

K. Synthetic Turf Perimeter Attachment:

1. After final trimming of the turf, the turf shall be screwed or nailed to the pressure treated wood nailer system as per the field builder's recommendations.

3.2 FIELD LAYOUT

A. Field layout shall be as shown on the record drawings. Typically, the final approved striping and seaming plan used to manufacture and install the field is acceptable. Any

Owner-approved changes that take place during the installation must be marked in red and resubmitted.

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- A. The Field Builder must verify that a qualified representative has inspected the installation and that the finished field surface conforms to the field builder's requirements.
- B. The field builder must submit three (3) copies of its standard maintenance manual to the owner.
- C. Field builder must train Owner's designated field personnel in proper grooming and care procedures. This includes training field personnel how to properly use grooming equipment as well as make minor repairs.

3.4 CLEAN UP

- A. Field builder shall provide the labor, supplies and equipment as necessary for final cleaning of surface and installed items.
- B. All usable remnants of new material shall be neatly rolled up and turned over to the Owner at a place and area designated by the Owner.
- C. During the contract and at intervals as directed by the Architect and as synthetic turf installation is completed, clear the site of all extraneous materials, rubbish, or debris and leave the site in a clean, safe, well-draining, neat condition.
- D. Surface, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.5 G-MAX AND INFILL DEPTH TESTING

- A. Verification of installed infill depth and G-max testing to be performed by an independent testing firm retained and paid for by the Contractor. The testing firm must be approved by the Owner prior to Contractor authorizing any testing work.
 - 1. Infill Depth: Measurement of infill to verify depth shall be taken at a minimum of ten locations throughout each installed playfield area. The amount of installed infill shall in all cases meet the minimum specified depth with an allowable tolerance of plus/minus 1/8".
 - 2. G-Max: Testing shall be performed to verify that shock attenuation properties of the field meet the requirements indicated in this specification. Upon construction completion of the synthetic turf playfield, in place G-Max testing of the synthetic turf system shall be performed in accordance with ASTM F355 and ASTM F1936. G-Max ratings shall fall between 100 and 135 at all test locations with the average of all G-Max readings not exceeding 125.
- B. The Owner shall periodically test the playfield area for G-Max properties throughout the entire warranty period of the synthetic turf playfield at their own expense. If test

results show that G-Max readings exceed 165 at any location, the synthetic turf contractor shall take all steps necessary to correct the condition. The synthetic turf contractor shall provide the Owner with adequate information to describe the corrective measures to be utilized and shall follow-up in writing confirming that the work provided was successful.

END OF SECTION 321813.2

SECTION 321813.3 – SYNTHETIC GRASS SURFACING – **TURF AT SPECTATOR**

AREA (Bid Addendum 02)

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide labor, materials, services and equipment necessary to furnish and install synthetic surfacing work as indicated and as specified herein, includes, but not limited to:
 - 1. Preparation of stone base and underdrain system.
 - 2. Surfacing of athletic field.
 - 3. Installation of lines, yard markers, and logos.

1.2 RELATED SECTIONS

- A. Section 116833 – Athletic Field Equipment
- B. Section 311001 – Earthwork-Site Work

1.3 SUBMITALS

- A. Submit the following within 72 hours of bid opening, as requested:
 - 1. Most recent installation/reference list for all projects of similar scope to this project completed in the last three years.
 - 2. Required 3rd party insurance policy, demonstrating that all of the requirements outlined in Section 1.4 Quality Assurance are met. Actual policy must be submitted.
 - 3. One (1) 12" x 12" sample of proposed synthetic turf carpet and one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system. Also submit product data and testing documents demonstrating that proposed system meets or exceeds all specified requirements.
- B. Submit the following prior to the ordering of materials:
 - 1. Material Certificates and Samples: Provide certificate for each material from material producer that will be used for this project. Each material certificate must be stamped and checked as approved by the Field Builder before submittal to the Architect.
 - 2. Provide to the Architect materials samples of the following: Two (2) 12" x 12" samples of synthetic turf carpet and color yarn samples, (2) 1-lb. bagged samples infill material.
 - 3. Prior to order of materials, the Field Builder shall submit a sample warranty, seam layout plan, striping plan and any details of construction that deviate from the plans and specifications.
- C. Quality Control Submittals

1. Test Reports

- a. Submit certified copies of independent, third-party laboratory test reports for synthetic turf playfield system components as follows:
 - (1) Pile height, face width and total fabric weight per ASTM D418 or D5848.
 - (2) Primary and secondary backing weights per ASTM D418 or D5848.
 - (3) Tuft bind per ASTM D1335.
 - (4) Grab tear strength per ASTM D1682 or D5034.
 - (5) Pill burn test per ASTM D2859.
 - b. Submit necessary test data from the Installer to the Owner indicating that the finished field meets the required shock attenuation as per ASTM F355.
2. Existing Installation Listing: Provide a list, including project name, owner's representative name and telephone number for a minimum of ten fields of 65,000 SF or more installed in the United States during the past two years with the same turf manufacturer, including the same infill products, fiber, and fiber manufacturer proposed for this project.
 3. Dynamic Base Stone Acceptance: Prior to beginning installation of synthetic turf surfacing, arrange for a representative of the synthetic turf manufacturer and installer shall inspect the dynamic base stone. The manufacturer and the installer must certify the acceptance of the dynamic base stone for the purpose of obtaining the manufacturer's warranty for the finished synthetic playing surface.
 4. Lead Components – As part of the approval process of the submitted product, the synthetic turf playfield system supplier must certify in writing that no lead or lead chromate components are utilized in the manufacturing of the turf.

1.4 REFERENCES

- A. Factory Mutual Research Corporation: P7825 Approval Guide – Factory Mutual Research Corporation, current edition
- B. American Society for Testing and Materials Standards
 1. ASTM C88 – “Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate”
 2. ASTM D418 – “Standard Method of Testing Pile Yarn Floor Covering Construction”
 3. ASTM D422 – “Standard Test Method for Particle Size Analysis of Soils”
 4. ASTM D698 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/cubic foot)”
 5. ASTM D1338 – “Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings”
 6. ASTM D1557 – “Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/cubic foot)”
 7. ASTM D1577 – “Standard Test Method for Linear Density of Textile Fibers”

8. ASTM D1682 – “Standard Method of Tests for Breaking Load and Elongation of Textile Fabrics”
9. ASTM D2256 – “Standard Test Method for Tensile Properties of Yarns by the Single Strand Method”
10. ASTM D2859 – “Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials”
11. ASTM D2922 – “Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods”
12. ASTM D3385 – “Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer”
13. ASTM D5034 – “Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)”
14. ASTM D5848 – “Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings”
15. ASTM F355 – “Standard Test Method for Shock Absorbing Properties of Playing Surface Systems and Materials”
16. ASTM F355-10 – “Procedure A: Testing Services Including Test Number TSI 1202”
17. ASTM F1015 – “Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces”
18. ASTM D4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity”
19. ASTM F1551 – “Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials”
20. ASTM F1936 – “Standard Test Method for Shock Absorbing Properties of North American Football Field Playing Systems as Measured in the Field”

1.5 QUALITY ASSURANCE

- A. Provide a qualified installation foreman to coordinate and review the component parts of the artificial turf system. Submit a resume of experience for Architect’s approval prior to starting work.
- B. Granulated Infilled Artificial Turf:
 1. Factory-trained technicians skilled in the installation of athletic-caliber infilled synthetic turf systems will undertake the placement of the turf. Special brushing equipment and techniques will be used in the installation.
 2. The designated installation crew shall have installed a minimum of ten high quality, stadium grade granulated infilled synthetic turf systems of 65,000 square feet or greater in the past three years.
 3. A notarized letter from the Field Builder that the installation crew and foreman are factory certified must be submitted prior to the start of turf installation.
- C. Provide a colored striping plan detailing lines, numbers and letters. Coordinate with Owner or Owner's Representative and Architect to get final approval of all designated colors, dimensions and logo/lettering designs.
- D. The Field Builder shall meet the following criteria:
 1. Manufacturer/Field Builder’s Experience:

- a. The Turf Manufacturer and the Field Builder must be experienced in the manufacturing and installation of this type of artificial turf system and provide project references of the synthetic grass system being installed at 100 similar exterior sites in the United States over the last 5 years, a minimum of 65,000 square feet each.
 - b. The Field Builder must have actively been in business, under its current name and ownership for at least the past ten years; and must have a minimum of 25 athletic fields still in use in the United States for a minimum of the past 10 years.
 - c. The Field Builder must provide competent workmen skilled in this type of artificial turf installation. The designated Supervisory personnel on the project must be certified, in writing, by the Field Builder as competent in the installation of this material, including gluing or sewing seams and proper installation of the infill mixture. The Field Builder shall have a qualified job foreman on site to certify the installation and warranty compliance
- E. Warranty - The Prime Contractor and/or Manufacturer shall provide a total **ten (10)** year warranty to the Owner that includes the following in writing in the warranty document:
1. The turf warranty shall be from a single source and shall provide full coverage for all defects in all materials and workmanship of the synthetic turf for its intended usability and playability for the specified warranty period from the Date of Final Completion and acceptance of the turf field. The turf manufacturer must verify that their on-site representative has inspected the installation and that the work conforms to the Manufacturer's requirements.
 2. In addition to the required Turf Contractor's/Manufacturer's single source warranty, an additional prepaid insurance policy supported from a third party, A.M. Best, A-rated or better domestic insurance carrier shall be provided for the initial eight-year warranty period. The insurance policy should comply with the following:
 - a. Be written specifically naming the field or fields being constructed as part of this project requiring payment of a claim be made directly to the Owner of said field. Evidence of such coverage must be submitted and approved.
 - b. The value of the insured warranty shall be \$1,000,000 for each insured warranty with a \$5,000,000 annual aggregate.
 - c. Only true 3rd party warranties are acceptable. Letters of credit submitted as a policy will be rejected as an acceptable substitution to true 3rd party insurance policy.
 - d. Three copies of the actual 3rd party insurance policy must be provided with the warranty as part of the initial synthetic turf approval submittal package.
 - e. The 3rd party warranty shall be limited to the initial eight (8) year portion of the synthetic turf system warranty. The additional two (2) year warranty required for the aggregate ten (10) year warranty after the initial eight (8) year duration is completed shall then convert to a standard single source company warranty provided by the Manufacturer covering, but not solely limited to addressing issues such as seam repair, maintenance of specified G-max standards, U.V degradation of fibers, general fiber failure, etc.
 3. The turf warranty shall include general wear and damage caused from ultra-violet degradation. Vandalism and Acts of God beyond the control of the synthetic turf manufacturer shall be excluded.

4. The turf warranty shall specifically list what components and properties are covered by the warranty. The list shall include, but not be limited to any and all defects or failures relating to construction of the synthetic turf system, drainage through the synthetic turf system, synthetic turf seam rupture, synthetic turf yarn ultra-violet stability, excessive wear and tensile strength.
5. The turf warranty shall cover defects in the workmanship of installation and further warrants that the installation was done in accordance with both the Manufacturer's recommendations and any written directives of the Manufacturer's on-site representative.
6. The turf warranty shall include all necessary materials, labor, transportation costs, etc., to complete repairs or replacements and dispose of removed materials. The warranty shall guarantee the availability of the same or better replacement materials for the synthetic turf system for the warranty period.
7. The turf warranty shall be non-prorated and shall not place limits on the amount of field's usage.
8. The turf warranty cannot include any form of deductible amount.
9. The turf warranty shall clearly define the conditions under which the Manufacturer considers the warranty to be void.
10. The turf warranty shall define the typical time frame within which repairs will be initiated by the synthetic turf contractor, once notice has been received requesting repairs.
11. The turf warranty shall guarantee that adhesive bonded or sewed seams of all system components remain permanent, tight, secure and hazard free for the entire athletic field playing surface. In addition, all inlaid markings shall remain in place throughout the duration of the warranty period.
12. The turf warranty shall guarantee the installed synthetic turf system's drainage capability shall allow water flow through the entire turf and infill of not less than 10 inches per hour.
13. The warranty shall guarantee the G-max ratings at the completion of construction and for the duration of the warranty as described in this specification.

F. MAINTENANCE

1. The synthetic turf contractor shall provide training for the Owner regarding the recommended maintenance program for the synthetic turf field. The training shall include a detailed review of the turf maintenance manual required to be provided by the synthetic turf manufacturer.
2. The synthetic turf contractor shall provide training for the Owner's facility maintenance staff in the use of the field groomer and all other equipment to be utilized for maintenance of the synthetic turf field.
3. Extra Materials: Upon final completion, provide the following materials directly to the Owner in the minimum quantities specified:
 - a. Turf fabric – 100 SF of each color used in playing field areas and logos, excluding the field line colors, with at least one piece of each color being 5' wide by 10' long.
 - b. 4" Wide Colored Fabric – Minimum 100 LF of each color specified for inlaid line striping.
 - c. 2000 pounds ground rubber in weatherproof bags.
 - d. Minimum one 15' x 10' piece of each type of green turf used on the Project.

PART 2 - PRODUCTS

2.1 SYNTHETIC GRASS SYSTEM

A. Synthetic Grass System Description

1. Face Yarn Type: Multifilament system consisting of multiple monofilament strands and multifilament polyethylene slit fiber.
2. Pile Weight: 65 oz/sy minimum. It is acceptable to increase pile weight to meet minimum total product weight required for this turf system.
3. Primary Backing: Minimum 9 oz/sy, double layered polypropylene fabric treated with U.V. inhibitors. It is acceptable to increase primary backing weight to meet minimum total product weight required for this turf system.
4. Secondary Backing: Minimum 21 oz/sy urethane permanently locking fiber tufts in place. It is acceptable to increase secondary backing weight to meet minimum total product weight required for this turf system.
5. Total Product Weight: Total weight of system pile, primary backing and secondary backing to be minimum 94 oz/sy.
6. Yarn Linear Density: Minimum 14,000 denier for monofilament fiber, 10,000 denier for slit film fiber, and 5,000 denier for thatch fiber.
7. Yarn Thickness: Minimum 100 microns for slit film fiber and 300 microns for monofilament fiber.
8. Pile Height (Finished): Minimum 1.625" nominal finish height.
9. Color: Green (as approved by Owner).
10. Construction: Broadloom tufted
11. Stitch Rate: Maximum 13/3".
12. Tufting Gauge: Maximum 3/8".
13. Backing: Non-perforated porous or perforated system.
14. Turf Permeability: >20" per hour.
15. Yarn Break Strength: >8 lbs nominal for slit film fiber and >20 lbs. nominal for monofilament fiber.
16. Yarn Maximum Elongation: 40% nominal.
17. Tuft Bind Without infill: Minimum 9 lbs.
18. Grab Tear (Width): Minimum 200 lbs.
19. Grab tear (Length): Minimum 200 lbs.
20. Flamability (Pill Burn): Pass.
21. Infill Composition: Minimum 3 lbs each /sf ambient or cryogenic SBR crumb rubber particles and rounded or sub-angular, uniformly sized silica sand.
22. Infill Depth: Minimum 1.125" deep at installation.
23. Finished Roll Width: The carpet shall be delivered in 15-foot wide rolls.
24. Warranty: Total of 10 years from date of Final Completion.
25. Manufacturers of synthetic turf athletic surfacing complying with these specifications include AstroTurf (Telephone #800-723-8873), A-Turf (Telephone #888-777-6910) and Field Turf (Telephone #800-724-2969).

B. Resilient Infill: A resilient infill system, consisting of minimum weights per square foot of rubber or a rubber and sand mixture as specified above engineered to provide the look, feel, footing and shock absorption of a natural grass field in ideal conditions.

1. Sand Particulate. The sand provided as a component of the infill mixture shall be rounded or sub-angular silica sand to minimize abrasion to the athlete and synthetic grass fibers.

2. Rubber Particulate. The rubber provided as a component of the infill mixture shall be ground SBR crumb rubber mixture.

2.2 VERTICAL DRAINAGE BASE MATERIALS

- C. Excavation: Existing natural grass field shall be excavated to the depth established by the Architect and as shown on the excavation plan. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to each sideline in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.
- D. Geotextile Filter Fabric: Non-woven polypropylene geotextile fabric shall be chemically and biologically inert and shall be Mirafi 140N or approved equal.
- E. Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe with geotextile wrap) shall be installed under a 10" layer of free draining base aggregate. The drainage pipe will be installed in a herringbone pattern every 15 feet on center and shall be connected to perimeter collector lines as shown on drawings. End connectors shall be fabricated for use with 4" drain pipe. Material to be similar to ADS Advantage pipe or approved equivalent.
- F. Stone Base Courses: The following gradation of stone is a typical and recommended specification. The synthetic turf base installer is required to focus on achieving the planarity, porosity and compaction requirements to provide a sound crushed stone base for synthetic turf installation above. The final base course materials shall be approved by the synthetic turf manufacturer and contractor prior to installation at the project site.
 1. The free-draining base aggregate base layer shall consist of a consistent depth of open graded material. Base drainage aggregate used must achieve a 95% minimum overall compaction rate. Material shall conform to the AASHTO #57 limestone classification.
 2. The choker material shall be AASHTO #8. 200 sieve must not exceed 7% passing.

2.3 SEAMS

- A. Adhesives for bonding tufted synthetic turf shall be two-component fast-set urethane adhesive obtained from a single manufacturer and be equivalent to Ultrabond Turf PU 2K as manufactured by Mapei Corporation, Deerfield Beach, FL (800) 992-6273, or one-part moisture-cured polyurethane obtained from a single manufacturer and be equivalent to 34-G as manufactured by Synthetic Surfaces, Inc., Scotch Plains, NJ (908) 233-6803, or approved equal as designated by the Field Builder.
 1. Seaming Tape: Tape for securing seams in the tufted synthetic turf and inlaid lines shall be high quality tape made with a minimum roll width of 12 inches.
- B. Sewn seams: If seams are to be sewn, they must be sewn with high quality cord/thread as recommended by Field Builder.
- C. Line Painting: No line painting will be allowed. All markings are to be factory tufted or inlaid at the project site.

- D. Panel/Roll Seams: Provide 99% sewn installation; gluing of rolls shall not be acceptable. Minimal gluing will be permitted to repair problem areas, corner completions, and to cut in any logos or inlaid lines as required. All panel seams shall be sewn using double bagger stitches and polyester thread. Make all seams flat, tight, and permanent with separation or fraying.

PART 3 - EXECUTION

3.1 SYNTHETIC FIELD SURFACE

- A. The synthetic turf base contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Field Builder's on-site representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.
- B. Concrete Pad
 - 1. Plan and coordinate installation of concrete pad as necessary for proper turf carpet reveal. Secure all edges of turf directly to concrete pad.
- C. Synthetic Turf and Infill Materials
 - 1. The rolls of turf shall be rolled out a minimum of four hours prior to starting seaming procedures and allowed to relax/expand.
 - a. All visible wrinkles shall be stretched out before seaming.
 - b. Seams shall be flat, tight and permanent with no separation or fraying.
 - c. Synthetic turf yarn fabric that is trapped or glued between seams shall be freed from the seams by hand or other approved method to an upright position prior to the commencement of brushing and topdressing procedures.
 - d. All synthetic turf seams shall be assembled as follows: The full width rolls shall be laid out across the field. Utilizing standard state of the art adhering or sewing procedures, each roll shall be attached to the next.
 - e. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed perpendicular to the playing field. The yard lines, game markings, sidelines, etc. of all applicable sports shall be tufted into carpet by the manufacturer wherever possible.
 - 2. After all seaming is completed; the infill materials shall be spread evenly, using a drop spreader or top dresser.
 - a. Granulated infill material shall be applied in a uniform rate of multiple applications until the specified infill depth is achieved.
 - b. Infill material shall be brushed between infill applications with a motorized rotary broom and pull-type groomer brush simultaneously.
 - c. A minimum infill rate of material per square foot as indicated in Part 2 of this specification is required.

3.2 CLOSEOUT

- A. The Field Builder must verify that a qualified representative has inspected the installation and that the finished field surface conforms to the field builder's requirements.
- B. The field builder must submit three (3) copies of its standard maintenance manual to the owner.
- C. Field builder must train Owner's designated field personnel in proper grooming and care procedures. This includes training field personnel how to properly use grooming equipment as well as make minor repairs.

3.3 CLEAN UP

- A. Field builder shall provide the labor, supplies and equipment as necessary for final cleaning of surface and installed items.
- B. All usable remnants of new material shall be neatly rolled up and turned over to the Owner at a place and area designated by the Owner.
- C. During the contract and at intervals as directed by the Architect and as synthetic turf installation is completed, clear the site of all extraneous materials, rubbish, or debris and leave the site in a clean, safe, well-draining, neat condition.
- D. Surface, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

END OF SECTION 321813.3

NRHS FIELDS PHASE 2 & HVAC UPGRADES

NORTH ROCKLAND HIGH SCHOOL
SED NO. 50-02-01-06-0-016-036

PRESS BOX - SOFTBALL
SED NO. 50-02-01-06-7-090-001

PRESS BOX - BASEBALL
SED NO. 50-02-01-06-7-091-001

**106 Hammond Rd
Thiells, NY 10984**

OWNER:
North Rockland Central School District
65 Chapel St
Garnerville, NY 10923

ARCHITECT:
MICHAEL SHILALE ARCHITECTS, LLP
140 Park Avenue
New City, NY 10956

**STRUCTURAL & PME ENGINEER:
GREENMAN-PEDERSEN, INC.
400 Rella Boulevard
Montebello, NY 10901**

**LANDSCAPE ARCHITECT & CIVIL ENGINEER:
THE LA GROUP
40 Long Alley
SARATOGA SPRINGS, NY 12866**

DRAWING No.	DRAWING TITLE	DATE	DRAWING No.	DRAWING TITLE	DATE
A-000	COVER SHEET	11/01/24	M-001	MECHANICAL GENERAL NOTES	10/03/24
A-001	LEGENDS, NOTES, UNIT PRICES, ALTERNATES & ALLOWANCES	11/01/24	M-002	MECHANICAL SCHEDULES	10/03/24
B-100	CODE ANALYSIS – RTU REPLACEMENT	10/03/24	M-101	MECHANICAL SITE PLAN	10/23/24
B-110	CODE ANALYSIS – BLEACHERS	10/03/24	M-102	MECHANICAL PRESS BOX INSTALL–1	10/23/24
B-130	CODE ANALYSIS – PRESS BOXES	10/03/24	M-103	MECHANICAL PRESS BOX INSTALL–2	10/23/24
B-190	EGRESS PLAN BASEBALL BLEACHER	10/03/24	M-104	MECHANICAL ROOF REMOVAL	10/03/24
B-191	EGRESS PLAN SOFTBALL BLEACHER	10/03/24	M-105	MECHANICAL ROOF INSTALLATION	10/03/24
	BOUNDARY LINE AND TOPOGRAPHIC SURVEY (SHEET 1 OF 4)	06/01/22	M-401	CONTROL DIAGRAMS–1	10/03/24
	BOUNDARY LINE AND TOPOGRAPHIC SURVEY (SHEET 2 OF 4)	06/01/22	M-501	MECHANICAL DETAILS – 1	10/03/24
	BOUNDARY LINE AND TOPOGRAPHIC SURVEY (SHEET 3 OF 4)	06/01/22	M-502	MECHANICAL DETAILS – 2	10/03/24
	BOUNDARY LINE AND TOPOGRAPHIC SURVEY (SHEET 4 OF 4)	06/01/22			
AA-100	ASBESTOS ABATEMENT PLAN	10/03/24	ED-101	NRHS ELECTRICAL ROOF REMOVAL PLAN	10/03/24
C-100	SITE KEY PLAN	10/03/24	E-101	NRHS ELECTRICAL ROOF INSTALLATION PLAN	10/03/24
C-101	SITE CODE COMPLIANCE PLAN	10/03/24			
C-200	DEMO PLAN – SOFTBALL FIELD	10/03/24			
C-201	DEMO PLAN – BASEBALL FIELD	10/03/24			
C-202	DEMO PLAN – FIELD HOCKEY	10/03/24			
C-300	LAYOUT PLAN – SOFTBALL	10/03/24			
C-301	LAYOUT PLAN – BASEBALL	10/03/24			
C-302	LAYOUT PLAN – FIELD HOCKEY	10/03/24			
C-400	GRADING & DRAINAGE PLAN – SOFTBALL	10/03/24			
C-401	GRADING & DRAINAGE PLAN – BASEBALL	10/03/24			
C-402	GRADING & DRAINAGE PLAN – FIELD HOCKEY	10/03/24			
C-410	GRADING & UTILITY – SOFTBALL	10/23/24			
C-420	GRADING & UTILITY – BASEBALL	10/23/24			
C-430	GRADING & UTILITY – FIELD HOCKEY	10/03/24			
C-500	PLANTING PLAN – SOFTBALL	10/03/24			
C-501	PLANTING PLAN – BASEBALL	10/03/24			
C-502	PLANTING PLAN – FIELD HOCKEY	10/03/24			
C-600	LINESTRIPPING PLANS	10/03/24			
C-601	LINESTRIPPING PLANS	10/03/24			
C-710	SITE DETAILS	10/03/24			
C-711	SITE DETAILS	10/03/24			
C-712	SITE DETAILS	10/03/24			
C-713	SITE SECTIONS	10/03/24			
C-714	RAMP, WALL AND STAIR DETAILS	10/23/24			
C-715	SITE DETAILS	11/01/24			
C-716	SITE DETAILS	10/03/24			
C-717	ATHLETIC DETAILS	10/03/24			
C-718	ATHLETIC DETAILS	10/03/24			
C-720	UTILITY DETAILS	10/23/24			
C-721	UTILITY DETAILS	10/03/24			
C-722	UTILITY DETAILS	10/03/24			
C-723	UTILITY DETAILS	10/03/24			
CE-001	ELECTRICAL SYMBOLS, GENERAL NOTES, SCHEDULES AND ABBREVIATIONS	10/03/24			
CE-002	ELECTRICAL SITE AND SERVICES REMOVAL PLAN	10/03/24			
CE-003	ELECTRICAL SITE AND SERVICES PLAN FROM ANNEX BUILDING	10/23/24			
CE-004	ELECTRICAL SITE AND SERVICES PLAN FROM MAIN BUILDING	10/03/24			
CE-101	ELECTRICAL SOFTBALL FIELD INSTALLATION PLAN	10/23/24			
CE-102	ELECTRICAL BASEBALL FIELD INSTALLATION PLAN	10/23/24			
CE-103	ELECTRICAL HOCKEY FIELD INSTALLATION PLAN	10/23/24			
CE-104	ELECTRICAL DUGOUT AND PRESSBOX PLANS	10/23/24			
CE-105	ELECTRICAL SOFTBALL BLEACHER CANOPY LIGHTING PLAN	10/03/24			
CE-106	ELECTRICAL PRESSBOX PLANS	10/23/24			
CE-401	ELECTRICAL MAIN & ANNEX BUILDING INSTALLATION PART PLANS	10/23/24			
CE-402	ELECTRICAL PARTIAL ONE LINE DIAGRAMS	10/23/24			
CE-403	ELECTRICAL LIGHTING FIXTURE AND PARTIAL SCHEDULES	10/23/24			
CE-404	ELECTRICAL PANEL SCHEDULES SHEET #2	10/23/24			
CE-501	ELECTRICAL DETAILS SHEET #1	10/23/24			
CE-502	ELECTRICAL DETAILS SHEET #2	10/23/24			
CE-503	ELECTRICAL DETAILS SHEET #3	10/23/24			
CE-504	ELECTRICAL DETAILS SHEET #4	10/23/24			
CE-505	ELECTRICAL DETAILS SHEET #5	10/23/24			
S-001	STRUCTURAL GENERAL NOTES	10/03/24			
S-100	BASE PLAN	10/23/24			
S-101	BASEBALL BLEACHER FOUNDATION PLAN	10/03/24			
S-102	SOFTBALL BLEACHER FOUNDATION PLAN	10/03/24			
S-103	DUGOUTS STRUCTURAL PLAN	10/03/24			
S-104	HOCKEY PRESSBOX FOUNDATION PLAN	10/23/24			
S-110	PARTIAL ROOF PLANS	10/03/24			
S-200	FOUNDATION DETAILS AND SECTIONS	10/23/24			
S-300	BLEACHER FRAMING SECTIONS	10/03/24			
S-301	SECTIONS & DETAILS	10/03/24			
A-100	ROOF PLAN	10/03/24			
A-110	SOFTBALL BLEACHER LAYOUT PLAN	10/03/24			
A-111	SOFTBALL BLEACHER CANOPY PLAN	10/03/24			
A-120	BASEBALL BLEACHER LAYOUT PLAN	10/03/24			
A-121	BASEBALL BLEACHER CANOPY PLAN	10/03/24			
A-130	PRESS BOX PLANS & ELEVATIONS	10/03/24			
A-131	FIELD HOCKEY PRESS BOX PLANS & ELEVATIONS	11/01/24			
A-140	DUGOUT PLANS	10/03/24			
A-150	FIELD ENTRY SIGNAGE PLANS & ELEVATIONS	10/03/24			
A-210	SOFTBALL BLEACHER SECTIONS	10/03/24			
A-211	SOFTBALL BLEACHER SECTIONS	10/03/24			
A-220	BASEBALL BLEACHER SECTIONS	10/03/24			
A-221	BASEBALL BLEACHER SECTIONS	10/03/24			
A-240	DUGOUT ELEVATIONS	10/03/24			
A-241	DUGOUT SECTIONS	10/03/24			
A-242	DUGOUT SECTIONS	10/03/24			
A-400	CEILING REMOVAL & INSTALLATION PLAN	10/03/24			
A-440	DUGOUT REFLECTED CLG PLANS	10/03/24			
A-500	ROOF DETAILS	10/03/24			
A-501	ROOF DETAILS	10/23/24			
A-502	ROOF DETAILS	10/03/24			
A-503	FIELD HOCKEY PRESS BOX ROOF DETAILS	10/23/24			
A-504	FIELD HOCKEY PRESS BOXROOF DETAILS	11/03/24			
A-515	DUGOUT DETAILS	10/03/24			

LIST OF DRAWINGS

[illegible]

REG. EXP. DATE: 12-03-25

Drawn by	JR/MAL
Checked by	MS/JC
Project No.	43045
Scale	AS NOTED
Date	10-03-24

Landscaping Architect & Civil Engineer:	THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 40 LONG ALLEY SARATOGA SPRINGS, NY 12066
Structural & PME Engineer:	GREENMAN PETERSEN, INC 2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

**NORTH ROCKLAND
HIGH SCHOOL
FIELDS - PHASE 2 &
HVAC UPGRADES**
HIGH SCHOOL: SDW 90-02-01-06-0-006-006
PRESS BOX - SOFTBALL: SDW 90-02-01-06-7-000-001
PRESS BOX - BASEBALL: SDW 90-02-01-06-7-001-001

**TOWN OF HAVERSTRAW
COUNTY OF ROCKLAND**

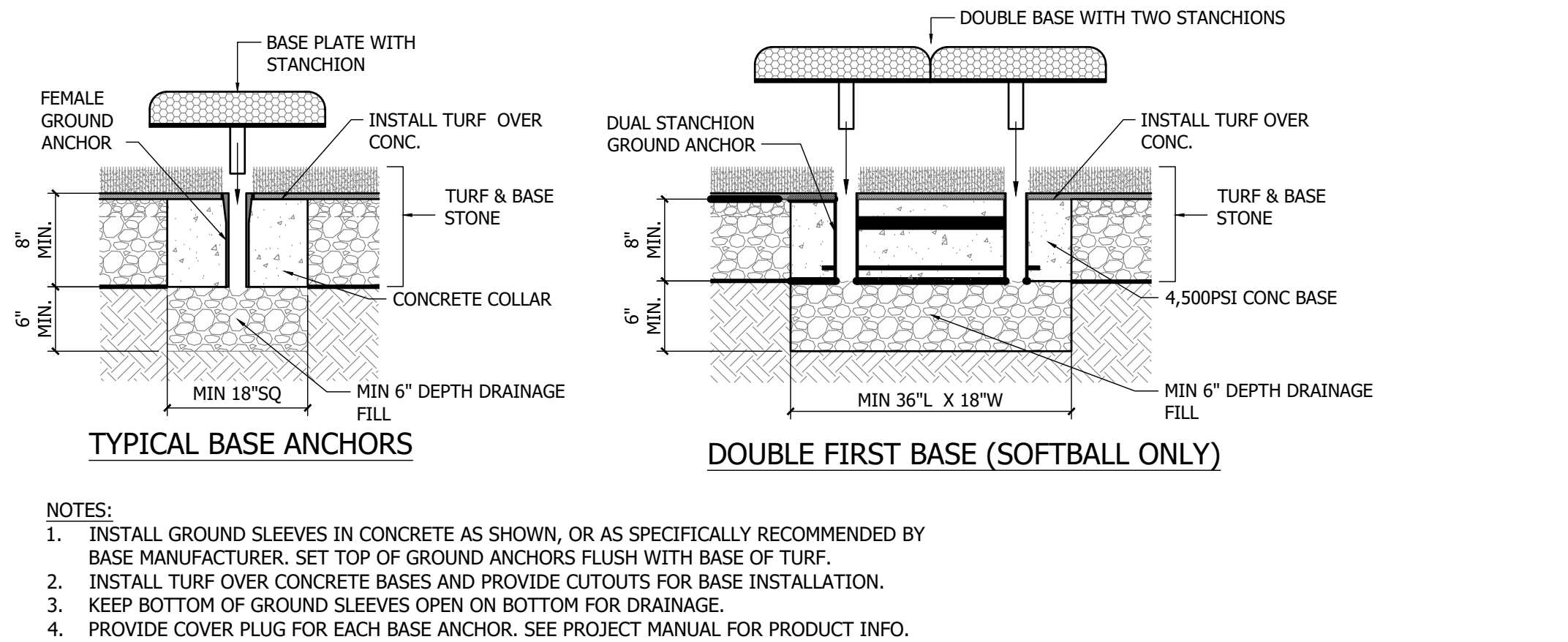
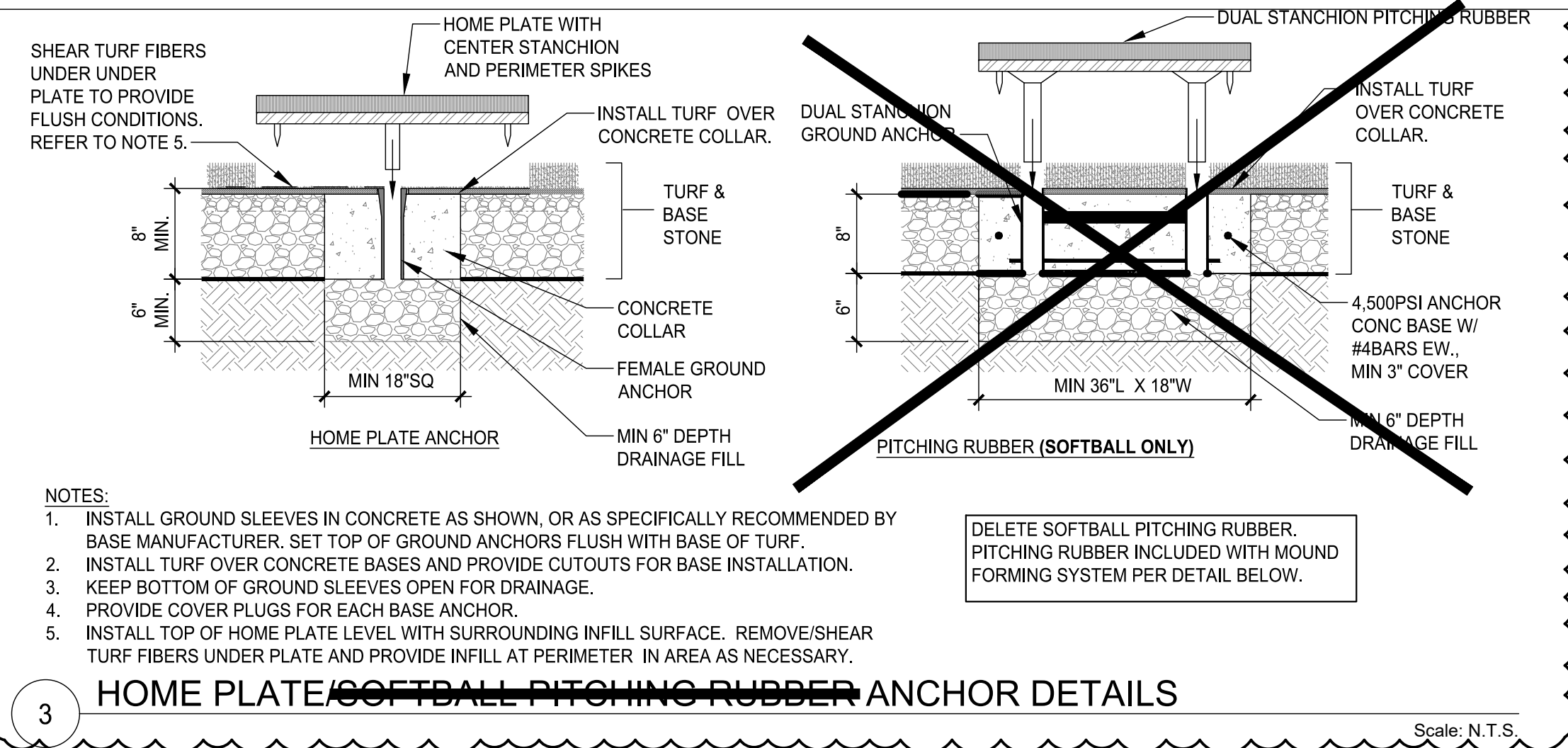
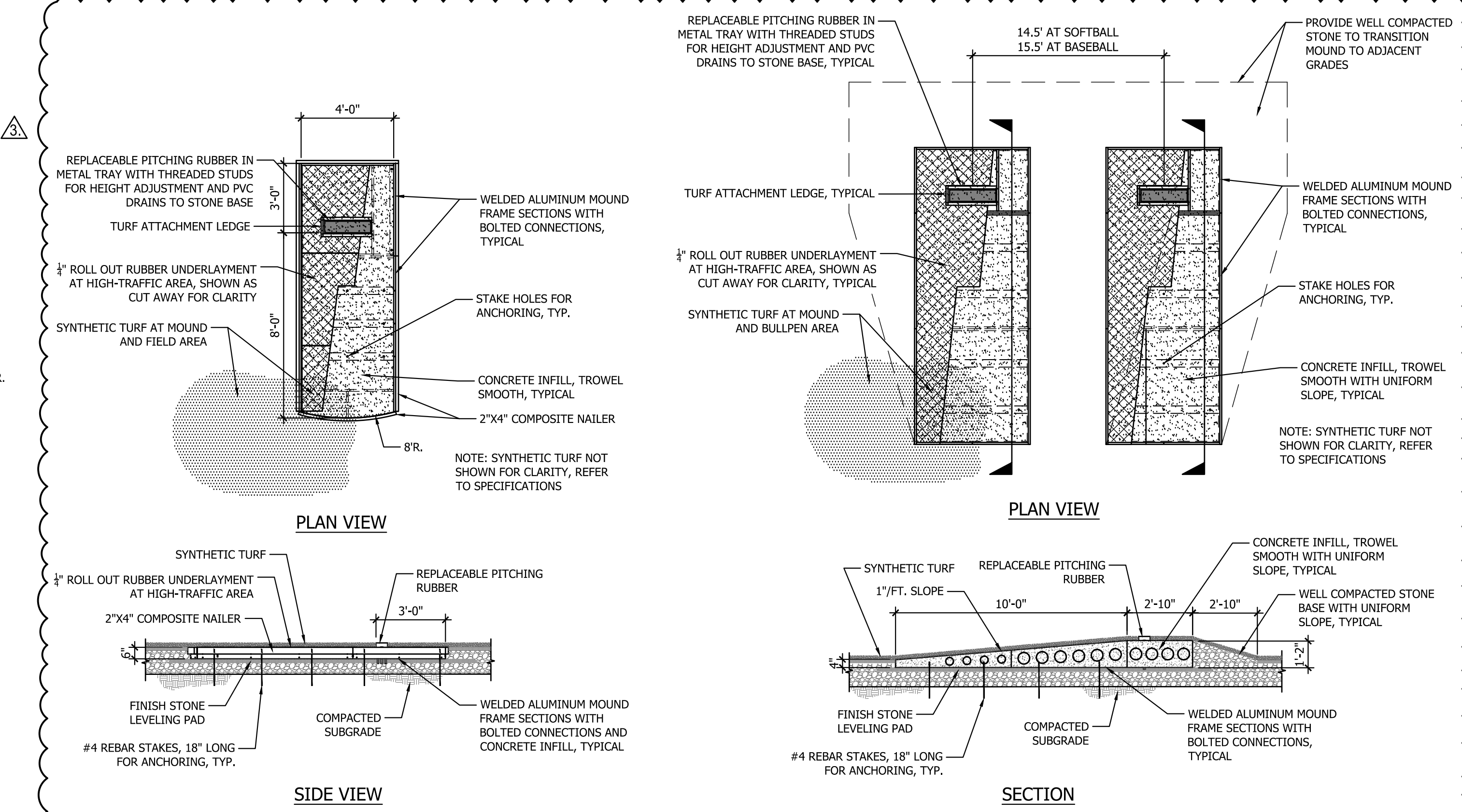
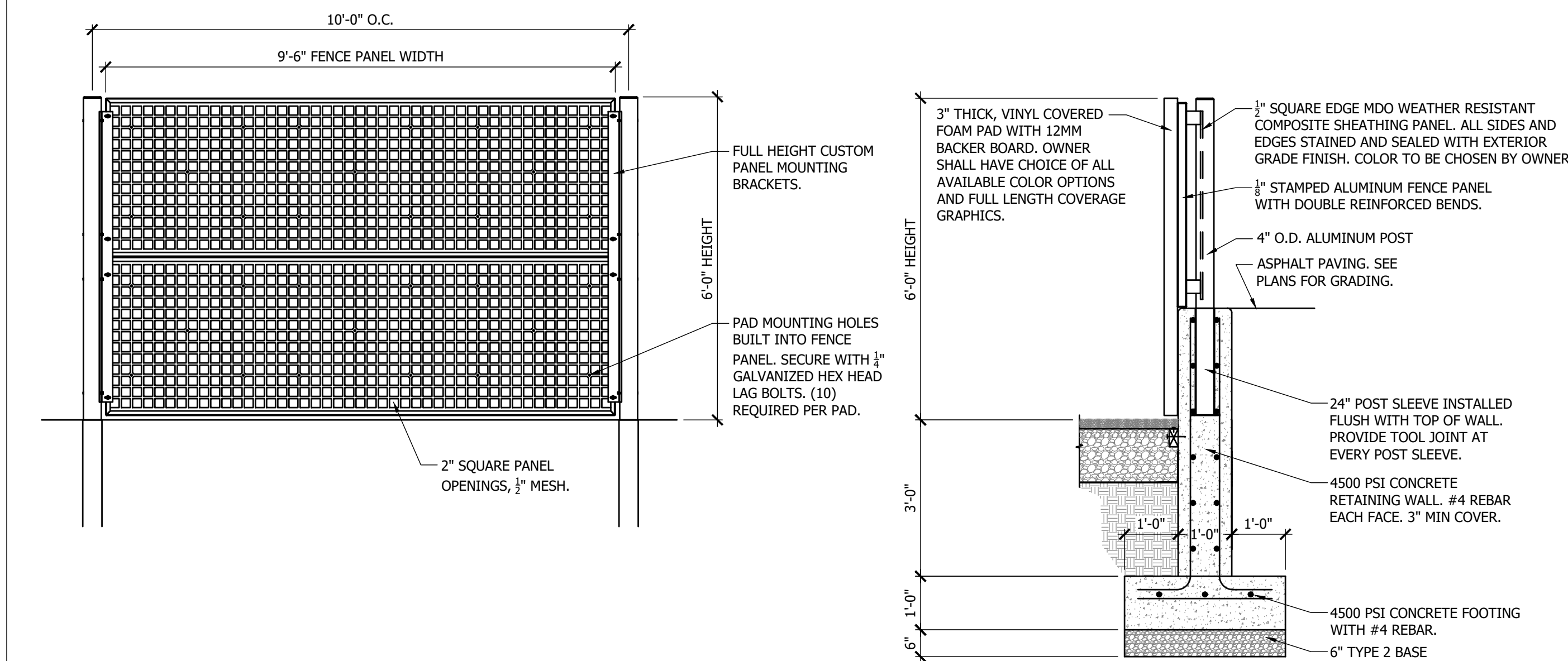
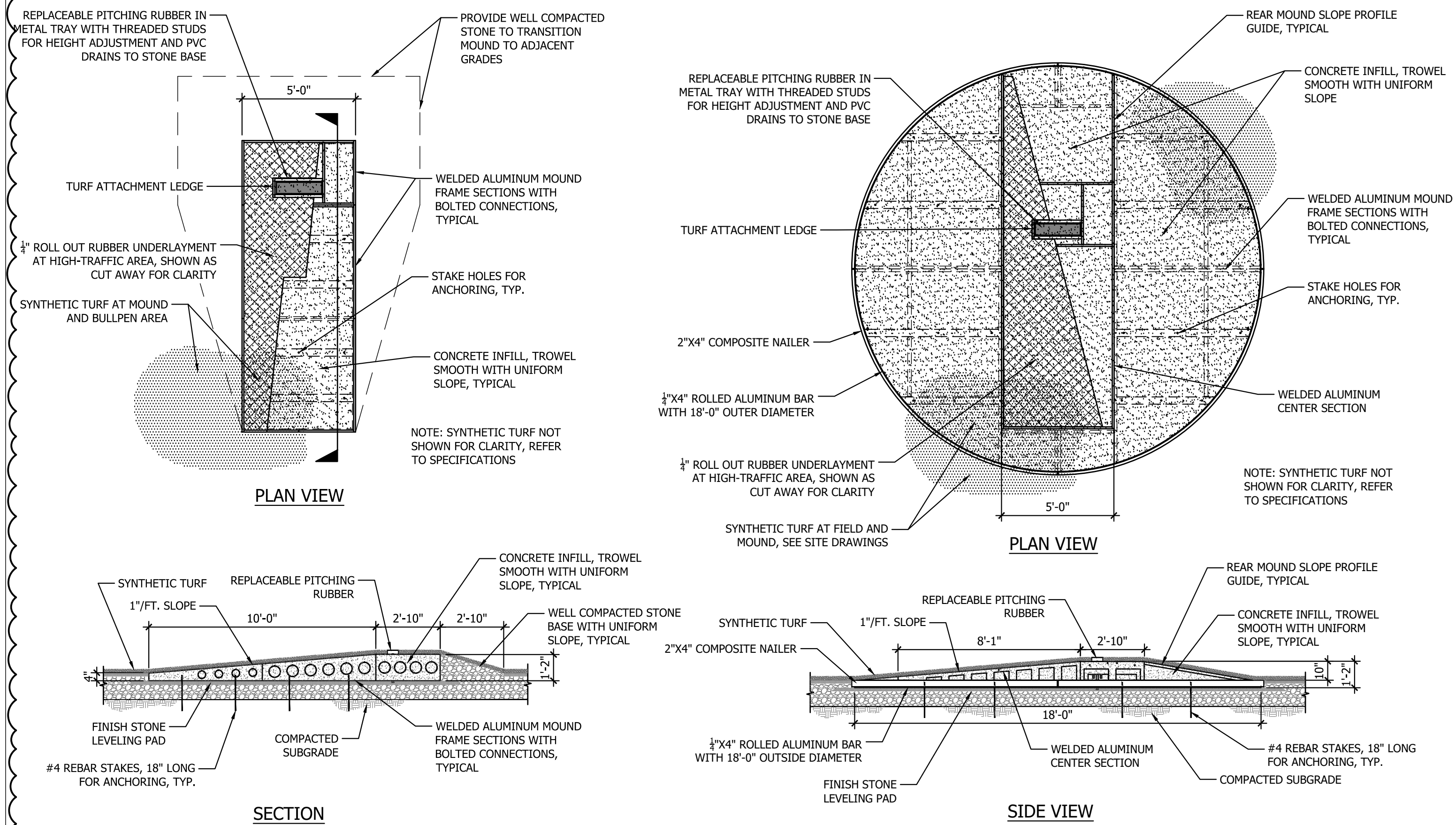
106 Hammond Rd.
Tulsa, NY 10884



MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10958 Tel 845-708-9200
www.shilale.com

Drawing Title
COVER SHEET

Drawing No.
A-000



BASE ANCHORS AT SYNTHETIC TURF
Scale: N.T.S.

No.	Date	Revisions
1	10/03/24	BIDDING DOCUMENTS
2	10/18/24	BIDDING ADDENDUM 1
3	11/1/24	BIDDING ADDENDUM 2

Drawn by	Checked by	Project No.	Scale	Date
		43045	AS NOTED	10/30/2023

Landscope Architect & Civil Engineer	The LA GROUP
Structural Engineer	

NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES	HIGH SCHOOL: SD# 50-02-01-00-0-016-006 PRESS BOX - SOFTBALL: SD# 50-02-01-00-7-000-001 PRESS BOX - BASEBALL: SD# 50-02-01-00-7-001-001
100 Haverwood Rd. Tulane, NY 10684	TOWN OF HAVERTOWN COUNTY OF ROCKLAND

M&S	MICHAEL SHILALE ARCHITECTS, L.L.P. 140 Park Avenue New York, NY 10022 Tel: 945-085000 info@shilale.com
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ATHLETIC DETAILS	C-716
Drawing No.	of x

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— PNL-1

PNL" INDICATES PANEL DESIGNATION, "1" INDICATES CIRCUIT NUMBER. CIRCUIT WIRE SHALL BE MINIMUM 2#12 THHN/THWN IN 3/4" CONDUIT. U.O.I. COMPUTER CIRCUIT SHALL ALSO BE PROVIDED WITH A SEPARATE NEUTRAL.

LIGHTING AND POWER PANEL BOARD, FLUSH MOUNTED IN WALL WITH COVER.

LIGHTING AND POWER PANEL BOARD, SURFACE MOUNTED ON WALL.

SAME AS ABOVE BUT WITH GUTTER TAP.

WIRING TROUGH/SPLICE BOX, SIZE AS REQUIRED.

§_a

SINGLE POLE TOGGLE LINE-VOLTAGE SWITCH MOUNTED AT 48" A.F.F. SUBSCRIPT DENOTES LIGHTING FIXTURES CONTROLLED

'K' INDICATES KEY OPERATED SWITCH

'3' INDICATES THREE-WAY SWITCH

'VS' INDICATES INTEGRATED OCCUPANCY SENSOR (IN VACANCY MODE).

'OC' INDICATES INTEGRATED OCCUPANCY SENSOR

'PL' INDICATES WITH PILOT LIGHT SWITCH

'LT' INDICATES LIGHTED SWITCH

'g' INDICATES LIGHTING FIXTURES CONTROL

'PB' INDICATES PUSHBUTTON CONTROL

'e' INDICATES CONTROL OF EMERGENCY LIGHTING FIXTURE WITHIN THE ROOM OR SPACE INDICATED.

REFER TO LIGHTING DWGS FOR LOCATION OF SWITCHES.

§_{La}

LOW VOLTAGE PUSHBUTTON SWITCH MOUNTED AT 48" A.F.F. SUBSCRIPT INDICATES LIGHTING FIXTURES CONTROL.

§_D

LOW VOLTAGE SWITCH 'D' DENOTE A FOUR BUTTON SWITCH WITH ONE MANUAL "ON" BUTTON AND THREE OVER-RIDE PUSH BUTTONS PROGRAMMED TO "OFF, RAISE AND LOWER". U.O.I.

Ⓜ^F

DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 125V. (NEMA 5-20R) MOUNTED 18" A.F.F. U.O.I. SUBSCRIPT "F" INDICATES FURNITURE MOUNTED. SUBSCRIPT "GF" INDICATES GROUND FAULT INTERRUPTER.

Ⓜ^S

QUAD. THREE WIRE GROUNDED RECEPTACLE, 20A, 125V. (NEMA 5-20R) MOUNTED 18" A.F.F. U.O.I. SUBSCRIPTS "F" INDICATES FURNITURE MOUNTED, "S" INDICATES SURGE SUPPRESSOR.

Ⓜ⁵

MOTOR. HORSEPOWER INSCRIBED, PHASES INDICATED BY CIRCUITING.

Ⓜ

CIRCUIT BREAKER.

Ⓜ

FUSED SWITCH, RATING AND FUSING INDICATED.

Ⓜ

UNFUSED SWITCH.

Ⓜ

GROUND

Ⓜ

JUNCTION BOX, SIZE IS REQUIRED.

Ⓜ

DUPLEX DATA OUTLET WITH 2"RJ45" JACKS. EACH LABELED "DATA". EACH JACK AT WITH A CAT 6 CABLE IN 3/4" RUN BACK TO CORRESPONDING DATA RACK TELEPHONE ROOM/CLOSETS . OUTLET SHALL BE MOUNTED 18" A.F.F.

A **a**

LINEAR SURFACE MOUNTED 1'x4' LED LIGHTING FIXTURE.
INSCRIPTION DENOTES FIXTURE TYPE. SUBSCRIPTION DENOTES SWITCH CONTROL. TRIANGLE SHADE INDICATES EMERGENCY LIGHTING.

A **a**

PENDANT MOUNTED LED LIGHTING FIXTURE, 4' OR 8' LONG.
INSCRIPTION DENOTES FIXTURE TYPE. SUBSCRIPTION DENOTES SWITCH CONTROL. TRIANGLE SHADE INDICATES EMERGENCY LIGHTING.

A **a**

RECESSED MOUNTED DOWN LIGHTING FIXTURE.
INSCRIPTION DENOTES FIXTURE TYPE. SUBSCRIPTION DENOTES SWITCH CONTROL. WHEN SHADED INDICATES EMERGENCY LIGHTING.

A **a**

OUTDOOR WALL MOUNTED WEATHER PROOF WALL PACK, LIGHTING FIXTURE. INSCRIPTION DENOTES FIXTURE TYPE. WHEN SHADED INDICATES EMERGENCY LIGHTING.

CEILING OR WALL MOUNTED EXIT SIGNS, NUMBER OF FACES AND ARROWS AS SHOWN ON PLANS. 8'-0" WHERE CEILING HEIGHT ALLOWS A MINIMUM OF 6" CLEARANCE BETWEEN CEILING & TOP LIGHT, OTHERWISE MOUNT EXIT LIGHT SO THAT ITS TOP IS 6" BELOW FINISHED CEILING. ADJUST HEIGHT & CLEARANCES AS REQUIRED TO SUIT INSTALLATION OVER DOORS.

CEILING MOUNTED LOW VOLTAGE OCCUPANCY SENSOR, AUTOMATIC 'ON/OFF'.

RECESSED MOUNTED 2'x4' LED LENS LIGHTING FIXTURE. INSCRIPTION DENOTES FIXTURE TYPE. SUBSCRIPTION DENOTES SWITCH CONTROL. TRIANGLE SHADE INDICATES EMERGENCY LIGHTING.

 a

RECESSED MOUNTED 2'x2' LED LENS LIGHTING FIXTURE. INSCRIPTION DENOTES FIXTURE TYPE. SUBSCRIPTION DENOTES SWITCH CONTROL. TRIANGLE SHADE INDICATES EMERGENCY LIGHTING.

A

SCONCES, MOUNTED 36" ABOVE GROUND.

	NEW CONDUIT WITH CABLES. REFER TO DRAWINGS FOR SIZE OF CONDUIT AND CABLES
	ATHLETIC FIELD POLE WITH LED LUMINAIRES. FOR POLE HEIGHT AND LUMINAIRE REFER SCHEDULE.
	ELECTRICAL GROUNDING
	FURNISH AND INSTALL 24"X18"X30" UNDERGROUND ROADWAY TYPE ELECTRIC PULLBOX WITH CAST IRON FRAME AND COVER WITH LABEL "ELECTRIC". FRAME AND COVER SHALL BE FLUSH WITH GRADE, UNLESS OTHERWISE INDICATED ON DRAWINGS.
	FURNISH & INSTALL UNDERGROUND ROADWAY TYPE FIBER/COMMUNICATIONS PULLBOX WITH CAST IRON FRAME AND COVER WITH LABEL "FIBER". FRAME AND COVER SHALL BE FLUSH WITH GRADE. SIZE 24"(L)X18"(W)X30"(D) U.O.I.
	POLE MOUNTED DISCONNECT SWITCH, RATING AND FUSING AS NOTED. "WP" INDICATES WEATHERPROOF NEMA 3R ENCLOSURE, OTHERWISE.
	FURNISH AND INSTALL COPPER WELDED GROUND ROD IN A BOX
	FURNISH AND INSTALL ALUMINIUM TAG ON LAMPPOST/LIGHT POLE.
	NEW PANEL, SURFACE MOUNTED
	ELECTRICAL JUNCTION BOX
	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 125V, WITH 2 USB OUTLETS. (NEMA 5-20R) WITH "GFI" GROUND FAULT INTERRUPTER STANCHION MOUNTED WEATHERPROOF OUTLET. LEGRAND OUTDOOR POWER PEDESTAL WITH HINGED COVER.
	POLE, LUMINAIRE AND BASE PURCHASED BY OWNER INSTALLED BY THIS CONTRACTOR.
	FURNISH AND INSTALL NEW LUMINAIRE ON 25' POLE ON CONCRETE FOUNDATION ALONG WITH ALL ACCESSORIES AND FITTINGS. REFER TO LUMINAIRE SCHEDULE
	FURNISH AND INSTALL NEW PARKING LOT LUMINAIRE ON 18' POLE ON CONCRETE FOUNDATION ALONG WITH ALL ACCESSORIES AND FITTINGS. REFER TO LUMINAIRE SCHEDULE
	EXISTING UTILITY POLE
	NEW BOLLARD LIGHT

A	AMPERE	KWH	KILOWATT HOUR
AC	ALTERNATING CURRENT	LP	LIGHTING PANEL
ACCU	A/C CONDENSING UNIT	LS	LOUDSPEAKER
AF	FUSE RATING IN AMPS	LTG	LIGHTING
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AHU	AIR HANDLING UNIT	MER	MECHANICAL EQUIPMENT ROOM
ARCH	ARCHITECTURAL	MIC	MICROPHONE
AS	SWITCH RATING IN AMPS	MLO	MAIN LUG ONLY
ATS	AUTOMATIC TRANSFER SWITCH	MTD	MOUNTED
A/C	AIR CONDITIONING	N	NEUTRAL
C	CONDUIT	N.C.	NORMALLY CLOSED
CB	CIRCUIT BREAKER	N.O.	NORMALLY OPEN
CLG	CEILING	P	POLE(S)
CKT(S)	CIRCUIT(S)	PB	PULL BOX
COL	COLUMN	PNL	PANEL
DHWH	DOMESTIC HOT WATER HEATER	PPP	PART PATCH PANEL
DSP	DUPLEX SUMP PUMP	POS	POINT OF SALE
DWBS	DUPLEX WATER BOOSTER PUMP	PP	POWER PANEL
DWG	DRAWING	PWR	POWER
E	EXISTING TO REMAIN	RC	REMOTE CONTROL
ER	EXISTING TO BE REMOVED	REL	RELOCATED
ERR	EXISTING TO BE RELOCATED	RG	RIGID GALVANIZED CONDUIT
E	EMPTY CONDUIT	RTU	ROOF TOP UNIT
ECC	ELECTRIC CABINET CONVECTOR	SECT	SECTION
ECH	ELECTRIC CABINET HEATER	SP	SPARE
EF	EXHAUST FAN	SPF	SMOKE PURGE FAN
EMR	ELEVATOR MECHANICAL ROOM	SPR	SPARE
EUH	ELECTRIC UNIT HEATER	STD	STANDARD
EXH	EXHAUST	SUR	SURFACE
FL	FLOOR	SW	SWITCH
GND	GROUND	SWBD	SWITCHBOARD
GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
IG	ISOLATED GROUND	UOI	UNLESS OTHERWISE INDICATED
JB	JUNCTION BOX	V	VOLT
KVA	KILOVOLT AMPERE	W	WATT
KW	KILOWATT	WP	WEATHER PROOF

FOR AN EXPLANATION OF ABBREVIATIONS AND SYMBOLS USED IN THESE DRAWINGS, SEE THE ABBREVIATION LIST AND SYMBOL LIST ON THESE SHEETS.

2. THE CONTRACTOR SHALL CHECK THE LOCATION, NUMBER AND SIZE OF ALL CHASES PROVIDED ON THE CONSTRUCTION PLANS AND ARRANGE FOR ANY CHASES REQUIRED FOR CABINET OR BOXES.

3. THE CONTRACTOR SHALL COORDINATE WITH THE HVAC, PLUMBING, ARCHITECTURAL AND STRUCTURAL TRADES FOR EXACT LOCATIONS OF MOTORS AND EQUIPMENT, IN ORDER TO AVOID INTERFERENCE.

4. IN UNFINISHED PORTIONS OF THE BUILDING, SUCH AS BOILER ROOM, FAN ROOMS, PIPE SPACES, ETC., LOCATIONS OF CONDUIT AND OUTLETS ARE APPROXIMATE AND SHALL CLEAR PIPING AND ALL OTHER CONSTRUCTION. CONDUIT IN THESE PORTIONS OF THE BUILDING SHALL BE RUN EXPOSED.

5. NO CONDUIT SHALL BE RUN IN ANY FLOOR IN CONTACT WITH THE EARTH UNLESS OTHERWISE DIRECTED ON THE PLAN. IN SUCH AREAS, CONDUIT FOR MOTORS AND STARTERS SHALL BE RUN OVERHEAD, SUPPORTED AS REQUIRED.

6. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND FLUSH TYPE IN FINISHED AREAS (AT NEW WALLS/PARTITIONS), UNLESS OTHERWISE NOTED. THE JUNCTION AND PULL BOXES SHALL BE LOCATED TO SUIT CONDUIT ENTRANCE, BUT SHALL, IN ALL CASES, BE LOCATED TO AVOID INTERFERENCE WITH EQUIPMENT FROM OTHER TRADES AND SHALL BE LOCATED SO THAT COVERS ARE READILY ACCESSIBLE.

7. WHERE RECESSED FIXTURES ARE INDICATED ON THESE PLANS AND WET PLASTER CEILING CONSTRUCTION IS USED, PLASTER FRAMES SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR WITH OTHER TYPES OF HUNG CEILING CONSTRUCTION. LIGHTING FIXTURES SHALL BE APPROPRIATE TO MEET THE REQUIREMENTS OF THAT CEILING CONSTRUCTION.

8. UNLESS OTHERWISE NOTED ON FLOOR PLANS OR IN FLOOR PLAN NOTES, SWITCHES SHALL BE INSTALLED AT 4'-0" ABOVE FINISHED FLOOR. WHERE SWITCH HEIGHTS ARE GIVEN ON THESE DRAWINGS FOR AREAS IN WHICH THERE ARE TILE WAINSCOTS, SUCH AS TOILETS, LOCKER ROOMS, ETC. THE CONTRACTOR SHALL ADJUST SWITCH HEIGHTS, IF NECESSARY TO AVOID INTERFERENCE WITH THE WAINSCOT.

9. CONTRACTOR SHALL PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS ON NORMAL AND EMERGENCY CIRCUITS.

10. PROVIDE FIRE STOP SEALS TO ALL PENETRATIONS OF ALL EXISTING FLOORS, SLABS, AND WALLS/PARTITIONS; AND ALL NEW FIRE RATED WALLS & PARTITIONS.

11. PROVIDE DEFLECTION FITTINGS AT ALL REQUIRED CROSSINGS OF EXPANSION POINTS.

12. ALL CIRCUITS CONTAINING GFI OUTLETS, CKTS FOR COMPUTERS AND/OR PERIPHERALS AND RELATED EQUIPMENT AND CIRCUITS RECOMMENDED BY THE MANUFACTURERS SHALL HAVE A SEPARATE DEDICATED NEUTRAL.

13. PROVIDE COLOR CODING FOR BRANCH CIRCUITS & FEEDERS AS FOLLOWS FOR 120/208V. CONDUCTORS:

- BLACK PHASE "A"
- RED PHASE "B"
- BLUE PHASE "C"
- WHITE NEUTRAL
- GREEN GROUNDING

14. PROVIDE COLOR CODING FOR BRANCH CIRCUITS & FEEDERS AS FOLLOWS FOR 277/480V. CONDUCTORS:

- BROWN PHASE "A"
- ORANGE PHASE "B"
- YELLOW PHASE "C"
- GREY NEUTRAL
- GREEN GROUNDING

15. PLACEMENT OF ALL ELECTRICAL DEVICES MUST BE COORDINATED WITH FURNITURE LAY-OUTS. THE ELECTRICAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR SUBMITTING SHOP DWGS FOR LOCATION OF ALL ELECTRICAL DEVICES. THE SHOP DWGS MUST INDICATE THE MOUNTING HEIGHTS & CENTER LINE DISTANCE FROM THE NEAREST COLUMN.

16. ALL COMPONENTS SHOWN ON RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.

17. CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS.

18. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL TRADES CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.

19. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICES EXCEPT FOR EXIT SIGNS.

20. RIGID NONMETALLIC CONDUIT (RNMIC) SHALL NOT BE INSTALLED WITHIN THE BUILDING FOOTPRINT. UNLESS OTHERWISE INDICATED.

21. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING EACH CKT IN ALL MANHOLES, HAND HOLES, WIRE WAYS & ALL OTHER ENCLOSURES & AT ALL TERMINATION.

22. ALL SERVICE ENTRANCE CONDUITS ARE TO BE PITCHED AS REQUIRED AND SEALED AT THE POINT OF ENTRY TO THE BUILDING IN ORDER TO AVOID WATER PENETRATION TO THE BUILDING THROUGH THESE CONDUITS.

23. FINAL LOCATION OF ALL ELECTRICAL EQUIPMENTS, DEVICES SHALL BE COORDINATED AT FIELD WITH ALL OTHER TRADES AND WITH EXISTING BUILDING ELEMENTS, PIPES, EQUIPMENTS, DEVICES ETC. IN ORDER TO HAVE CODE COMPLIANT INSTALLATION.

24. ROUTING OF ELECTRICAL CONDUITS IF SHOWN IN THE DRAWINGS ARE TENTATIVE. THE CONTRACTOR IS RESPONSIBLE TO FINALIZE THE ROUTING OF ALL ELECTRICAL CONDUITS AT FIELD IN COORDINATION WITH ALL OTHER TRADES AND EXISTING BUILDING ELEMENTS, STRUCTURES, PIPES, EQUIPMENTS, & DEVICES ETC. FOR CODE COMPLIANT INSTALLATION.

25. THE ELECTRICAL CONTRACTOR IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR DURING THE MECHANICAL EQUIPMENT SUBMITTAL REVIEW PROCESS IN ORDER TO VERIFY THE REQUIREMENT OF INSTALLING NEUTRAL WIRE IN THE CONDUIT TO FEED ALL HVAC EQUIPMENT SUCH AS ROOF TOP UNIT PRIOR TO INSTALLATION OF THE WIRES IN CONDUIT.

26. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH OTHER TRADES AT FIELD SO THAT NO FOREIGN SYSTEM SUCH AS PIPING, DUCT, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE RUN OVER THE ELECTRICAL EQUIPMENT INSTALLATION.

27. THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH THE RESIDENT ENGINEER, ALL OTHER TRADES AND THE FACILITY.

28. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY UNAUTHORIZED DISRUPTION AND POWER OUTAGES.

29. MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION/CONSTRUCTION WORK.

30. CONTRACTOR IS TO TRACE AND PROTECT ALL FEEDER & BRANCH CIRCUITS FOR ALL AREAS OF THE ATHLETIC FIELD AND ALL OTHER ELECTRICAL EQUIPMENT (INCLUDING THE STORAGE ROOM) DURING DEMOLITION AND CONSTRUCTION. ELECTRICAL CONTRACTOR IS REQUIRED TO COORDINATE THIS REQUIREMENT WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES.

31. ROUTING OF ELECTRICAL CONDUITS IF SHOWN IN THE DRAWINGS ARE TENTATIVE. THE CONTRACTOR IS RESPONSIBLE TO FINALIZE THE ROUTING OF ALL ELECTRICAL CONDUITS AT FIELD IN COORDINATION WITH ALL OTHER TRADES, EXISTING AND NEW BUILDING ELEMENTS, STRUCTURES, PIPES, EQUIPMENT, LANDSCAPING ETC., FOR CODE COMPLIANT INSTALLATION.

32. ALL ELECTRIC SERVICES AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE PLANS AND THE NATIONAL ELECTRIC CODE (NEC).

33. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE CODE COMPLIANT GROUNDING OF THE SERVICE, EQUIPMENT AND THE LIGHTING POLE AS REQUIRED.

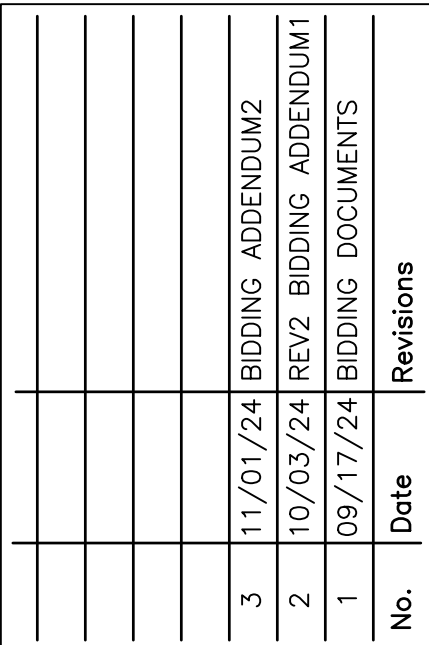
34. ALL FIBER/COMMUNICATION, SPEAKER AND POWER CONDUITS MUST BE RUN 24" BELOW GRADE. U.O.I.

35. ALL CONDUITS OUTSIDE THE BUILDING FOOT PRINT SHALL BE PVC SCH. 40. CONDUITS INSIDE THE PRESSBOX SHALL BE EMT AND CONDUITS INSIDE THE DUGOUTS SHALL BE RGC, UNLESS OTHERWISE INDICATED.

36. ALL OUTDOOR CONDUITS SHALL RUN 24" BELOW GRADE. CABLES IN OUTDOOR CONDUITS SHALL BE TYPE XLPE.

37. AT TRANSITION POINTS BETWEEN INDOOR AND OUTDOOR CONDUITS PROVIDE ADAPTER FITTINGS TO CONVERT THHN TO TYPE XLPE CABLES AND EMT TO PVC/RGC CONDUIT.

38. PROVIDE DATA CABLES WHERE THE CONDUIT FOR DATA IS SHOWN ON THE DRAWINGS.



Drawn by	AWF
Checked by	SH
Project No.	43045
Scale	AS NOTED
Date	10/03/24

Landscape Architect & Civil Engineer:	THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 40 LONG ALEUT, SALTVOG SPRINGS, NY 12866
Structural & PME Engineer:	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

**NORTH ROCKLAND
HIGH SCHOOL
FIELDS - PHASE 2 &
HVAC UPGRADES**

HIGH SCHOOL: SD# 92-02-01-06-0-019-098
PRESS BOX - FOOTBALL: SD# 92-02-01-06-7-000-001
PRESS BOX - BASEBALL: SD# 92-02-01-06-7-001-001

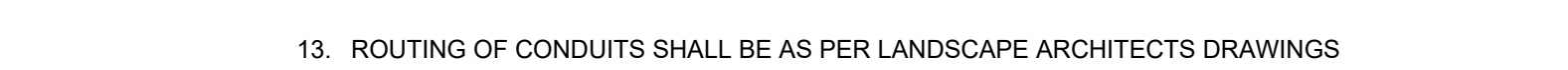
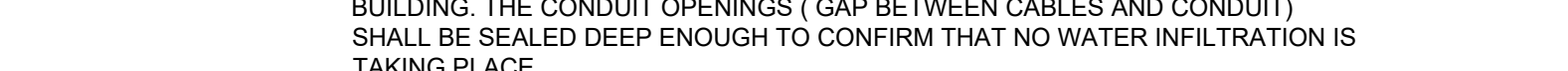
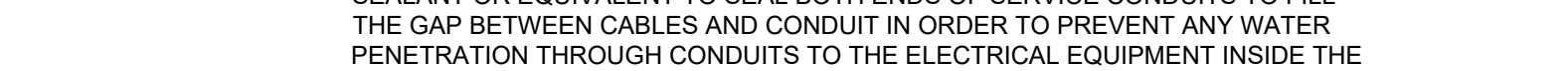
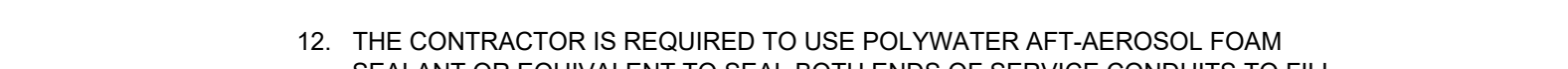
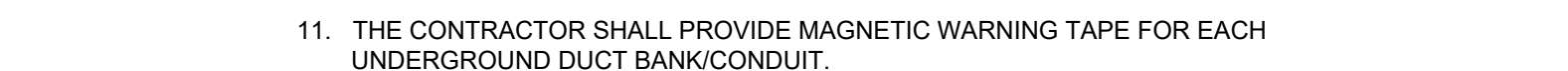
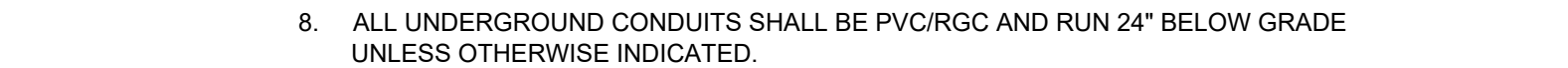
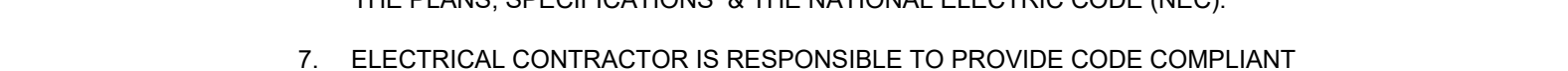
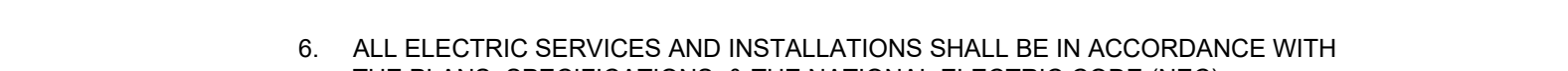
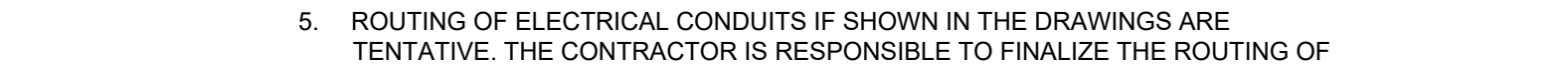
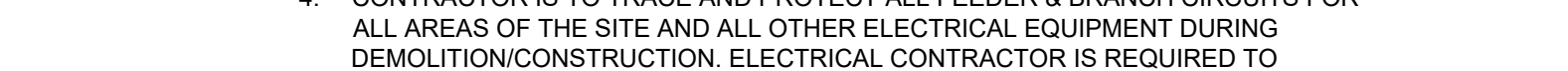
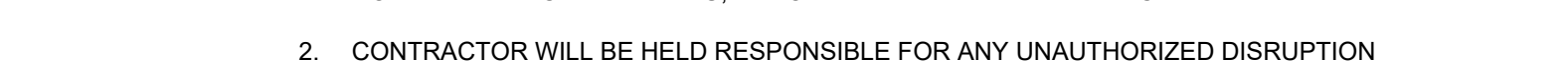
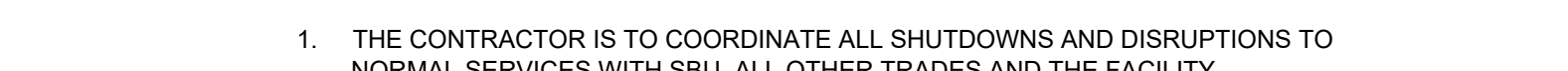
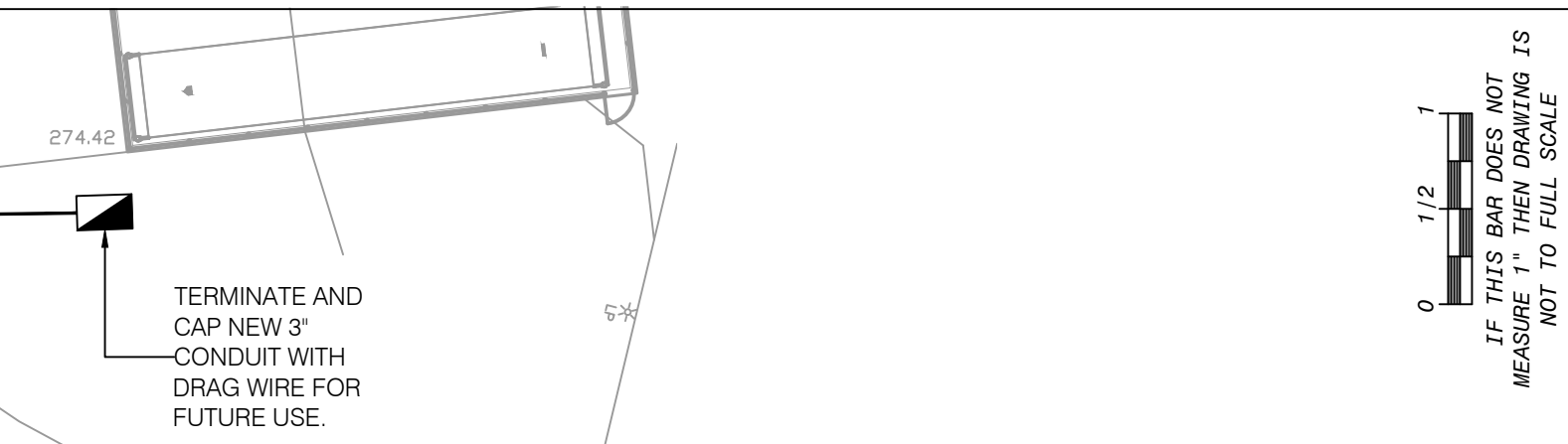
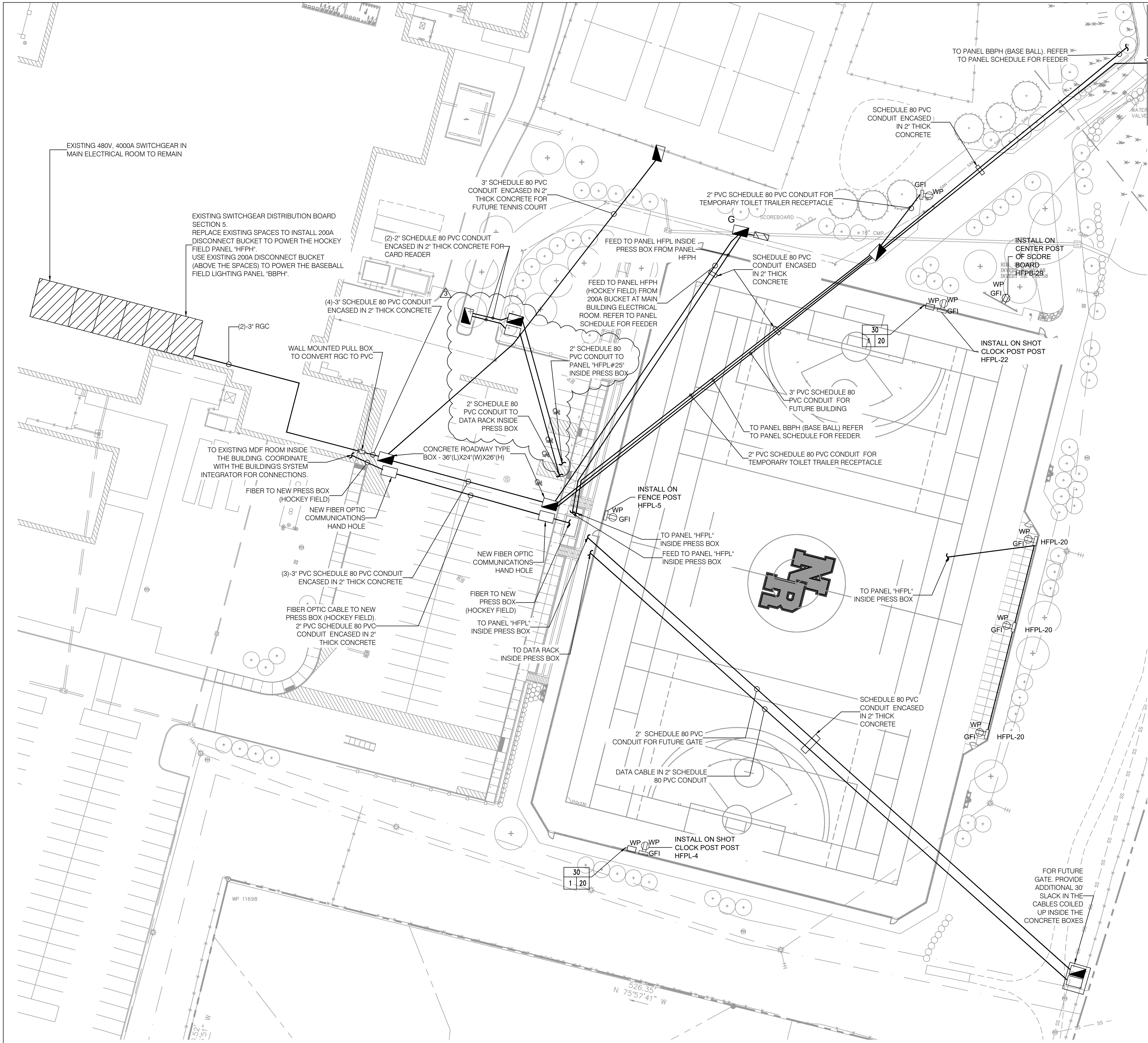
100 Hammond Rd.
Thiells, NY 10984

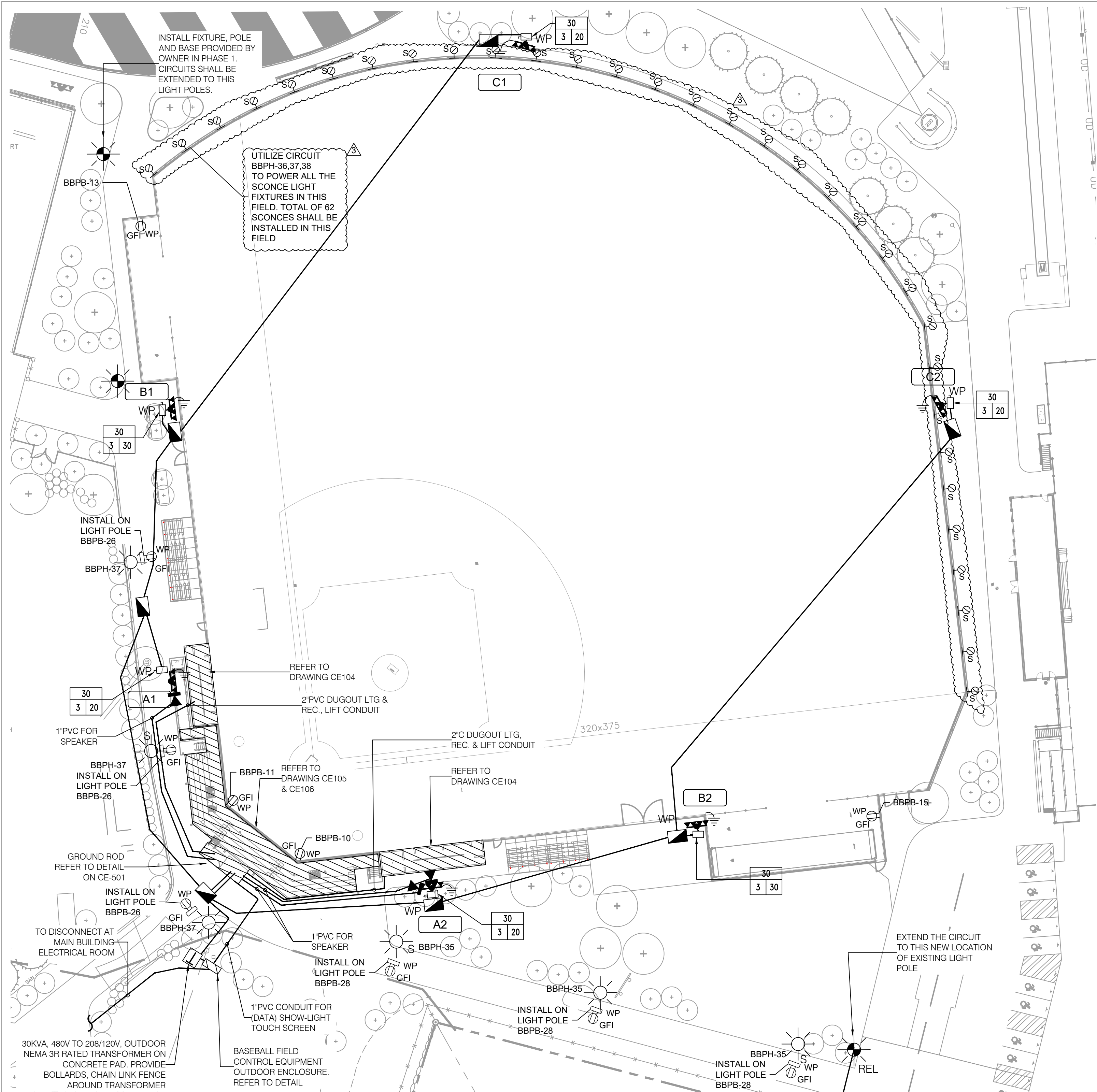
TOWN OF HAVESWORTH
COUNTY OF ROCKLAND

MSA
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Drawing Title
**ELECTRICAL
SYMBOLS, GENERAL
NOTES, SCHEDULES
AND ABBREVIATIONS**

Drawing No.
CE-001

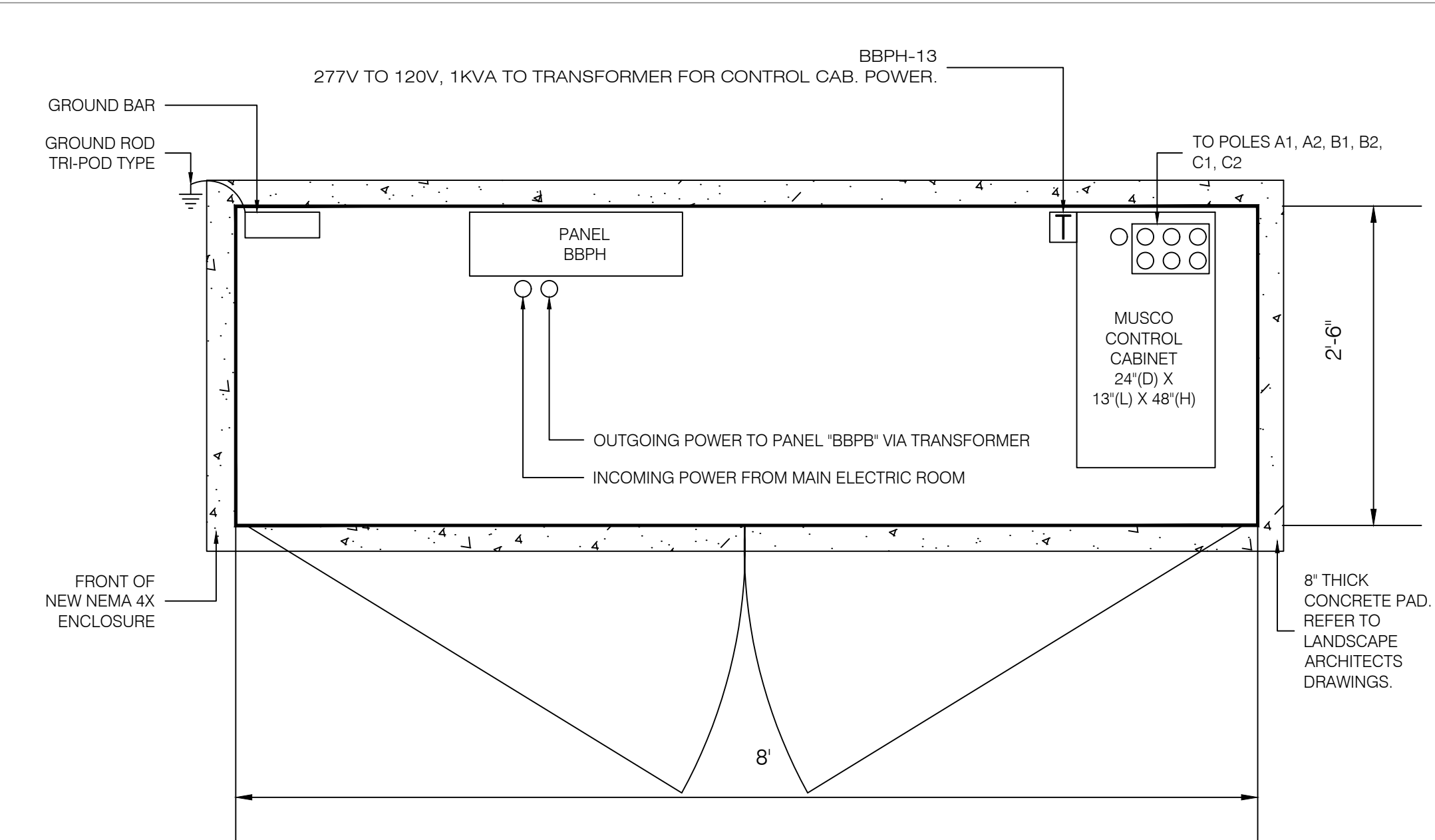




1 ELECTRICAL BASEBALL FIELD INSTALLATION PLAN

SCALE: 1/32" = 1' 0"

- ELECTRICAL NOTES:
- THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH THE FACILITY
 - CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY UNAUTHORIZED DISRUPTION AND POWER OUTAGES.
 - MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION/CONSTRUCTION WORK. CONTRACTOR IS TO TRACE AND PROTECT ALL FEEDER & BRANCH CIRCUITS FOR ALL AREAS OF THE FACILITY AND ALL OTHER ELECTRICAL EQUIPMENT WHICH ARE NOT AFFECTED BY THE CONSTRUCTION.
 - ROUTING OF ELECTRICAL CONDUITS IF SHOWN IN THE DRAWINGS ARE TENTATIVE. THE CONTRACTOR IS RESPONSIBLE TO FINALIZE THE ROUTING OF ALL ELECTRICAL CONDUITS AT FIELD IN COORDINATION WITH ALL OTHER TRADES. EXISTING AND NEW BUILDING ELEMENTS, STRUCTURES, PIPES, EQUIPMENT, LANDSCAPING ETC., FOR CODE COMPLIANT INSTALLATION.
 - ALL ELECTRIC SERVICES AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE PLANS AND THE NATIONAL ELECTRIC CODE (NEC).
 - ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE CODE COMPLIANT GROUNDING OF THE SERVICE, EQUIPMENT AND THE LIGHTING POLE AS REQUIRED.
 - ROUTE CONDUIT AROUND TREES, PLACE FOOTING FOR POLES OUTSIDE TREE CRITICAL ROOT ZONES.
 - ALL SHOP DRAWING MUST BE SUBMITTED TO THE EOR FOR APPROVAL BEFORE PURCHASE
 - EMERGENCY AND NORMAL CIRCUITS CANNOT RUN IN THE SAME RACEWAY AND PULL BOXES.
 - PROVIDE DRAG WIRE FOR ALL UNDERGROUND CONDUITS.
 - FOR WIRING AND CONDUIT SIZES REFER TO PANEL SCHEDULES.
 - MOUNTING BRACKET SUPPLIED BY "COMMUNITY" SHALL STRAP TO POLE. MUSCO SHALL PROVIDE THREADED COUPLING
 - REFER TO DRAWING E-410 FOR PANEL SCHEDULES
 - ALL FIBER/COMMUNICATION, SPEAKER AND POWER CONDUITS MUST BE RUN 24" BELOW GRADE. U.O.I.
 - ALL CONDUITS OUTSIDE THE BUILDING FOOT PRINT SHALL BE PVC SCH. 40, CONDUITS INSIDE THE PRESSBOX SHALL BE EMT AND CONDUITS INSIDE THE DUGOUTS SHALL BE RGC.
 - ALL OUTDOOR CONDUITS SHALL RUN 24" BELOW GRADE. CABLES IN OUTDOOR CONDUITS SHALL BE TYPE XLPE.
 - AT TRANSITION POINTS BETWEEN INDOOR AND OUTDOOR CONDUITS PROVIDE ADAPTER FITTINGS TO CONVERT THHN TO TYPE XLPE CABLES AND EMT TO PVC/RGC CONDUIT, UNLESS OTHERWISE INDICATED.
 - THE SCORE BOARD WILL BE CONTROLLED WIRELESSLY.



- NOTES:
- ENCLOSURE IN THIS CONTRACT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - ALL SHOP DRAWINGS MUST BE SUBMITTED TO EOR FOR APPROVAL BEFORE PURCHASE.
 - ENCLOSURE SHALL BE NEMA 4X, IP66 RATED.
 - COORDINATE KEY TO OPEN AND CLOSE THE ENCLOSURE WITH NORTH ROCKLAND HIGH SCHOOL'S CUSTODIAN ENGINEER.
 - CUSTOM MADE NEMA ENCLOSURE SHALL BE MANUFACTURED BY NEMA ENCLOSURES, OR APPROVED EQUAL.
 - ENCLOSURE SHALL BE MOUNTED ON A NEW 8" THICK CONCRETE PAD. REFER TO LANDSCAPE ARCHITECTS DRAWINGS.
 - CONTRACTOR SHALL COORDINATE WITH ENCLOSURE MANUFACTURER FOR ALL NECESSARY FITTINGS AND ACCESSORIES TO HOUSE ALL ELECTRICAL EQUIPMENT.
 - REFER TO SCHEMATIC ONE LINE DIAGRAM ON THIS DRAWING FOR SIZES.
 - ALL ELECTRICAL EQUIPMENT SHALL BE SET MINIMUM OF 6" ABOVE THE FINISHED FLOOR/BASE OF THE NEMA ENCLOSURE

2 ELECTRICAL BASEBALL NEMA ENCLOSURE DETAIL

SCALE: NTS

BASEBALL FIELD SPEAKERS			
SPEAKER	MOUNTING HEIGHT	MANUFACTURER	MODEL #
	30'	BIAMP	R-5-96MAX

NOTE: REFER TO DRAWINGS CE-505 FOR SOUND SYSTEM EQUIPMENT.

RUN THE FOLLOWING CABLES IN 1" C FOR SPEAKERS:

- A1XX AUDIO WIRE 1 SHIELDED 22AWG STRANDED PAIR (BELDEN 9451)
- S1XX SPEAKER WIRE 2 CONDUCTOR, 12AWG, UNSHIELDED, STRANDED (WEST PENN AQ227)

CONTROL CIRCUIT SUMMARY					
POLE ID	FULL LOAD AMPERES	CONTACTOR SIZE (A)	CONTACTOR ID	LIGHTING CIRCUIT	VOLTAGE
A1	9.6	30	C1	BBPH-1,3,5	480 V
A2	9.6	30	C2	BBPH-2,4,6	480 V
B1	16.43	30	C3	BBPH-7,9,11	480 V
B2	16.43	30	C4	BBPH-8,10,12	480 V
C1	13.83	30	C5	BBPH-25,27,29	480 V
C2	13.83	30	C6	BBPH-26,28,30	480 V

BASE BALL FIELD POLE/LUMINAIRE SUMMARY					
POLE ID	POLE HEIGHT	LUMINAIRE MOUNTING HEIGHT	LUMINAIRE QUANTITY	TOTAL LOAD	POLE MANUFACTURER
A1 & A2	70'	70'	1 TLC-LED-1500	1.41KW	MUSCO
		70'	3 TLC-LED-1200	3.51KW	
		16'	1 TLC-BT-575	0.57KW	
		16'	1 TLC-RGB-U	0.43KW	
B1 & B2	80'	80'	1 TLC-LED-1200	1.17kW	MUSCO
		80'	6 TLC-LED-1500	8.46kW	
		16'	2 TLC-BT-575	1.15kW	
		16'	1 TLC-RGB-U	0.43KW	
C1 & C2	70'	70'	5 TLC-LED-1500	7.05kW	MUSCO
		16'	2 TLC-BT-575	1.15kW	
		16'	1 TLC-RGB-U	0.43KW	

No.	Date	Revisions
3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS

Drawn by	AWF
Checked by	SH
Project No.	43045
Scale	AS NOTED
Date	10/03/24

THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 100 PARK AVENUE, 10TH FLOOR SARATOGA SPRINGS, NY 12866	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200, SUFFERN, NY 10901
Landscape Architect & Civil Engineer:	Structural & P&E Engineer:

NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES	HIGH SCHOOL SED# 50-02-01-05-0-006-008 PRESS BOX - FOOTBALL SED# 50-05-01-05-7-001-001 PRESS BOX - BASEBALL SED# 50-05-01-05-7-001-001 140 BARNARD RD THURMAN, NY 10984
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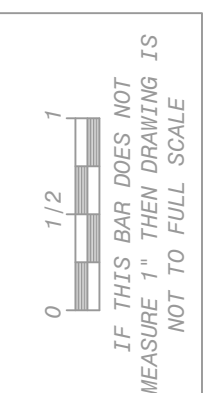
ELECTRICAL BASEBALL FIELD INSTALLATION PLAN	Drawing No. CE-102
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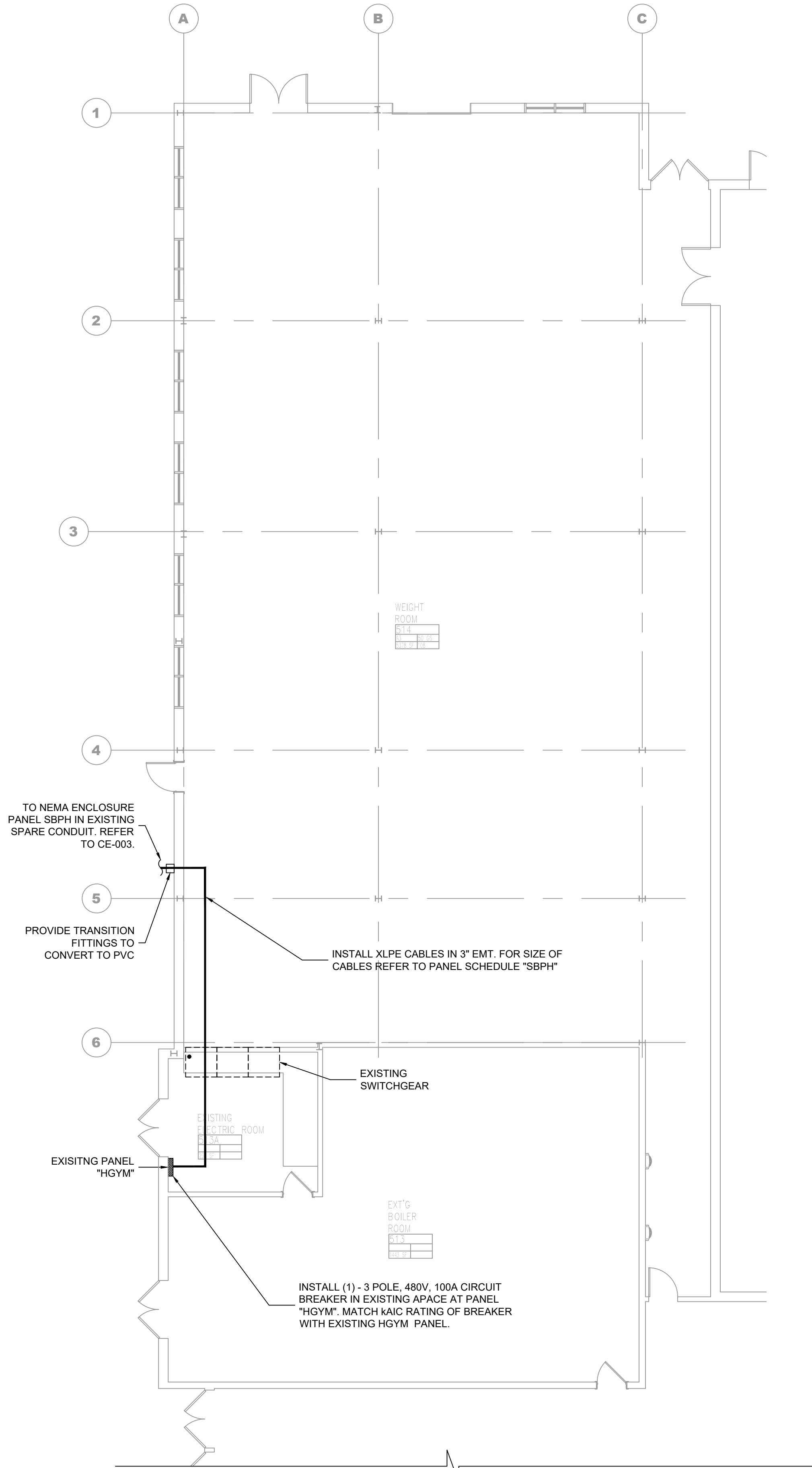
1. THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH SBU, ALL OTHER TRADES AND THE FACILITY.
2. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY UNAUTHORIZED DISRUPTION AND POWER OUTAGES.
3. MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY CONSTRUCTION WORK.
4. CONTRACTOR IS TO TRACE AND PROTECT ALL FEEDER & BRANCH CIRCUITS FOR ALL AREAS OF THE SITE AND ALL OTHER ELECTRICAL EQUIPMENT DURING DEMOLITION/CONSTRUCTION. ELECTRICAL CONTRACTOR IS REQUIRED TO COORDINATE THIS REQUIREMENT WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES.
5. ROUTING OF ELECTRICAL CONDUITS IF SHOWN IN THE DRAWINGS ARE TENTATIVE. THE CONTRACTOR IS RESPONSIBLE TO FINALIZE THE ROUTING OF ALL ELECTRICAL CONDUITS AT FIELD IN COORDINATION WITH ALL OTHER TRADES, EXISTING AND NEW BUILDING ELEMENTS, STRUCTURES, PIPES, EQUIPMENT, LANDSCAPING ETC., FOR CODE COMPLIANT INSTALLATION.
6. ALL ELECTRIC SERVICES AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS & THE NATIONAL ELECTRIC CODE (NEC).
7. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE CODE COMPLIANT GROUNDING OF THE CIRCUITS, EQUIPMENT AND CONDUITS AS PER NEC AND SPECIFICATION.
8. ALL UNDERGROUND CONDUITS SHALL BE PVC/RIGID AND RUN 24" BELOW GRADE UNLESS OTHERWISE INDICATED.
9. ALL SPARE CONDUITS SHALL BE INSTALLED WITH DRAG LINES.
10. COORDINATE WITH LANDSCAPE ARCHITECT AND ARCHITECTURAL DRAWINGS FOR SURFACE RESTORATION AND RESURFACING WORK.
11. THE CONTRACTOR SHALL PROVIDE MAGNETIC WARNING TAPE FOR EACH UNDERGROUND DUCT BANK/CONDUIT.
12. THE CONTRACTOR IS REQUIRED TO USE POLYURETHANE AFT-AEROSOL FOAM SEALANT OR EQUIVALENT TO SEAL BOTH ENDS OF SERVICE CONDUITS TO FILL THE GAP BETWEEN CABLES AND CONDUIT IN ORDER TO PREVENT ANY WATER PENETRATION THROUGH CONDUITS TO THE ELECTRICAL EQUIPMENT INSIDE THE BUILDING. THE CONDUIT OPENINGS (GAP BETWEEN CABLES AND CONDUIT) SHALL BE SEALED DEEP ENOUGH TO CONFIRM THAT NO WATER INFILTRATION IS TAKING PLACE.
13. ROUTING OF CONDUITS SHALL BE AS PER LANDSCAPE ARCHITECTS DRAWINGS
14. ALL CONDUITS PASSING THROUGH ROADWAYS SHALL BE ENCASED IN MINIMUM 2" THICK CONCRETE
15. REFER TO MECHANICAL PLANS FOR INFRARED HEATER "11-1" SCHEDULE. MOUNTING SHALL BE AS PER THE MANUFACTURERS INSTRUCTIONS. SWITCHES FOR THE "11-1" INFRARED HEATERS ARE LOCATED IN THE PRESS BOXES OF THE RESPECTIVE FIELDS.

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 Drawing Title
**ELECTRICAL DUGOUT
 PLANS**

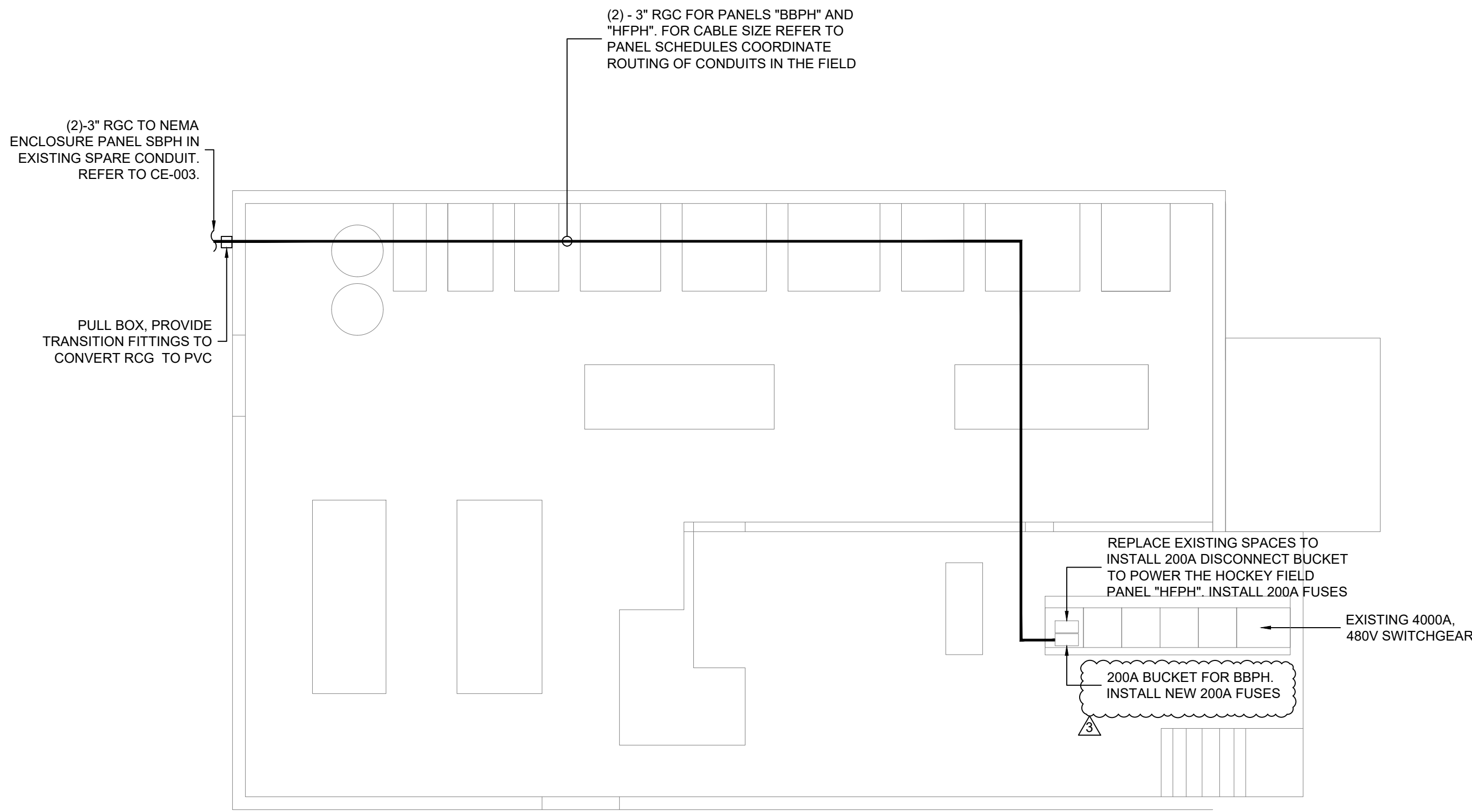


CE-105

1 ANNEX BUILDING ELECTRICAL ROOM INSTALLATION PART PLAN
SCALE: 1/8"=1'-0"



2 MAIN BUILDING ELECTRICAL ROOM INSTALLATION PART PLAN
SCALE: N.T.S.



PLAN NOTES:

1. REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING CE-001.
2. ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR LIGHTING AND POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE. REFER TO PANEL SCHEDULES IN DRAWING E-201 FOR ALL OTHER FEEDER AND BRANCH CIRCUIT SIZE INFORMATION.
3. PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
4. UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
5. CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
6. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
7. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. X-RAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
8. THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
9. ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

Drawn by	AWF
Checked by	SH
Project No.	43045
Scale	AS NOTED
Date	10/03/24

THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 100 PARK AVENUE, 10TH FLOOR NEW YORK, NY 10017	GREENMAN PEDERSEN, INC STRUCTURAL & CIVIL ENGINEERING 200 WEST 10TH STREET NEW YORK, NY 10011
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NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES HIGH SCHOOL, SDNY 50-02-01-00-0-006-008 PRESS BOX - FOOTBALL, SDNY 50-02-01-00-0-007-001-001 PRESS BOX - BASEBALL, SDNY 50-02-01-00-0-007-001-001 140 PARK AVENUE, 10TH FLOOR NEW YORK, NY 10017
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ELECTRICAL MAIN & ANNEX BUILDING INSTALLATION PART PLANS	CE-401
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No.	Date	Revisions
3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS

- PANEL SCHEDULE NOTES:
- PANEL BOARDS SHALL INCLUDE ALL APPLICABLE UL AND PRODUCT SAFETY LABELS AS REQUIRED BY NEMA PB1 AND UL LISTED STANDARDS.
 - ALL PRODUCTS WHICH ARE NOT VERIFIABLE TO BE UL LISTED WILL NOT BE ACCEPTED
 - ALL EXISTING CIRCUITS TO REMAIN SHALL BE DISCONNECTED FROM EXISTING PANEL, EXTENDED AND RECONNECTED TO NEW PANEL.

PANEL SCHEDULE													
PANEL NAME:	SBPH	LOCATION:	SOFT BALL NEMA ENCLOSURE				MOUNTING:	SURFACE					
VOLTAGE/PHASE:	277/480V, 3 Phase, 4W & G	PANEL (AMP)	100A				FREQUENCY:	60 Hz					
PANEL SHORT CIRCUIT RATING(KA):	22 KA	FEEDER SIZE	4#2/0+1#4G IN 3" PVC SCH 80				FEEDING SOURCE:	HGYM					
MAIN BREAKER TYPE	MCCB	MAIN BREAKER RATING (A):	100A				BRANCH C.B TYPE	MCB					
Load Designation	Wiring	Phase Load in VA						Wiring	Load Designation				
		C/B (A)	CT NO	A Ø	B Ø	C Ø	CT NO			C/B (A)			
POLEA3	3#8+1#10G - 1 1/2" C PVC SCH 40	30	1	2153				2	30	3#8+1#10G - 1 1/2" C PVC SCH 40	POLE A4		
				2153									
			3		2153							4	
			5				2153						
							2153					6	
POLEB3	3#8+1#10G - 1 1/2" C PVC SCH 40	30	7	2660				8	30	3#8+1#10G - 1 1/2" C PVC SCH 40	POLE B4		
				2660									
			9		2660							10	
			11		2660			2660					
							2660					12	
CONTROL VTG TRANSFORMER	2#12+1#12G - 3/4" RGC	20	13	500				14	20	SPARE			
SPARE		20	15					16	20	2#10+1#12G - 1" PVC	PARKING LOT LIGHTS		
FLAG POLE LIGHTING	2#10+1#12G - 1" C PVC SCH 40	20	17				400 4500	18	30	3#8+1#10 - 1" C	INFRARED HEATERS @ DUGOUT		
PANEL SBPB- PRESS BOX SOFTBALL FIELD TRANSFORMER	3#8+1#10G - 1 1/2" C	100	19	4000 4500				20					
			21		4000 4500							22	
			23				4000 4500		24				
INFRARED HEATER @ DUGOUT	3#8+1#10 - 1" C	30	25	4500				26	20	2#12+1#12G - 3/4" RGC	FIELD SCONE LIGHTS		
			27		4500				28	20	2#12+1#12G - 3/4" RGC	FIELD SCONE LIGHTS	
			29				3000		30	20	SPARE		
INFRARED HEATER @ DUGOUT	3#8+1#10 - 1" C	20	31	3000				32	20	SPARE			
									34	20	SPARE		
SPARE		20	33						36	20	SPARE		
SPARE		20	35						38	20	SPARE		
SPARE		20	37						40	20	SPARE		
SPARE		20	39						42	20	SPARE		
SPARE		20	41						42	20	SPARE		
CONNECTED LOAD PER PHASE IN VA				26126	22626	26026	PANEL TYPE: NEMA 1 MOUNTING: SURFACE						
TOTAL CONNECTED LOAD IN KVA				74.778			COPPER BUS, EQUIP. GROUND BAR, & CLASS B SURGE PROTECTOR						
TOTAL DEMAND LOAD IN AMPS				89.95			DOOR: INDOOR TYPE						

PANEL SCHEDULE											
PANEL NAME:	BBPH	LOCATION:	BASEBALL NEMA ENCLOSURE				MOUNTING:	SURFACE			
VOLTAGE/PHASE:	277/480V, 3 Phase, 4W & G	PANEL (AMP)	200A				FREQUENCY:	60 Hz			
PANEL SHORT CIRCUIT RATING(KA):	22 KA	FEEDER SIZE	4#4/0+1#2G IN 3" PVC SCH 80				FEEDING SOURCE:	200A DISCONNECT IN MAIN ELECTRICAL ROOM			
MAIN BREAKER TYPE	MCCB	MAIN BREAKER RATING (A):	200A				BRANCH C.B TYPE	MCB			
Load Designation	Wiring	Phase Load in VA						Wiring	Load Designation		
		C/B (A)	CT NO	A Ø	B Ø	C Ø	CT NO				
POLEA1	3#8+1#10G - 1 1/2" C PVC SCH 40	20	1	2660				2	20	3#8+1#10G - 1 1/2" C PVC SCH 40	POLE A2
			2	2660				3			
			3		2660			4			
			4		2660			5			
			5			2660		6			
POLEB1	3#8+1#10G - 1 1/2" C PVC SCH 40	30	7	4552				8	30	3#8+1#10G - 1 1/2" C PVC SCH 40	POLE B2
			9		4552			10			
			11			4552		12			
						4552		13			
							4552	14			
CONTROL VTG TRANSFORMER	2#12+1#12G - 3/4" RGC	20	13	500				14	20		SPARE
SPARE		20	15		3000				16		
SPARE		20	17				3000		18	20	3#8+1#10 - 1" C INFRARED HEATERS @ DUGOUT
PANEL BBPB- PRESS BOX BASEBALL FIELD TRANSFORMER	3#3+1#8G - 1 1/2" C	100	19	6135					20	30	3#8+1#10 - 1" C INFRARED HEATER @ DUGOUT
			21	4500		4975			22		
					4500				23		
						5420			24		
									25		
POLEC1	3#8+1#10G - 1 1/2" C PVC SCH 40	20	25	3831					26	20	3#8+1#10G - 1 1/2" C PVC SCH 40 POLE C2
				3831					27		
					3831				28		
						3831			29		
							3831		30		
INFRARED HEATER @ DUGOUT	3#10+1#10 - 1" C	30	31	4500					32	30	3#10+1#10 - 1" C INFRARED HEATER @ DUGOUT
				4500					33		
					4500				34		
SITE LIGHTING		20	35				324		35	20	2#12+1#12G - 3/4" RGC FIELD SCONE LIGHTS
FIELD SCONE LIGHTS	2#12+1#12G - 3/4" RGC	20	37						38	20	2#12+1#12G - 3/4" RGC FIELD SCONE LIGHTS
SPARE		20	39						40	20	SPARE
SPARE		20	41						42	20	SPARE
CONNECTED LOAD PER PHASE IN VA			42221	43561	30830	PANEL TYPE: NEMA 1 MOUNTING: SURFACE					
TOTAL CONNECTED LOAD IN KVA			116.612			COPPER BUS, EQUIP. GROUND BAR, & CLASS B SURGE PROTECTOR					
TOTAL DEMAND LOAD IN AMPS			140.27			DOOR: INDOOR TYPE					

PANEL SCHEDULE											
PANEL NAME:	SBPB	LOCATION:	SOFT BALL PRESSBOX				MOUNTING:	SURFACE			
VOLTAGE/PHASE:	120/208V, 3 Phase, 4W & G	PANEL (AMP)	100 A				FREQUENCY:	60 Hz			
PANEL SHORT CIRCUIT RATING(KA):	22 KA	FEEDER SIZE	4#4+1#8G - 2"PVC				FEEDING SOURCE:	15kVA TRANSFORMER			
MAIN BREAKER TYPE	MCCB	MAIN BREAKER RATING (A):	60A				BRANCH C.B TYPE	MCB			
Load Designation	Wiring	Phase Load in VA						Wiring	Load Designation		
		C/B (A)	CT NO	A Ø	B Ø	C Ø	CT NO			C/B (A)	
SOFT BALL PRESS BOX LTG	2#12+1#12G - 3/4"C	20	1	200			2	20	2#12+1#12G - 3/4"C	SOFT BALL LSS	
RECEPTACLES @ PRESS BOX	2#12+1#12G - 3/4"C	20	3	500	760		4	20	2#12+1#12G - 3/4"C	RECEPTACLES @ PRESS BOX	
			5		720		6				
QUAD @ PRESS BOX FOR DATA	2#12+1#12G - 3/4"C	20	5			720	6	20	2#12+1#12G - 3/4"C	ACCU-1	
AHU-1	2#12+1#12G - 3/4"C	20	7	208			8	20	2#12+1#12G - 3/4"C	GRAND STAND RECEPTACLES	
			9	1320	208		10				
			11		540		12				
GRAND STAND RECEPTACLES	2#12+1#12G - 3/4"C	20	11			540	20	20	2#10+1#12G-2"PVC	SOFTBALL DUGOUT LIGHTING	
SOFTBALL DUGOUT RECEPTACLES	2#12+1#12G - 2"PVC	20	13	540			14	20	2#10+1#12G-2"PVC	SOFTBALL DUGOUT LIGHTING	
SOFTBALL DUGOUT RECEPTACLES	2#12+1#12G - 2"PVC	20	15	200	720		16	20	2#10+1#12G-2"PVC	INVERTER FOR MUSO EGRESS LTG	
EXIT LIGHT	2#12+1#12G - 3/4"C	20	17		360	5	18	20	2#10+1#12G-1"PVC	INVERTER FOR MUSO EGRESS LTG	
GRAND STAND LIGHTING	2#12+1#12G - 3/4"C	20	19	600		360	20	20	2#10+1#12G-2"PVC	BASE BALL SCORE BOARD CKT 1	
SOFT BALL SCORE BOARD CKT 1	2#10+1#12G-2"PVC	20	21		500		22	20	2#10+1#12G-2"PVC	BASE BALL SCORE BOARD CKT 1	
SOFT BALL SCORE BOARD 1 CKT 2	2#10+1#12G-2"PVC	20	23		500		24	20	2#10+1#12G-2"PVC	BASE BALL SCORE BOARD CKT 2	
SOFTBALL DUGOUT LIFT	2#10+1#12G-1"PVC	20	25	250			26	30	2#10+1#12G-2"PVC	GATE @ PARKING LOT	
SPARE		20	27				28	20		SPARE	
SCORE BOARD RECEPTACLE	2#10+1#12G-2"PVC	20	29			180	30	20	2#10+1#12G-2"PVC	SOFTBALL DUGOUT LIFT	
UH-1	2#12+1#12G - 3/4" C	20	31	1667			32	20	2#12+1#12G - 3/4"C	GRAND STAND UPLIGHTS	
			33	608			34	20	2#12+1#12G -PVC	MUSCO COMMUNICATION CABINET	
			35		1667	500		36	20		SPARE
			37				1667		38	20	
SPARE		20	37				38	20		SPARE	
SPARE		20	39				40	20		SPARE	
SPARE		20	41				42	20		SPARE	
CONNECTED LOAD PER PHASE IN VA				6453	6475	5642	PANEL TYPE: NEMA 1 MOUNTING: SURFACE				
TOTAL CONNECTED LOAD IN KVA				18.57			COPPER BUS, EQUIP. GROUND BAR, & CLASS B SURGE PROTECTOR				
TOTAL LOAD IN AMPS				51.55			DOOR: INDOOR TYPE				

PANEL SCHEDULE		
----------------	--	--

[illegible]su12.[illegible]RESTRICTION
CHECKLIST

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MANUFACTURER	QTY	MODEL	ITEM
Community	3	R.5-96MAX	Loud Speaker
Community	1	ALC-3202D	Amplifiers
ADI	1	DN312X	Mixer
Ashly	1	NE24.24M 4x4	Processor
Adaptive Technologies	6	SC-188-30-SS	Safety Cable
Adaptive Technologies	1	PM-DA-48-G	Dual Loudspeaker Cross Bar
Adaptive Technologies	1	PM-MOUNT-6UP-G	Loudspeaker Pole Mounting Pate
Adaptive Technologies	4	PM-BAND-90	Pole Mounting Bands 30"
Adaptive Technologies	2	PM-SAFETY-6D	Safety Cable Pole Mounting Plate
Adaptive Technologies	1	PM-24-6DOWN-G	Pole Mount Kit for Press Box Speakers
E-Rigging/Haas	10	51612015	3/8"-16 x 11/16" Stainless Eye Bolt
Shure	1	ULXD4-H50	Wireless Recievers
Shure	1	UA825	Remote Antenna Cable - 25'
Shure	1	UA874US	Acitve Directional Remote Antenna
Shure	1	ULXD2/SM58-H50	Handheld Mic
Shure	1	SM58S	Handheld Mic
Shure	1	ULXD1-H50	Belt Pack Transmitter
Shure	1	SBC-200-US	Charging Dock W/ Power Supply
Shure	2	S8900B	Battery Pack
Shure	1	SM31FH-TQG	Head Set Mic
Shure	1	WA360	Belt Pack Toggle
Gator/Frameworks	2	GFW-MIC-0601	Desktop Mic Stand
Gator/Frameworks	1	GFW-MIC-2020	Boom Mic Stand
Whirlwind	1	MIP35	Audio Plate
Whirlwind	1	MKQ15	Mic Cable
Whirlwind	1	MKQ50NP-ORANGE	Mic Cable
Whirlwind	1	MST2R10	Audio Cable STMINI to Dual RCA
Whirlwind	1	MST10	Audio Cable STMINI
Whirlwind	1	SPLIT6	Line Level Splitter
RDL	1	TX70A	Transformer

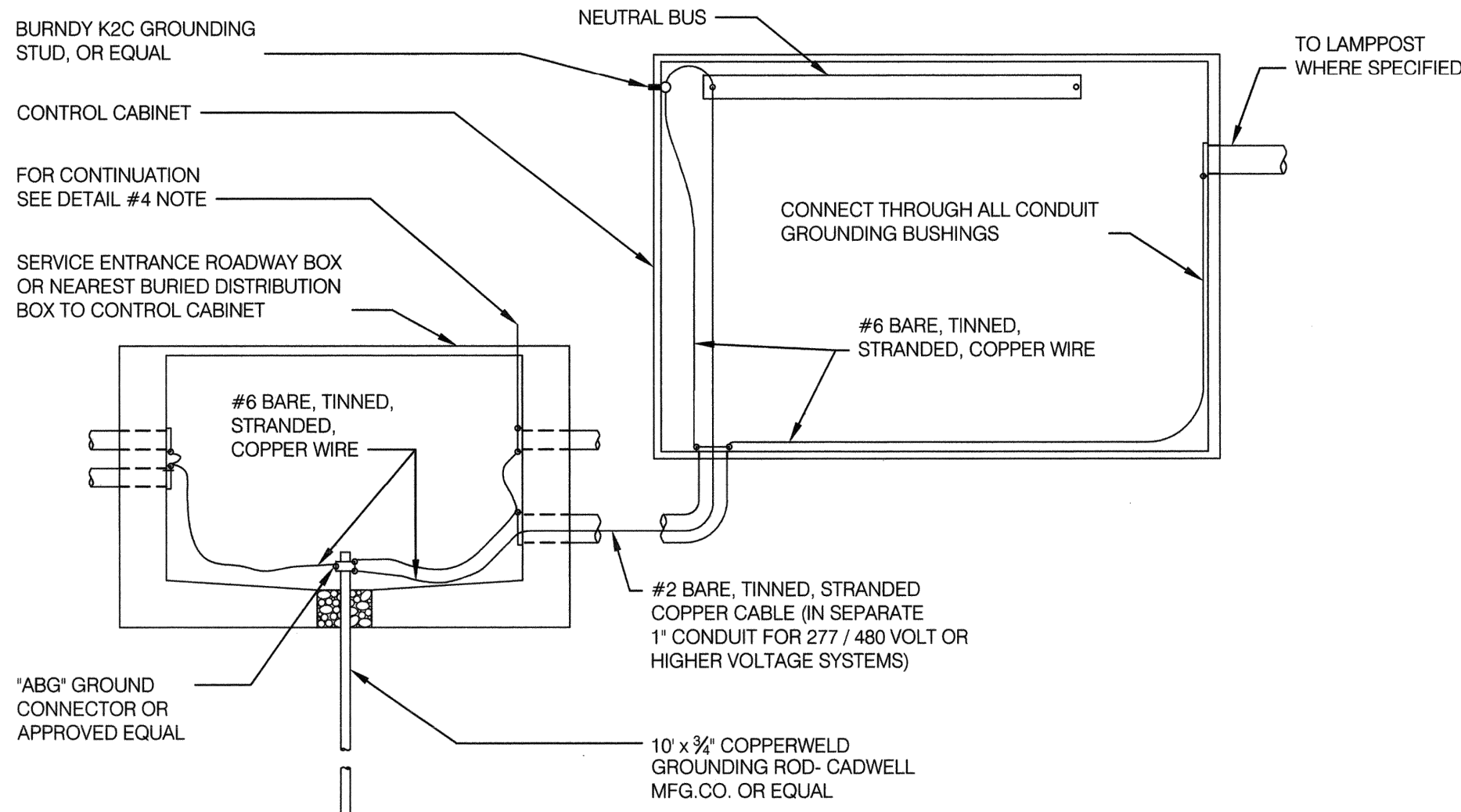
Qty	Description
1	LA-122 Integral Remote Antenna Kit
3	LA-304 Signage
1	LA-326 Rack Kit

ALTERNATE #9 - FOR ASSISTED LISTENING

MANUFACTURER	QTY	MODEL	ITEM
Community	3	R.5-96MAX	Loud Speaker
Community	1	ALC-3202D	Amplifiers
ADI	1	DN312X	Mixer
Ashly	1	NE24.24M 4x4	Processor
Adaptive Technologies	6	SC-188-30-SS	Safety Cable
Adaptive Technologies	1	PM-DA-48-G	Dual Loudspeaker Cross Bar
Adaptive Technologies	1	PM-MOUNT-6UP-G	Loudspeaker Pole Mounting Pate
Adaptive Technologies	4	PM-BAND-90	Pole Mounting Bands 30"
Adaptive Technologies	2	PM-SAFETY-6D	Safety Cable Pole Mounting Plate
Adaptive Technologies	1	PM-24-6DOWN-G	Pole Mount Kit for Press Box Speakers
E-Rigging/Haas	10	51612015	3/8"-16 x 11/16" Stainless Eye Bolt
Shure	1	ULXD4-H50	Wireless Recievers
Shure	1	UA825	Remote Antenna Cable - 25'
Shure	1	UA874US	Acitve Directional Remote Antenna
Shure	1	ULXD2/SM58-H50	Handheld Mic
Shure	1	SM58S	Handheld Mic
Shure	1	ULXD1-H50	Belt Pack Transmitter
Shure	1	SBC-200-US	Charging Dock W/ Power Supply
Shure	2	S8900B	Battery Pack
Shure	1	SM31FH-TQG	Head Set Mic
Shure	1	WA360	Belt Pack Toggle
Gator/Frameworks	2	GFW-MIC-0601	Desktop Mic Stand
Gator/Frameworks	1	GFW-MIC-2020	Boom Mic Stand
Whirlwind	1	MIP35	Audio Plate
Whirlwind	1	MKQ15	Mic Cable
Whirlwind	1	MKQ50NP-ORANGE	Mic Cable
Whirlwind	1	MST2R10	Audio Cable STMINI to Dual RCA
Whirlwind	1	MST10	Audio Cable STMINI
Whirlwind	1	SPLIT6	Line Level Splitter
RDL	1	TX70A	Transformer

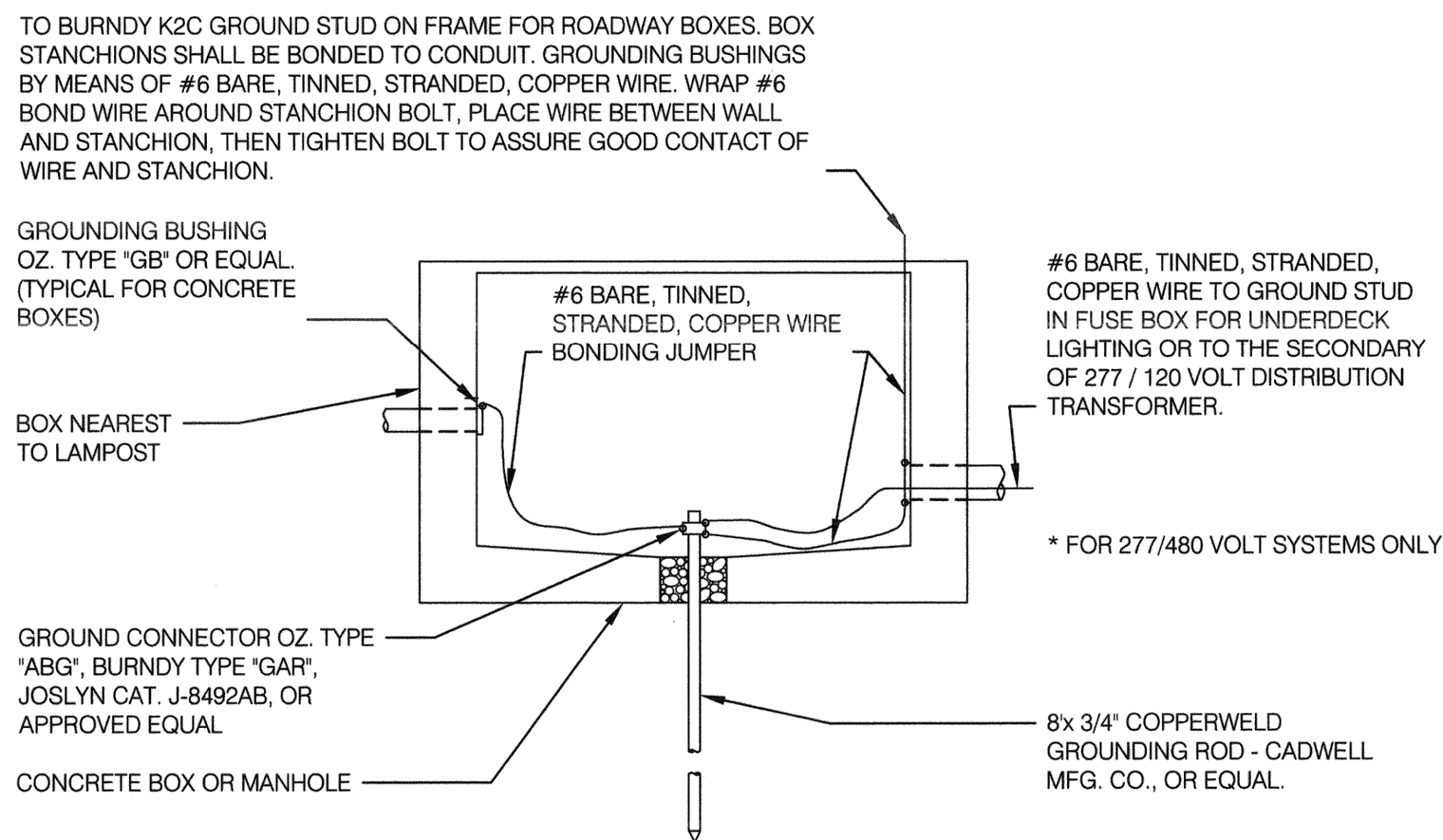
Qty	Description
1	LA-122 Integral Remote Antenna Kit
3	LA-304 Signage
1	LA-326 Rack Kit

SERVICE ENTRANCE GROUNDING



BOX DETAIL

(EVERY FIFTH BOX OR WHERE SPECIFIED ON CONTRACT PLANS)



TYPICAL CONCRETE ROADWAY BOX GROUNDING DETAILS

SCALE: N.T.S.

1 BASEBALL FIELD SOUND SYSTEM EQUIPMENT

SCALE: N.T.S.

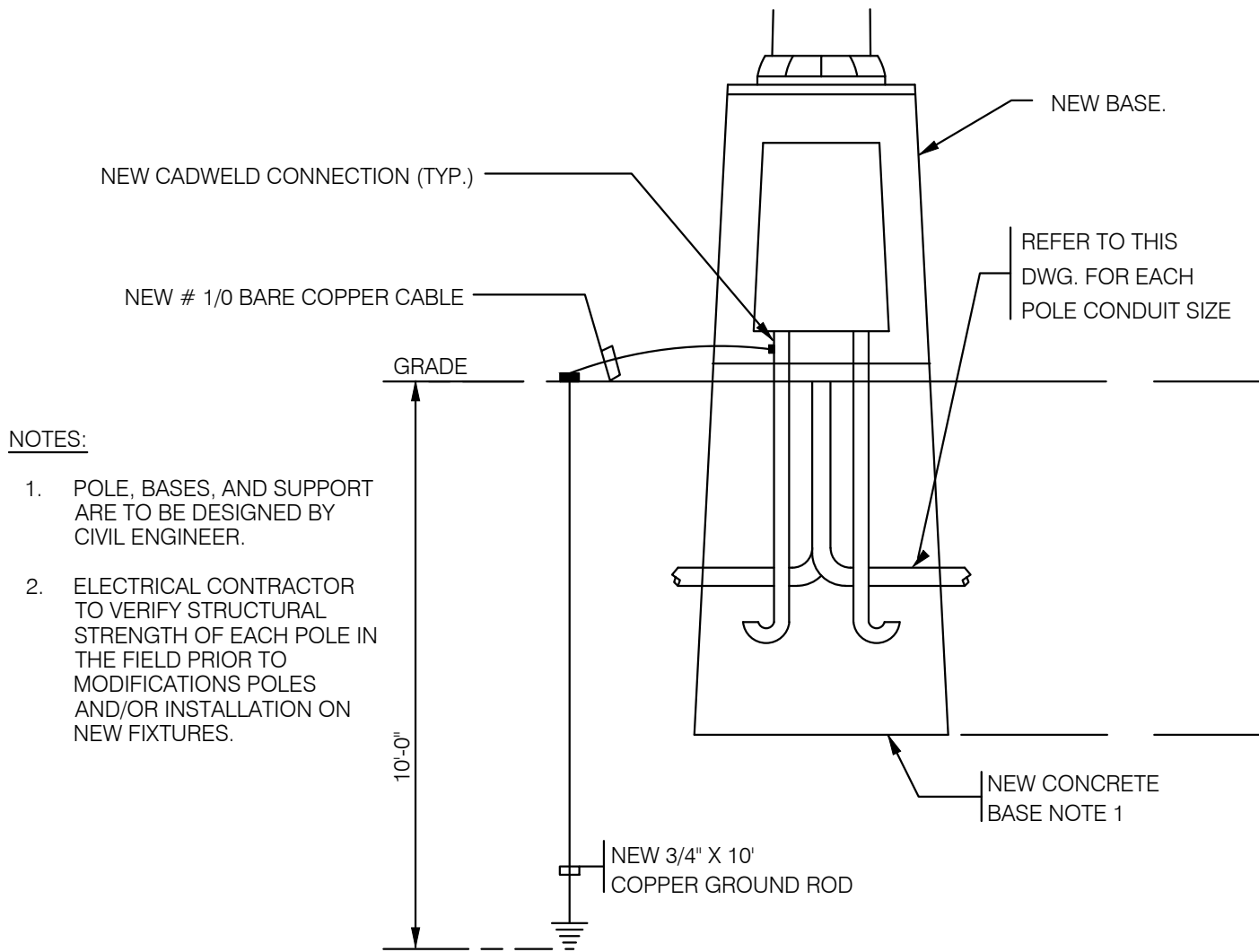
MANUFACTURER	QTY	MODEL	ITEM
Community	2	R.5-94Z	Loud Speaker
Community	2	R.5-66Z	Loud Speaker
Community	2	ALC-1604D	Amplifiers
ADI	1	DN312X	Mixer
Ashly	1	NE24.24M 4x4	Processor
Adaptive Technologies	8	SC-188-30-SS	Safety Cable
Adaptive Technologies	2	PM-DA-48-G	Dual Loudspeaker Cross Bar
Adaptive Technologies	2	PM-MOUNT-6UP-G	Loudspeaker Pole Mounting Pate
Adaptive Technologies	8	PM-BAND-90	Pole Mounting Bands 30"
Adaptive Technologies	2	PM-SAFETY-6D	Safety Cable Pole Mounting Plate
E-Rigging/Haas	10	51612015	3/8"-16 x 11/16" Stainless Eye Bolt
Shure	1	ULXD4Q-H50	Wireless Recievers
Shure	1	UA825	Remote Antenna Cable - 25'
Shure	1	UA874US	Acitve Directional Remote Antenna
Shure	1	ULXD2/SM58-H50	Handheld Mic
Shure	1	SM58S	Handheld Mic
Shure	1	ULXD1-H50	Belt Pack Transmitter
Shure	1	SBC-200-US	Charging Dock W/ Power Supply
Shure	2	S8900B	Battery Pack
Shure	1	SM31FH-TQG	Head Set Mic
Shure	1	WA360	Belt Pack Toggle
Gator/Frameworks	2	GFW-MIC-0601	Desktop Mic Stand
Gator/Frameworks	1	GFW-MIC-2020	Boom Mic Stand
Whirlwind	1	MIP35	Audio Plate
Whirlwind	1	MKQ15	Mic Cable
Whirlwind	1	MKQ50NP-ORANGE	Mic Cable
Whirlwind	1	MST2R10	Audio Cable STMINI to Dual RCA
Whirlwind	1	MST10	Audio Cable STMINI
Whirlwind	1	SPLIT6	Line Level Splitter
RDL	1	TX70A	Transformer

3 HOCKEY FIELD SOUND SYSTEM EQUIPMENT

SCALE: N.T.S.

2 SOFTBALL FIELD SOUND SYSTEM EQUIPMENT

SCALE: N.T.S.



NOTES:

- POLE, BASES, AND SUPPORT ARE TO BE DESIGNED BY CIVIL ENGINEER.
- ELECTRICAL CONTRACTOR TO VERIFY STRUCTURAL STRENGTH OF EACH POLE IN THE FIELD PRIOR TO MODIFICATIONS POLES AND/OR INSTALLATION ON NEW FIXTURES.

4 TYPICAL GROUNDING DETAIL OF POLE

SCALE: N.T.S.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS

Drawn by	AWF
Checked by	SH
Project No.	43045
Scale	AS NOTED
Date	10/03/24

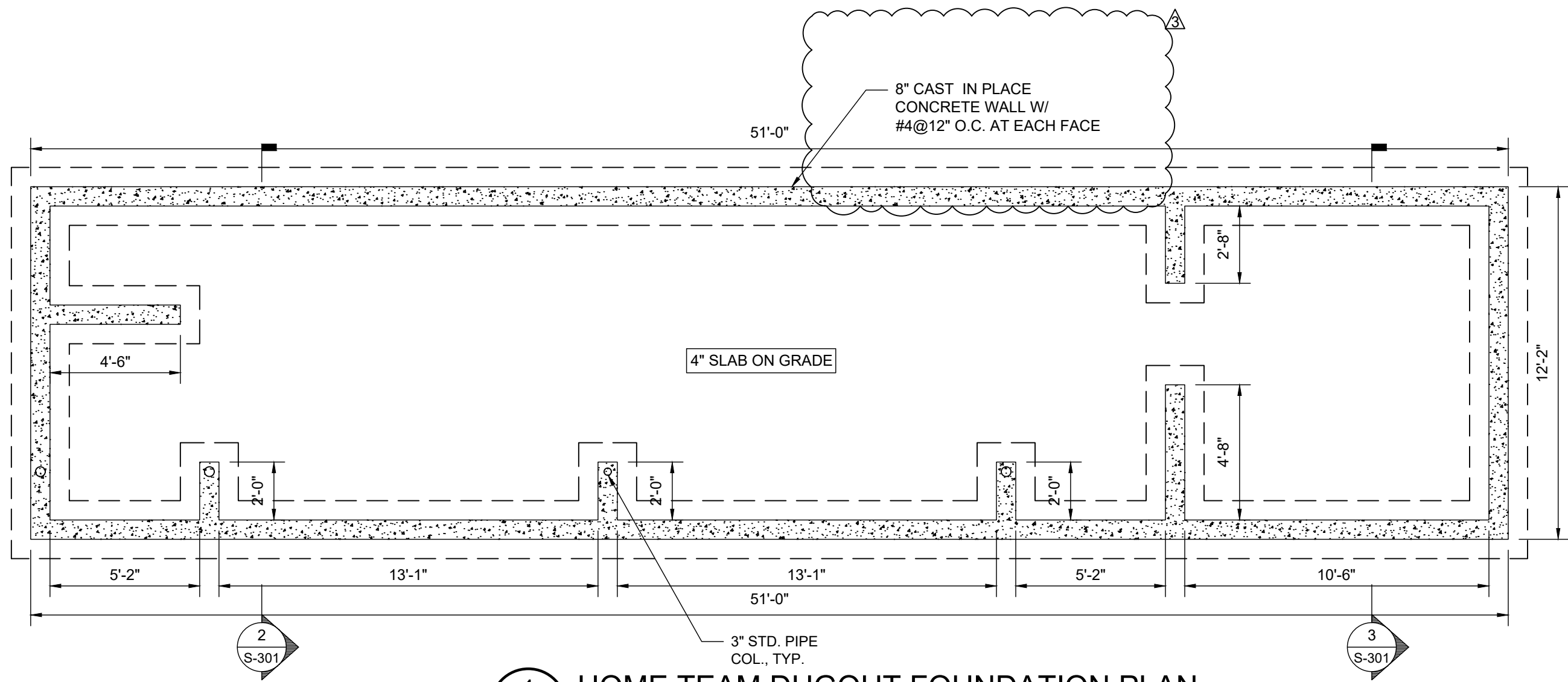
THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 1000 ROUTE 9W, SUITE 200 SAUGUTON, SPENCER, NY 12846	GREENMAN PEDERSEN, INC STRUCTURAL & CIVIL ENGINEER 2 EXECUTIVE BOULEVARD SUITE 200, SUFFERN, NY 10901
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NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES	HIGH SCHOOL SED# 50-02-01-00-0-006-088 PRESS BOX - SOFTBALL: SED# 50-02-01-00-7-000-001 PRESS BOX - BASEBALL: SED# 50-02-01-00-7-001-001 140 PARK AVENUE, SUITE 200 THIRTY, NY 10904 CONTACT: JAVIER@MSA-ARCH.COM
---	--

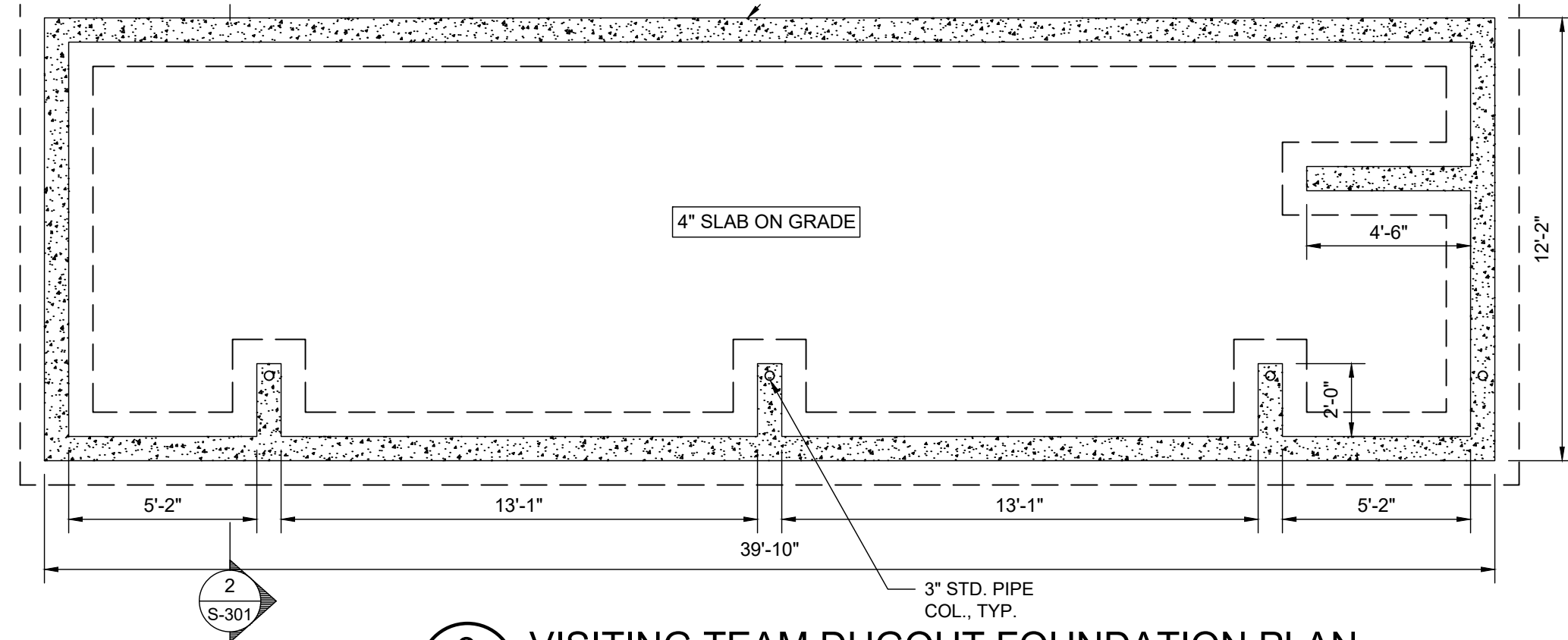
MSA MICHAEL SHILALE ARCHITECTS, L.L.P. 140 Park Avenue New City, NY 10956 Tel 845-708-9200 www.shilale.com

Drawing Title ELECTRICAL DETAILS SHEET #5	Drawing No. CE-505
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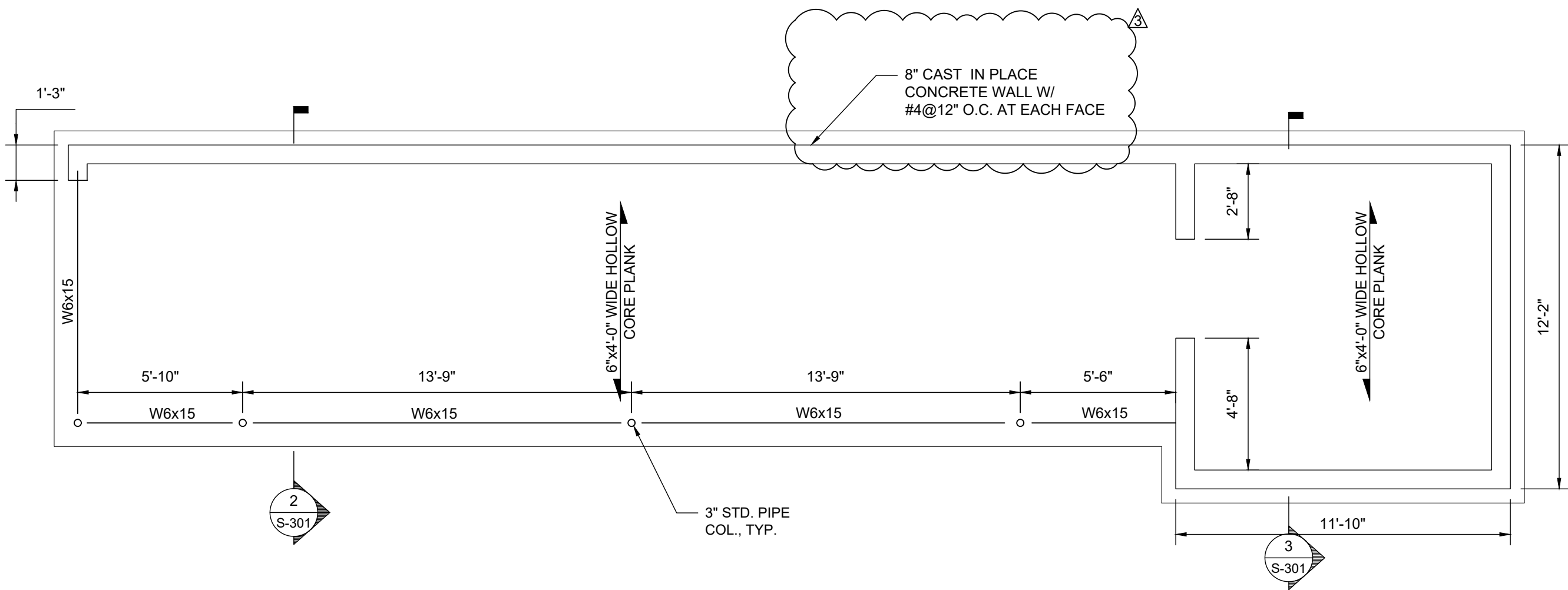
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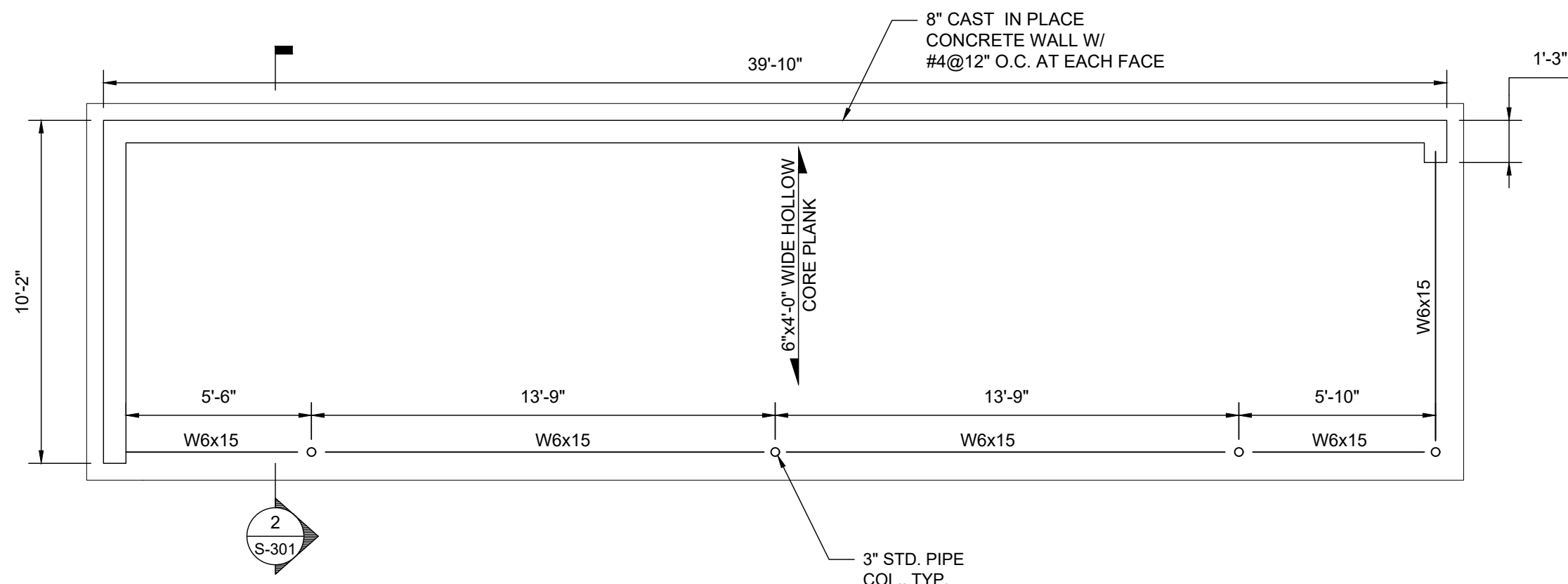
1 HOME TEAM DUGOUT FOUNDATION PLAN
S-106 SCALE: 1/4" = 1'-0"



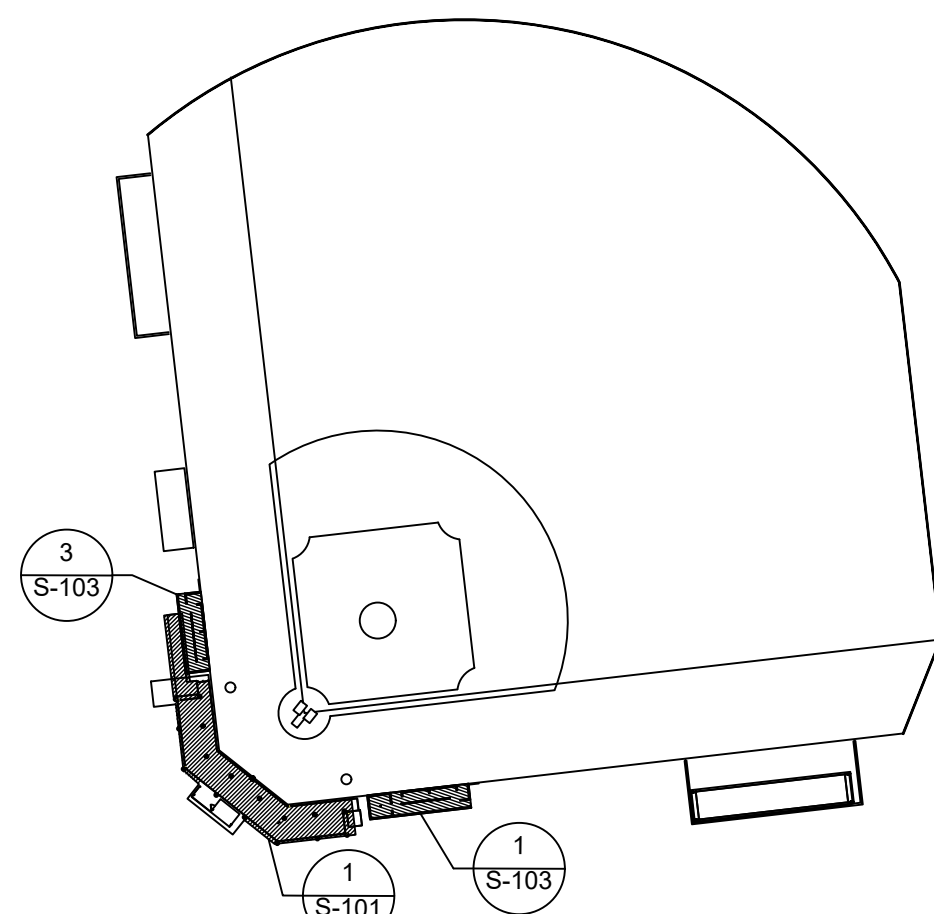
3 VISITING TEAM DUGOUT FOUNDATION PLAN
S-106 SCALE: 1/4" = 1'-0"



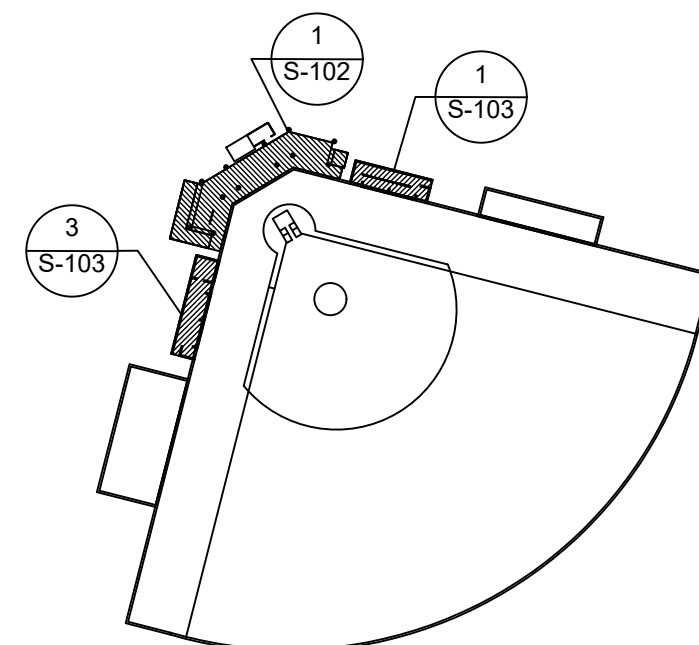
2 HOME TEAM DUGOUT FRAMING PLAN
S-106 SCALE: 1/4" = 1'-0"



4 VISITING TEAM DUGOUT FRAMING PLAN
S-106 SCALE: 1/4" = 1'-0"



BASEBALL KEY PLAN



SOFTBALL KEY PLAN

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

No.	Date	Revisions
3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS

Drawn by	S.I.
Checked by	RAB
Project No.	43045
Scale	AS NOTED
Date	10/03/24

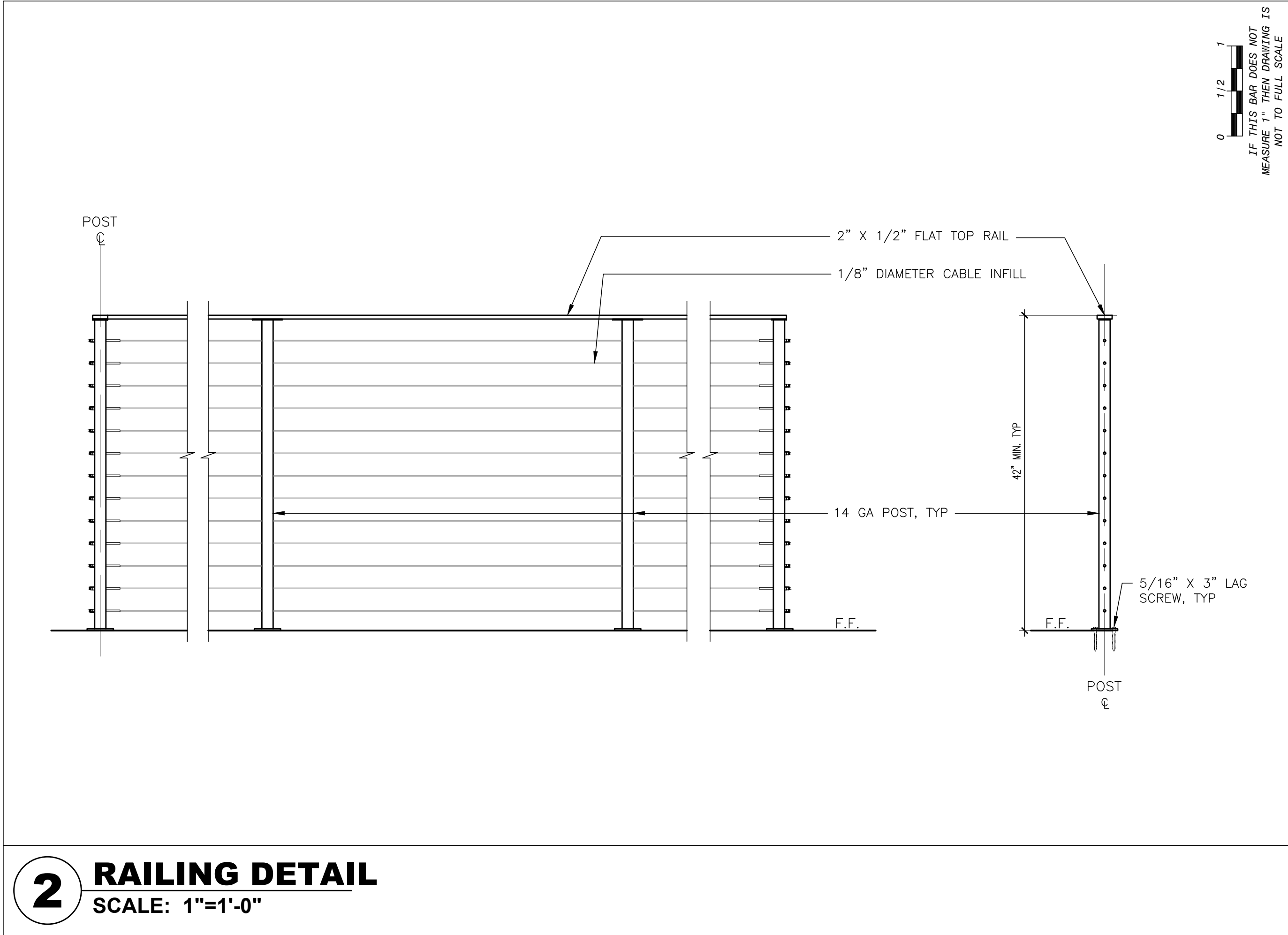
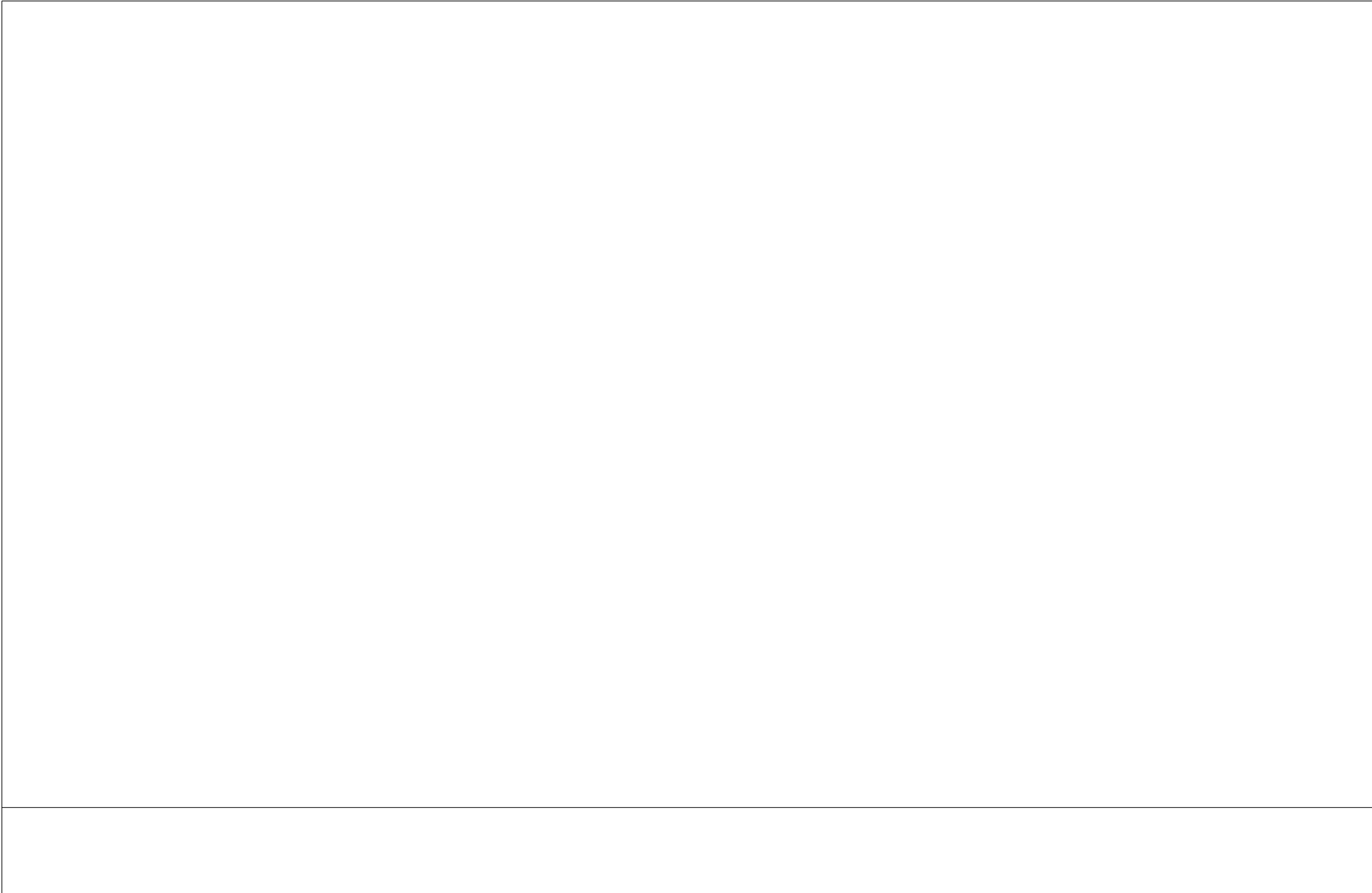
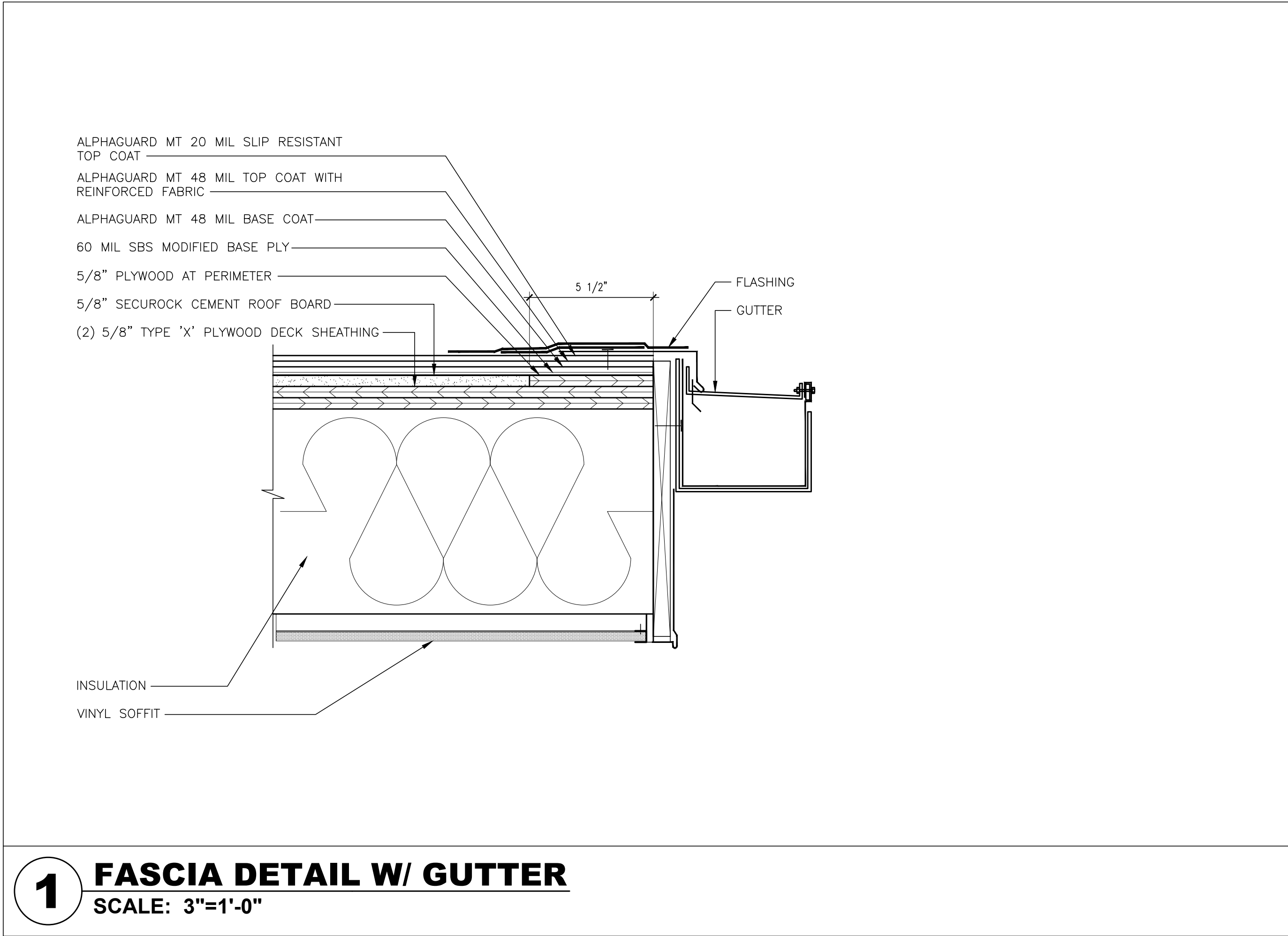
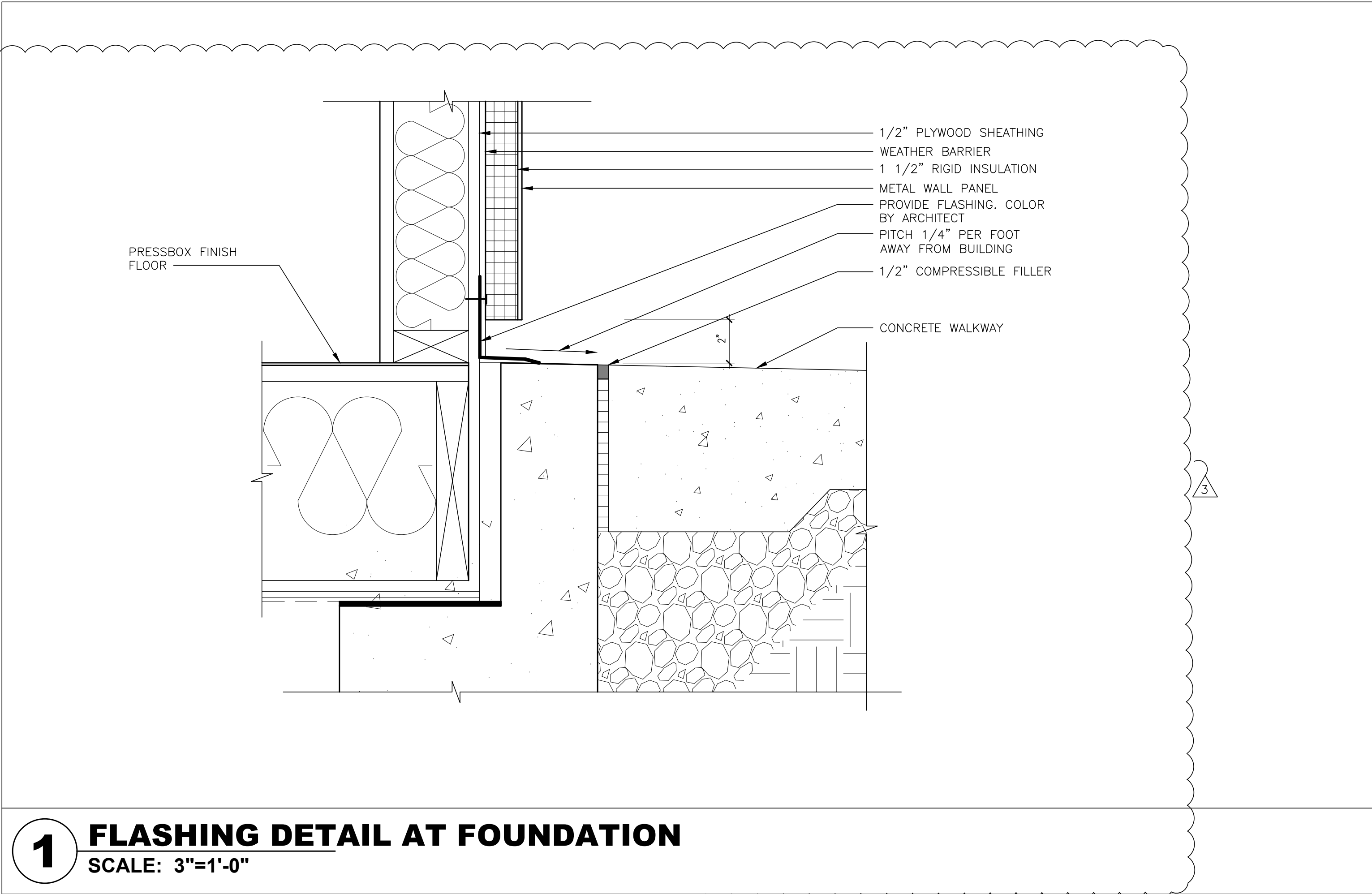
THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 200 WEST 10TH STREET SARASOTA, FL 34236	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200, SUITE 1000 SARASOTA, FL 34236
---	---

NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES HIGH SCHOOL SED# 50-02-01-00-0-00-008 PRESS BOX - SOFTBALL SED# 50-02-01-00-0-00-001 PRESS BOX - BASEBALL SED# 50-02-01-00-0-00-001 140 PARK AVENUE NEW YORK, NY 10014	TOWN OF ROCKLAND COUNTY OF ROCKLAND
--	--

MSA MICHAEL SHILALE ARCHITECTS, L.L.P. 140 Park Avenue New York, NY 10014 Tel 845-708-9200 www.shilale.com

Drawing Title DUGOUTS STRUCTURAL PLAN	Drawing No. S-103
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IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.		Drawn by JJ		Checked by MS/JC		Project No. 43045		Scale AS NOTED		Date 10-08-24	
THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 1000 ROUTE 9W 40 LONG AVE. SARATOGA SPRINGS, NY 12866		Landscape Architect & Civil Engineer:		GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 202, SUFFERN, NY 10901		Structural & P/E Engineer:		1 10-03-24 BIDDING DOCUMENTS		2 10-23-24 BIDDING ADDENDUM 1	
								3 11-01-24 BIDDING ADDENDUM 2		1 10-03-24 BIDDING DOCUMENTS	
										No. Date	
										Revisions	

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Drawing Title

ROOF DETAILS

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-0270
www.shilale.com

A-504

Drawing No.

NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES
HIGH SCHOOL: SD# 90-02-01-06-0-016-036
PRESS BOX - SFTBL: SD# 90-02-01-06-7-000-001
PRESS BOX - INSEBUL: SD# 90-02-01-06-7-001-001
TOWN OF HAVERSHAM
COUNTY OF ROCKLAND
106 Hammond Rd.
Tlaheh, NY 10964

LOCATION	UNIT TAG	GENERAL											INDOOR UNIT							CONDENSING UNIT												
		CAPACITY			EER	SEER	ENT. AIR		REFRIGERANT	REFRIGERANT LBS	REFRIGERANT SAFETY CLASS	TONS	ELECTRICAL DATA				CFM	DRAIN CONNECTION	WEIGHT	MODEL NO.	UNIT TAG	ELECTRICAL DATA				COMPRESSOR		REFRIGERANT LINES		WEIGHT (LBS.)	MODEL NO.	
		TOTAL COOLING MBH	SENSIBLE COOLING MBH	TOTAL HEATING @ 17° F MBH			DB °F	WB °F					VOLTS	PHASE	Hz.	MIN. AMPACITY						VOLTS	PHASE	Hz.	MOCP	MIN. AMPACITY	R.L.A	L.R.A	SUCTION IN			LIQUID IN
SOFTBALL PRESSBOX	AHU - 1	12	9.6	10.6	13.3	21.3	95	75	410A	4.4375	A1	1	208	1	60	1	290	5/8	28	TPKA0A0121LA10A	ACCU-1	208	1	60	28	11	7	12	1/2	1/4	93	TRUZA0121KA70NA
BASEBALL PRESSBOX	AHU - 2	12	9.6	10.6	13.3	21.3	95	75	410A	4.4375	A1	1	208	1	60	1	290	5/8	28	TPKA0A0121LA10A	ACCU-2	208	1	60	28	11	7	12	1/2	1/4	93	TRUZA0121KA70NA
FIELD HOCKEY PRESSBOX	AHU - 3	12	9.6	10.6	13.3	21.3	95	75	410A	4.4375	A1	1	208	1	60	1	290	5/8	28	TPKA0A0121LA10A	ACCU-3	208	1	60	28	11	7	12	1/2	1/4	93	TRUZA0121KA70NA

1. ALL MECHANICAL EQUIPMENT IS TO UTILIZE STAND-ALONE OEM CONTROLS. CONTROLS ARE TO BE INTEGRAL WITH THE EQUIPMENT AND BE EITHER FACTORY OR FIELD INSTALLED, AS REQUIRED.
2. REFER TO SEQUENCE OF OPERATION, SPECIFICATION 230993 FOR MORE INFORMATION.
3. MANUFACTURER TO PROVIDE INTERLOCKING RELAY FOR SUPPLEMENTAL HEATING FOR UNIT HEATERS.

UNIT									COOLING COIL - CHW								HEATING COIL - HW								FILTERS		ELECTRICAL				BASIS OF DESIGN					
TAG	SERVES	SUPPLY				RETURN			EAT		LAT	EWT (°F)	LWT (°F)	GPM	ROWS	TOTAL CAPACITY (MBH)	ROWS	EDB (°F)	LDB (°F)	EWT (°F)	LWT (°F)	GPM	TOTAL CAPACITY (MBH)	FACE VELOCITY (FT/MIN)	EFFICIENCY	V/PH/Hz	FLA	MCA	MAX FUSE (A)	WEIGHT (LBS)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	MANUFACTURER	MODEL	
		TOTAL AIRFLOW	OUTSIDE AIRFLOW (CFM)	ESP/TSP	MOTOR POWER (HP)	TOTAL AIRFLOW	ESP/TSP	MOTOR POWER (HP)	EDB (°F)	EWB (°F)																										LDB (°F)
H-1	CLASSRM / OFFICE	7590	1975	1.25/4.54	8.05	7590	1.25/1.97	8.05	80.2	66.09	56.74	45.0	59.0	35.83	6	232	1	53.28	74.85	180.0	140	8.88	177.59	526	MERV 14	460/3/60	25.22	27.28	35.00	3120	212	72	47.7	TRANE	CSAA014UB	
F-2	AUDITORIUM	12300	4400	1.00/4.32	7.5	10193	1.00/3.64	5	80.36	68.09	61.36	45.0	59.0	46.46	4	300.82	2	49.4	93.18	180.0	140.0	29.19	584.04	376	MERV 14	460/3/60	40.57	43.32	50.00	7988	297	80	29.4	TRANE	CSAA025UB	
B-2	CLASSRM / LABORTORY	6565	1825	3.99/6.60	8.05	6565	0.50/1.04	8.05	80.8	67.7	58.1	45.0	59.0	33.07	6	214.12	1	52.4	75.81	180	140	8.33	166.66	455	MERV 14	460/3/60	25.22	27.28	35.00	3103	212	72	45	TRANE	CSAA014UB	
B-3	CLASSRM / LABORTORY	6170	1900	4.19/7.31	8.05	6170	0.50/1.10	8.05	89.0	74.3	62.9	45.0	59.0	40.12	8	259.79	1	52.4	78.10	180	140	16.74	158.12	463	MERV 14	460/3/60	25.22	27.28	35.00	2943	211	67	45	TRANE	CSAA012UB	

SYSTEM	ROOM	OCCUPANCY CLASSIFICATION	FLOOR AREA SF Az	OCCUPANT LOAD OCCUPANT/ 1,000 SF	# OF OCCUP-ANTS Pz	REQUIRED CFM/ OCCUPANT Rp	REQ. CFM/SF Ra	BREATHING ZONE OUTDOOR AIRFLOW Vbz=RpPz+ RaAz	ZONE DISTRIBUTI ON EFFECTIVE NESS Ez	TOTAL ROOM OUTDOOR AIR REQUIRED Vot=Vbz/Ez	ACTUAL RM OUTSIDE AIR SUPPLY CFM FCFM	REQ. EXHAUST AIRFLOW RATE CFM/SF	REQUIRED EXHAUST AIRFLOW CFM	ACTUAL EXHAUST AIRFLOW CFM
H1	108	CLASSROOM	1080	35	38	10	0.12	508	0.8	635	650	-	-	-
	109	CLASSROOM	1075	35	38	10	0.12	505	0.8	632	650	-	-	-
	110	CLASSROOM	845	35	30	10	0.12	397	0.8	496	500	-	-	-
	110A	OFFICE	430	5	2	5	0.06	37	0.8	46	50	-	-	-
	110B	CONFERENCE RM	300	50	15	5	0.06	93	0.8	116	125	-	-	-
B2	308	CLASSROOM	950	35	33	10	0.12	444	0.8	555	575	-	-	-
	310	CLASSROOM	895	35	31	10	0.12	417	0.8	522	525	-	-	-
	311	CLASSROOM	1020	35	36	10	0.12	482	0.8	603	625	-	-	-
	CORRIDOR (BETWEEN 311&309)	CORRIDOR	475	-	-	-	0.06	29	0.8	36	50	-	-	-
	CORRIDOR (BETWEEN 309/308&307/306)	CORRIDOR	640	-	-	-	0.06	38	0.8	48	50	-	-	-
B3	307	CLASSROOM	1040	35	36	10	0.12	485	0.8	606	625	-	-	-
	306	CLASSROOM	1055	35	37	10	0.12	497	0.8	621	625	-	-	-
	309	CLASSROOM	930	35	33	10	0.12	442	0.8	552	575	-	-	-
	CORRIDOR (BETWEEN 307& 305A)	CORRIDOR	775	-	-	-	0.06	47	0.8	58	75	-	-	-
F2	AUDITORIUM (1/3)	AUDITORIUM	4300	150	645	5	0.06	3483	0.8	4354	4400	-	-	-

F-2 RTU ENERGY RECOVERY WHEEL SCHEDULE									
FAN	RECOVERED CAPACITY		MIXED AIR LAT			EFFECTIVENESS			
OUTSIDE AIRFLOW (CFM)	COOLING (MBH)	HEATING (MBH)	COOLING DB (°F)	HEATING DB (°F)	WHEELAPD (INH2O)	TOTAL COOLING	SENSIBLE COOLING	TOTAL HEATING	SENSIBLE HEATING
4400	156.87	306.35	76.7	64.6	0.70	63.40%	65.50%	64.30%	65.50%

ELECTRIC INFRARED HEATER SCHEDULE								
UNIT	CAPACITY KW		VOLTS		REFLECTOR PATTERN	MANUFACTURE AND MODEL NUMBER		
IH-1	3.2		480	3 PH	60 DEGREE	MARKEL	222-A60-THSS-480V	

1. SEE ELECTRICAL DRAWINGS FOR NUMBER OF HEATERS AND MOUNTING LOCATIONS

UNIT HEATER SCHEDULE																	
TAG	SERVES	MODEL NUMBER	MANUFACTURER	POWER (KW)	DIMENSIONS			HEATING CAPACITY (BTU)	VOLTAGE (VOLTS)	PHASE	CURRENT (AMPS)	CONTROL VOLTAGE	TEMPERATURE RISE (°F)	AIR THROW (FEET)	AIRFLOW (CFM)	MOUNTING HEIGHT (FEET)	WEIGHT (LBS)
					HEIGHT (INCH)	WIDTH (INCH)	DEPTH (INCH)										
UH-1	SOFTBALL PRESSBOX	F2FUH05C03	MARKEL	5	17.75"	14.47"	6.5"	17100	208	1 OR 3	24.1 / 14.0	208	40	26	400	9	44
UH-2	BASEBALL PRESSBOX	F2FUH05C03	MARKEL	5	17.75"	14.47"	6.5"	17100	208	1 OR 3	24.1 / 14.0	208	40	26	400	9	44
UH-3	FIELD HOCKEY PRESSBOX	F2FUH05C03	MARKEL	5	17.75"	14.47"	6.5"	17100	208	1 OR 3	24.1 / 14.0	208	40	26	400	9	44

3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS
No.	Date	Revisions

Drawn by	MC
Checked by	WM
Project No.	43045
Scale	AS NOTED
Date	10/03/24

Landscape Architect & Civil Engineer:	THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 40 LONG ALEXY SARATOGA SPRINGS, NY 12066
Structural & PME Engineer:	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 202, SUFFERN, NY 10901

**NORTH ROCKLAND
HIGH SCHOOL
FIELDS - PHASE 2 &
HVAC UPGRADES**

HIGH SCHOOL: SDW 90-02-01-06-0-010-038
PRESS BOX - SOFTBALL: SDW 90-02-01-06-7-030-001
PRESS BOX - BASEBALL: SDW 90-02-01-06-7-001-001

100 Hammond Rd.
Thiells, NY 10984

TOWN OF HAVESWORTH
COUNTY OF ROCKLAND

HSA

MICHAEL SHILALE ARCHITECTS, L.L.P.

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Drawing Title
**MECHANICAL
SCHEDULES**

Drawing No.
M-002

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① INSTALL AND CONNECT NEW ROOF TOP UNIT TO EXISTING DUCTWORK AND PIPING. THERE SHALL BE NO NEW ROOF PENETRATIONS. PROVIDE AN ADAPTER ROOF CURB & FACTORY ASSEMBLED PIPE CHASE CURB AND CABINET FOR UNIT. SEE AIR HANDLING UNITS SCHEDULE ON DRAWING M-002 FOR REQUIRED AIRFLOW RATINGS.

1. FOR ADDITIONAL INFORMATION AND SPECIFICS REGARDING AIR HANDLING UNIT INSTALLATION, SEE THE AIR HANDLING UNIT SPECIFICATION AND MANUFACTURER'S INSTALLATION MANUAL. PROVIDE EXTRA PARTS AS DEPICTED IN THE SPECIFICATION.

2. INSTALL DUCT SMOKE DETECTORS FOR THE NEW AIR HANDLING UNITS TO COMPLY TO CODE. EXISTING DUCT SMOKE DETECTORS ON SUPPLY SIDE TO BE REPLACED WITH NEW. NEW DUCT SMOKE DETECTORS SHALL BE INSTALLED ON A STRAIGHT DUCT ON THE RETURN SIDE. NEW SMOKE DETECTORS SHALL BE CONNECTED TO THE EXISTING FIRE ALARM CONTROL PANEL. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.

3. PROVIDE ROOFTOP UNITS BALANCING STARTUP REPORT TO ENGINEER FOR REVIEW AND APPROVAL.

4. THE CONTRACTOR IS RESPONSIBLE FOR RIGGING THE UNITS. CONTRACTOR SHALL INSTALL UNITS WITH PROPER LIFTS AND EQUIPMENT IN A SAFE WORKMAN-LIKE MANNER. CONTRACTOR IS RESPONSIBLE TO PULL PERMITS RELATED TO RIGGING AND INSTALLING THE UNITS.

5. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTRUCTIONS TO ENSURE ALL INSTALLATION CLEARANCES ARE MET AND THAT THE UNIT IS INSTALLED AS PER LATEST NYS MECHANICAL CODE.

6. PROVIDE AN ALLOWANCE FOR DUCT CLEANING THE EXISTING DUCTWORK.

7. PROVIDE ADEQUATE MEANS FOR CONDENSATE DISPOSAL FOR EACH UNIT,
SEE DETAILS ON M-501.

8. SEE ADDENDUM NOTES ON M-001



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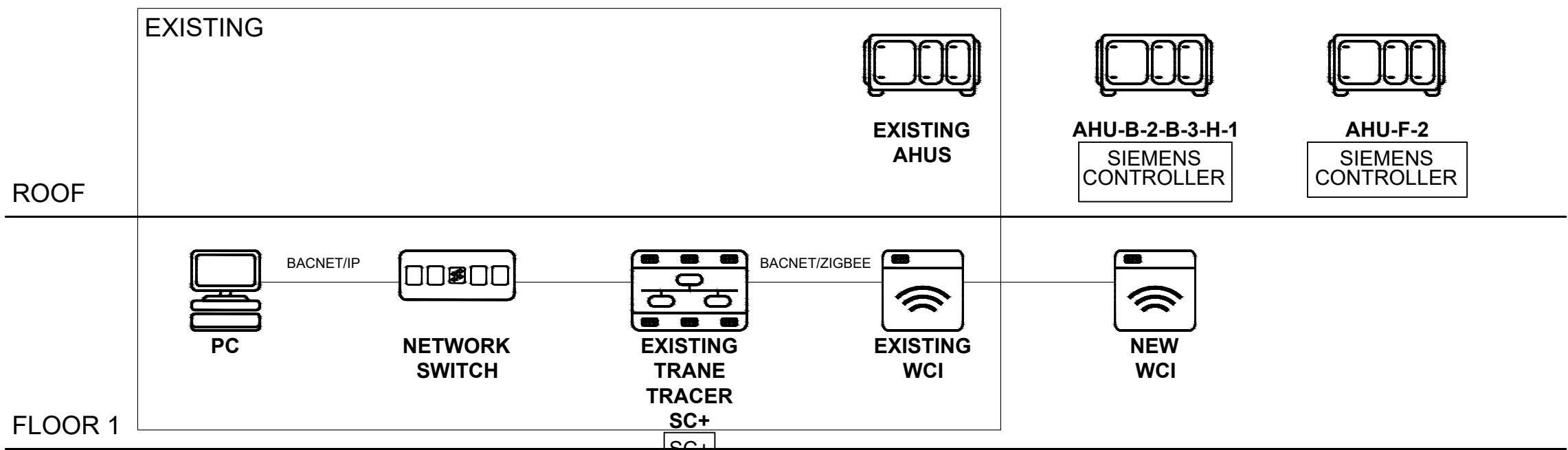


M-105

43045
Scale
AS NOTED
Date

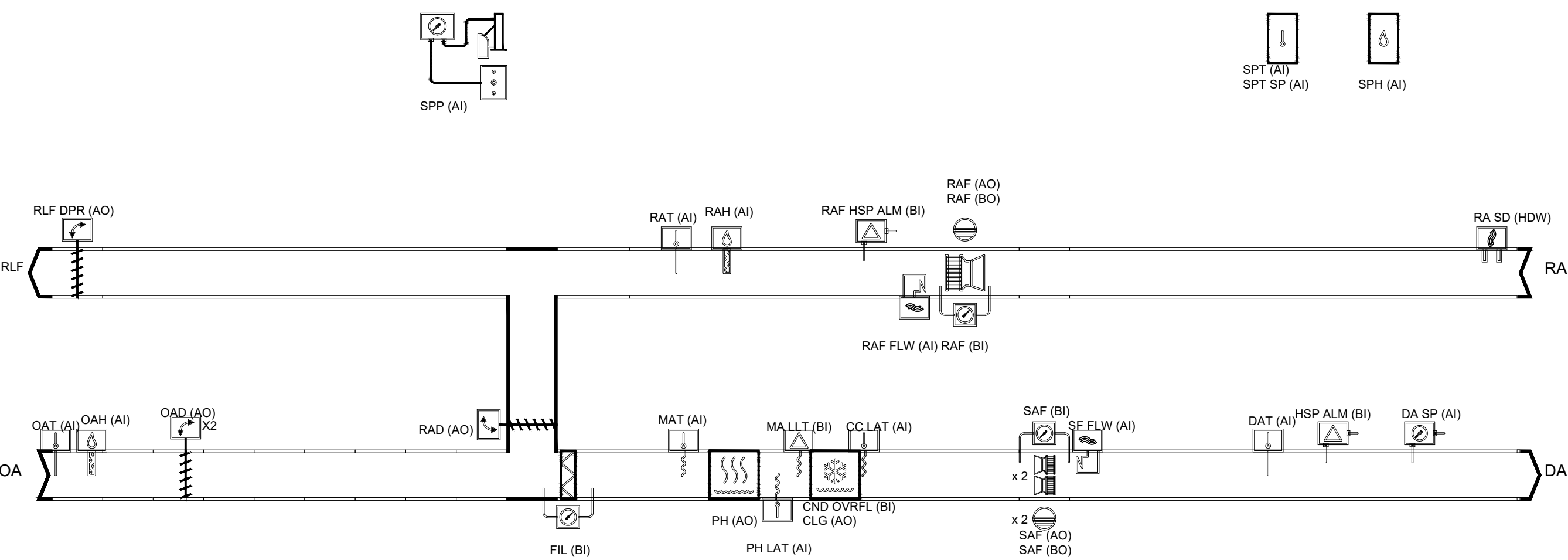
HIGH SCHOOL: SED# 50-02-01-06-0-016-038
PRESS BOX - SOFTBALL: SED# 50-02-01-06-7-080-001
PRESS BOX - BASEBALL: SED# 50-02-01-06-7-091-001

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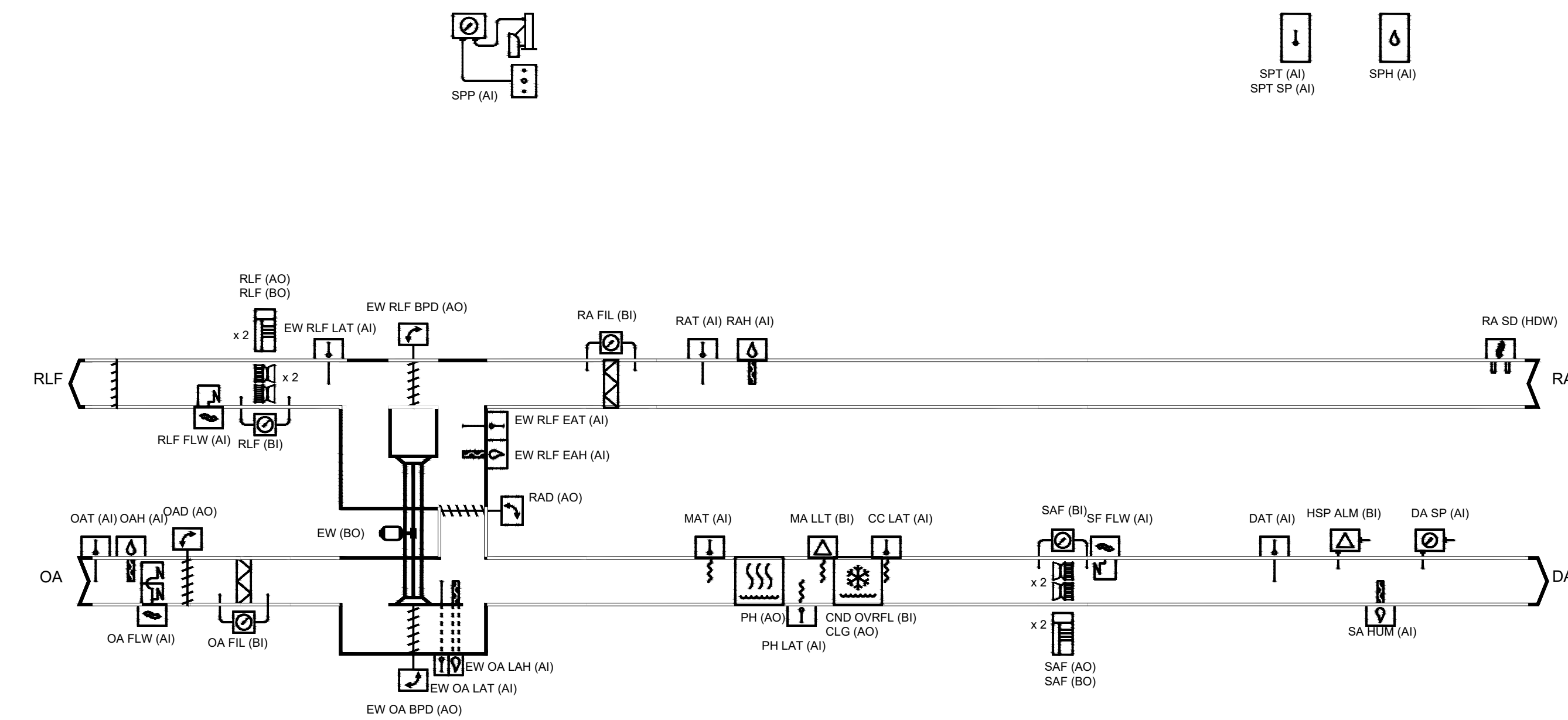
1 CONTROL DIAGRAM

SCALE: NONE



2 FLOW DIAGRAM FOR RTU B-2, B-3 AND H-2

SCALE: NONE



3 FLOW DIAGRAM FOR RTU F-2

SCALE: NONE

NOTES:

- DESIGN SHOWS OUTDOOR AIR TEMPERATURE AND HUMIDITY SENSOR AT EACH UNIT. GLOBAL OUTDOOR AIR TEMPERATURE HUMIDITY SENSOR VIA NETWORK ALSO ACCEPTABLE.
- ALTERNATE: AIRFLOW MEASURING STATIONS REMOVED.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
3	11/01/24	BIDDING ADDENDUM2
2	10/03/24	REV2 BIDDING ADDENDUM1
1	09/17/24	BIDDING DOCUMENTS

Drawn by	
Checked by	
Project No.	43045
Scale	AS NOTED
Date	10/03/24

THE LA GROUP LANDSCAPE ARCHITECTURE & ENGINEERING 100 WEST 17TH STREET SAVANNAH, GEORGIA 31401	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200, SUFFERN, NY 10901
Landscape Architect & Civil Engineer	Structural & P&E Engineer

NORTH ROCKLAND HIGH SCHOOL FIELDS - PHASE 2 & HVAC UPGRADES	HIGH SCHOOL: SD# 50-02-01-00-0-006-008 PRESS BOX - FOOTBALL: SD# 50-00-01-00-7-000-001 PRESS BOX - BASEBALL: SD# 50-00-01-00-7-001-001
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CONTROL DIAGRAMS - 1	M-401
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