
A D D E N D U M N O . 2

**ATHLETIC FACILITIES RENOVATION
PROJECT**

DERBY HIGH SCHOOL

Derby, CT

KBA #17015.00 |CITY PROJECT NO. COD-02 REBID

Date: May 30, 2018

Page: 1 of 1

The following changes to the Project Manual shall become a part of the Drawings, Specifications, Bidding Requirements and Contract Documents; superseding previously issued Drawings, Specifications, Bidding Requirements, Contract Documents and Addenda, to the extent modified by this Addendum.

CLARIFICATIONS

Bid Package and contractual requirements for “Synthetic Grass and Running Track Surfacing, City Project COD 2018-02” bid. Refer Athletic Facilities Renovation Project specification Section 01 10 00 – Summary section 1.10 and accompanying bid form.

CHANGES TO SPECIFICATIONS

None

CHANGES TO DRAWINGS

None

BIDDER QUESTIONS:

None

ATTACHMENTS (PDF Form)

1. Synthetic Grass and Running Track Surfacing, City Project COD 2018-02 Project manual dated 02/28/2018, 173 pages.
2. Athletic Materials and Installation Derby High School COD 2018-02 Drawing Set dated 02/28/2018: (7) 24x36 Pages
3. Astroturf Bid Package for Synthetic Grass and Running Track Surfacing, City Project COD 2018-02 dated 03/16/2018, 9 pages.
4. Addenda #1 - Synthetic Grass and Running Track Surfacing, City Project COD 2018-02 dated 03/09/2018, 45 pages
5. Synthetic Grass and Running Track Surfacing, City Project COD 2018-02 Project manual dated 03/16/2018, 2 pages

Specifications:

None

END OF ADDENDA #2

FORM OF PROPOSAL

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR
THE ATHLETIC FACILITIES RENOVATION PROJECT &
THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD
DERBY HIGH SCHOOL
DERBY, CT
CITY PROJECT NO. COD 2018-02**

**TO: Salvatore Coppola, Finance Director
Finance Office
Derby City Hall
1 Elizabeth Street
Derby, CT 06418**

Pursuant to and in compliance with your "Invitation to Bid" relating thereto, the undersigned,

ASTROTurf Corporation
(Name of Firm)

having visited the site and carefully examined the Drawings, Bidding Documents and complete Specifications dated February 28, 2018 together with all Addenda issued and received prior to scheduled closing time for recipient of Bids as prepared by the Architects, KAESTLE BOOS ASSOCIATES, INC., 416 Slater Road, New Britain, Connecticut, hereby offers and agrees as follows:

To provide all labor, materials, and all else whatsoever necessary to erect and properly finish all work in connection with the

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR
THE ATHLETIC FACILITIES RENOVATION PROJECT &
THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD
at
DERBY HIGH SCHOOL
DERBY, CT**

to the satisfaction of the Architect and Owner for the sum of:

J.R. Payden Field House & Payden Baseball Field (non-prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

Six hundred twenty thousand three hundred ninety four (\$620,394.00)

Synthetic Grass Landscape Surfacing System

Twenty thousand four hundred fourteen (\$20,414.00)

Derby High School Athletic Facility Renovations COD 2018-02 (prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

SIX HUNDRED FIFTEEN THOUSAND NINE HUNDRED EIGHT (\$15,908.⁰⁰)

Running Track Surfacing System

TWO HUNDRED THIRTY EIGHT FIVE HUNDRED THREE (\$238,503.⁰⁰)

TOTAL BID

ONE MILLION FOUR HUNDRED NINETY FIVE THOUSAND TWO HUNDRED NINETEEN (\$1,495,219.⁰⁰)

to provide all labor, materials, and all else whatsoever necessary to construct all improvements described in the specifications.

If awarded this Contract, we will execute a Contract with the **General Contractors** award the various projects based on the lowest qualified total bid price.

UNIT PRICES

Not Applicable

ALTERNATES

Not Applicable

CONTRACT TIME

The undersigned Bidder hereby certifies that Substantial Completion and Final Completion will be achieved in accordance with the time designated in the General Conditions of the Contract for Construction.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum No. # 1

Dated MARCH 9, 2018

Addendum No. # 2

Dated MARCH 16, 2018

Addendum No. # _____

Dated _____

ATTACHMENTS

1. Non-Collusion Affidavit
2. Bid Submittals as required under Specification Section 32 18 13 "Synthetic Grass Surfacing", 1.5 "Submittals", A. "Bid Submittals"

SIGNATURE



ASTROTURF CORPORATION
Contractor Firm

[Signature]
Authorized Signature

TODD RUSH, AUTHORIZED SIGNER
Printed Name and Title

21680 ABUTMENT RD, SE
Business Address

DALTON, GA 30721
City and State

706-979-1384
Telephone Number

412-252-2711
Telephone Fax Number

NON-COLLUSION AFFIDAVIT

CITY PROJECT NO. COD 2018-02

State of PENNSYLVANIA)
County of ALLEGHENY) ss.

TODD RUSH, being first duly sworn, deposes
and says that:

(1) He is (~~owner, partner, officer~~, representative or agent) of ASTROTURF CORPORATION, the Bidder that has submitted the attached bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid,

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from Bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest including this affiant.

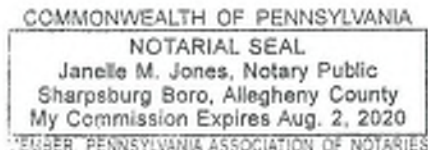
(Signed) Todd Rush
AUTHORIZED SIGNER
(Title)



Subscribed and sworn to before me
this 16th day of MARCH, 2018.

Janelle M. Jones
(Notary Public)

My commission expires August 2, 2020.



CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: ASTROTurf CORPORATION

Address and Zip Code: 2680 ABUTMENT ROAD, SE
DALTON, GA 30721

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes ☐ No ☒ (If answer is yes, identify the most recent contract.)
2. Compliance reports were required to be filed in connection with such contract or subcontract.
Yes ☐ No ☒ (If answer is yes, identify the most recent contract.)
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
Yes ☐ No ☐ None Required ☒
4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

The item required of AstroTurf Corporation

Certification - The information above is true and complete to the best of my knowledge and belief.

TODD RUSH, AUTHORIZED SIGNER
Name and Title of Signer (Please Type)

Todd Rush
Signature

MARCH 16, 2018
Date

DERBY HIGH SCHOOL
DERBY, CT

SYNTHETIC GRASS AND TRACK SURFACING MATERIAL
KBA #17015.00/17015.01

CERTIFICATION OF SUBCONTRACTOR REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

ASTROTURF CORPORATION
Name of Prime Contractor

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the Owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION
Subcontractor's Name: ATT Sports, Inc
Address and Zip Code: 115 B Grass Keys Road
Derlin NJ 08009

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes ☒ No ☐
2. Compliance reports were required to be filed in connection with such contract or subcontract.
Yes ☒ No ☐
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
Yes ☒ No ☐ None Required ☐
4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Darren Anderson, Chief Estimator
Name and Title of Signer (Please Type)
[Signature] 3-16-18
Signature Date

CERTIFICATION OF SUBCONTRACTOR REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

AstroTurf Corporation
Name of Prime Contractor

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the Owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: Patterson-Starcher Sports Turf LLC
Address and Zip Code: 458 Buckeye Trail
Chillicothe, Oh. 45601

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes ☐ No ☒
2. Compliance reports were required to be filed in connection with such contract or subcontract.
Yes ☐ No ☒
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
Yes ☐ No ☐ None Required ☒
4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Randy L. Patterson- owner
Name and Title of Signer (Please Type)

Signature
March 16, 2018
Date



The first name in turf  ...and all that's around it.

March 16, 2018

**SYNTHETIC TURF AND RUNNING TRACK SURFACING
FOR DERBY HIGH SCHOOL
ATHLETIC FACILITIES RENOVATION PROJECTS**

RE: Specification Section 32 18 13 "Synthetic Grass Surfacing", 1.5 "Submittals, A. "Bid Submittals

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms their intent conform to all requirements set forth in the Bid Documents for the Synthetic Grass Surfacing System and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms that the Bid Documents for the Synthetic Grass Surfacing System have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the synthetic grass field surfacing are proper and adequate for the applications shown and in no way impact the system warranty.

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms their intent to conform to all requirements set forth in the Bid Documents for Drainage Pad and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.

AstroTurf Corporation has reviewed the Drawings, Bid Submittals and Addendums for SYNTHETIC TURF AND RUNNING TRACK SURFACING FOR DERBY HIGH SCHOOL ATHLETIC FACILITIES RENOVATION PROJECTS and confirms that the Bid Documents for the Drainage Pad have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the Drainage Pad are proper and adequate for the applications shown and in no way impact the system warranty.

Thank you,



Todd Rush
Authorized Signer
AstroTurf Corporation



The first name in turf  ...and all that's around it.

March 16, 2018

**SYNTHETIC TURF AND RUNNING TRACK SURFACING
FOR DERBY HIGH SCHOOL
ATHLETIC FACILITIES RENOVATION PROJECTS**

RE: Company Information

Principals:

- **W. Heard Smith, COO**
26 Abutment Road, SE
Dalton, GA 30721
- **Troy Squires, President**
26 Abutment Road, SE
Dalton, GA 30721
- **Robert Carey, Secretary**
26 Abutment Road, SE
Dalton, GA 30721

Firm:

Name: AstroTurf Corporation

Treasury Number: 81-2479849

Address: 26 Abutment Road, SE
Dalton, GA 30721

Phone Number: 706-979-1384

Fax Number: 412-252-2711

Email Address: trush@astroturf.com

A D D E N D U M N O . 1

SYNTHETIC GRASS AND RUNNING TRACK SURFACING DERBY HIGH SCHOOL

Derby, CT

KBA #17015.00 |CITY PROJECT NO. COD 2018-02

Date: March 9, 2018

Page: 1 of 3

The following changes to the Project Manual shall become a part of the Drawings, Specifications, Bidding Requirements and Contract Documents; superseding previously issued Drawings, Specifications, Bidding Requirements, Contract Documents and Addenda, to the extent modified by this Addendum.

CLARIFICATIONS

PRE-BID DATE CHANGED TO: WEDNESDAY MARCH 14, 2018, time remains the same. *The pre-bid is for General Contractors bidding the overall project, but the turf and track manufacturers bidding may attend.*

BID DUE DATE: 10:00 am MONDAY, MARCH 19, 2018 at Kaestle Boos Associates, 416 Slater Road, New Britain, CT 06050 *(General Contractor bids for the overall project are due Monday April 02, 2018 – Addendum No. 1, previously March 30, 2018)*

QUESTIONS

Q: Is the turf vendor expected to carry the costs for the track surface construction, or will that come under a separate award?

A: Bids are to include the synthetic turf surfacing and the track material surfacing, failure to include both will result in rejection of the bid. The General Contractor awarded the project will be responsible for contracting with the selected material bidder.

Q: Can you further describe the "coated infill" to be used? Is this a comparable product to Cushionfall (2 step process)?

A: The coated infill shall meet the requirements set forth in Section 32 18 13 'Synthetic Grass Surfacing', 1.8 'Quality Control Testing, 1.10 'Warranty', C. Synthetic Grass Infill Warranty, and 2.1 'Materials', F. 'Infill' as well as warranty and testing requirement.

Q: Can you point out the Plan Sheets pertaining to the landscape turf?

A: Please see Sheet SF 1.01, attached

Q: Is there a bid bond required and if so, what amount?

A: A Bid Bond is not required. A performance bond may be required by the General Contractor, but should not be included in this bid.

Q: The mock up test 15 x 15 is for drainage base and pad. Section 32 19 13 page 10 - f(1) - my question is, does the turf contractor supply the base contractor with the pad to perform the test on the mock up?

A: Material suppliers shall supply the General Contractor will all material necessary to complete testing as outlined in Section 32 19 13.

A D D E N D U M N O . 1

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING
DERBY HIGH SCHOOL**

Derby, CT

KBA #17015.00 | CITY PROJECT NO. COD 2018-02

Date: March 9, 2018

Page: 2 of 3

Q: Is another test performed on the Mock up with turf on it? Is that test by turf contractor?

A: No, a mock up test is not performed on-site with the drainage pad and turf installed. The system mock up is performed in the laboratory under Section 32 18 13, 1.8 'Quality control', E. 'Post Manufacturing/Pre-Installation Testing (Sports Fields and Landscape)'. This testing shall be performed and approved prior to shipment to the General Contractor on-site.

Q: Is the testing for infiltration (1 test per 25,000 sf) done by the base contractor on the base? with the pad? Or both?

A: The infiltration testing will be conducted on each layer of the stone base and on the pad by the General Contractor.

Q: The pad must be deployed alongside the turf. To avoid wind damage and creeping. If you need suck tests on the base with the pad, you might have to drag around a 10 x 10 piece of pad?

A: Quality control testing is the responsibility of the General Contractor. They shall coordinate testing as necessary during construction on the install materials. Dragging around a 10 x 10 piece of pad is not acceptable.

Q: As I understand "red" color track coating is desired, please confirm.

A: Track is to be RED.

Q: I do not see a schedule for synthetic turf installation at BB field. Only seed. Please clarify.

A: Please refer to Specification Section 'General Conditions', 'Project Schedule' on page 3, under 'J.R. Payden Field House and Payden Baseball Field Project'.

Q: Is there a basis of design for the pad? For the turf? If not, how close do we have to be to the performance criteria?

A: The intent of the performance-based specification is to allow competitive bidding of manufactures standard materials that closely meets the requirements of the specifications. Material criteria outlined in the specification is the basis of design with material tolerances as specified in the 'Quality Control Testing'.

Q: Is SBR coated rubber infill color have to match the turf color? Brown & Green? This will be near impossible as the rubber is broadcast with a spreader. (spec 32 18 13 F (b) 2(a))

A; The Owner has agreed to one color infill, GREEN, for the entire project.

Q: The products specified appear to be Non-Standard-Products and our testing will be greater than 1 year old.

A: Section 32 18 13 'Synthetic Grass Surfacing', 1.8 'QUALITY CONTROL TESTING', D. 'D. Pre-Manufacturing Testing' is for the individual components of the system, not testing on the system as manufactured, except for EN 13672, which should be for the standard product that most closely meets the specification. The system as manufactured is tested under E. 'Post Manufacturing/Pre-Installation Testing'

A D D E N D U M N O . 1

SYNTHETIC GRASS AND RUNNING TRACK SURFACING DERBY HIGH SCHOOL

Derby, CT

KBA #17015.00 | CITY PROJECT NO. COD 2018-02

Date: March 9, 2018

Page: 3 of 3

CHANGES TO SPECIFICATIONS

BIDDING AND CONTRACT REQUIREMENTS

INVITATION TO BID

Paragraph 2

Pre-Bid Walkthrough Date **changed** from Thursday, March 08, 2018 to: **WEDNESDAY, MARCH 14, 2018**, time remains the same.

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 32 18 13 “Synthetic Grass and Track Surfacing”

Replace the following Section Part 2 – PRODUCTS, 2.1 ‘MATERIALS’, F. ‘Infill’, 1.b.2)a) ‘Coating Color: GREEN’

Section 32 18 23.31 “Polyurethane Running Track Surfacing-Structural Spray”

Replace the following Section Part 2 – PRODUCTS, 2.1 ‘GENERAL’, D. 1. ‘Top Color: **RED** (Final color to be approved by Architect based on manufacturers standard palette)

Replace the following Section Part 2 – PRODUCTS, 2.2 ‘MATERIALS’, B. 1. ‘EPDM colored virgin rubber granules that are processed and graded to 0.5 – 1.5 mm in size unless otherwise specified. The rubber shall contain a minimum of 20% EPDM and be approved by the resin manufacturer. The specific density shall be 1.60 +/- 0.08 and Shore A hardness of 60. Color coat shall be **RED** in color.’

CHANGES TO DRAWINGS

SF1.01 SITE LAYOUT AND MATERIALS PLAN

Add Sheet SF1.01 ‘Site Layout and Materials Plan’

ATTACHMENTS

Drawings:

SF1.01 Site Layout and Materials Plan

Specifications:

Section 32 18 13 “Synthetic Grass and Track Surfacing” dated March 9, 2018 – Addendum No. 1.

Section 32 18 23.31 “Polyurethane Running Track Surfacing-Structural Spray dated March 9, 2018 – Addendum No. 1

Peter de Bretteville
Architect

Architect
Peter de Bretteville Architect
146 Deepwood Drive
Hamden, Connecticut
06517
t: 203-498-2104

Structural, Mechanical, Electrical, Plumbing Engineers
IES Innovative Engineering Services
33 North Plains Industrial Road
Wallingford, Connecticut
06492
t: 203-476-4370

Civil, Landscape, & Geotech Engineers
Langan Engineering
555 Long Wharf Drive
New Haven, Connecticut
06511
t: 203-562-5771

Landscape Architect for Baseball Field
Kaestle Boos Associates, Inc. Architects
416 Slater Road
P.O. Box 2590
New Britain, Connecticut 06050
t: 860-229-0361

Code Consultant
Philip R. Sherman, P.E.
P.O. Box 216
444 Wilnot Center Road
Elkins, NH 03233-0216
t: 603-526-6190

Revisions	
8/15/17	100% Schematic Design
9/26/17	100% Design Development
11/17/17	Value Engineering Pricing Set
12/14/17	75% Construction Documents
1/26/18	100% Construction Documents
2/16/18	Bid Documents

NOT FOR CONSTRUCTION
© Peter de Bretteville Architect

Sheet Name
SITE LAYOUT AND MATERIALS PLAN

Issue
Bid Documents

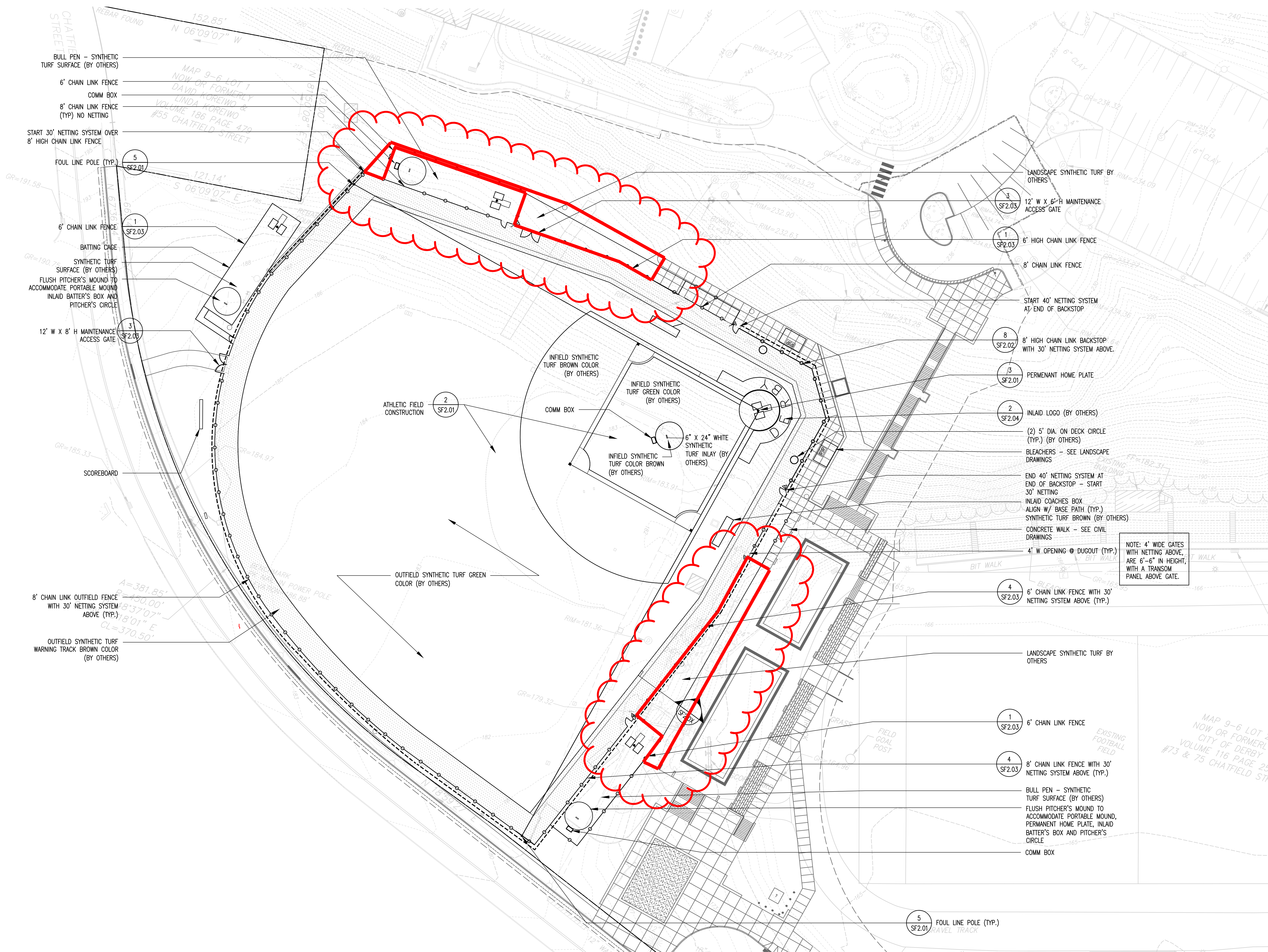
Scale
1" = 30'-0"

Date

Drawn by
JAD

Sheet Number

SF1.01



SECTION 32 18 13 – SYNTHETIC GRASS SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”
- B. Specification Section 32 18 13.10 Synthetic Grass Surfacing Warranty.

1.2 SUMMARY

- A. Section includes:
 - 1. Procurement and installation of synthetic grass surfacing.
 - 2. Procurement and installation of sand and coated rubber infill.
 - 3. Procumbent and installation of Drainage Pad.
 - 4. Pre and post installation testing of synthetic grass system.
 - 5. Warranty and maintenance requirements for the synthetic grass system.
 - 6. All incidental work items required to complete the work as shown on the Drawings and as called-for in the Specifications.
- B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work. Carefully examine all of the Contract Documents for requirements which affect the work of this Section. The exact scope of work of this section cannot be determined without a thorough review of all Specification Sections and other Contract Documents.
- C. In all cases when conflicts exist between information contained in this Section and in other parts of the Contract Documents, Contractor shall assume that the more stringent and highest-performing solution is required.
- D. Contractor is responsible for all health and safety .

1.3 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. American Society for Testing and Materials (ASTM)

1. ASTM D 789 - Yarn Melting Point
 2. ASTM D 1335 - Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
 3. ASTM D 1577 - Standard Test Methods for Linear Density of Textile Fibers (Fiber Denier)
 4. ASTM D5034 – Standard Testing Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
 5. ASTM D5035 – Standard Testing Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
 6. ASTM D 2256 - Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method (Breaking Strength and Elongation)
 7. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials (Flammability)
 8. ASTM D 3218 – Standard Test for Fiber Thickness (Microns)
 9. ASTM D422 Particle-Size Analysis
 10. ASTM D 4491 - Water Permeability of Geotextiles by Permittivity.
 11. ASTM F 355 - Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials.
 12. ASTM F 1551 - Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials (for those not covered above)
 13. ASTM F 1632 - Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Rootzone Mixes
 14. ASTM F 1936 - Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
 15. ASTM F2157 - Standard Test Method for Base Material Evenness
 16. ASTM F 2765 - Standard Specification for Total Lead Content in Synthetic Grass Fibers.
- C. National Federation of State High Schools (NFHS)
- D. National Collegiate Athletic Association (NCAA)
- E. Synthetic Turf Council Guidelines (STC)
- F. Connecticut Interscholastic Athletic Conference (CICA)
- G. Massachusetts Interscholastic Athletic Association (MIAA)

- H. Rhode Island Interscholastic Athletic Administrators Association (RIIAAA)
- I. American Sports Builders Association (ASBA)

1.4 DEFINITIONS

- A. Most terms used within the documents are industry standard. Certain words or phrases shall be understood to have specific meanings as follows:
 - 1. Provide: Furnish and install completely connected up and in operable condition.
 - 2. Furnish: Purchase and deliver to a specific location within the building or site.
 - 3. Install: With respect to equipment furnished by others, install means to receive, unpack, move into position, mount and connect, including removal of packaging materials.

1.5 SUBMITTALS

- A. Bid Submittals
 - 1. Non-compliance with the bid submittal requirements as specified herein may result in rejection of the bid.
 - 2. The following letters, on the synthetic grass surfacing manufacturer/vendor's letterhead and signed by an officer of the company, shall be submitted with the bid.
 - a. A letter shall confirm their intent to conform to all requirements set forth in the Bid Documents for the Synthetic Grass Surfacing System and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - b. Manufacturer's Review of Synthetic Grass Surfacing: A letter confirming that the Bid Documents for the Synthetic Grass Surfacing System have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the synthetic grass field surfacing are proper and adequate for the applications shown and in no way impact the system warranty.
 - 3. The following letters, on the Drainage Pad manufacturer/vendor's letterhead and signed by an officer of the company, shall be submitted with the bid.
 - a. A letter shall confirm their intent to conform to all requirements set forth in the Bid Documents for Drainage Pad and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - b. Manufacturer's Review of Synthetic Grass Surfacing: A letter confirming that the Bid Documents for the Drainage Pad have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that

the materials and system to be used for the Drainage Pad are proper and adequate for the applications shown and in no way impact the system warranty.

B. Pre-Manufacturing Submittals

1. Product Data: Submit manufacturer's general specifications and installation instructions for all products in the Synthetic Grass Surfacing System, including certifications and other data as may be required, to show compliance with the Contract Documents.
 - a. Material Safety Data Sheets (MSDS) sheets for all products and product components, as necessary. This shall include solvents and other products required as part of clean-up.
 - b. Certified Statement of the presences of toxic and or hazardous materials. Any toxic and/or hazardous material exceeding 100 parts per million (ppm) shall be identified in list form. The list shall reference the standard in name and threshold if applicable, and the test results. This requirement is above and beyond the requirements for MSDS.
 - c. Submit manufacturer's product data for the Drainage Pad demonstrating compliance with this specification. Include manufacturer's written instructions and procedures for each product.
2. Material Testing: Submit for approval test results for all material testing performed under "Quality Control Testing, Pre-Manufacturing" herein. Provide copies of all Testing Agency reports. Testing shall be no more than 12 months old from date of submittal.
3. Material Samples: Submit three (3) samples, with required testing data, for approval for all materials under 2.1 Materials including, but not limited to, the following:
 - a. Synthetic Grass Surfacing Fiber Samples for each color used for the field, markings, and logos.
 - b. Synthetic Grass Surfacing Fiber Samples for each fiber used in the playscape synthetic grass surfacing.
 - c. Synthetic Grass Samples: Twelve-inch (12") square samples of un-filled synthetic grass for each color used for the main field and playscape. The samples shall be reviewed as the general product intended for use on the field, please not any discrepancies between the product sample submitted and the product to be manufactured for this project.
 - d. Seaming or Sewing Materials: Twelve-inch (12") long samples of all materials to be used for seaming or sewing of the synthetic grass turf system including, but not limited to, thread and seaming tape.
 - e. Synthetic Grass Surfacing Infill: One-pound samples of sand and coated rubber (in separate bags).

- f. Drainage Pad Sample: Twelve-inch (12") square samples of drainage pad.
- 4. Material Testing:
 - a. Synthetic Grass Surfacing Yarn testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing.
 - b. Synthetic Grass Surfacing Backing Material testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing
 - c. Synthetic Grass Surfacing Infill testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing Testing.
- 5. Shop Drawings: Submit for approval the following:
 - a. Seaming plan; Seams of the field shall not coincide with the subsurface drain system nor seams of pad (if applicable).
 - b. Field Marking Layout, including logos. Layouts for all sports shown on the Drawings showing any field lines, markings, boundaries on the appropriate field(s) and all specified colors. All markings shall be tufted in the factory or inlaid. Provide certification that field layouts meet all NFHS sport marking requirements as installed in the field.
 - c. Details on field construction, making special note of any details that may deviate from the Drawings or Specifications. Include: edge detail, goal post detail, covers for access to subsurface structures, other inserts, etc.
- 6. Warranties: Submit copies of warranties in Owner's name for all products furnished under this section for review and approval.
- 7. Testing Agency: Submit qualification of testing agency(s) for review and approval.
- 8. Synthetic grass surfacing manufacturer/vendor and installer qualifications:
 - a. Installer Qualifications: Synthetic Grass Installation Sub-Contractor shall certify in writing the designated supervisory personnel on the project are competent in the installation of the all-weather grass material, including gluing or sewing seams and proper installation of the infill mixture. The synthetic grass surfacing installer shall have a representative on-site to certify the installation and warranty compliance. Provide experience to show that installation crew is competent to complete the level of work outlined in this project. Synthetic Grass Installation Sub-Contractor's superintendent shall experience to demonstrate that the superintendent is competent to oversee and complete the level of work outlined in this project.
 - b. At a minimum, provide the following documentation: Fifteen (15) reference projects consisting of Synthetic Grass Multi-Sport Grass Fields of 75,000 square-feet or larger within the past five (5) years.

- c. Project Information: At a minimum, provide the following information for each reference project:
 - 1) Project Name
 - 2) Project Location
 - 3) Project scope
 - 4) Construction timeline
 - 5) Construction cost
 - 6) Reference name, title, affiliation, and contact information.
 - 9. Drainage Pad:
 - a. Drainage Pad manufacturer/vendor and installer qualifications:
 - 1) Installer Qualifications; Drainage Pad Installation Sub-Contractor shall certify in writing the designated supervisory personnel on the project are competent in the installation of the Drainage Pad material. The Drainage Pad installer shall have a representative on-site to certify the installation and warranty compliance. Provide experience to show that installation crew is competent to complete the level of work outlined in this project. Drainage Pad Installation Sub-Contractor's superintendent shall experience to demonstrate that the superintendent is competent to oversee and complete the level of work outlined in this project.
 - 2) At a minimum, provide the following documentation: Fifteen (15) reference projects consisting of Drainage Pads of 75,000 square-feet or larger within the past five (5) years.
 - 3) Project Information: At a minimum, provide the following information for each reference project:
 - a) Project Name
 - b) Project Location
 - c) Project scope
 - d) Construction timeline
 - e) Construction cost
 - f) Reference name, title, affiliation, and contact information.
 - 10. Surveyor: Submit name and qualifications of Professional Land Surveyor who will be responsible for layout and verification of the work of this Section.
- C. Post Manufacturing/Pre-Installation Submittals
- 1. Material Testing: Submit for approval test results for all material testing performed under "1.8 Quality Control Testing, Post-Manufacturing/Pre-Installation" herein. Provide copies of all testing agency reports.
 - 2. Material Samples: Submit three (3) samples, with required testing data, for approval for all materials under 2.1 Materials including, but not limited to, the following:
 - a. Synthetic Grass Carpet Sample: Twelve-inch (12") square samples of un-filled synthetic grass for each color manufactured for the project.

- b. Synthetic Grass System Sample: Sample box of synthetic grass system, including infill material.
- 3. Acceptance of Prior Work: Refer to section 3.2 Examination.
- D. Post-Installation Submittals
 - 1. Material Testing: Submit for approval test results for all material testing performed under “1.8 Quality Control Testing, Post-Installation” herein. Provide copies of all testing agency reports.
- E. Warranty Quality Control Submittals
 - 1. Material Testing: Submit for approval test results for all material testing performed under “Quality Control Testing, Warranty” herein. Provide copies of all testing agency reports to the Owner and Landscape Architect for review and approval for the entire warranty period.

1.6 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Owner, or Landscape Architect on the Owners behalf, reserves the right to submit any material, either before or after installation, for testing it deems necessary to satisfy the conditions of this contract.
 - 1. Any material tested and found not in compliance with the contract will be rejected and replaced with material conforming to the specifications. This will be done at the sole expense of the Contractor.
 - 2. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery to minimize on-site storage. Segregate differing materials and prevent from contamination with other materials.
- B. Packing and Shipping: Deliver products in original unopened packaging with legible manufacturers' identification. All materials shall be stored in a dry place out of the direct sunlight.
- C. Drainage Pad

1. Follow manufacturer's recommendations for packaging, transportation, and delivery to ensure materials are not damaged. Furnish materials in wrapping that protects the material from ultraviolet radiation and from abrasion due to shipping and hauling.
 2. Materials shall be stored on a prepared surface. Protect materials from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat or cold, or other damaging circumstances.
- D. Prior to the installation of any materials and immediately upon delivery of the synthetic grass system and components to the project site, the Contractor shall inspect materials as follows:
1. For damaged or defective items.
 2. Measure synthetic grass roll lengths, perforations, and uniformity.
 3. Adhesives and seaming tape shall arrive in sealed dry containers and be kept in adequate temperature per manufacturer's requirements.
 4. Rubber in-fill shall arrive in large sacks or bags without tears and loose material.
 5. Rubber in-fill shall arrive dry and loose. No Rubber shall be accepted that is bulked or solid.
 6. Rubber in-fill shall be free of exposed metal particles.
 7. Sand in-fill shall be free from contamination of site materials.
- E. Bulk Materials: Deliver materials in clean, washed and covered trucks to eliminate contamination during transportation. On site stockpiling locations to be coordinated with the Owner. Stockpile only in areas free of debris and away from drainage routes. Cover all materials with plastic or geotextile if materials are to be stockpiled more than 48 hours.

1.8 QUALITY CONTROL TESTING

- A. All sampling/testing shall be the responsibility of Contractor. Contractor shall retain and pay for the services of a third-party Testing Agency to perform all sampling/testing in accordance with applicable standards.
- B. All testing shall be completed by an independent (third-party) Testing Agency as approved by Landscape Architect. Testing must be for current materials with current date from independent testing laboratory as described herein.
- C. Certified copies of laboratory reports shall be submitted for all testing.
- D. Pre-Manufacturing Testing (Sports Fields and Landscape Synthetic Grass)
 1. Timing: Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency prior to manufacturing of the Synthetic Grass Surfacing for the Project. Provide testing data for the following:

TESTING METHOD	CHARACTERISTIC	DECLARATION
SYNTHETIC GRASS YARN (include results for each yarn color separately)		
ASTM D 789	Melting Point	> 235 degrees F
ASTM D 1907	Denier	± 10% of specification
ASTM D 2859	Pill Burn Test	8 Passed/0 Failed
ASTM D 3218	Microns	± 10% of specification
ASTM D 5034	Breaking Strength (length)	> 283 lbs./ ft.
ASTM D 5034	Breaking Strength (width)	> 200 lbs./ft
ASTM F 1015	Fiber Abrasiveness Index	< 35
ASTM F 2765-09	Lead Content	< 50 ppm
EN ISO 20105-A02	Artificial Weathering (3,000 hours UVA) Turf Color Change	> Gray Scale 3
EN 13864	Artificial Weathering (3,000 hours UVA) Pile Yarn Tensile Strength	<50% reduction
SYNTHETIC GRASS BACKING MATERIALS		
ASTM D 5848	Primary Backing Weight	± 2 oz./yd2 of specification
ASTM D 5848	Secondary Backing Weight	± 2 oz./yd2 of specification

SYNTHETIC GRASS INFILL MATERIALS		
(include results for each infill separately)		
EN 71-3	Safety of Toys Part 3	Pass
ASTM F3188	Safety of Synthetic Turf Infill	Pass
EN 933	Infill Size Gradation	
EN 1097	Infill Bulk Density	
EN ISO 20105-A02	Artificial Weathering (3,000 hours UVA) Infill Color Change	> Gray Scale 3
SYNTHETIC GRASS SYSTEM		
(previous results for testing of product that closely meets specification)		
EN 13672	Lisport Simulated Wear	> 50,000 passes without splitting

2. Any material tested and found not in compliance with the contract may be rejected and Contractor shall submit a material found to be acceptable.
3. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

E. Post Manufacturing/Pre-Installation Testing (Sports Fields and Landscape)

1. Samples, as required to perform the testing below, of the synthetic grass carpet, infill material, and drainage pad shall be submitted to the independent Testing Agency.

2. Timing: Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency prior to shipping of the Synthetic Grass Surfacing to the Project. Provide testing data for the following:

SYNTHETIC GRASS SURFACING CARPET		
ASTM D 1335	Tuft Bind (w/out infill)	> 6.8 lbs. or 30N
ASTM D 5793	Stitch Gauge	< 3/8"
ASTM D 5823	Pile Height	± 1/8 inch of specification
ASTM D 5848	Pile Weight	± 5% of specification
ASTM D 5848	Total Weight	± 5% of specification
Visual	Perforations	>3/16" dia. holes, spaced 4" on center
SYNTHETIC GRASS SURFACING SYSTEM (carpet, infill, and drainage pad)		
ASTM F1551/EN 12616	Water Infiltration Rate	>16 in./hr.
EN 1969	Infill Depth Measurement	± 10% of specification (1/2" exposed fiber)
ASTM F 1936	Impact Attenuation(g-max)	< 120 G's
EN 1177	Impact Attenuation, Head Injury Criteria (HIC)	<900 @ 1.4m
EN 14808/ FIFA 04&09	Force Reduction	55% to 70%
EN 14809/ FIFA 05&09	Vertical Deformation	4mm to 9mm
EN 15301/ FIFA 06&09	Rotational Resistance	25n to 50n
FIFA 07	Linear Friction-Deceleration	3.0g to 6.0g
FIFA 07	Linear Friction-Slide	120 to 220
FIFA 08	Skin Abrasion (dry)	< 30%
FIFA 08	Skin/ Surface Friction (dry)	0.35 to 0.75
EN 12235/ FIFA 01&09	Vertical Ball Rebound	60cm to 100cm
EN /FIFA 02	Angled Ball Behavior	45% to 70%
EN 12234/ FIFA 03	Ball Roll	4m to 10m

3. Any material tested and found not in compliance with the contract may be rejected and Contractor shall submit a material found to be acceptable.
4. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

F. Drainage Testing, Pre-Construction (Sports Fields and Landscape)

1. Construct a minimum 15-foot by 15-foot (15 ft x 15 ft) sample panel of the complete subdrainage system (Field Base Stone and Drainage Pad) on top of a prepared subgrade section in an area approved by Landscape Architect.
2. Field subdrainage system sample panel shall be complete and in-place, representative of final construction per the Drawings and Specifications. Material testing and compaction testing on the sample panel shall be submitted to confirm the sample panel conforms to the drawings and specifications.

3. Perform an infiltration test, double-ring infiltrometer ASTM F1551/EN 12616 - Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials, on the completed sample panel (Field Base Stone layer and Drainage Pad). Alternative infiltration testing will not be considered valid.
 - a. Testing criteria: The mock-up complete field subdrainage system panel will be considered acceptable when an infiltration rate of no less than 20 inches per hour (20 in/hr) is demonstrated.
4. Sample panel may be utilized as part of the final work.

G. Post-Installation Testing (Sports Fields and Landscape)

1. Timing: Testing shall be completed on-site and within five (5) days of the completion of installation.
2. Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency. Provide testing data for the following:

DRAINAGE STONE (installed on-site, prior to installation of Drainage Pad)		
EN 13036	Planarity/Surface Regularity	<10 mm
ASTM F1551/EN 12616	Water Infiltration Rate	> 30 in./hr.
DRAINAGE PAD (installed on-site, prior to installation of synthetic grass and infill)		
ASTM F1551/EN 12616	Water Infiltration Rate	> 20 in./hr.
SYNTHETIC GRASS SURFACING SYSTEM (installed on-site, after installation of synthetic grass surfacing, infill, and drainage pad)		
ASTM F1551/EN 12616	Water Infiltration Rate	>16 in./hr.
EN 1969	Infill Depth Measurement	± 10% of specification
(sports field synthetic grass surfacing system only)		
EN 13036	Planarity/Surface Regularity	<10 mm
ASTM F 1936	Impact Attenuation(g-max) (minimum 10 locations)	< 120 G's (individual, not average results)
EN 1177	Impact Attenuation, Head Injury Criteria (HIC) (minimum 10 locations)	<900 @ 1.4m (individual, not average results)
EN 14808/ FIFA 04&09	Force Reduction	55% to 70%
EN 14809/ FIFA 05&09	Vertical Deformation	4mm to 9mm
EN 15301/ FIFA 06&09	Rotational Resistance	25n to 50n
FIFA 07	Linear Friction-Deceleration	3.0g to 6.0g
FIFA 07	Linear Friction-Slide	120 to 220
FIFA 08	Skin Abrasion (dry)	< 30%
FIFA 08	Skin/ Surface Friction (dry)	0.35 to 0.75

EN 12235/ FIFA 01&09	Vertical Ball Rebound	60cm to 100cm
EN /FIFA 02	Angled Ball Behavior	45% to 70%
EN 12234/ FIFA 03	Ball Roll	4m to 10m
EN 71-3	Safety of Toys Part 3	Pass (minimum of 3 samples)
ASTM F3188	Safety of Synthetic Turf Infill	Pass (minimum of 3 samples)

3. Drainage Testing (Sports Fields and Playscapes)

- a. Perform infiltration tests, double-ring infiltrometer, ASTM F1551/EN 12616 - Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials, as the Drainage Pad layer of the field subdrainage system/base is completed. Alternative infiltration testing will not be considered valid.
 - b. Testing Frequency: Perform one test for each 25,000 square feet (25,000 sf) of completed area.
 - c. Testing criteria: Each test will be considered acceptable when an infiltration rate meets requirements. Do not proceed with installation of subsequent layers until all tests are considered acceptable.
4. Any material tested and found not in compliance with the contract may be rejected and Contractor shall rectify the issue to be acceptable. Any area/item not within conformance shall be retested at the Contractors expense after remedy is implemented until satisfactory results are achieved.
5. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

H. Warranty Testing (Sports Fields)

1. Timing: Testing shall be completed on-site and annually for the warranty period.
2. Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency. Provide testing data for the following:

SYNTHETIC GRASS SURFACING SYSTEM (annually)		
EN 13036	Planarity/Surface Regularity	<10 mm
EN 1969	Infill Depth Measurement	± 10% of specification (1/2" exposed fiber)
ASTM F 1936	Impact Attenuation(g-max) (minimum 10 locations)	< 120 G's (individual, not average results)

EN 1177	Impact Attenuation, Head Injury Criteria (HIC) (minimum 10 locations)	<900 @ 1.4m (individual, not average results)
EN 71-3	Safety of Toys Part 3	Pass (minimum of 3 samples)
ASTM F3188	Safety of Synthetic Turf Infill	Pass (minimum of 3 samples)

3. Any material tested and found not in compliance with the contract may be rejected and Contractor shall rectify the issue to be acceptable. Any area/item not within conformance shall be retested at the Contractors expense after remedy is implemented until satisfactory results are achieved.

1.9 PATENT RIGHTS AND INFRINGEMENT

- A. The Drawings and Specifications are not indented to be proprietary or in violation of any current or pending patents. The Contractor and subcontractors are responsible to provide the Owner and Landscape Architect with any violations contained here in prior to bidding. By bidding on the project the Contractor and subcontractors shall hold the Owner, Construction Manager, and Design Consultants harmless from infringement of any current or future patent issued for the synthetic grass surfacing system.
- B. Contractor and subcontractors shall hold the Owner, Construction Manager, and Design Consultants harmless from infringement of any current or future patent issued for the synthetic grass surfacing system, fibers, backings, including drainage pad (if required), installation methods and vertical draining characteristics. The successful bidder will be required to submit a letter for consent from their surety. The Surety shall indemnify the requirements.
- C. There are various established performance criteria throughout this request for products and services. There may exist patent coverage for some means and methods of achieving those performance criteria. Bidders are responsible for ascertaining that means and methods of the products and services which they are providing are not being provided in violation of any such patent rights. Bidder's responsibilities are as follows:
 1. To hold harmless, the Owner, Construction Manager, and Design Consultants, as to any violation to include dollar amounts that could be owed as a result of damages for infringement including potential treble damages as provided for under U.S. Patent Law.
 2. Any and all costs that the Owner, Construction Manager, and Design Consultants, would incur in replacing materials and services which are determined to infringe patent rights.
 3. All administrative, legal and other costs that would be incurred as a result of an infringement.

1.10 WARRANTY

- A. Synthetic Grass Surfacing Warranty – Sports Fields: See Specification Section 32 18 13.10 Synthetic Grass Surfacing Warranty.

B. Synthetic Grass Surfacing Warranty – Landscape

1. The Contractor shall provide a non-prorated Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic landscape grass materials and installation as specified herein, for a minimum non-pro-rated period of fifteen (15) years to the Owner from the date of Certificate of Substantial Completion.

C. Synthetic Grass Infill Warranty

1. The Contractor shall provide a non-prorated Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic grass infill materials and installation as specified herein, for a minimum non-pro-rated period of eight (8) years to the Owner from the date of Certificate of Substantial Completion.
2. Infill material shall be warrantied against breakdown of material outside of project specifications, deterioration of infill coatings, and failure to adhere to EN 71-3 and ASTM F3188 testing.

D. Drainage Pad Warranty's

1. The Contractor shall provide a non-prorated Drainage Pad Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the Drainage Pad materials and installation as specified herein, for a minimum non-pro-rated period of sixteen (16) years to the Owner from the date of Certificate of Substantial Completion.
2. Warranty shall include coverage for the following:
 - a. Drainage issues, or Failure to drain at rate of 20" per hour or greater.
 - b. Undulations or heaving repair for any undulation caused by the padding material apparent in the turf over 1/4" in vertical height, whether periodic (due to weather) or persistent.
 - c. Persistent depressions, or deformation of the pad material 1/4" or greater caused by the Drainage Pad materials.
 - d. Any failure in the physical properties of the pad that negatively affect the aesthetics, playability, G-Max rating or longevity of the synthetic turf of the athletic field.
 - e. Costs for repair or replacement of the synthetic turf and infill above Drainage Pad in affected areas in the event of product failure.
 - f. The Contractor shall inspect and repair any areas of concern caused by the Drainage Padding system under warranty including, but not limited to, the following:
 - 1) Drainage Issues
 - 2) Base Depressions and Undulations Repair

- E. The Warranty shall cover, in general, the usability of the Synthetic Grass System (and pad); accessories, use, characteristics, and suitability, of the installation to the minimums specified in this Section.
- F. All items covered by the warranty are to be replaced or repaired with new materials, including installation at the sole expense of the warranting manufacturer/surface supplier over the life of the Warranty.
- G. Sports Field Synthetic Grass Use: The materials utilized in the sports field synthetic grass system (carpet, infill, drainage pad, seaming, logo's, inlays, etc.) shall be guaranteed for the designated uses as follows:
 - 1. Football, Rugby, Soccer, Baseball, Softball, Field Hockey, Lacrosse
 - 2. Marching Band
 - 3. Graduations and Ceremonies
 - 4. Physical Education and Intramural Sports Programs
 - 5. Physical Education exercises and activities
 - 6. Pedestrian traffic and other similar uses
 - 7. Pneumatic rubber-tired maintenance and service equipment, designed for use on athletic fields and golf courses.
- H. Landscape Synthetic Grass Use: The materials shall be guaranteed for the designated uses as follows:
 - 1. Pedestrian traffic and other similar uses
 - 2. Tables and chairs for spectator viewing
 - 3. Pneumatic rubber-tired maintenance and service equipment, designed for use on athletic fields and golf courses
- I. Warranty documents and terms of Warranty shall be in accordance with this Specification.
 - 1. The use of the Manufacturers' standard or modified form of Warranty shall in no circumstance supersede the conditions set forth in this Specification Section, which shall be considered part of the Warranty.
 - 2. This Warranty shall constitute a contract made in the State of where the project is located and shall be governed by the laws of that State.
- J. Warranty shall include coverage for the following:
 - 1. Drainage issues, or Failure to drain at the specified rate.

2. Any failure in the physical properties that negatively affect the aesthetics, playability, G-Max rating or longevity of the synthetic grass.
3. Test results, field repairs, and field concerns shall be submitted to the Owner and the Landscape Architect in a Field Inspection Report and Testing Results for review.

1.11 WARRANTY AND MAINTENANCE OBLIGATIONS

1. The Synthetic Grass Manufacture/Supplier shall be required to provide testing, as described under G. Warranty Testing, and inspection plan for the lifespan of the warranty as part of this Contract and shall submit a schedule of visits at the time of completion.
 - a. Contractor shall make corrections as necessary to meet all testing requirements.
2. The Synthetic Grass Manufacture/Supplier to return to the site once (1) per year for the duration of the warranty, no less than 8 visits.
3. The Synthetic Grass Manufacture/Supplier shall inspect any areas of concern and make repairs as necessary under warranty during each visit including, but not limited to, the following:
 - a. Nailer Board/Concrete Anchor Cub Repairs (general contractor)
 - b. Inlays, Numbers, Logo, and Seam Conditions
 - c. Fiber Conditions
 - d. Fiber Height
 - e. Infill Condition
 - f. Infill Height/ Compaction
 - 1) Sports Fields: Additional infill may be required by contractor to maintain the G-Max, HIC levels and required infill depths.
4. Test results, field repairs, and field concerns shall be submitted to the Owner and the Landscape Architect in a Field Inspection Report and Testing Results for review.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Drainage Pad

1. Commercially-available panelized/modular Drainage Pad system designed for multi-sport or playscape uses (depending on the application). Drainage Pad shall consist of pre-fabricated, interlocking units configured for installation beneath synthetic turf systems.
2. Panel Drainage Characteristics: Permeable, vertical drainage. Minimum vertical drainage rate: 50 inches per hour.
3. Compatibility: Drainage pad shall be compatible with the submitted synthetic grass surfacing, and the grass surfacing and pad shall provide an acceptable system. Drainage pad shall be in all ways compatible with the specified grass surfacing, and shall not affect the synthetic grass warranty, as well as the grass surfacing submitted shall not affect the pad warranty. Pad shall be intended for installation on a gravel base without the use of adhesives.
4. Load Capacity: No permanent deformation under periodic loading (e.g. grooming equipment, or ambulance).
5. Connectors, couplers, and other fittings: As required to complete the system and prevent heaving buckling or movement of the mat. Material of construction and configuration shall be in accordance with the Drainage Pad manufacture's requirements or recommendations, whichever is more stringent.
6. Warranty: Minimum 16-year manufacturer's warranty.
7. Drainage pad performance requirements:

<u>Drainage Pad</u>		
Characteristic	Testing Method	Requirements
Material	PVC/Nitrile Rubber Or Expanded Polypropylene	
Material Thickness	17 mm (0.67 inch) +/-0.18" (Sports Fields)	
Format / Type	Sheet - or interlocking panels	
Drainage / Permeability	BS 7044 Method 4 or EN 12616 as applicable	Perforated or Permeable 50 inches per hour minimum
GMAX, With Turf and infill	ASTM D2859	90 minimum, 120 maximum. (throughout warranty period)
Impact Attenuation, Head Injury Criteria (HIC) (with pad)	EN 1177	<900 @1.4m (throughout warranty period)
Material Density	ASTM D 1056-07	3.6 to 12.5 lbs/ft3
Water Absorption	ASTM D 1056-07	<5%
Vertical Deformation w/out turf	EN 14809	4mm maximum
Thermal Expansion (per 1°C)	ASTM D696-03	0.0000833mm/mm
Compression Strength	ASTM D3575	@25% 30 psi @50% 49 psi @75% 102 psi
Compression Set – Static Load (25% strain, 22 hrs, 23°C after 24 hrs)	ISO 1856C	8.2% (0.089 in) max
Compression Set – Repeated impacts (106 psi, repeated, 10,000 cycles)	System Test	6.0% maximum
Friction Coefficient	ISO 8295	2.44 lbs Max 1.35 lbs average
Microbiological Analysis Bacteria Resistance, Fungal Resistance Chemical resistance	ASTM G22-76 ASTM G21-96 ASTM F925	No growth or detrimental effects

Accelerated Aging 20 yr model - % tensile strength loss 20 yr model - % elongation loss		-<10% after 120 days @ 85C -<5% after 120 days at 85C
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8. Manufacturer shall provide documentations that the Drainage Pad meets the following:
 - a. Product meets human health and total threshold limit concentrations using EPA method 3052
 - b. Product meets human health and total threshold limit concentrations for Title 22 (CAM 17) metals using EPA 6020/7471A and hexavalent chromium using EPA method 7196A.

B. Synthetic Grass Surfacing Carpet

1. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields or in landscape applications (whichever is applicable). The finished surface shall resist abrasion and cutting from normal use.
2. The materials as hereinafter specified should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus, mildew, ultraviolet light, heat degradation, and be non-allergenic and non-toxic. The entire system shall be constructed to maximize dimensional stability, to resist damage and normal wear and tear from its designated uses and to minimize the ultra-violet degradation.
3. The system shall have the basic characteristics of flow-through drainage, allowing free movement of surface runoff through the synthetic grass system where such water may flow to the existing base and into the field drainage system.
4. Pile fibers shall resemble freshly grown natural grass in appearance, texture and color (except for the colored all-weather grass for markings). Streaks, discoloration, or different dye lots shall not be accepted.
5. Manufacturer is to guarantee that the synthetic grass fiber is adaptable to painted lines.
6. The synthetic grass surfacing systems shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water, and airborne pollutants.
7. All adhesives used in bonding the system together shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultra-violet rays at any location upon installation.
8. Fabric surface shall be constructed and installed in minimum widths of 15 feet with no longitudinal or transverse seams, except for inlaid lines with a finished roll assembly.
9. The Synthetic Grass System shall remain free draining at all times before, during, and after the infill materials are installed.

10. Landscape: The synthetic grass surfacing shall be made up of the following system:
1) Tufted combination of polyethylene and a thatch/rootzone/spikezone fibers.

Denier	10,000 (mono & slit-film) 5,000 (thatch/rootzone/spikezone)
Microns	>310 microns (mono) > 120 microns (slit-film)
Pile Height	1-5/8" 1-1/4" - (thatch/rootzone/spikezone)
Pile Weight	50 oz. – Grass Zone 80 oz. – Total Pile Weight
Total Weight	108 oz.
Stitch Gauge	< 3/8"
Primary Backing Weight (multiplayer)	> 8 oz./yd ²
Secondary Backing Weight	> 20 oz./yd ²

11. Sports Fields: The synthetic grass surfacing shall be made up of the following systems:
- Multi-Sport Field – Tufted combination of Diamond Shaped Monofilament, Slit-Film, and a thatch/rootzone/spikezone fibers.
 - Baseball Field (Green) – Tufted combination of Diamond Shaped Monofilament, Slit-Film, and a thatch/rootzone/spikezone fibers.
 - Baseball Base Path, Pitchers Mound, and Catchers' Box (Clay) – Tufted combination of Monofilament, Slit-Film, and a thatch/rootzone/spikezone fiber.

Denier	10,000 (mono & slit-film) 5,000 (thatch/rootzone/spikezone)
Microns	>310 microns (mono) > 120 microns (slit-film)
Pile Height	2" – Multi-Sport Field 2" – Baseball Field 1-1/2" – Baseball Base Path 1-1/2" – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Pile Weight	60 oz. – Multi-Sport Field 60 Oz. – Baseball Field 60 oz. – Baseball Base Path 90 oz. – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Total Weight	88 oz. – Multi-Sport Field 88 Oz. – Baseball Field 88 oz. – Baseball Base Path 118 oz. – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Stitch Gauge	< 3/8"
Primary Backing Weight (multiplayer)	> 8 oz./yd ²

Secondary Backing Weight	> 20 oz./yd ²
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C. Perforations

1. Synthetic grass carpeting shall be perforated to provide vertical drainage as specified herein.
2. Size and spacing of perforations shall be as specified herein. Spacing of perforations shall be uniform in both directions.
3. Perforations shall be complete and full diameter for a minimum of 95% of each roll.
4. Perforations shall be tested by passing a 3/8" drill bit through the holes with no more than 7 lbs. pressure.

D. Markings and Logos

1. All field lining, marking, field boundary system with team area limits, logos, etc. shall be same material (yarn, infill, and backing) as playing field system.
2. Lines, logos, and graphics to be installed on the synthetic grass surface as per documents are to be tufted in the factory to the maximum extent practical. Those not tufted in the factory shall be inlaid in the field (shaving is not permitted).
3. A complete field lining, marking, and field boundary system with team area limits, etc. shall be provided with the initial installation. Layouts shall be accurately surveyed and marked prior to installation. Layouts shall include all incidental markings required by the NFHS or state athletic organization, whichever is applicable.
4. All markings shall be uniform in color, providing a sharp contrast with the synthetic grass field color and shall have sharp and distinct edging.
5. Logos and lines shall be true and shall not vary more than 1/2" from specified width and location.
6. Provide logo(s) as shown on the Drawings.
 - a. Color(s): As shown on the Drawings.

E. Adhesive Materials and Seaming Tape

1. Adhesive material to fix the synthetic grass carpet to the seaming tape shall be a polyurethane adhesive:
 - a. NORDOT Adhesive by Synthetic Surfaces Inc.
 - b. Turfbond Synthetic Turf Adhesive

c. Mapei Ultrabond Turf PU Single Component Adhesive

2. If a hot melt welding method is used, the glue shall have an application temperature of 325 degrees F. with a melting point of 180 degrees F. Material shall be National Adhesive #34-5372 or equal. Submission of all hot melts shall be 10 calendar days prior to installation.
3. Bonding surfaces shall be clean, dry, and free from grease, oil, wax, weak oxide films, mold release agents, and other surface contaminants.
4. The adhesive shall be applied at the rate not to exceed 60 square feet per gallon.
5. The adhesive shall have the same warranty period as the synthetic grass system.
6. Seaming tape shall be a 12" wide polypropylene or polyethylene fabric acceptable for use with the synthetic turf carpet system and the adhesive material.
7. Seaming tape shall meet FIFA Joint Strength >25N/100mm

F. Infill

1. Sports Fields: Infill Materials shall be uniformly filled to a depth which leaves no more than 1/2" of exposed pile after settlement.
 - a. Infill materials shall consist of a homogeneous non-compacting mixture of silica sand and recycled rubber granules meeting the following criteria: Combination of sand and coated ambient crumb rubber (SBR) are to be used as the in-fill system, the green coated crumb rubber content shall be between approximately 30-40% by weight and the sand shall be between 60-70% by weight. Manufacturer to provide infill ration based on pre-installation testing.
 - b. Coated Ambient Crumb Rubber Infill
 - 1) Shall be free of all metal and produced of 100% recycled automobile or truck tires. The material shall have a size not to exceed 10 mesh nor smaller than 20 mesh.
 - 2) The fine particles shall not exceed 10% by volume. Rubber shall have no visible evidence of steel particles present in the final synthetic grass surfacing in-fill. The bulk density of the rubber materials shall not be less than 29.75 lbs/cubic feet.
 - a) Coating color: **GREEN**
 - 3) Coated ambient crumb rubber shall be UV stabile and resistant to heat degradation.
 - c. Sand Infill
 - 1) Sand shall comprise 100% passing the #16 sieve, no more than 80% passing the #30 sieve and no more than 0.5% passing the #50 sieve per ASTM E-1.
2. Landscape: Infill Materials shall be uniformly filled to a depth as specified by manufacturer, but by which leaves no more than 1/2" of exposed pile after settlement.

G. Additional Field Materials (Attic Stock)

1. Sports Fields:
 - a. The Contractor shall supply and deliver an additional 50 lineal feet of full width material, plus 5 linear feet of full width of each color used.
 - b. The Contractor shall supply and deliver an additional 2,000 lbs crumb rubber material as specified for the sports field synthetic grass surfacing system. The rubber infill shall be placed in RubberMaid 50 gallon containers with covers and wheels.
2. Landscape:
 - a. The Contractor shall supply and deliver an additional 15 lineal feet of full width material.
 - b. The Contractor shall supply and deliver an additional 250 lbs of infill material as specified for the landscape synthetic grass surfacing system. The rubber infill shall be placed in RubberMaid 50 gallon containers with covers and wheels.
3. Seaming Tape and Adhesive: Provide 100' linear feet of seaming tape and sufficient gluing materials necessary for seaming repair. Materials shall be easily used by the Owner. 5 Gallon pails of glue material is not acceptable.

H. Field Maintenance Equipment

1. One (1) Three-Prong Infill Depth Gauges: The contractor shall supply at the end of the Project one (1) new and unused three-prong depth gauge.
2. Six (6) Single-Prong Infill Depth Gauges: The contractor shall supply at the end of the Project one (1) new and unused three-prong depth gauge supplied by The Synthetic Turf Council www.syntheticturfcouncil.org, contact: Melanie Taylor, melanie@syntheticturfcouncil.org

PART 3 - EXECUTION

3.1 GENERAL

- A. Verify site conditions before proceeding with demolition work. Field check the accuracy of the Drawings and inspect structures, utilities, and other site features prior to start of work and notify Engineer in writing, of any hazardous conditions and/or discrepancies.
- B. Weather Permitted Conditions: The Contractor shall not perform any work if the conditions for working are:
 1. Ambient air temperatures are below 45 degrees F.
 2. Material temperature falls below 45 degrees F.
 3. Rain is forecast or falling
 4. Conditions exist or are pending that will be unsuitable to the installation of the system.

- C. Drawings / Specifications: The Contractor shall perform all work in strict accordance to the Contract Drawings / Plans, Shop Drawings and manufacturer's specifications and instructions.
- D. Verification: The Contractor shall be responsible for the inspecting, verifying and completing all installed work of this section.

3.2 EXAMINATION

- A. Acceptance of Prior Work-Field Base Stone: Upon completion of the base and drainage work, the Site General Contractor shall submit a letter, addressed to the Owner, signed by the Site General Contractor, Drainage Pad Installer, and the Synthetic Grass Surfacing Installer. The letter shall confirm Field Base Stone has been reviewed, including all testing data, and is acceptable for installation of the synthetic grass surfacing system. Any discrepancies, problems, and/or conflicts shall be addressed prior to issuance of the letter. Continuing with the installation of the Drainage Pad over the field base stone without issuance of such letter shall be considered as an approval of the base by the Drainage Pad and Synthetic Grass Surfacing Installer.

3.3 PREPARATION

- A. The Contractor shall take special care to protect all field and playscape structures and utilities. Any damage shall be repair or replaced at the cost of the Contractor
- B. Layout: The Contractor shall be responsible for furnishing, setting and marking all lines, seams and markings for the field. The Contractor shall at all times maintain all necessary benchmarks and control points to locate all events and markings.
- C. Slope: The field shall be installed with a minimum 0.5% and maximum 0.75% slope unless otherwise noted in the Drawings, from the center crown to the sideline or track edge. Playscapes shall not exceed slopes noted on drawings.
 - 1. The finish profile of the crown of the field may not exceed grade shown on the Drawings. This will be maintained throughout the length of the crown. See Drawings for detail of the crown grading.

3.4 INSTALLATION

- A. Drainage Pad
 - 1. Prior to pad installation pad installer /manufacturer shall provide written acceptance of the prepared subgrade material and surface. Acceptance shall, at a minimum, include the following:
 - a. Permeability
 - b. Planarity
 - c. Suitability for synthetic turf system.
 - 2. Install Pad loose laid on gravel base in accordance with manufacturer's requirements.

3. Protect panels from damage or movement during the installation process. Damaged panels shall be rejected. Install panels and cover with turf promptly. Do not leave panels exposed overnight without ballasting. Contractor is responsible for material stability during construction and shall take all measures necessary to avoid shifting or displacement due to construction, weather or temperature changes.
4. An interlocking panel design shall be used to hold adjacent panels in place.
5. Pads shall be cut and fit tightly to the edges of the field/playscape and all objects within the field/playscape. No gaps in the pad over 1/4" are acceptable. Use largest size possible. Filler strips or piecemeal work are not acceptable.
6. Grade and planarity of installed Pad system shall comply Surface Regularity of this specification. Care shall be taken to fix any disturbances of the stone base while installing the drainage pad.

B. Synthetic Grass Surfacing Installation

1. The synthetic grass carpet shall be staged and unrolled as necessary for a daily installation. No material will be allowed to be unrolled 24 hours prior to installation.
2. Synthetic grass surfacing shall be installed over the drainage pad. Care shall be taken so as not to damage installed drainage pad.

C. Seams

1. All panel seams spacing is to be held to a minimum of 15 feet unless prior approval of seaming diagram indicates a lesser panel.
2. Fabric surface shall be constructed and installed in minimum widths of 15 feet with no longitudinal or transverse seams, except for inlaid lines with a finished roll assembly. The seams shall be 15'-0" apart. No fitted pieces shall be allowed to true alignment.
3. All panel seams shall be securely sewn or glued and lay flat. Minimum of 5" of seaming tape and glue shall be on either side of the seam.
 - a. Ridges or tenting of seams is not acceptable.
 - b. Gaps greater than 1/8" are not acceptable.
4. All synthetic grass surfacing seams shall be sewn with high strength polyester fiber cord. Sewn seams shall be a butt-sewn with double loop lock stitch. Seams shall lay flat after in-fill. Bagger type seam stitching is not permitted
5. All seams shall be brushed thoroughly before infill materials are installed.
6. All seams shall have full fastenings and no loose areas. At no time can pulling on the section separate the material.
7. The Synthetic Grass System shall remain free draining at all times before, during, and after the infill materials are installed.

D. Synthetic Grass System Edges and Termination

1. All edges and ends of the synthetic grass system shall be secured to the anchor curb by 100% glue, nailing is not acceptable. Final infill level shall be flush with adjacent anchor curb or track surfacing.

E. Lines, Markings, Logos, and In-Lays

1. Lines and markings shall be tufted in the factory to the greatest extent possible during manufacturing.
2. All lines, numbers, and field markings are to be tufted or in-laid, shaving shall not be permitted, with the specific colored synthetic grass. All lines and markings shall be accurately set and surveyed to within 1/2" tolerance.
3. All lines and markings shall be installed and verified prior to any installation of in-fill material.
4. All glued inlays shall have a 12" wide seaming tape, fully coated with adhesive. All inlays shall not have any adhesive applied to any exposed fibers. All graphics or markings can be tuft-in or cut-in (shaving is not permitted).
5. All seams and in-laid areas shall be brushed thoroughly before infill materials are installed.
6. All seams and inlays shall have full fastenings and no loose areas. At no time can pulling on the section separate the material.

F. Synthetic Grass Surfacing Infill

1. No in-fill materials shall be installed until the synthetic grass surfacing is fully installed with all lines and markings.
2. The synthetic grass surfacing shall be thoroughly brushed prior to any in-fill materials to remove any wrinkles and defibrillate the slit film.
3. Infill shall not leave more than 1/2" of exposed fiber on sports fields.
4. The in-fill materials shall be installed in layers not to exceed 0.30 lbs per sq ft per layer.
5. Infill material shall be 'worked into' the thatch/rootzone/spikezone layer. Contractor shall allow time and proper machinery to do so.

3.5 PROTECTION

- A. The Contractor shall take special care to protect all field and building structures and utilities. Any damage shall be repair or replaced at the cost of the Contractor.

3.6 TRAINING INSTRUCTION AND OWNERS MANUALS

- A. Provide a 4 hour, at a minimum, on-site training instructional program for the Owner. Prior to conducting training the contractor shall put together and test all maintenance equipment. Equipment shall be fully functional and ready to use at the time of the training. The training shall include review and demonstration generally of the following, but not be limited to:
 - 1. Daily/Weekly fiber, infill, and seam inspections.
 - 2. Low infill hand grooming and infill placement.
 - 3. Seam repair.
 - 4. Field sweeping, grooming, and decompaction (with tines groomer if applicable). Including demonstration of hock-up, detachment, and use of all equipment with the Owner's equipment.
 - 5. Field plowing (if applicable).
 - 6. Protection for events.
 - 7. Procedure for Warranty claims.
- B. The training instruction will be summarized on a DVD included in the Owner's Manual and close-out documents.
- C. Training shall take place no later than fourteen (14) days after article "Quality Control Testing, Post-Construction Testing" is completed.

3.7 AS-BUILT FIELD LAYOUT DRAWING

- A. Provide As-Built Field Layout Drawing including verification of field layout dimensions, by licensed surveyor in the State of Connecticut, to the Landscape Architect for review and approval.
 - 1. Provide as-built survey in AutoCAD and .pdf format for review.

3.8 CLEAN UP

- A. The site shall be kept clean and free of debris throughout the installation. Empty barrels, sacks, bags, and remnant materials shall be stored or disposed daily in a proper container or legal manner.
- B. After completion of the entire Project, the site shall have a general cleanup removing all debris remaining on the site that is not a part of the final Project.
- C. The equipment supply requirements for this Project shall be part of the total price and shall be the sole expense of the Contractor.

- D. All natural grass areas disturbed during this construction shall be restored to the satisfaction of the Owner at no additional cost to the Owner.
- E. All attic stock materials shall be placed in it's appropriate location as determined by the Owner.

3.9 Acceptance

- A. Should any imperfections develop in the surface areas prior to the final acceptance of the work, they shall be removed and replaced with new materials. All such repair work shall be done at no additional cost to the Owner.
- B. Acceptance will be issued to the Contractor as described under "Substantial Completion" when all work under this section is found to be completed. The Owner or Landscape Architect will not be responsible for any additional acceptance requirements by the Contractor or subcontractor.

END OF SECTION 32 18 13

SECTION 32 18 23.31 – POLYURETHANE RUNNING TRACK SURFACING –STRUCTURAL SPRAY

PART 1 GENERAL

1.1 SUMMARY

- A. The work under this section includes the installation of a cast in place, durable, permeable, resilient, all-weather track surface consisting of a polyurethane bound rubber base mat and structural spray top coat on top of a prepared asphalt base.
- B. Work of this specification consists of furnishing all the required labor, materials, equipment, parts and supplies necessary for this installation of the synthetic running track surface.
- C. The installer of all installed materials shall be authorized to do so by the manufacturer.
- D. The work hereunder shall be done and conform to:
 - 1. American Sports Builders Association Track Construction Manual and Track Construction Guidelines

1.2 REFERENCES

- A. Specification Section 32 12 16.01 – “Asphalt Paving-Running Track” for all existing and new pavement repair and preparation.
- B. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- C. National Asphalt Pavement Association (NAPA)
- D. USA Track & Field (USATF)
- E. National Federation of State High School Associations (NFHS)
- F. National Interscholastic Athletic Administrators Association (NIAAA)
- G. International Association of Athletics Federation (IAAF)
- H. American Sports Builders Association (ASBA)

1.3 JOB CONDITIONS

- A. Weather Limitations
 - 1. The urethane mixture shall not be placed whenever the surface is wet, frozen, or when the temperature is outside the limitations stated by the manufacturer’s recommendations for installation. Contractor shall be responsible for submitting the procedure at least one week in advance of any surfacing operations that may result in placement of the all-weather running track urethane surfacing outside of the temperature limitations.

1.4 BID-SUBMITTALS

- A. Only one each of the following bid submittals are required to the bidding entities at the time of bid:
 - 1. A letter on the Contractor / Sub-contractor's letterhead (whomever shall be supplying and installing the all-weather track surfacing system) shall be submitted, with the bid, confirming their intent to conform to all information presented during the bidding process for the All-Weather Track Surfacing System. Including, but not limited to, the bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - 2. Non-compliance with the bid submittal requirements as specified herein will result in rejection of the bid.

1.5 SUBMITTALS

- A. Manufacturer's product data sheets including installation guidelines for components and system.
- B. Manufacturer's color options for review and selection by the Engineer/Owner.
- C. Three (3) representative samples of the system to be installed with appropriate labeling for identification and color as selected by Engineer/ Owner.
- D. Current material safety data sheets (MSDS) for the liquid components.
- E. Test reports that verify the manufacturer's specifications (data) for the product to be installed.
- F. Documentation that verifies that the synthetic surfacing material does not contain any toxic or hazardous substance, which exceeds limits set forth by the EPA.
- G. The synthetic surfacing material manufacturer shall submit a letter stating that the surfacing contractor is qualified to install its synthetic surface system.
- H. A certificate from the manufacturer of the binders and coatings stating that the materials have been produced specifically for the use in sports surfacing construction.
- I. A complete list of materials, including quantities, intended to be used in the construction of the running track system. All liquid quantities will be prior to dilution.
- J. Provide a letter stating that the surfacing contractor has reviewed the asphalt specification and accepts the specification as correct.
- K. Provide a letter after checking the prepared asphalt surface in the field & accepting it for synthetic surface installation. Should areas be found that do not meet specifications, they shall be repaired or replaced by the asphalt contractor prior to the synthetic surfacing contractor issuing its letter of acceptance.
- L. A test report that the ½" (13 mm) system has been tested to IAAF standards for force reduction and modified vertical deformation. Force reduction shall be 35-50%. Modified vertical deformation shall be 0.6-1.8 mm.
- M. Submit evidence that the synthetic surfacing contractor holds the necessary contractor's license to install synthetic surfacing.

- N. Submit evidence that the material manufacturer is ISO 9001 certified.
- O. Contractor shall provide written maintenance information on the installed product to be presented to the owner upon completion of the surface. This shall include repair methods and availability of repair materials including cost. Submit 3 copies of the approved Surfacing Care and Maintenance Guide.

1.6 COORDINATION

- A. Contractor shall coordinate with all other trades, especially Site Contractors to ensure approval of asphalt base prior to surfacing application. Any rework shall be done at no cost to the Owner.

1.7 RELATED WORK

- A. When surfacing on new bituminous pavement, the bituminous pavement must meet the specifications and standards set forth by the Architect. The contractor shall be responsible of performing an elevation survey of the bituminous pavement prior to application of the synthetic track surface. The contractor is to perform a flood test of the bituminous pavement top course prior to application of the synthetic track surface.
- B. The bituminous pavement and associated repairs shall be sufficiently cured and cleaned prior to Work of this section to be performed. The governing guidelines of track construction allow for a maximum longitudinal slope of on tenth of one percent (0.10%) in the running direction. The maximum lateral slope shall not exceed one (1) percent (1.00%)
- C. Grade conformance tests may be required to be performed by the Contractor on both the leveling course and the top course of the bituminous pavement at the Architect's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within a pass should be 1/4 inch in 10 feet when measured in any direction. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections, the surface shall not allow water to stand greater than 1/16 inch deep, one (1) hour after rain has ended.
- D. The Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and event areas.

1.8 MATERIAL HANDLING AND STORAGE

- A. Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the locale of installation.
- B. Store material in accordance with manufacturer's specifications and MSDS.
- C. The contractor shall provide a secure, clean, dry location for storage of materials at temperature as above. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.
- D. Deliver products to the site in original, unopened containers with labels attached.

- E. All surfacing materials shall be non-flammable.

1.9 QUALITY ASSURANCE

- A. Provide a certificate of accuracy from a registered engineer, land surveyor or certified track builder by ASBA that the track measures 400 meters in all lanes from start to finish.
- B. The contractor shall record the batch number of each product used on the site and maintain it throughout the warranty period.
- C. The contractor shall provide the Architect, an estimate of the volume of each liquid product and the weight of the rubber granule to be used on site.
- D. The manufacturer's representative will be available to help resolve material issues.
- E. Provide, as a part of the Warranty, documents stating that the materials applied conform to the manufacturer's specifications and that the material will not separate from the asphalt or concrete base, blister, bubble, fade, crack or wear excessively during the life of the warranty.
- F. The materials will not foam, thus causing air bubbles and reduce the life expectancy of the surface.
- G. The synthetic surfacing contractor and owner will annually walk and inspect the synthetic surface during the life of the warranty. Issues will be documented in writing to the Owner. The Owner will review items with the Engineer. Warranty issues will be repaired and for non-warranty items a method for correction will be presented.
- H. Track system shall subject to successfully tested independently an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.
- I. The synthetic surfacing contractor shall maintain a clean and orderly job site. All excess materials shall be removed from the construction area and properly disposed of. Scrap shall be removed in the same manner.

1.10 GUARANTEE

- A. The Contractor shall be required to guarantee all labor, materials, workmanship and services for the Synthetic Surface and Track Markings.
- B. This guarantee shall remain in force for a period of not less than FIVE (5) YEARS from the date of written acceptance of the work.
- C. Any defects caused by delaminating, peeling, normal abrasion or raveling that is not in original conformance with the testing specifications shall be repaired or replaced at no cost to the Owner during this guarantee period.
- D. This Contractor shall be required to submit the following documents in regard to the guarantee:
 - 1. Letter from the manufacturer(s) of all materials attesting to the guarantee length and limits. This must be signed by an officer of the organization.
 - 2. Maintenance Instruction Guide for the Contract Surfaces, signed by an officer of the surface company and notarized.

3. Letter of Guarantee from the Installation Contractor for the above time period, signed by an officer of the Company and notarized.
4. These documents shall be submitted to the Owner prior to final payment. The installer and the materials manufacturer shall supply a warranty covering labor and materials respectively. The warranty period shall be for five (5) years.

1.11 INSTALLER QUALIFICATIONS

- A. Installers shall be regularly engaged in the construction and surfacing of running tracks.
- B. Installer shall be an authorized applicator of the specified system.
 1. Installers of this product are to provide a list of at least 5 installations that are a minimum of 5 years old that contain the same products, and use the same method of installation. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- C. Installer shall be a builder member of the ASBA.
- D. The installer's installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

1.12 MANUFACTURER QUALIFICATION

- A. System manufacturer shall certify that the materials provided are manufactured specifically for construction and surfacing of running tracks.
- B. System manufacturer shall be continuously engaged in the business of track surfacing materials for at least 10 years.
- C. System manufacturer of this product are to provide a list of at least 5 installations that are minimum of 5 years old that contain the same products, and use the same method of installation.
 1. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email

e. Owners Representatives Phone

2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.

D. System manufacturer shall have a designated representative available for site inspection.

PART 2 PRODUCTS

2.1 GENERAL

A. The synthetic surfacing shall be a 13 mm thick, permeable, structural spray system, with a paved in place rubber granule and polyurethane binder base layer. Two coats of a mixture of colored polyurethane and EPDM rubber granules are structurally sprayed onto the base to form a textured finish.

1. BSS 100 track system as supplied by Beynon Sports (A Tarkett Sports Company)

2. Action-Track 200 track system as supplied by Copeland Coating Company

3. BS track system as supplied by Spurtan (An APT Company)

B. The synthetic track surface system shall have a smooth finish and may be applied for outdoor use.

C. The structural spray applied polyurethane and rubber blended coating shall be resilient and allow moisture to pass through the surface. It shall have a textured finish for outdoor applications.

D. The product shall meet the following minimum physical properties:

1. **Top Color: Red (Final color to be approved by Architects based on manufacture's standard palette)**

E. Performance Standards

	<u>Test Results</u>	<u>DIN Standard</u>
Thickness (DIN):		min. 13 mm
Force Reduction (IAAF):		35-50%
Modified Vertical Deformation (IAAF):		0.6 mm – 2.5 mm
Permeability:		min 0.01 cm/s
Friction (wet) (IAAF):		> 0.5
Friction (dry) (DIN):		<1.1
Tensile Strength (IAAF):		≥ 0.4 MPa
Elongation (IAAF):		>40%
Spike Resistance (DIN)		Class 1

F. Product substitution: If other than the product specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient

data, drawings, samples and literature to demonstrate that the proposed substitution is of equal quality and utility to that originally specified. Information must include a QUV test of at least 1,000 hours and IAAF test information for the system to be installed

- G. Any materials used must be an emulsion/water based product. Any products which require solvents such as MEK, Butyl Cellusolve or Acetone for clean up or mixing are not acceptable.
- H. Materials must have a VOC less than 150g/lit. for binder products. Top coats shall have a VOC of less than 100g/lit. measured by EPA method 24.
- I. Materials may not have a flash point of less than 200°F.
- J. All Materials shall have documented independent test results by an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

2.2 MATERIALS

A. Rubber – Polyurethane Track Basemat (SBR)

- 1. The polyurethane track base mat rubber shall be specifically graded rubber granules with a controlled gradation between 1.0mm to 3.00mm.
 - a. Dust and rubber particulate smaller than a No. 200 sieve size shall not exceed 1 percent of the total rubber.
 - b. The rubber shall be black SBR

B. Rubber – Structural Spray Top Coat (EPDM)

- 1. EPDM colored virgin rubber granules that are processed and graded to 0.5 – 1.5 mm in size unless otherwise specified. The rubber shall contain a minimum of 20% EPDM and be approved by the resin manufacturer. The specific density shall be 1.60 +/- 0.08 and Shore A hardness of 60. Color coat shall be **RED** in color

C. Primer

- 1. The synthetic track surface primer shall be polyurethane based and compatible with asphalt and synthetic track surfacing materials.
- 2. When installing over a concrete pavement special developed concrete primer, manufactured by the same manufacturer of the other materials, shall be applied.

D. Binder

- 1. The synthetic track surface binding agent shall be a single component; MDI based moisture cure polyurethane binder. The binder shall not have a free TDI monomer level above 0.2% and must be solvent free.
 - a. The polyurethane binder shall be 100 percent solids.
 - b. The polyurethane binder shall be compatible with SBR and EPDM rubber granules.

2. All polyurethane binder shall be manufactured by the installation company and to be delivered in new unopened containers, clearly labeled by the manufacturer.

E. Structural Spray Coating

1. The spray coating shall be a MDI-based single-component, moisture cured, 100% solids, and pigmented polyurethane, specifically formulated for compatibility with EPDM granules.
 - a. The coating shall be RED.
 - b. Pigment intergraded in the field shall not be allowed.

PART 3 EXECUTION

3.1 GENERAL

- A. The bituminous pavement should be sufficiently cured and cleaned in order for work to progress
- B. The entire surface shall be swept, power blown, or high pressure washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- C. All work shall be performed by manufacturer's technicians and comply with the manufacturer's guidelines for the complete placement and installation of the base layer, the sealing and surface layers.
- D. During surface installation and striping all sprinkler systems shall be shut off, or controlled so that no water falls on the track or event surfaces.
- E. All materials shall be installed in strict compliance with the manufacturer's specifications and instructions.
- F. The Contractor shall be responsible to have the entire track area, and other pertinent areas such as football field, concessions, etc., closed and secured of all activities 24 hours per day through the curing and completion of the synthetic track surface.

3.2 WEATHER LIMITATIONS

- A. Ambient and surface temperatures must be 50°F and rising.
- B. Installation should not be conducted during rainfall or when rainfall is imminent.
- C. Do not apply when surface temperature is in excess of 140°F.
- D. Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.

3.3 SURFACE PREPARATION

- A. Asphalt shall be cleaned of all oils, spills & staining. Repairs to existing asphalt as asphalt shall be allowed to cure for a minimum of 21 days prior to the application of any surfacing materials.
- B. All concrete work is to cure for a minimum of 45 days. No curing agents are to be used. Any concrete flat work such as run ups etc. will be checked as in 3.3D.

- C. The surface must be thoroughly cleaned of all loose dirt and debris. Any oil spills (hydraulic, diesel, motor oil, etc.) must be completely removed, either by chipping out or removing and replacing with new, keyed in asphalt.
- D. D. The asphalt substrate track surface shall not vary from planned cross slope by more than +.2%, with a maximum lateral slope outside to inside of 1% for NCAA or IAAF facilities (1% to 2% for NFHS), and a maximum slope of 0.1% in any running direction. The finished asphalt shall not vary under a 10' straight edge more than 1/8".
- E. Prior to the application of resilient surface materials, the entire asphalt base surface shall be checked for planarity, surface tolerance, and flooded and checked for depressions or irregularities in the asphalt. Any puddle area covering a nickel shall or vary +/- 1/4 inch when measured with a 10-foot straightedge in any direction shall be marked and repaired with Patch Binder, according to manufacturer's specifications and approved by the Engineer. After patching, the asphalt surface shall not vary allow water to stand greater than 1/16 inch, one (1) hour after a flood test has been pre-formed. Slopes shall meet the guidelines of the ASBA and NFHS.
- F. It shall be the responsibility of the general contractor to flood the surface.
 - 1. If, after 40 minutes of drying time, there are birdbaths evident, it shall be the responsibility of the landscape architect, in conjunction with the surfacing contractor, to determine the method of correction. No cold tar patching, skin patching or sand mix patching will be acceptable.
 - 2. Any oil spills (hydraulic, diesel, motor oil, etc.) must be completely removed and replaced with either polyurethane or new, keyed in asphalt. The minimum curing time for the asphalt base repair is 21 days. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.
 - 3. It shall be the responsibility of the general contractor to determine if the asphalt substrate meets all design specifications, i.e. cross slopes, planarity and specific project criteria. After all the above conditions are met, the synthetic surfacing contractor must, in writing, accept the planarity of the asphalt receiving base, before work can commence.
- G. All-Weather running track surfacing installer representative shall be present for all testing on the asphalt base. Installer shall submit, in writing, acceptance of the asphalt base.

3.4 RESILIENT SURFACE INSTALLATION

A. Primer

- 1. The entire area to be surfaced shall receive an application of polyurethane primer applied uniformly at a rate between 0.20-0.30 lb. per sq. yd. A minimum cure time of 30 minutes is required before application of the base mat materials.
- 2. Only the area to be covered within the working day should be primed to ensure a good bond to the base. Concrete base may require additional coating based on absorption rate of applied primer.

B. Polyurethane Track Basemat

1. The mixing ratio of rubber to binder shall not be less than 100 parts rubber to 20 part binder as determined by the weight of the products. The materials shall be prepared in a mechanical mixer until a homogenous mix is obtained.
2. The mixed materials making up the synthetic track surface shall be applied by a mechanically operated finishing machine, which shall have an electrically heated screed, to an approximate depth of 11 - 12 mm using approximately 17.33 lbs/sy of mixed material.
3. The cured edge of each joint shall be primed with the synthetic track surface binding agent prior to the laying of the adjacent base mat. All joint work shall be troweled flush with the adjacent mat.
4. Trowel work: All seams shall be troweled smooth within the pot life of the material. All edges shall be straight and rounded by turning the trowel. All cold dry seams shall be cut straight at an inward angle and primed prior to commencing with subsequent work.

C. Structural Spray Top Coat (two applications)

1. The polyurethane track base mat shall be cleaned and prepared prior to the installation of the structural spray top coat in accordance with the manufacturer's specifications and instructions.
2. According to the manufacturer's specifications, the specified quantity of colored EPDM granules shall be mixed thoroughly with the specified quantity of the one component polyurethane of the structural spray material.
3. Structural Spray Coat (two applications) – is spray applied with air and volume-controlled spray equipment. Care is to be taken so as to provide an even surface without streaking.
4. A second coat of material over the first is applied in the opposite direction. The total rate of each coat of spray shall range from 3.5 to 4.0 lbs. per square yard.

3.5 MARKING AND MEASUREMENTS

- A. Wait 48 hours after surface completion before applying line marking.
- B. Experienced personal specializing in all-weather running track striping shall accomplish all striping.
- C. See Track Markings Section

3.6 PROTECTION

- A. During construction the installer is responsible for limiting access of non-construction personnel to the site.
- B. The installation contractor shall coordinate any irrigation of fields with the owner.
- C. The installer shall protect curbs, fences and all other structures from overspray.

3.7 QUALITY ASSURANCE

- A. Track system shall subject to successfully tested independently an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990

3.8 CLEAN UP

- A. Remove all containers, surplus and debris and dispose of in accordance with local, state and Federal regulation.
- B. Remove all spills and overruns.
- C. Leave site in a clean and orderly condition on a daily basis.
- D. Upon completion of all work, remove all containers, surplus materials, and installation debris. Leave area of work in clean orderly condition.

END OF SECTION

A D D E N D U M N O . 2

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING
DERBY HIGH SCHOOL**

Derby, CT

KBA #17015.00 |CITY PROJECT NO. COD 2018-02

Date: March 16, 2018

Page: 1 of 1

The following changes to the Project Manual shall become a part of the Drawings, Specifications, Bidding Requirements and Contract Documents; superseding previously issued Drawings, Specifications, Bidding Requirements, Contract Documents and Addenda, to the extent modified by this Addendum.

BID DUE DATE REMAINS: 10:00 am MONDAY, MARCH 19, 2018 at Kaestle Boos Associates, 416 Slater Road, New Britain, CT 06050 *(General Contractor bids for the overall project are due Monday April 02, 2018 – Addendum No. 1, previously March 30, 2018)*

QUESTIONS

Q: *How do we get a copy of Sheet SF 2.04 for the J.R. Payden Field House & Field project which is referenced in the documents?*

A: See attached Sheet SF2.04 from the J.R. Payden Field House and Field Project.

CHANGES TO PLANS OR SPECIFICATIONS

None

ATTACHMENTS

Drawings:

SF 2.04 Site Detail Sheet

Specifications:

none

Peter de Bretteville
Architect

Architect
Peter de Bretteville Architect
146 Deepwood Drive
Hamden, Connecticut
06517
t: 203-498-2104

Structural, Mechanical, Electrical, Plumbing Engineers
IES Innovative Engineering Services
33 North Plains Industrial Road
Wallingford, Connecticut
06492
t: 203-476-4370

Civil, Landscape, & Geotech Engineers
Langan Engineering
555 Long Wharf Drive
New Haven, Connecticut
06511
t: 203-562-5771

Landscape Architect for Baseball Field
Kaestle Boos Associates, Inc. Architects
416 Slater Road
P.O. Box 2590
New Britain, Connecticut 06050
t: 860-229-0361

Code Consultant
Philip R. Sherman, P.E.
P.O. Box 216
444 Wilmot Center Road
Elkins, NH 03233-0216
t: 603-526-6190

Revisions
8/15/17 100% Schematic Design
9/26/17 100% Design Development
11/17/17 Value Engineering Pricing Set
12/14/17 75% Construction Documents
1/26/18 100% Construction Documents
2/16/18 Bid Documents

NOT FOR CONSTRUCTION
© Peter de Bretteville Architect

Client Name

Sheet Name
DETAILS SHEET

Issue
Bid Documents

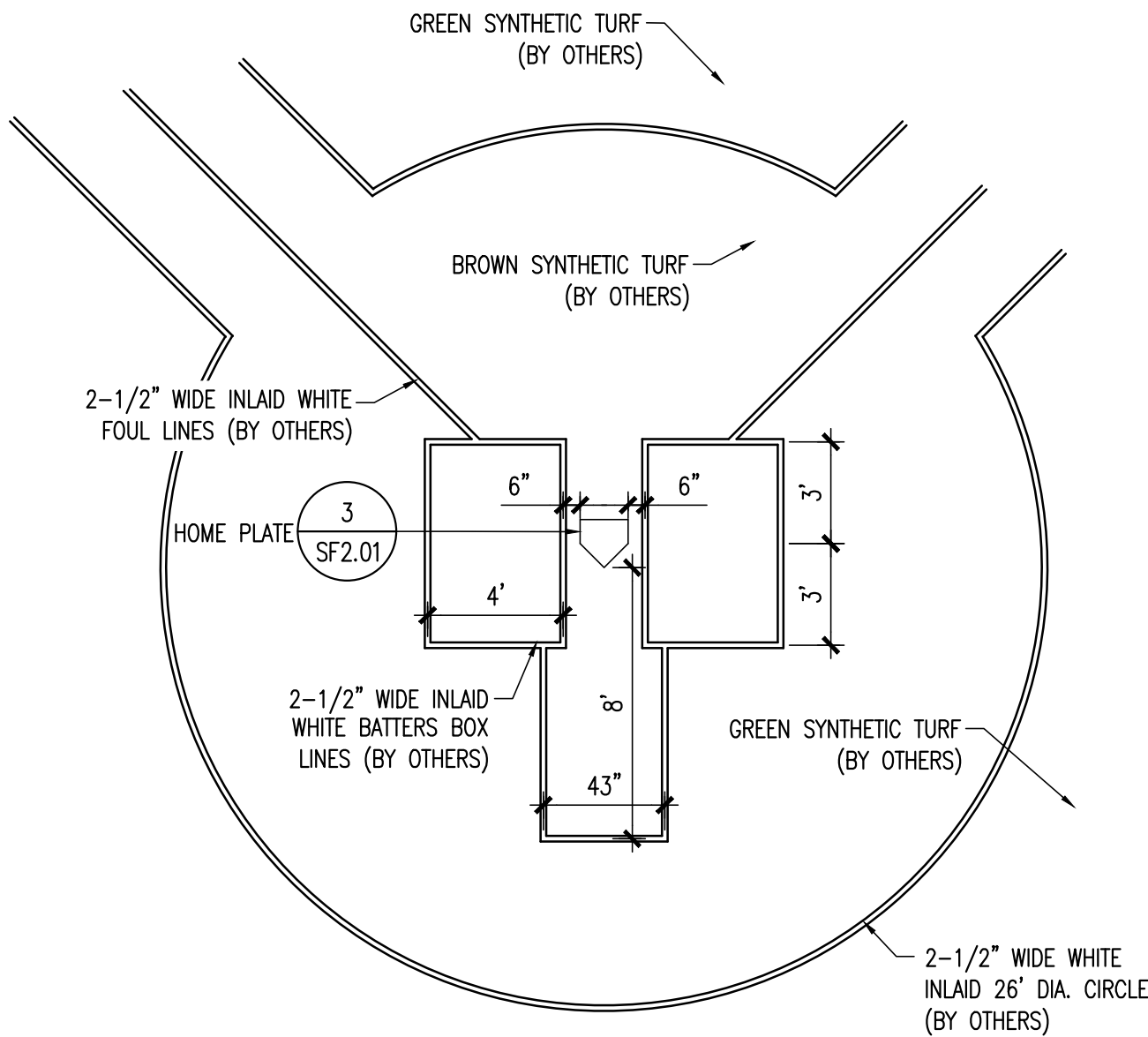
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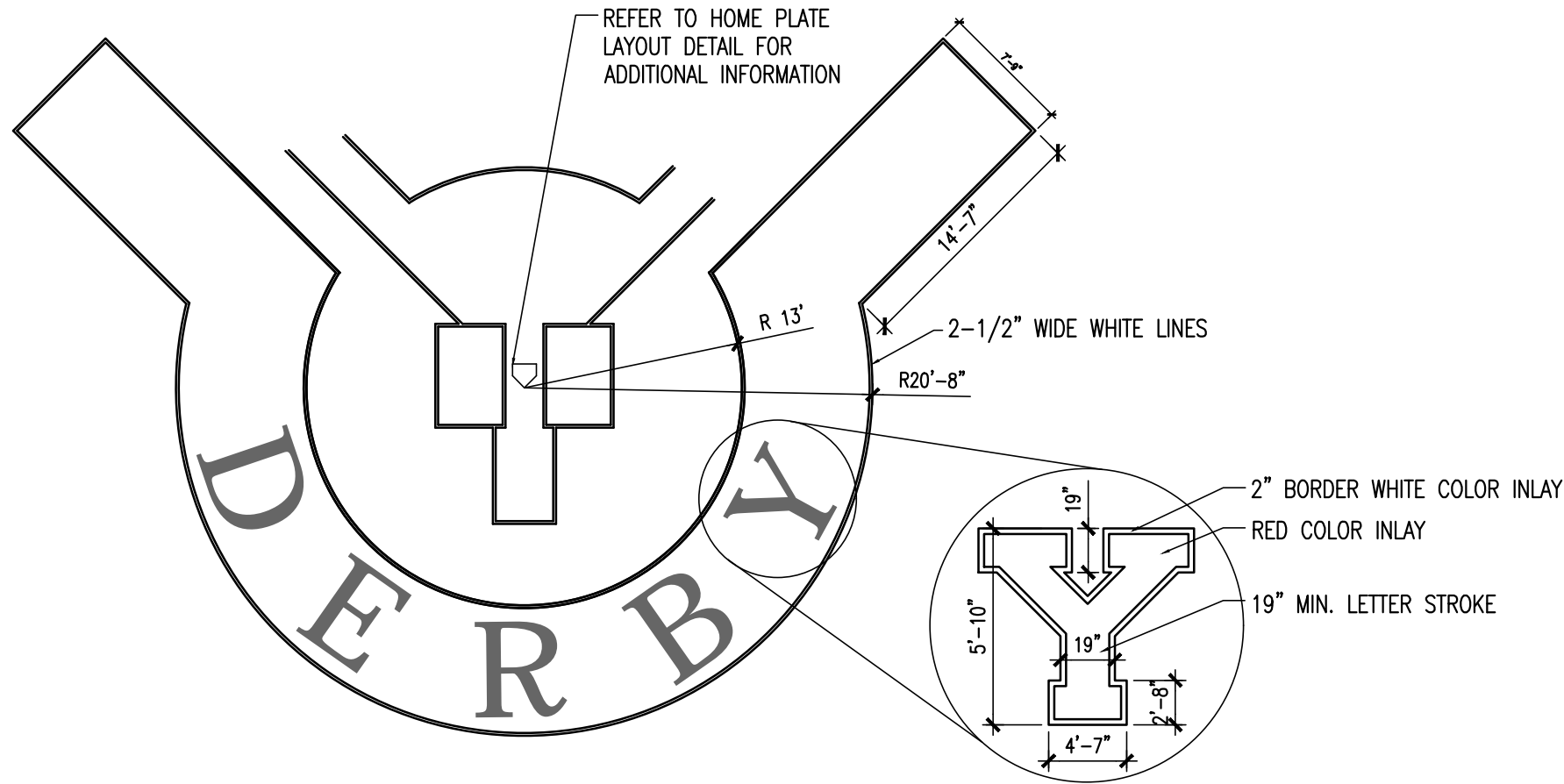
Drawn by
JAD

Sheet Number

SF2.04



1 HOME PLATE LAYOUT
N.T.S.



2 HOME PLATE LOGO (BY OTHERS)
N.T.S.

Project Manual and Specifications

**Synthetic Grass and Running Track
Surfacing
Derby High School
Derby, CT
City Project No. COD 2018-02**

**Issued for BID
February 28, 2018**

KÆSTLE BOOS
associates, inc

416 Slater Road, P.O. Box 2590
New Britain, CT 06050-2590
Phone: 860-229-0361
Fax: 860-229-5303

PROJECT MANUAL AND SPECIFICATIONS

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DERBY HIGH SCHOOL
DERBY, CT

SYNTHETIC GRASS AND TRACK SURFACING MATERIAL
KBA #17015.00/17015.01

PROJECT COVER SHEET

COVER SHEET

L0.00 OVERALL SITE PLAN

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L2.02 SITE LAYOUT & MATERIALS PLAN (BASEBALL FIELD)

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L4.02 SITE DETAILS

END LIST OF DRAWINGS

INVITATION TO BID
SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR
THE ATHLETIC FACILITIES RENOVATION PROJECT &
THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD
DERBY HIGH SCHOOL -
DERBY, CT
CITY PROJECT NO. COD 2018-02

Sealed bids for the **Synthetic Grass and Running Track Surfacing Project - at Derby High School, Derby, CT** addressed to **Lue McCoy, Kaestle Boos Associates** will be received in the **Kaestle Boos Associates, 416 Slater Road, New Britain, CT 06050** on or before **10:00 a.m.** local time on **MONDAY, MARCH 19, 2018**. Bids will be turned over to the bidding General Contractors for each of the various projects. Late bids will be rejected.

A **Non-Mandatory** Pre-Bid Construction Meeting will be held on **THURSDAY, March 08, 2018**, at **10:00 a.m.** local time at the **Site, 75 Chatfield Road, Derby, CT 06418**.

All addenda will be available provided by Kaestle Boos Associates. Faxes of addenda will not be provided. It is the responsibility of bidders to check and receive all addenda, prior to submitting bids.

All Requests for Information (RFI) are to be in writing and emailed to the attention of Luke McCoy at lmccoy@kba-architects.com. Phone calls will not be returned for RFI questions. RFIs must be received by the Architect by **Monday March 12, 2018 BY NOON**— Last day to receive RFIs.

Bidders shall not include Federal Excise Taxes or State of Connecticut Sales Taxes on which Public Buildings are exempt.

All Bidders should make an effort to consider the use of local trade contractors.

Bids must be held firm and may not be withdrawn for sixty (60) days after the bid opening.

The **City of Derby** reserves the right to waive any informalities in Bids, to reject any or all Bids, or to accept any proposal that in their judgment will be in the best interest of the Town.

The **City of Derby** does not discriminate on the basis of sex, race, age, physical disability, religion or national origin.

The **City of Derby** is an Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged to apply.

INSTRUCTION TO BIDDERS

CITY PROJECT NO. COD 2018-02

PROPOSAL

Proposals are being sought for Synthetic Grass Surfacing and Running Track Surfacing for the Derby High School Athletic Facilities Renovation Project and the J.R. Payden Field House/Payden Baseball Field Project. All work shall be done in full accordance with the plans and specifications.

KEY EVENT DATES

- Advertisement for Invitation to Bid: Friday, March 02, 2018.
- NON-MANDATORY Pre-Bid Construction Meeting: Thursday, March 08, 2018, 10:00 a.m.
- FINAL QUESTIONS BY CONTRACTORS: Monday, March 12, 2018 by Noon.
- FINAL ADDENDUM ISSUED: Wednesday, March 14, 2018.
- Bid Opening: Monday March 19, 2018, 10:00 a.m. No bids will be accepted after said date and time.

ALTERNATE BIDS

No Alternate or Supplementary Bids will be considered unless such Bids are specifically requested in the Supplemental Specifications and shown on the Bid Proposal Form.

RECEIPT AND OPENING OF BIDS

Separate sealed bids will be received until the time and date stated in the Invitation to Bid.

One (1) Original and one (1) pdf copy of the Bid shall be submitted in sealed envelopes clearly labeled with the name and address of the Bidder, the date and time of the Bid opening and the words Synthetic Turf and Running Track Surfacing for Derby High School Athletic Facilities Renovation Projects, so as to guard against opening prior to the time set therefore. Bids may be forwarded by mail. If mailed, the sealed envelope containing the proposal, marked as described above, shall be enclosed in another envelope properly addressed for mailing and received in time for bid. Bids cannot be emailed or faxed.

The City may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening thereof.

DETERMINATION OF AWARD

This Contract will be awarded to the lowest, responsible, qualified bidder based upon his/her "Total Base Bid Amount" only. The City shall determine the "lowest, responsible, qualified bidder" on the basis of the bidder submitting the lowest Total Base Bid Amount; responsiveness of his/her proposal; demonstration of a history of the ability and integrity necessary to perform the required work; and certification that he/she can perform the required work in accordance with the Contract Documents.

Bids will be compared on the basis of the Total Base Bid of the items listed in the Bid proposal.

The awarded proposal will be supplied to the General Contractors for each of the various projects for use in their overall bid. The work covered in the bid will be included in the General Contractors contract.

UNIT PRICES

The unit prices for each of the several items in the proposal of each bidder shall include its prorated share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price represents the total bid. Any bid not conforming to this requirement may be rejected as informal. The special attention of all bidders is called to this provision, for should conditions make it necessary to revise the quantities, increase or decrease thereof may be made without limit, and adjustment and compensation shall be made on the basis of the unit prices for such items.

PREPARATION OF PROPOSAL

Each bid shall be handwritten in ink or typed and submitted on the prescribed form and all blank spaces for bid prices must be filled in both words and figures. Bid prices shall include all labor, materials, and equipment necessary to complete the work in accordance with the Contract Documents.

Each Bidder shall include in his/her Bid the following information:

Principals:

Names:

Home addresses, including City, State, Zip Code:

Firm:

Name:

Treasury Number:

Address:
City, State, Zip Code:
Phone Number:
Fax Number:
Email Address:

COLLUSIVE AGREEMENTS

Each Bidder submitting a Bid to the City of Derby for the work contemplated by the Documents, on which bidding is based, shall execute and attach thereto the Non-Collusion Affidavit on the form herein provided, to the effect that he/she has not colluded with any other person, firm or corporation in regard to any Bid submitted.

Before executing any Subcontract, the successful Bidder shall submit the name of any proposed Subcontractor for prior approval and an affidavit in the form provided herein.

BIDDER'S QUALIFICATION STATEMENT

Each Bidder shall submit on the form furnished for that purpose (a copy of which is included in the Contract Documents) a Bidder's qualification statement, his/her experience record in the type of work embraced in the Contract, and his/her organization and equipment available for the work contemplated, and other pertinent information so contained on said form, and when specifically requested, the City of Derby shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his/her obligations under the Contract, and the Bidder shall furnish the City of Derby all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the City of Derby that the Bidder is qualified to carry out properly the terms of the Contract.

The City of Derby also reserves the right to consider as not responsible any Bidder who does not habitually perform with his/her own forces at least fifty-one (51%) percent of the dollar value of the work involved in this Contract.

ACT CONCERN WORKERS' COMPENSATION

Effective October 1, 1986, an Act concerning Workers' compensation insurance requirements for Contractors on public works projects and state licenses requires that municipalities, prior to entering into contractual obligation for construction or repair of any public works project, must obtain the evidence that the Contractor can prove that he/she is not liable to the State for any workers' compensation payments.

WITHDRAWAL OF BIDS

Bids may be withdrawn personally or on written or telefax request dispatched by the bidder in time for delivery in the normal course of business prior to the time fixed for opening, provided that written confirmation of any telefax withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening. Negligence on the part of the bidder in preparing his/her bid confers no right of withdrawal or modification of his/her bid after such bid has been opened.

FAMILIARITY WITH LAWS, SITE CONDITIONS, AND DOCUMENTS

Each bidder is required to be familiar with and to comply with the terms and conditions of the specifications and all other Contract Documents and with all Federal, State and Local Laws, Ordinances or Regulations, which in any manner relate to the performance of the work in accordance with the Contract.

TAX EXEMPTION

The City is exempt from paying tax and for that reason the bid price shall *not* include any tax on the items specified.

INSURANCE

The Contract requires the Contractor to maintain in force during the performance of the Work, policies of **Workmen's' Compensation Insurance and Public Liability and Property Damage Insurance**, covering the operations of the Contractor, subcontractors, and the agents of any of them, the use of any motor vehicles employed by the Contractor, subcontractors, and the agents of any of them.

Certificates evidencing the fact that the Contractor has procured the required insurance must be filed with the City of Derby Finance Office at the time of the execution of the Contract. Bidders should examine the General Conditions for the details of the insurance requirements.

ERRORS, INTERPRETATIONS, AND ADDENDA

Should a bidder find any omissions, discrepancies, or errors in the Specifications or other Contract Documents or should he/she be in doubt as to the meaning of the Specifications or other Contract Documents, he/she should immediately notify the City of Derby's **Authorized Representative** which may correct, amend, or clarify such documents by a written interpretation or addendum. No oral interpretations shall be made to any bidder and no oral statement of the City of Derby shall be effective to modify any of the provisions of the Contract Documents.

EMPLOYEE DISCRIMINATION

The Contractor agrees and warrants that in the performance of this Contract, he/she will not discriminate or permit discrimination against any person or groups of persons on the grounds of race, color, religion or national origin, age, marital status, sex, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or the State of Connecticut and further agrees to provide such information requested by the City concerning the employment practices and procedures of the Contractor as related to the provisions of this section.

SUBCONTRACTORS

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the City of Derby and that approval of the proposed subcontract award cannot be given by the City unless and until the successful bidder submits all information and evidence requested by the City regarding the proposed subcontractor. Although the bidder is not required to attach such information and evidence to his/her bid, the bidder is hereby advised of this requirement so that appropriate action will be taken to prevent subsequent delay in subcontract awards.

All contracts made by the Contractor with subcontractors shall be governed by the terms and conditions of the prime Contract. The Contractor shall see to it that his/her subcontractors are fully informed in regard to these terms and conditions.

EXECUTION OF CONTRACT

If notified of the acceptance of this proposal within the acceptance period of ninety (90) days, the bidder agrees to execute the contract and all related documents for this work within ten days of receipt of the "Notice to Proceed."

TIME REQUIREMENTS

Time is a major factor for the completion of this contract. All work must be completed within the time limitations stipulated in the Supplemental Conditions. A monetary penalty as stipulated in the Supplemental Conditions will be imposed for work under this contract not completed within the aforementioned time period.

RIGHT OF THE CITY TO TERMINATE CONTRACT

In the event that any of the provisions of this Contract are violated by the Contractor, or by any of his/her subcontractors, the City of Derby may serve written notice upon the Contractor of its intention to terminate the Contract, such notices to contain the reasons for such intention to terminate the contract, and unless within five days after the serving of such notice upon the Contractor, such violation or delay shall cease and

satisfactory arrangement for correction be made, the Contract shall, upon expiration of said five days, cease and terminate. In the event of any such termination, the City of Derby shall immediately serve notice thereof upon the Contractor.

City of Derby
Finance Department
1 Elizabeth Street
Derby CT 06418
203-736-1450

BID REQUIREMENTS
CITY PROJECT NO. COD 2018-02

This sheet is designed for your assistance and guidance when submitting your proposal of a bid to the City of Derby. Return all bids to the above address.

Number of Copies:

All submitted bids should have one original and one pdf copies when submitting to Kaestle Boos.

Non-Collusion Affidavit: (submit as page two of submitted bid)

Pricing:

All bids shall be honored for no less than 90 days from bid opening date, bid extension date or clarification of contracts.

Prevailing Wages:

The J.R. Payden Field House and J.R. Baseball Field project IS NOT subject to prevailing wage rates.

The Derby High School Athletic Facility Renovations project IS subject to prevailing wage rates. Under the Davis-Bacon Act, all construction projects for public works, prevailing wage schedules must be part of any and all specifications. Construction Projects that are considered are remodeling, refurbishing, rehabilitation, alterations or repair(s) whose value exceeds \$100,000 and projects for new construction where values exceed \$1,000,000.

For questions on prevailing wage, visit the Department of Labor's web page at www.CTDOL.State.CT.US

Ability and Experience of Bidder

No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plan to enable him to prosecute and complete the work successfully within the time named. The Owner's decision or judgment on these matters will be final, conclusive, and binding.

The Owner may make such investigations as he deems necessary, and the bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

Bidders must provide verification of experience with Form of Proposal and Bidders Qualification Statement.

Waiver or Rejection of Bids:

The City's Finance Committee reserves the right to reject any and all bids in whole or in part, or to waive any informality or technicalities regarding said proposals; or to accept any proposal or part thereof deemed to be in the best interest of the City of Derby. Please be advised that if you are awarded a project from the City of Derby you will enter into a contract with the awarded General Contractor for the project.

Please have your insurance carrier reference bid number on all Certificates of Insurance

- Specifications supersede bid requirements above

If this project is state funded and is \$50,000 or more, state set asides 4a-60, 4a-60a, 4a-60g, 46a-68b-46a-68f will apply.

BID LANGUAGE (for bid documents)

Derby High School Athletic Facility Renovations Project

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. Sec. 4a-60, 4a-60a, 4a-60g and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-4. An Affirmative Action Plan must be filed with and approved by the Commission on Human Rights and Opportunities prior to the commencement of construction.

The contractor shall be required to make good faith efforts to place a minimum of twenty-five (25%) percent of the subcontracts awarded by the general contractor/construction manager at risk with eligible contractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. Sec. 4a-60g, as amended. (25% of the work with DAS certified Small and Minority owned business(s) and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses)

CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: _____

Address and Zip Code: _____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
Yes ____ No ____ *(If answer is yes, identify the most recent contract,)*
2. Compliance reports were required to be filed in connection with such contract or subcontract.
Yes ____ No ____ *(If answer is yes, identify the most recent contract.)*
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.
Yes ____ No ____ None Required ____
4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please Type)

Signature

Date

CERTIFICATION OF SUBCONTRACTOR REGARDING
EQUAL EMPLOYMENT OPPORTUNITY
CITY PROJECT NO. COD 2018-02

Name of Prime Contractor

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the Owner approves the subcontract or permits work to begin under the subcontract.

SUBCONTRACTOR'S CERTIFICATION

Subcontractor's Name: _____

Address and Zip Code: _____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

Yes _____ No _____

2. Compliance reports were required to be filed in connection with such contract or subcontract.

Yes _____ No _____

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100.

Yes _____ No _____ None Required _____

4. If answer to item 3 is "No," please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please Type)

Signature

Date

FORM OF PROPOSAL

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR
THE ATHLETIC FACILITIES RENOVATION PROJECT &
THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD
DERBY HIGH SCHOOL
DERBY, CT
CITY PROJECT NO. COD 2018-02**

**TO: Salvatore Coppola, Finance Director
Finance Office
Derby City Hall
1 Elizabeth Street
Derby, CT 06418**

Pursuant to and in compliance with your "Invitation to Bid" relating thereto, the undersigned,

(Name of Firm)

having visited the site and carefully examined the Drawings, Bidding Documents and complete Specifications **dated February 28, 2018** together with all Addenda issued and received prior to scheduled closing time for recipient of Bids as prepared by the Architects, KAESTLE BOOS ASSOCIATES, INC., 416 Slater Road, New Britain, Connecticut, hereby offers and agrees as follows:

To provide all labor, materials, and all else whatsoever necessary to erect and properly finish all work in connection with the

**SYNTHETIC GRASS AND RUNNING TRACK SURFACING FOR
THE ATHLETIC FACILITIES RENOVATION PROJECT &
THE J.R. PAYDEN FIELDHOUSE & PAYDEN BASEBALL FIELD
at
DERBY HIGH SCHOOL
DERBY, CT**

to the satisfaction of the Architect and Owner for the sum of:

J.R. Payden Field House & Payden Baseball Field (non-prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

_____ (\$ _____)

Synthetic Grass Landscape Surfacing System

_____ (\$ _____)

Derby High School Athletic Facility Renovations COD 2018-02 (prevailing wage rates)

Synthetic Grass Sports Field Surfacing System

_____ (\$ _____)

Running Track Surfacing System

_____ (\$ _____)

TOTAL BID

_____ (\$ _____)

to provide all labor, materials, and all else whatsoever necessary to construct all improvements described in the specifications.

If awarded this Contract, we will execute a Contract with the **General Contractors** award the various projects based on the lowest qualified total bid price.

UNIT PRICES

Not Applicable

ALTERNATES

Not Applicable

CONTRACT TIME

The undersigned Bidder hereby certifies that Substantial Completion and Final Completion will be achieved in accordance with the time designated in the General Conditions of the Contract for Construction.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum No. # _____

Dated _____

Addendum No. # _____

Dated _____

Addendum No. # _____

Dated _____

ATTACHMENTS

1. Non-Collusion Affidavit
2. Bid Submittals as required under Specification Section 32 18 13 "Synthetic Grass Surfacing", 1.5 "Submittals", A. "Bid Submittals"

SIGNATURE

Contractor Firm

Authorized Signature

Printed Name and Title

Business Address

City and State

Telephone Number

Telephone Fax Number

NON-COLLUSION AFFIDAVIT
CITY PROJECT NO. COD 2018-02

State of _____)
)ss.
County of _____)

_____, being first duly sworn, deposes
and says that:

(1) He is (owner, partner, officer, representative or agent) of _____
_____, the Bidder that has submitted the attached bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all
pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid,

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives,
employees or parties in interest, including this affiant, has in any way colluded, conspired, connived
or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham
Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from
Bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by
agreement or collusion or communication or conference with any other Bidder, firm or person to fix
the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost
element of the Bid price or the Bid price of any other Bidder or to secure through any collusion,
conspiracy, connivance or unlawful agreement any advantage against the Owner or any person
interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any
collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its
agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

Subscribed and sworn to before me
this _____ day of _____, 20_____.

(Notary Public)

My commission expires _____, 20_____.

AGREEMENT
CITY PROJECT NO. COD 2018-02

THIS AGREEMENT, entered into on this ____ day of _____, 20____ by _____ and between the CITY OF DERBY (hereinafter referred to as the "CITY") and _____ (hereinafter referred to as the "CONTRACTOR"):

WHEREAS, the CITY desires to _____

NOW, THEREFORE, CITY and the CONTRACTOR for the consideration of One (\$1.00) Dollar and other valuable consideration and under the terms and conditions hereinafter set forth, hereby agree as follows, to wit:

1. The CITY hereby engages the CONTRACTOR and the CONTRACTOR hereby agrees to _____
2. Additional work shall be performed by the CONTRACTOR only with the specific authorization of the CITY under a written amendment to this Agreement.
3. The CONTRACTOR covenants and agrees that it will perform its services under this Agreement in accordance with the highest standards and best practices of its trade.
4. In performing the services required under this Agreement, the CONTRACTOR shall conform to all applicable provisions of Federal, State and local laws and regulations including all environmental matters.
5. The CONTRACTOR shall indemnify, defend and save harmless the CITY for any damages, claims, actions and losses arising either directly or indirectly from the work performed by the CONTRACTOR or his subcontractors. The provisions of this paragraph shall survive the expiration or termination of this Agreement and shall in no way be limited by reason of any insurance coverage.
6. The CONTRACTOR shall provide the CITY with evidence of insurance coverage of a type and in the amounts required by the Contract Documents and naming the CITY as an additional insured if the CITY so requires. All insurance shall be taken out and maintained at no cost or expense to the CITY and the CONTRACTOR shall be responsible for the full amount of any deductible. A Performance Bond and a Payment Bond, each in the amount of 100% of the bid amount shall be presented to the CITY prior to commencing the performance of any work under

this agreement. The Performance Bond shall be released upon the City's final acceptance of the Project.

7. In providing the services required under this Agreement, the CONTRACTOR shall meet with CITY officials/representatives as often as reasonably necessary and shall be available upon request.
8. The City of Derby may terminate any Agent/Purchase Order at any time for any reason. Said termination shall not give rise to any claim against the City for damages or for additional compensation.
9. Nonappropriation: If the CITY fails to appropriate the funds required by this Agreement or fails for two consecutive months to make the payments required hereunder, the Agreement shall be deemed terminated and of no further force and effect, and the CONTRACTOR shall retain all sums previously deposited as liquidated damages, provided the CITY shall pay CONTRACTOR any amounts due for services rendered as of the date of termination.
10. The CITY shall compensate the CONTRACTOR _____
11. The CONTRACTOR shall not assert any claim arising out of any act or omission by any agent, officer or employee of the CITY in the execution or performance of this Agreement.
12. The CONTRACTOR shall commence work on this project within ten (10) calendar days after issuance of a Notice to Proceed by the CITY or the CITY's designated representative. All work shall be completed by the CONTRACTOR in accordance with the schedule detailed _____
13. All work performed by the CONTRACTOR shall be subject to inspection and acceptance by the CITY.
14. The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in subsection (i) of Section 31-53 of the General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public work project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day.
15. Pursuant to Connecticut General Statutes Section 49-41a, the CONTRACTOR, within thirty (30) days after payment by the CITY, shall pay any amounts due any

subcontractor, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the CONTRACTOR and paid by the CITY. In addition, the CONTRACTOR shall include in each of its subcontracts a provision requiring each subcontractor to pay any amounts due any of its subcontractors, whether for labor performed or materials furnished, within thirty (30) days after such subcontractor receives a payment from the CONTRACTOR which encompasses labor and materials furnished by such subcontractor.

16. Pursuant to Connecticut General Statutes Section 49-41b, the CITY shall withhold five (5%) percent from any periodic payment or final payment until the work required herein has been completed and accepted by the CITY.
17. The CONTRACTOR acknowledges the execution of the Non-Collusion Affidavit which was submitted as part of the bid documents and reaffirms the statements provided for therein.
18. The Contractor agrees that the City of Derby, the State of Connecticut, agencies of the Federal Government, or any other authorized representatives, shall, until the expiration of three (3) years after the final payment under the contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such contractor, involving transactions related to the contractor.

The period of access and examination described above, for records which relate to (1) appeals for disputes, (2) litigation of the settlement of claims arising out of the performance of this contract, or (3) costs and expenses in relation to the performance of the contract to which exception has been taken by the City, State or Federal government or any of their duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed of.

19. Pursuant to Connecticut General Statutes Section 31-52a, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to the residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states.

CITY OF DERBY

CONTRACTOR

By _____

By _____

Richard Dziekan
Mayor

Contractor

Contractor Agreement – Additional Language

CITY PROJECT NO. COD 2018-02

The Contractor covenants and agrees that it will perform its services under this Agreement in accordance with the highest standards and best practices of its trade.

In performing the services required under this Agreement, the Contractor shall conform to all applicable provisions of Federal, State and local laws and regulations including all environmental matters.

The Contractor shall indemnify, defend and save harmless the City for any damages, claims, actions and losses arising either directly or indirectly from the work performed by the Contractor or his subcontractors. The provisions of this paragraph shall survive the expiration or termination of this Agreement and shall in no way be limited by reason of any insurance coverage.

A Performance Bond and a Payment Bond, each in the amount of the contract price shall be presented to the CITY prior to commencing the performance of any work under this agreement. The Performance Bond shall be released upon the City's final acceptance of the Project.

In providing the services required under this Agreement, the Contractor shall meet with City officials/representatives as often as reasonably necessary and shall be available upon request.

The City may terminate this Agreement at any time for any reason. Said termination shall not give rise to any claim against the City for damages or for additional compensation.

Nonappropriation: If the City fails to appropriate the funds required by this Agreement or fails for two consecutive months to make the payments required hereunder, the Agreement shall be deemed terminated and of no further force and effect, and the Contractor shall retain all sums previously deposited as liquidated damages, provided the City shall pay Contractor any amounts due for services rendered as of the date of termination.

"The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in subsection (h) of Section 31-53 of the General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same

trade or occupation in the town in which such public work project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day."

Pursuant to Connecticut General Statutes Section 49-41a, the Contractor, within thirty (30) days after payment by the City, shall pay any amounts due any subcontractor, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the Contractor and paid by the City. In addition, the Contractor shall include in each of its subcontracts a provision requiring each subcontractor to pay any amounts due any of its subcontractors, whether for labor performed or materials furnished, within thirty (30) days after such subcontractor receives a payment from the Contractor, which encompasses labor and materials furnished by such subcontractor.

The Contractor acknowledges the execution of the Non-Collusion Affidavit, which was submitted as part of the bid documents and reaffirms the statements provided for therein.

The Contractor agrees that the City of Derby, the State of Connecticut, agencies of the Federal Government, or any other authorized representatives shall, until the expiration of three (3) years after the final payment under the contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such contractor, involving transactions related to the contractor.

The period of access and examination described above, for records which relate to (1) appeals for disputes, (2) litigation of the settlement of claims arising out of the performance of this contract, or (3) costs and expenses in relation to the performance of the contract to which exception has been taken by the City, State or Federal government or any of their duly authorized representatives, shall continue until such appeals, litigation, claims or exceptions have been disposed of.

Pursuant to Connecticut General Statutes Section 31-52a, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to the residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states.

GENERAL CONDITIONS
CITY PROJECT NO. COD 2018-02

DEFINITIONS

Wherever used in these General Conditions or in the other contract Documents, the following terms have the meanings indicated, which are applicable to both the singular and plural thereof:

Addenda: Written or graphic instruments issued prior to the opening of Bids, which clarify, correct, or change the bidding documents or the Contract Documents.

Agreement: The written agreement between the City and the Contractor covering the Work to be performed; other contract Documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment: The form accepted by the City of Derby, which is to be used by the Contractor in requesting progress or final payment and which is to include such supporting documentation as is required.

Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bonds: Bid Bonds, Payment Bonds, Performance Bonds and other instruments of security.

Change Order: A written order to the Contractor signed by the City of Derby's Authorized Representative authorizing an addition, deletion, or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after the effective date of the Agreement.

Contract Documents: The Agreement, Addenda (which pertain to the Contract Documents) the Contractor's Bid (when attached as an exhibit to the Agreement), the Bonds, these General Conditions, the Supplemental Conditions, the Specifications, the Special Provisions, the Drawings (as the same are more specifically identified in the Agreement), together with all Modifications issued after the execution of the Agreement.

Contract Price: The monies payable by the City to the Contractor under the Contract Documents as stated in the Agreement.

Contract Time: The number of days or the date stated in the Agreement for the completion of the Work.

Contractor: The person, firm, or corporation with whom the City has entered into the Agreement.

Effective Date of the Agreement: The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Field Order: A written order issued by the City of Derby or Authorized Representative, which orders minor changes in the Work.

Notice of Award: The written notice by the City to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified, the City will sign and deliver the Agreement.

Notice to Proceed: A written notice given by the City to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform his obligation under the Contract Documents.

Specifications: Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to thereto.

Subcontractor: An individual, firm, or corporation having a direct contract with the Contractor or with any other subcontractor for the performance of a part of the work at the site.

Substantial Completion: The work (or a specified part thereof) has progressed to the point where, in the opinion of the City of Derby's Authorized Representative, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it was intended.

Work: The entire completed construction of the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

GENERAL MATTERS

Commencement of Contract Time; Notice to Proceed

The Contract Time will commence to run on the effective date of the Agreement, or, if a Notice to Proceed is given on the day indicated in the Notice to Proceed.

Project Schedule

Derby High School Athletic Facility Renovation Project

Bids Due	Friday, March 30, 2018
Contractor Scope Reviews	April 02-03, 2018
Recommendation to Building Committee	Wednesday, April 04, 2018
*Anticipated Building Committee Meeting Date	
City and Contractor Executions	April 05-April 13, 2018

Construction (April 2108-September 2018)	COMPLETED BY:
Construction Permit, Submittals, & Mobilizations (2 weeks)	April 16-April 27, 2018
Building Abatement (2 weeks) (by others)	April 30-May 11, 2018
Retaining Walls and Bleacher Modifications	May 25, 2018
Multi-Purpose Field Base Construction	June 8, 2018
Track Base Construction	June 22, 2018
<i>Synthetic Turf Field Installation</i>	<i>July 20, 2018</i>
Softball and Proactive Field Base Construction	August 10, 2018
<i>Track Surfacing Installation</i>	<i>August 10, 2018</i>
Press Box and Lighting Installation	August 17, 2017
Multi-Purpose Field Fencing, Netting, and Landscaping	August 24, 2018
<i>Field and Track Testing, Punch List</i>	<i>August 31, 2018</i>
*Multi-Purpose Field Open for Use	September 03, 2018
Multi-purpose Field Close-out	September 14, 2018
Softball & Practice Field Fencing and Netting	August 31, 2018
Softball & Practice Field Seeding	September 07, 2018
Softball & Practice Field Punch List	September 21, 2018
Project Close-Out	September 28, 2018
Final Seeding Approval	October 26, 2018
Project Complete	October 26, 2018

J.R. Payden Field House & Payden Baseball Field Project

Schedule to be determined upon selection of a Construction Manager

Synthetic Turf Field Installation September 2018 (anticipated)

Starting the Project

The Contractor shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run

Before Starting Construction

Before undertaking each part of the Work, the Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The Contractor shall promptly report in writing to the City of Derby's Authorized Representative any conflict, error, or discrepancy, which the Contractor may discover.

Within ten days after the effective date of the Agreement, the Contractor shall submit to the City of Derby or Authorized Representative for review and acceptance an estimated progress schedule indicating the starting and completion dates of the various stages of the Work, and a preliminary schedule of values of the Work.

Before any Work at the site is started, the Contractor shall deliver to the City of Derby's Authorized Representative certificates of insurance, which the Contractor is required to purchase and maintain.

Preconstruction Conference

Before the Contractor starts the Work at the site, a conference may be required by the City of Derby's Authorized Representative for review and acceptance of the schedules, to establish procedures for handling submittals, for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

Suspension and Debarment

The City will not enter into contracts with parties that have been debarred, suspended or excluded from Federal assistance programs per 2 CFR part 180 and part 1532 and 40 CFR part 31.35.

Further the bidder is required to verify that the bidder, or its principals, as defined at 49 CFR 19.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 20.40 and 29.945.

The bidder is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the City if it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the City, the Federal Government may pursue available remedies, including but not limited to, suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 20, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

CONTRACT DOCUMENTS; INTENT

Intent

The Contract Documents comprise the entire Agreement between the City and the Contractor concerning the Work.

The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If, during the performance of the work the Contractor finds a conflict, error, or discrepancy in the Contract Documents, he shall report it to the City of **Derby's Authorized Representative** in writing at once and before proceeding with the Work affected thereby.

It is the intent of the Specifications to describe a complete project to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications as being required to produce the intended result shall be supplied whether or not it is specifically called for. When words, which have a well-known technical or trade meaning, are used to describe Work, materials, or equipment, such words shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference be specified or by implication, shall mean the latest standard specification, manual, or code in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, the Contractor, or the **City's Authorized Representative**, or any of their agents or employees from those set forth in the Contract Documents. Clarifications and interpretations of the Contract Documents shall be issued by the **City of Derby's Authorized Representative**.

The Agreement shall be governed by the laws of the State of Connecticut.

AVAILABILITY OF LANDS, PHYSICAL CONDITIONS, REFERENCE POINTS

Availability of Lands

The City shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way for access thereto, and such other lands, which are designated for the use of the Contractor. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Unforeseen Physical Conditions

The Contractor shall promptly notify the City of Derby's Authorized Representative in writing of any subsurface or latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the Contract Documents. The City of Derby's Authorized Representative will promptly review those conditions and determine if further investigation or tests are necessary. If the City of Derby's Authorized Representative finds that the results of such investigations or test indicated that there are subsurface or latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by the Contractor, a Change Order shall be issued incorporating the necessary revisions.

Reference Points

The City shall provide documentation for construction to establish reference points, which in its judgment are necessary to enable the Contractor to proceed with the Work. The Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points, and shall make no changes or relocations without prior written approval of the City. The Contractor shall report to the City of Derby's Authorized Representative whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for replacement or relocation of such reference points by professionally qualified personnel.

INSURANCE

Contractor's Liability Insurance

The Contractor shall purchase and maintain such comprehensive general liability and other insurance in an amount and with a company acceptable to the City as will provide protection from claims set forth below which may arise out of or result from the Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether such performance is by the Contractor, by any subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- o Claims under worker's or workmen's compensation, disability benefits, and other similar employee benefit acts;
- o Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- o Claims for damages insured by personal injury liability coverage, which are sustained by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or by any other person for any other reason;
- o Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and
- o Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.

The insurance required by this paragraph shall include the specific coverage's and be written for not less than the limits of liability and coverage's provided in the Supplemental Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed, or renewal refused until at least thirty days prior written notice has been given to the City and the City of Derby's Authorized Representative. All such insurance shall remain in effect until final payment and at all times thereafter when the Contractor may be correcting, removing or replacing defective Work. General liability insurance shall be endorsed to include the City of Derby as an additional insurance

and that such insurance to be primary and non-contributory and not excess to any liability policy carried by the City of Derby.

Contractual Liability Insurance

The comprehensive general liability insurance required above will include contractual liability insurance applicable to the Contractor's obligations.

City's Liability Insurance

The City shall be responsible for purchasing and maintaining its own liability insurance and at its option may purchase and maintain such insurance as will protect the City against claims which may arise from operations under the Contract Documents.

Property Insurance

The City shall not be responsible for purchasing and maintaining any property insurance to protect the interests of the Contractor or subcontractors in the Work to the extent of any deductible amounts. If the Contractor wishes property insurance coverage within the limits of such amounts, the Contractor may purchase and maintain it at his own expense.

Waiver of Rights

The City and the Contractor waive all rights against each other and the subcontractors and their agents and employees and separate contractors (if any) and their subcontractor's agents and employees, for damages caused by fire or other peril to the extent covered by insurance provided or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the City as trustee. The Contractor shall require written waivers from each subcontractor; each such waiver will be in favor of all other parties enumerated in this paragraph.

Receipt and Application of Proceeds

Any insured loss under the policies of insurance required shall be adjusted with the City and made payable to the City as trustee for the insured's, as their interests may appear, subject to the requirements of any applicable mortgage clause. The City shall deposit in a separate account any money so received, and it shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the monies so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order.

The City as trustee shall have power to adjust and settle any loss with the insurers, unless one of the parties in interest shall object in writing within fifteen days after the

occurrence of loss to the City's exercise of this power. If such objection be made, the City as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach.

Acceptance of Insurance

If the City has any objection to the covered afforded by or other provisions of the insurance required to be purchased and maintained by the Contractor on the basis of its not complying with the Contract Documents, the City will notify the Contractor in writing thereof within ten days of the date of delivery of such certificates to the City. If the Contractor has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by the City on the basis of their not complying with the Contract Documents, the Contractor will notify the City in writing thereof within ten days of the date of delivery of such certificates to the Contractor. The City and the Contractor will each provide to the other such additional information in respect to insurance provided by him as the other may reasonably request. Failure by the City or the Contractor to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

Partial Utilization – Property Insurance

If the City finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the work, such use or occupancy may be accomplished provided that no such use or occupancy shall commence before the insurer's providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.

CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence

The Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The Contractor shall be responsible to see that the finished Work complies accurately with the Contract Documents.

The Contractor shall assign to the project a competent field superintendent. The superintendent shall spend sufficient time at the site as necessary to insure that work is proceeding efficiently and in accordance with the Contract Documents.

The superintendent shall not be replaced, except on a temporary basis because of sickness, vacations, etc... without written notice to the City of Derby's Authorized Representative.

The superintendent shall be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

Labor, Materials and Equipment

The Contractor shall provide competent, suitably qualified personnel to survey and layout the Work and perform construction as required by the Contract Documents. The contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Supplemental Conditions, all Work at the site shall be performed during regular working hours, and the Contractor will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the City of Derby's Authorized Representative's written consent.

The Contractor shall furnish all materials, equipment, labor, transportation, construction, equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities, and all other facilities and incidentals necessary for the execution, testing, initial operation, and completion of the Work.

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the City of Derby's Authorized Representative, the Contractor shall furnish satisfactory evidence (including reports or required tests) as to the kind and quality of materials and equipment.

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier, or distributor, except as otherwise provided in the Contract Documents.

Equivalent Materials and Equipment

Whenever materials or equipment are specified or described in the Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier, or distributor, the naming of the item is intended to establish the

type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers, or distributors may be accepted by the **City of Derby's Authorized Representative** if sufficient information is submitted by the Contractor to allow the **City of Derby's Authorized Representative** to determine that the material or equipment proposed is equivalent to that named. The procedure for review by the **City of Derby's Authorized Representative** will be as follows:

Requests for review of substitute items of material and equipment will not be accepted by the **City of Derby's Authorized Representative** from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment the Contractor shall make written application to the **City of Derby's Authorized Representative** for acceptance thereof, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equal substance to that specified, and be suited to the same use and capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the Work will require a change in the Specifications to adapt the design to the substitute. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair, and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the **City of Derby's Authorized Representative** in evaluating the proposed substitute. The **City of Derby's Authorized Representative** may require the Contractor to furnish at the Contractor's expense additional data about the proposed substitute. The **City of Derby's Authorized Representative** will be the sole judge of acceptability, and no substitute will be ordered or installed without the **City of Derby's Authorized Representative's** prior written acceptance.

The **City of Derby's Authorized Representative** will record time required by the **City of Derby's Authorized Representative** and the **City of Derby's Authorized Representative's** consultants in evaluating substitutions proposed by the Contractor and in making changes in the Specifications occasioned thereby. Whether or not the **City of Derby's Authorized Representative** accepts a proposed substitute, the Contractor shall reimburse the City for the charges of the **City of Derby's Authorized Representative** and the **City of Derby's Authorized Representative's** consultants for evaluating any proposed substitute.

Concerning Subcontractors

The Contractor shall not employ any subcontractor or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom the City may have reasonable objection. A subcontractor or other person or organization identified in writing to the City by the Contractor prior to the Notice of Award will be deemed acceptable to the City. Acceptance of any subcontractor, other person, or organization by the City shall not constitute a waiver of any right of the City to reject defective Work. If the City or **City of Derby's Authorized Representative** after due investigation has reasonable objection to any subcontractor, other person, or organization proposed by the Contractor after the Notice of Award, the Contractor shall submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution, and an appropriate Change Order shall be issued. The Contractor shall not be required to employ any subcontractor, other person, or organization against whom the Contractor has reasonable objection.

The Contractor shall be fully responsible for all acts and omissions of his subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that the Contractor is responsible for the acts and omissions of persons directly employed by the Contractor. Nothing in the Contract Documents shall create any obligation on the part of the City to pay or to see to the payment of any monies due any subcontractor or other person or organization, except as may otherwise be required by law. The City or the **City of Derby's Authorized Representative** may furnish to any subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to the Contractor on account of specific Work done.

Patent Fees and Royalties

The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device, which is the subject of patent rights or copyrights held by others. The Contractor shall indemnify and hold harmless the City and the **City of Derby's Authorized Representative** and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work, and shall defend all such claims in connection with any alleged infringement of such rights.

Permits

Unless otherwise provided in the Supplemental Conditions, the General Contractor shall obtain and pay for all construction permits and licenses. The Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work. The Contractor shall pay all charges of utility service companies for connections to the Work.

Laws and Regulations

The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations, applicable to the Work. If the Contractor observes that the Specifications are at variance therewith, the Contractor shall give the **City of Derby's Authorized Representative** prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Change Order. If the Contractor performs any Work knowing or having reason to know that it is contrary to such laws, ordinances, rules, and regulations, and without such notice to the City of Derby's **Authorized Representative**, the Contractor shall bear all costs arising therefrom.

Use of Premises

The Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workmen to areas permitted by law, ordinances, permits, or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

During the progress of the Work, the Contractor shall keep the premises free from accumulation of waste materials, rubbish, and other debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the City. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents. The Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall the Contractor subject any part of the work or adjacent property to stresses or pressures that will endanger it.

Taxes

No amount shall be included in the bid price for Connecticut State Sales Tax or for Federal Excise and Transportation Taxes.

Record Documents

The Contractor shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, Shop Drawings, and samples at the site in good order and annotated to show all changes made during the construction process. These shall be available to the Project Engineer for examination and shall be delivered to the City of Derby's Authorized Representative upon completion of the Work.

Safety Protection

The contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

- All employees on the Work and other persons, who may be affected thereby,
- All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and
- Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify the City of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury, or loss to any property caused directly or indirectly, in whole or in part, by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.

The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the City of Derby's Authorized Representative.

Emergencies

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the City of Derby's Authorized Representative or the City, is obligated to act to prevent threatened damage, injury, or loss. The Contractor shall give the City of Derby's Authorized Representative prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

Continuing the Work

The Contractor shall carry on the Work and maintain the progress schedule during all disputes or disagreements with the City. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the Contractor and the City may otherwise agree in writing.

Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the City and the City of Derby's Authorized Representative and their agents and employees from and against all claims, damages, losses, and expenses including but not limited to attorney's fees arising out of the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

In any and all claims against the City or the City of Derby's Authorized Representative or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's' compensation acts, disability benefit acts, or other employee benefit acts.

WORK BY OTHERS

The City may perform additional work related to the Project by itself, or have additional work performed by utility service companies, or let other direct contracts therefore, which shall contain General Conditions similar to these. The Contractor shall afford the

City, utility service companies, and the other contractors who are parties to such direct contract reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate his/her Work with theirs.

If any part of the Contractor's Work depends, for proper execution or results, upon the work of any such other Contractor or utility service company, the Contractor shall inspect and promptly report to the City of Derby's Authorized Representative in writing any patent or apparent defects or deficiencies in such work that render it unsuitable for such proper execution and results. The Contractor's failure to so report shall constitute an acceptance of the other work as fit and proper for integration with the Contractor's Work except for latent or non-apparent defects and deficiencies in the other work.

The Contractor shall do all cutting, fitting, and patching of his Work that may be required to make its several parts come together properly and integrate with such other work. The Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the City of Derby's Authorized Representative and the others whose work will be affected.

If the performance of additional work by other contractors or utility service companies or the City was not noted in the Contract Documents, written notice thereof shall be given the Contractor prior to starting any such additional work.

Note: Contractor shall be aware, and plan accordingly, for the construction of the J.R Payden Field House and Baseball Field project concurrently and adjacent to this project. Coordination between the two General Contractors cannot be overemphasized.

CITY'S RESPONSIBILITIES

The City shall issue all communications to the Contractor through the City of Derby's Authorized Representative.

The City shall furnish the data required of the City under the Contract Documents promptly and shall make payments to the Contractor promptly after they are approved in accordance with the provisions of the Supplemental Conditions.

CITY OF DERBY'S AUTHORIZED REPRESENTATIVE'S STATUS DURING CONSTRUCTION

City Representative

The City of Derby's Authorized Representative shall be the City's representative during the construction period. The duties and responsibilities and the limitations of authority of the City of Derby's Authorized Representative as the City's representative during construction set forth in the Contract Documents and shall not be extended without written consent of the City and the City of Derby's Authorized Representative.

Visits to the Site

The City of Derby's Authorized Representative or his representative shall make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the extended Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents.

Clarifications and Interpretations

The City of Derby's Authorized Representative shall issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of drawings or otherwise) as the City of Derby's Authorized Representative may determine necessary.

Rejecting Defective Work

The City of Derby's Authorized Representative shall have authority to disapprove or reject Work, which is defective, and shall also have authority to require special inspection or testing of the Work whether or not the Work is fabricated, installed, or completed.

Decisions on Disagreements

The Director of Public Works shall be the interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes, and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the Work shall be referred to the City of Derby's Authorized Representative in writing with a request for a formal decision in accordance with this paragraph, which the City of Derby's Authorized Representative shall render in writing within a reasonable time.

Limitations on the **City of Derby's Authorized Representative's Responsibilities**

Neither the City of Derby's Authorized Representative's authority to act under the Contract Documents nor any decision made by the City of Derby's Authorized Representative in good faith either to exercise or not exercise such authority shall give

rise to any duty of responsibility of the City of Derby's Authorized Representative to the Contractor, any subcontractor, any manufacturer, fabricator, supplier, or distributor, or any of their agents or employees, or any other person performing any of the Work.

Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," or "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used, to describe requirements, direction, review, or judgment will be solely to evaluate the Work for compliance with the Contract Documents. The use of any such term or adjective never indicates that the Engineer shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of the following:

The City of Derby's Authorized Representative will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto.

The City of Derby's Authorized Representative will not be responsible for the acts or omissions of the Contractor or of any subcontractors, or of the agents or employees of any Contractor or subcontractor, or of any other persons at the site or otherwise performing any of the Work.

CHANGES IN THE WORK

Without invalidating the Agreement, the City may at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the Contractor shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made.

The City of Derby's Authorized Representative may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and shall be binding on the City and also on the Contractor who shall perform the change promptly. If the Contractor believes that a Field Order justifies an increase in the Contract Price or Contract Time, he shall notify the City of Derby's Authorized Representative in writing.

Additional Work performed without authorization of a Change Order will not entitle the Contractor to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency.

If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be the Contractor's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. The Contractor shall furnish proof of such adjustment to the City.

CHANGE OF THE CONTRACT TIME

The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to the Engineer within fifteen days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of such occurrence, unless the City of Derby's Authorized Representative allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be reviewed by the City of Derby's Authorized Representative and after reviewing the City of Derby's Authorized Representative's recommendation and any other related information the City shall determine and approve any appropriate change in the Contract Time. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

The Contract Time may be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a claim is made therefore. Such delays may include, but not be limited to, acts or neglect by the City or to fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

All time limits stated in the Contract Documents are of the essence of the Agreement.

WARRANTY AND GUARANTEE; TESTS AND INSPECTION; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee

The Contractor warrants and guarantees to the City and the City of Derby's Authorized Representative that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to the Contractor. All defective Work, whether or not in place, may be rejected, corrected, or accepted.

Access to Work

The City of Derby's Authorized Representative and the City of Derby's Authorized Representative's representatives, other representatives of the City, testing agencies, and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspection, and testing. The Contractor shall provide proper and safe conditions for such access.

Test and Inspections

The Contractor shall give the City of Derby's Authorized Representative timely notice of readiness of the Work for all required inspections, tests, or approvals.

If any law, ordinance, rule, regulation, code, drawing, specification, or order of any public body having jurisdiction requires any Work (or part thereof) to specifically be inspected, tested, or approved, the Contractor shall assume full responsibility therefore, pay all costs in connection therewith and furnish the City of Derby's Authorized Representative the required certificates of inspection, testing, or approval. The Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the City's or the Engineer's acceptance of a manufacturer, fabricator, supplier, or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work.

All inspections, tests, or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction shall be performed by organizations acceptable to the Engineer and the Contractor.

If any Work that is to be inspected, tested, or approved is covered without written concurrence of the City of Derby's Authorized Representative, it must, if requested by the City of Derby's Authorized Representative, be uncovered for observation. Such uncovering shall be at the Contractor's expense unless the contractor has given the City of Derby's Authorized Representative timely notice of the Contractor's intention to cover such Work and the City of Derby's Authorized Representative has not acted with reasonable promptness in response to such notice.

Neither observations by the City of Derby's Authorized Representative nor inspections, tests, or approvals by others shall relieve the Contractor from his/her obligations to perform the Work in accordance with the Contract Documents.

Uncovering Work

If any Work is covered contrary to the request of the City of Derby's Authorized Representative, it must, if requested by the City of Derby's Authorized Representative, be uncovered for the City of Derby's Authorized Representative's observation and replaced at the Contractor's expense.

If the City of Derby's Authorized Representative considers it necessary or advisable that covered Work be observed by the City of Derby's Authorized Representative or inspected or tested by others, the Contractor, at the City of Derby's Authorized Representative's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the City of Derby's Authorized Representative may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including compensation for additional professional services.

City May Stop the Work

If the Work is defective, or the Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, the Engineer may order the Contractor to Stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City to Stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of the Contractor or any other party.

Correction or Removal of Defective Work

If required by the City of Derby's Authorized Representative, the Contractor shall promptly, without cost to the City and as specified by the City of Derby's Authorized Representative, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the City of Derby's Authorized Representative, remove it from the site and replace it with non-defective Work.

One-year Correction Period

If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the contract Documents, any Work is found to be defective, the Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective Work, or if it has been rejected by the City, remove it from the site and replace it with non-defective Work. Where it is required for the contractor to repair, replace, resurface, reseed, replant or to modify, alter, add, or remove hardware, parts, components, or related accessories for the purpose of ensuring proper appearance,

performance, or operation, such operations shall be done as required by the Contractor until such time as acceptable performance has been established. Problems which occur shall be corrected in an appropriate fashion under guarantee. The Contractor shall be responsible to attend to and remedy such items within a reasonable amount of time. Appropriate logs, schedules, and reports shall be maintained to reflect these items and their redress. If the Contractor does not promptly comply with the terms of such instruction, or in an emergency where delay would cause serious risk of loss or damage, the City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by the Contractor.

Acceptance of Defective Work

If, instead of requiring correction or removal and replacement of defective Work, the City prefers to accept it, the City may do so. In such case, if acceptance occurs prior to final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; if the acceptance occurs after such final payment, an appropriate amount shall be paid by the Contractor to the City.

City May Correct Defective Work

If the Contractor fails within a reasonable time after written notice of the Engineer to proceed to correct defective Work or to remove and replace rejected Work as required by the Engineer, or if the Contractor fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), the City may, after seven days written notice to the Contractor, correct and remedy any such deficiency. In exercising its rights under this paragraph the City shall proceed expeditiously to the extent necessary to complete corrective and remedial action, the City may exclude the Contractor from all or part of the site, take possession of all or part of the Work, and suspend the Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the site or for which the City has paid the Contractor but which are stored elsewhere. The Contractor shall allow the City, the City's representatives, agents and employees such access to the site as may be necessary to enable the City to exercise its rights under this paragraph. All direct and indirect costs of the City in exercising such rights shall be charged against the Contractor in an amount verified by the **City of Derby's Authorized Representative** and a Change Order shall be issued incorporating the necessary revisions in the Contract documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of work of others destroyed or

damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the work attributable to the exercise by the City of the City rights hereunder.

PAYMENTS TO CONTRACTOR AND COMPLETION

Schedules

At least ten days prior to submitting the first Application for a progress payment, the Contractor shall submit to the City of Derby's Authorized Representative (Kaestle Boos Associates, Inc.) a progress schedule and a schedule of values of the Work. These schedules shall be satisfactorily in form and substance to the City of Derby's Authorized Representative. The schedule of values shall include quantities and unit prices aggregating the Contract Price and shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payment during construction. Upon acceptance of the schedule of values by the City of Derby's Authorized Representative, it shall be incorporated into a form of Application for Payment acceptable to the City of Derby's Authorized Representative.

Application for Progress Payment

At least ten days before each progress payment falls due (but not more often than once a month), the Contractor shall submit to the City of Derby's Authorized Representative for review an draft Application for Payment filled out by the Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents and also as the City of Derby's Authorized Representative may reasonably require. Upon review and approval by the City of Derby's Authorized Representative, the Contractor shall submit three (3) final Application for Payments filled out, notarized, and signed by the Contractor. Each subsequent Application for Payment shall include an affidavit of the Contractor stating that all previous progress payment received on account of the Work have been applied to discharge in full all of the Contractor's obligations reflected in prior Applications for Payment. The amount of retainage with respect to progress payments will be as stipulated in the Contract Documents.

Contractor's Warranty of Title

Contractor's Warranty of Title

The Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for payment, whether incorporated in the project or not, will pass to the City at the time of payment free and clear of all liens, claims, security interests, and encumbrances.

Review of Applications for Progress Payment

The City of Derby's Authorized Representative will, within ten (10) days after receipt of each Application for Payment either indicated in writing a recommendation of payment and present the application to the City, or return the application to the Contractor indicating in writing the City of Derby's Authorized Representative's reasons for refusing the recommended payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application. The Application for Payment must be presented the first week of each month for review and recommendation for payment. Only after the City of Derby's Authorized Representative's recommendation for payment is received it will then be sent to the Road Bond Committee for approval. If approved the recommendation will be forwarded to the full Board of Aldermen for review and possible action at their regular monthly meeting, which is held the fourth Thursday of each month (date subject to change due to holiday.)

The City of Derby's Authorized Representative may refuse to recommend the whole or any part of any payment if, in his opinion, it would be incorrect to make such representations. He may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended to such extent as may be necessary in the City of Derby's Authorized Representative's opinion to protect the City from loss because:

- The Work is defective, or completed Work has been damaged requiring correction or replacement;
- Written claims have been made against the City in connection with the Work;
- The Contract Price has been reduced;
- The City has been required to correct defective Work or complete the Work, of the Contractor's unsatisfactory prosecution of the Work in accordance with the Contract Documents; and/or
- The Contractor's failure to make payment to subcontractors, or to make payment for labor, materials, or equipment.

Substantial Completion

When the Contractor considers the entire Work ready for its intended use the Contractor shall, in writing to the City of Derby's Authorized Representative, certify that the entire Work is substantially complete and request that the City of Derby's Authorized Representative issue a certificate of Substantial Completion. Within a reasonable time thereafter, the Contractor and City of Derby's Authorized Representative shall make an inspection of the Work to determine the status of completion. If the City of Derby's

Authorized Representative does not consider the Work substantially complete, the City of Derby's Authorized Representative will notify the Contractor in writing giving his reasons therefore. If the City of Derby's Authorized Representative considers the Work substantially complete, the City of Derby's Authorized Representative will prepare certificate of Substantial Completion, which shall fix the date of Substantial Completion. There shall be attached to the certificate a list of items to be completed or corrected before final payment.

The City shall have the right to exclude the Contractor from the Work after the date of Substantial Completion, but the City shall allow the Contractor reasonable access to complete or correct items on the list.

Partial Utilization

Use by the City of completed portions of the Work may be accomplished prior to Substantial Completion of all Work subject to the following:

The City at any time may request The Contractor in writing to permit the City to use any part of the Work, which the City believes to be substantially complete, and which may be so used without significant interference with construction of the other parts of the Work. If the Contractor agrees, the Contractor will certify to the City and the City of Derby's Authorized Representative that said part of the Work is substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time thereafter, the Contractor and City of Derby's Authorized Representative shall make an inspection of that part of the Work to determine its status of completion. If the City of Derby's Authorized Representative does not consider that part of the Work to be substantially complete, the City of Derby's Authorized Representative will notify the Contractor in writing giving his reasons therefore. If the City of Derby's Authorized Representative considers that part of the Work to be substantially complete, the City of Derby's Authorized Representative will execute and deliver to the Contractor a certificate to that effect, fixing the date of Substantial Completion as to that part of the Work, attaching thereto a list of items to be completed or corrected before final payment.

In lieu of the issuance of a certificate of Substantial Completion as to part of the Work, the City may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately useable provided that prior to any such takeover the City and Contractor have agreed as to the division of responsibilities between the City and Contractor for security, operation, safety, maintenance, correction period, heat, utilities, and insurance with respect to such facility.

Final Inspection

Upon written notice from the Contractor that the Work is complete, the City of Derby's Authorized Representative will make a final inspection with the Contractor and will notify the Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. The Contractor shall immediately take such measures as are necessary to remedy such deficiencies.

Final Application for Payment

After the Contractor has completed all such corrections to the satisfaction of the City of Derby's Authorized Representative and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents – all as required by the Contract Documents, and after the Engineer has indicated that the work is acceptable, the Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and such other data and schedules as the City of Derby's Authorized Representative may reasonably require, together with complete and legally effective releases or waivers (satisfactory to the City) of all claims arising out of or filed in connection with the Work. In lieu thereof and as approved by the City, the Contractor may furnish receipts or releases in full; an affidavit of the Contractor that the releases and receipts include all labor, services, material, and equipment for which a claim could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which the City or its property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment.

Final Payment and Acceptance

If on the basis of the City of Derby's Authorized Representative's observation of the Work during construction and final inspection, and the Engineer's review of the final Application for Payment and accompanying documentation – all as required by the Contract Documents, the City of Derby's Authorized Representative is satisfied that the Work has been completed and the Contractor has fulfilled all of his obligations under the Contract Documents, the City of Derby's Authorized Representative will, within ten days after receipt of the final Application for Payment, process the Application for payment. Otherwise, the City of Derby's Authorized Representative will return the Application to the Contractor, indicating in writing the reasons for refusing to process final payment, in which case the Contractor shall make the necessary corrections and resubmit the Application.

Contractor's Continuing Obligation

The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the Engineer, nor the issuance of a certificate of Substantial Completion, nor any payment by the City to the Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by the City, nor any act of acceptance by the City nor any failure to do so, nor the issuance of a notice of acceptability by the City of Derby's Authorized Representative, nor any correction of defective Work by the City shall constitute an acceptance of Work not in accordance with the Contract Documents or a release of the Contractor's obligation to perform the Work in accordance with the Contract Documents.

Waiver of Claims

The making and acceptance of final payment shall constitute:

A waiver of claims by the City against the Contractor except for claims arising from unsettled debts, from defective Work appearing after final inspection or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein and it shall not constitute a waiver by the City of any rights in respect of the Contractor's continuing obligations under the Contract Documents and a waiver of all claims by the Contractor against the City other than those previously made in writing and still unsettled.

SUSPENSION OF WORK AND TERMINATION

The City May Terminate:

Upon the occurrence of any one or more of the following events:

- If the Contractor is adjudged a bankrupt or insolvent;
- If the Contractor makes a general assignment of the benefit of creditors;
- If a trustee or receiver is appointed for the Contractor or for any of the Contractor's property;
- If the Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws;

- If the Contractor repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment;
- If the Contractor repeatedly fails to make prompt payments to the subcontractors or for labor, materials, or equipment;
- If the Contractor disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction;
- If the Contractor disregards the authority of the Engineer, or
- If the Contractor otherwise violates in any substantial way any provisions of the Contract Documents;
- At the convenience of the City

The City may, after giving the Contractor and his surety seven days written notice, terminate the services of the Contractor, exclude the Contractor from the site and take possession of the Work, incorporate in the Work all materials and equipment stored at the site or for which the City has paid the Contractor but which are stored elsewhere and finish the Work as the City may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the City. Such costs incurred by the City shall be incorporated in a Change Order, but in finishing the Work the City shall not be required to obtain the lowest figure for the Work performed. Notwithstanding the foregoing, if the City terminates this Agreement for its convenience, the City shall only be required to pay the Contractor for services to the date of termination.

Where the Contractor's services have been so terminated by the City, the termination shall not affect any rights of the City against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies due the Contractor by the City will not release the Contractor from liability.

Upon seven days written notice to the Contractor, the City may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable expenses.

Contractor May Stop Work or Terminate

If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety days by the City or under an order of court or other public authority, or the Engineer fails to act on an Application for Payment within thirty days after it is submitted, or the City fails for sixty days to pay the Contractor any sum finally determined to be due, then the Contractor may, upon fourteen days written notice to the City and the Engineer, terminate the Agreement and recover from the City payment for all Work executed and any expense sustained. In addition and in lieu of terminating the Agreement, if the Engineer has failed to act on an Application for Payment or the City has failed to make any payment as aforesaid, the Contractor may upon seven days notice to the City and the Engineer Stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve the Contractor of his obligations to carry on the Work in accordance with progress schedule and without delay during disputes and disagreements with the City.

MISCELLANEOUS

Giving Notice

Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time

When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

General

Should the City or the Contractor suffer injury or damage to his/her person or property because of any error, omission, or act of the **other party or of any of the other party's** employees or agents or others for whose acts the other party is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees, and obligations imposed upon the Contractor and all of the rights and remedies available to the City and the

Engineer thereunder, shall be in addition to, and shall not be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available by law or contract, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties, and guarantees made in the Contract Documents shall survive final payment and termination or completion of this Agreement.

Non-Discrimination

The Contractor shall agree and warrant that in the performance of the contract, he will not discriminate or permit discrimination against any person or group of persons on the ground of race, color, religious creed, age, marital status, national origin, sex, or physical disability, including but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or of the State of Connecticut. The Contractor shall further agree to provide the Commission on Human Rights and Opportunities with such information requested by the Commission concerning the employment practices and procedures of the Contractor as they relate to the provisions of Section 4-11a of the Connecticut General Statutes as amended.

Affirmative Action

If requested by the City, the Contractor shall submit details of his Affirmative Action Program. Such Program shall be modified as and where necessary to meet the requirements of the City and shall remain in force throughout the contract period.

SUPPLEMENTAL CONDITIONS

CITY PROJECT NO. COD 2018-02

These Supplemental Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

DEFINITIONS

The Terms used in these Supplemental Conditions, which are defined in the General Conditions of the Construction Contract, have the meanings assigned to them in the General Conditions.

Wherever used in the Contract Documents, the following words have the meanings indicated, which are applied to both the singular and the plural thereof:

“Project Manual” – shall mean the bound volume containing the following Contract Documents:

- Invitation to Bid
- Instruction to Bidders
- Contract Forms
- General Conditions
- Supplemental Conditions
- Wage Rates
- Addenda (if issued)
- Technical Specifications and Construction Drawings

The word “Remove” where it applies to existing materials shall mean remove entirely from the site unless material is approved by the City of Derby's Authorized Representative for re-use. In addition, the word “remove” shall imply the patching of all remaining work affected by removal. All existing materials, which have been removed, shall become the Contractor's property unless otherwise specified.

“As Necessary” or “As Required” – Work referred to as “As Necessary” shall be that work which is required for completed construction, but is not necessarily shown or described in the Contract Documents.

The word “Furnish” or the word “Supply” – shall mean purchase, delivery, and off-loading at the job site including all documentation, storage, and protection.

The word "Install" or the word "Apply" – shall mean set in place complete for normal use or service, all in accordance with the Contract Documents.

The word "Provide" – shall mean furnish (or supply) and install (or apply.)

The words "Approved Equal" – shall mean any product, which in the opinion of the City of Derby's Authorized Representative is comparable in quality, durability, appearance, strength, performance, design, physical dimension, and arrangement to the product specified, and will function properly in accordance with the design intent.

The word "Product" – shall mean any item of equipment or material provided under the Contract Documents.

THE CONTRACTOR'S INSURANCE

The Contractor shall maintain insurance of the kinds and in at least the amounts in a form satisfactory to the City; such certificates shall contain a provision that the City shall be given thirty days advance written notice by registered mail of change in, or cancellation of, coverage.

TIME FOR COMPLETION

It shall be understood and mutually agreed that the time for Substantial Completion is an essential condition of this Contract.

It is expressly understood and agreed by the Contractor and the City that the time for Substantial Completion is reasonable, taking into consideration average climatic range, City restrictions, and other conditions prevailing.

The Contractor agrees that the Work shall be performed diligently and uninterrupted at such rate as will insure Substantial Completion of all Work on or before the date stated in the Contract. If it appears that some of the work cannot be completed by the scheduled date, the Contractor shall increase the work force or increase the hours of work, including evenings and weekends if necessary, at no additional cost to the City.

If the work is complete but the area is not cleaned and debris or equipment is not removed, the City shall have the right to have the area prepared for occupancy with its own or other forces and deduct the costs from the contract amount.

The Construction Schedule is critical to the Project. It is specifically understood that all work is required to be Substantially Complete, and ready for full occupancy and use by

the City, on or before the date agreed upon in the Contract and that the time of completion is of the essence and of great importance to the City.

PAYMENTS AND RETAINAGE

Applications for payment shall be submitted to the City's Authorized Representative for consideration by the first Thursday of each month. Payment shall be made within forty-five days after approval of the application for payment by the City.

An amount of 95 percent (95%) of the estimated amount due, less any payments previously made and/or any monies to be held will be paid to the Contractor monthly. The balance will be retained by the City until final completion of the work. Final payment will not be made until final completion and acceptance by the City of all work covered by the Contract. The Contractor agrees that he/she will indemnify and save the City harmless for all claims growing out of the lawful demands of subcontractors, laborers, suppliers, and assignees.

SCOPE OF WORK

The City reserves the right to decrease the Scope of Work to be done under this Contract, select bid or alternate items in its best interest, or to omit any work in order to bring the cost within available funds. Exercise by the City of the above rights shall not constitute any grounds or basis of claim for damages or for anticipated profits on work omitted.

ALTERNATES

Additive Alternates Definitions: An Additive Alternate is defined as a specific scope of work, products, materials, equipment or systems for the work not included in the Base Bid work and which may, at the City's option and under terms established herein, be selected and recorded in the Contract to either supplement or displace basic requirements of contract documents. Alternates may or may not substantially change scope and general character of the work; and must not be confused with "allowances," "unit prices," "change orders," "substitutions," and other similar provisions. The bid price for the Additive Alternate is not included in the Base Bid price.

Additive Alternate Pricing: The bid price for the additive alternate shall include all cost associated with the changes, omissions, additions or other adjustments to the Work in this Bid Package described in the Alternate or reasonably inferred therefrom. The additive alternate bid price shall include the cost of all labor, materials, equipment, time extension or deletion, general conditions, general requirements, overhead, profit, insurance, for the work. Claims for extras resulting from the acceptance or rejection of any Additive Alternate will not be allowed.

Bidding must provide a bid for each Additive Alternate. If no bid is provided for any of the Additive Alternates contained in the bid proposal or if any bid for such an Alternate is obviously unbalanced either in excess of, or below reasonable fair market values, then the entire bid will be considered nonresponsive, and the bid will be rejected.

Award of Contract: The Award of Contract will be made to lowest responsible bidder for the "Base Bid" work – which does not include the bid price for any Additive Alternate.

The Owner shall have the right to accept or omit any Additive Alternate.

The Contract Documents shall be considered appropriately modified by either the acceptance or omission of any Additive Alternates. Bid Bonds: Bid Bond amounts shall be at least ten percent (10%) of the sum of the Base Bid plus all Additive Alternates. The Contract completion date (calendar days) will be adjusted if any of the additive alternates is added. All costs associated with a time extension are to be included in the Additive Alternate Price.

Notification: After award of the Contract, one or more additive alternates for which funds are available may be added to the Contract in the discretion of the City. The adjustment of the Contract price shall be solely based on the bid price for the alternate(s) added. The Contractor will be notified as to which alternates will be included in the Contract within fourteen (14) calendar days of the Award of Contract.

SCHEDULE AND TIME OF COMPLETION

Attention of the Bidder is directed to the time provision for completion of work under the Contract, which requires that all work be completed within the schedule provided under the General Conditions. The calendar days shall be consecutive. Prior to the start of construction, the Contractor shall prepare and submit a schedule for the sequence of construction for approval by the Street Commissioner.

LIQUIDATED DAMAGES

The Contractor will proceed with the work at such rate of progress to ensure full completion within the time requirements stated above. It is expressly understood and agreed by and between the Contractor and the City that the contract items for the completion of the work described herein shall be reasonable, taking into consideration the climatic and economic conditions and other factors prevailing in the locality of the work.

If the Contractor shall fail to complete the work within the contract times, or extension of time granted by the City, then the Contractor and his sureties shall be liable for and shall pay to the City for each and every calendar day that he shall be in default in completing any given assignment in the time stipulated above, the sum of One Thousand Dollars (\$1,000.00.) Liquidated damages shall apply to each milestone activity date, as well as the project completion date, indicated under the project schedule outlined in the General Conditions and Project Summary. This sum is hereby agreed upon, not as a penalty, but as fixed liquidated damages which the City will suffer by reason of such default, time being of the essence of the Contract and a material consideration thereof.

The City shall have the right to deduct the amount of any such damages from any monies due the Contractor under this Contract.

PAYMENT OF WAGES

Attached is a copy of the minimum federal and state wage rate schedule issued by the U.S. and State of Connecticut Labor Departments. Said wage rate schedules shall, at all times, be posted at a conspicuous location on the project site.

The Contractor is cautioned that wage rates are continually changing and he shall ensure himself that the enclosed schedules contained herein or otherwise posted are the latest issue, this being his responsibility.

FAIR EMPLOYMENT PRACTICES

The successful Contractor shall agree that neither he nor his subcontractors will refuse to hire or employ or to bar or to discharge from employment an individual, or to discriminate against him in compensation or ill terms, conditions, or privileges of employment because of race, color, religious creed, age, sex, national origin, or ancestry, except in the case of a bona fide occupational qualification or need.

The terms stated above are taken from Section 31-126 of the Connecticut General Statutes "Unfair Employment Practices."

SAFETY

The Contractor shall perform all work in accordance with the latest governmental safety regulations including, but not limited to, the Department of Labor and Office of Safety and Health Administration regulations and suggested practices.

MEASUREMENTS

The Contractor shall make all measurements and check all dimensions necessary for the proper construction of the work as directed or as called for in the Specifications. During the performance of the work, the Contractor shall make all necessary measurements to prevent misfitting in said work and be responsible therefore for the accurate construction of the entire work.

PUBLIC ACCESS

Roads, including driveways, sidewalks, and crossings shall remain passable while work is in progress.

UTILITIES

Utilities may be located within the area and may be adjacent to the construction work.

The Contractor shall make all the necessary arrangements with any utility that must be protected or relocated in order to accomplish the work. The Contractor shall be solely responsible for the protection of the operating condition of all active utilities within the areas of construction and he shall take all necessary precautions to avoid damage to existing utilities. Any cost of temporary relocations for the Contractor's convenience shall be paid for by the Contractor.

The Contractor shall avail himself of the Connecticut Underground Protection Plan ("Call Before You Dig") Box 1562, New Haven, CT (Telephone Toll Free: 1-800-922-4455) for notifications to utility companies prior to excavating.

OFF-SITE DISPOSAL

The Contractor shall load and haul any surplus or unsuitable material for disposal at a disposal site provided by the Contractor at his cost.

PERFORMANCE OF WORK

The Contractor will be responsible for providing all the necessary services necessary to perform the work described in the specifications.

HOURS OF OPERATION

The Contractor shall limit his operations from Monday-Friday between 7:00 a.m. – 6:00 p.m. No work will be permitted on Sundays or legal holidays. Permission from the City

of Derby's Authorize Representative would be required for work to be performed on Saturday.

MAINTENANCE AND PROTECTION OF TRAFFIC

The Contractor will be responsible for the scheduling of Derby Police Officers at least one working day in advance of plans to work in the roadway. The cost for Police will be included in the bid price for the job.

The Contractor may schedule Police Officers by contacting the Derby Police Department, 125 Water Street, Derby, CT 06418 - telephone 203-734-1651.

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care Blue Cross 4) Disability _____
2) Pension or retirement _____ 5) Vacation, holiday _____
3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as

Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

THIS IS A PUBLIC DOCUMENT
DO NOT INCLUDE SOCIAL SECURITY NUMBERS

**DO NOT REMOVE
THIS PAGE INTENTIONALLY LEFT BLANK**

**Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES**

- ⇒ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

- a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

- a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. Instructions to Bidders, AIA Document A201, “General Conditions of the Contract for Construction, 2007 Edition as amended, and Division 01 General Requirements are bound herein, are hereby made a part of this Section, and shall be binding on all Contractors and Subcontractors who perform this work.

1.2 SUMMARY

This Section includes the following:

1. Project information.
2. Work covered by the Contract Documents.
3. Work under other contracts.
4. Use of premises.
5. Owner's occupancy requirements.
6. Work restrictions.
7. Specification formats and conventions.

Related Sections include the following:

1. Division 01 Section “Temporary Facilities and Controls” for limitations and procedures governing temporary use of Owner’s facilities.

1.3 PROJECT INFORMATION

Project Identification: The Project consists of **ATHLETIC FACILITIES RENOVATION PROJECT and the J.R. PAYDEN FIELD HOUSE AND PAYDEN BASEBALL FIELD PROJECT at DERBY HIGH SCHOOL**

1. Project Location: **Derby High School, 75 Chatfield Road, Derby, CT 06418**

Owner: NAME OF OWNER

2. Owner's Representative: **Patty Finn, Director of Economic & Community Development**

Architect Identification: The Contract Documents, dated **February 28, 2018**, were prepared for Project by Kaestle Boos Associates, Inc.

1.4 WORK COVERED BY THE CONTRACT DOCUMENTS

The Work includes but is not necessarily limited to:

1. The Work includes the manufacturing, delivery, installation, and warranty of synthetic grass surfacing systems and running track surfacing systems. Construction includes installation of a new multi-sport synthetic grass sports surfacing, a new baseball synthetic grass sports surfacing, synthetic landscape grass surfacing, and a polyurethane structural spray running track surface. Works includes all installation and testing.

1.5 WORK SEQUENCE

General: The Contractor shall utilize the proposed Schedule as the basis for a detailed construction schedule, to be submitted to the Owner, Architect, and Owner's Representative for review and approval. The schedule must clearly demonstrate the proper sequencing of construction and relocation activities, and how operational and environmental conditions will be satisfactorily maintained in all occupied spaces.

The Sequence of work is to be completed per the following schedule:

Derby High School Athletic Facility Renovations Project – COD 2018-02

Bids Due	Friday, March 30, 2018
a. Contractor Scope Reviews	April 02-03, 2018
b. Recommendation to Building Committee	Wednesday, April 04, 2018
*Anticipated Building Committee Meeting Date	
c. City and Contractor Executions	April 05-April 13, 2018
Construction (April 2108-September 2018)	COMPLETED BY:
a. Construction Permit, Submittals, & Mobilizations (2 weeks)	April 16-April 27, 2018
b. Building Abatement (2 weeks) (by others)	April 30-May 11, 2018
c. Retaining Walls and Bleacher Modifications	May 25, 2018
d. Multi-Purpose Field Base Construction	June 8, 2018
e. Track Base Construction	June 22, 2018
<u>f. Synthetic Turf Field Installation</u>	<u>July 20, 2018</u>
g. Softball and Proactive Field Base Construction	August 10, 2018
<u>h. Track Surfacing Installation</u>	<u>August 10, 2018</u>
i. Press Box and Lighting Installation	August 17, 2017
j. Multi-Purpose Field Fencing, Netting, and Landscaping	August 24, 2018
k. Field and Track Testing, Punch List	August 31, 2018
*Multi-Purpose Field Open for Use	
September 03, 2018	
l. Multi-purpose Field Close-out	September 14, 2018
m. Softball & Practice Field Fencing and Netting	August 31, 2018
n. Softball & Practice Field Seeding	September 07, 2018
o. Softball & Practice Field Punch List	September 21, 2018

p. Project Close-Out

September 28, 2018

q. Final Seeding Approval

October 26, 2018

Project Complete

October 26, 2018

J.R. Payden Field House and Payden Baseball Field Project

Schedule will be determined upon selection of the Construction Manager.

Installation is anticipated for September 2018

Note: Contractor shall be aware, and plan accordingly, for the construction of the J.R Payden Field House and Baseball Field project concurrently and adjacent to this project. Coordination between the two General Contractors cannot be overemphasized.

1.6 CONTRACTOR USE OF PREMISES

General: Each Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

Use of Site: Confine operations to areas within Contract limits indicated. Do not disturb portions of the Project site beyond areas in which Work is indicated.

1. Confine the parking of workmen's and construction vehicles, and the storage of construction materials to a designated staging area determined by the **Architect and Owner**
2. Keep driveways and entrances clear and available to Owner, Owner's employees, and emergency vehicles at all times. Staging at access ways may be required in order to permit completion of the work of this Project. Do not use these areas for parking or storage of materials.
3. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

Site Security: Continuously maintain the security of the site and the Work. Cooperate with the Owner in particularly sensitive areas where security and special safeguards are required.

4. Provide security guards or patrols as necessary for adequate protection of the interests of the Contractor, Owner, and the general public on the site, or in public ways around the site.
5. Ensure that all gates and other openings are secured at the end of each work day.
6. Ensure property signage is installed to signify the project areas is closed.

1.7 OWNER OCCUPANCY

Completion Requirements: Timely completion of the project is critical. Aggressive construction scheduling and careful monitoring of crucial path milestones cannot be overemphasized.

Partial Owner Occupancy: Owner will occupy the school premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to

interfere with Owner's operations. Maintain existing exits, unless otherwise directed by authorities having jurisdiction.

1. Maintain access to existing walkways, driveway, bleachers, concession building, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner, and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner and Architect of activities that will affect Owner's operations.

Adjacent Project Work: J.R Payden Field House and Baseball Field Project General Contractor will also occupy the premises during entire construction period. Cooperate with Owner, CM, and GC during construction operations to minimize conflict. Perform the Work so as not to interfere with Projects operations. Maintain existing exits, unless otherwise directed by authorities having jurisdiction. Adjacent work shall not be a reason for delay of work or failure to meet project milestones.

1.8 WORK RESTRICTIONS

On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of **7:00 a.m. to 5:00 p.m.**, Monday through Friday, except otherwise indicated.

1. Weekend Hours: **8:00 am to 4:00 pm**
2. Extended Hours: **Approval by Owner**

1.9 CODES, STANDARDS AND PERMITS

All work under this contract shall conform to all codes and standards in effect as of the date of receipt of Bids which are applicable to this Project. All work shall further conform to specific requirements and interpretations of local authorities having jurisdiction over the Project. These Codes, standards, and authorities are referred to collectively as "the governing codes and authorities", and similar terms, throughout the Specifications. Determination of applicable codes and standards and of the authorities having jurisdiction, shall be the responsibility of each Contractor, as shall be the analysis of all such codes and standards in regard to their applicability to the Project for the purposes of determining necessary construction to conform to such code requirements, for securing all approvals and permits necessary to proceed with construction, and to obtain all permits necessary for the Owner to occupy the facilities for their intended use. In the case of conflicts between the requirements of different codes and standards, the most restrictive or stringent requirements shall be met.

1. The Contractor shall maintain at the site, for the duration of the construction operations at the site, two (2) copies of all relevant codes and standards listed herein or determined to be applicable to the work. Maintain one copy of such codes in the Construction Manager's site office, for the exclusive use of the Owner the Architect and its consultants.

The codes that were used in the design of the Project are as follows:

1. State of Connecticut State Building Code
2. National Fire Protection Association (NFPA) codes and standards.

3. Architectural Access Board 521 CMR, as amended (AAB)
4. The Americans with Disabilities Act, Title II, including ADA Regulations.
5. ADA Standards for Accessible Design, 28 CFR 36 (7-1-94 Edition) ADA Accessibility Guidelines (ADAAG).
6. Section 504, Rehabilitation Act 1973 including 504 Regulations.
7. Uniform Federal Accessibility Standards, 41 CFR 101-19.6.

Code Enforcement and Approvals: Secure the general building permit for the work. Conform to all conditions and requirements of the permit and code enforcement authorities. Provide names and license numbers of its responsible representatives to complete application for permit.

8. Upon receipt of the permit, promptly distribute copies thereof to Owner and Architect.

1.10 SPECIFICATION FORMATS AND CONVENTIONS

These Specifications with the accompanying Drawings are intended to describe and illustrate all material, labor, and equipment necessary to complete **SYNTHETIC GRASS AND TRACK SURFACING MATERIAL - DERBY HIGH SCHOOL**

Specification Format: The Specifications are organized into Divisions and Sections using the 48-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

3. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
4. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

In general, the Specifications will describe the "quality" of the work and the Drawings, the "extent" of the work. The Drawings and Specifications are cooperative and supplementary, however, and each

item of the work is not necessarily mentioned in both the Drawings and the Specifications. All work necessary to complete the project, so described, is to be included in this Contract.

In case of disagreement between Drawings and Specifications, or within either document itself, the Architect shall construe the Documents to require the better quality or greater quantity of work for the Owner that can reasonably be construed therefrom. Any work done by the Contractor without consulting the Architect, when the same requires a decision, shall be done at the Contractor's risk.

1.11 SOCIAL SECURITY TAXES

The Contractor and each Subcontractor shall pay the taxes measured by the wages of all their employees as required by the Federal Social Security Act all amendments thereto, and accept the exclusive liability for said taxes. The Contractor shall also indemnify and hold the Owner, and its respective officers, agents and servants, and the Architect harmless on account of any tax measured by the wages aforesaid of employees of the Contractor and his Subcontractors, assessed against the Owner under authority of said law.

1.12 UNEMPLOYMENT INSURANCE

The Contractor and each Subcontractor shall pay unemployment insurance measured by the wages of his employees as required by law and accept the exclusive liability for said contributions. The Contractor shall also indemnify and hold harmless the Owner, and the Architect on account of any contribution measured by the wages of aforesaid employees of the Contractor and his Subcontractors, assessed against the Owner under authority of law.

1.13 OCCUPATIONAL SAFETY AND HEALTH ACT

The Contractor shall comply with the requirements of the Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, including all standards and regulations which have been promulgated by the Governmental Authorities which administer such Acts and said requirements, standards and regulations are incorporated herein by reference.

1. The Contractor shall comply with M.G.L. Chapter 306 of the Acts of 2004, which requires that everyone employed at the job site to complete a course in construction safety and health approved by the U.S. Occupational Safety and Health Administration, known as the "OSHA-10 hour course".

The Contractor shall comply with said regulations, requirements and standards and require and be directly responsible for compliance therewith on the part of his agents, employees material men and Subcontractors; and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of his agents, employees, material men or Subcontractors failing to so comply.

The Contractor shall indemnify the Owner and Architect and save them harmless from any and all losses, costs and expenses, including fines and reasonable attorney's fees incurred by the Owner, the Construction Manager and Architect by reason of the real or alleged violation of such laws.

Ordinances, regulations and directives, Federal, State, and Local, which are currently in effect or which become effective in the future, by the Contractor, his Subcontractors or material men.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01 10 00

SECTION 32 18 13 – SYNTHETIC GRASS SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”
- B. Specification Section 32 18 13.10 Synthetic Grass Surfacing Warranty.

1.2 SUMMARY

- A. Section includes:
 - 1. Procurement and installation of synthetic grass surfacing.
 - 2. Procurement and installation of sand and coated rubber infill.
 - 3. Procumbent and installation of Drainage Pad.
 - 4. Pre and post installation testing of synthetic grass system.
 - 5. Warranty and maintenance requirements for the synthetic grass system.
 - 6. All incidental work items required to complete the work as shown on the Drawings and as called-for in the Specifications.
- B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work. Carefully examine all of the Contract Documents for requirements which affect the work of this Section. The exact scope of work of this section cannot be determined without a thorough review of all Specification Sections and other Contract Documents.
- C. In all cases when conflicts exist between information contained in this Section and in other parts of the Contract Documents, Contractor shall assume that the more stringent and highest-performing solution is required.
- D. Contractor is responsible for all health and safety .

1.3 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. American Society for Testing and Materials (ASTM)

1. ASTM D 789 - Yarn Melting Point
 2. ASTM D 1335 - Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
 3. ASTM D 1577 - Standard Test Methods for Linear Density of Textile Fibers (Fiber Denier)
 4. ASTM D5034 – Standard Testing Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
 5. ASTM D5035 – Standard Testing Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
 6. ASTM D 2256 - Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method (Breaking Strength and Elongation)
 7. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials (Flammability)
 8. ASTM D 3218 – Standard Test for Fiber Thickness (Microns)
 9. ASTM D422 Particle-Size Analysis
 10. ASTM D 4491 - Water Permeability of Geotextiles by Permittivity.
 11. ASTM F 355 - Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials.
 12. ASTM F 1551 - Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials (for those not covered above)
 13. ASTM F 1632 - Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Rootzone Mixes
 14. ASTM F 1936 - Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
 15. ASTM F2157 - Standard Test Method for Base Material Evenness
 16. ASTM F 2765 - Standard Specification for Total Lead Content in Synthetic Grass Fibers.
- C. National Federation of State High Schools (NFHS)
- D. National Collegiate Athletic Association (NCAA)
- E. Synthetic Turf Council Guidelines (STC)
- F. Connecticut Interscholastic Athletic Conference (CICA)
- G. Massachusetts Interscholastic Athletic Association (MIAA)

- H. Rhode Island Interscholastic Athletic Administrators Association (RIIAAA)
- I. American Sports Builders Association (ASBA)

1.4 DEFINITIONS

- A. Most terms used within the documents are industry standard. Certain words or phrases shall be understood to have specific meanings as follows:
 - 1. Provide: Furnish and install completely connected up and in operable condition.
 - 2. Furnish: Purchase and deliver to a specific location within the building or site.
 - 3. Install: With respect to equipment furnished by others, install means to receive, unpack, move into position, mount and connect, including removal of packaging materials.

1.5 SUBMITTALS

- A. Bid Submittals
 - 1. Non-compliance with the bid submittal requirements as specified herein may result in rejection of the bid.
 - 2. The following letters, on the synthetic grass surfacing manufacturer/vendor's letterhead and signed by an officer of the company, shall be submitted with the bid.
 - a. A letter shall confirm their intent to conform to all requirements set forth in the Bid Documents for the Synthetic Grass Surfacing System and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - b. Manufacturer's Review of Synthetic Grass Surfacing: A letter confirming that the Bid Documents for the Synthetic Grass Surfacing System have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the synthetic grass field surfacing are proper and adequate for the applications shown and in no way impact the system warranty.
 - 3. The following letters, on the Drainage Pad manufacturer/vendor's letterhead and signed by an officer of the company, shall be submitted with the bid.
 - a. A letter shall confirm their intent to conform to all requirements set forth in the Bid Documents for Drainage Pad and qualified installation crew. Including, but not limited to, the Bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - b. Manufacturer's Review of Synthetic Grass Surfacing: A letter confirming that the Bid Documents for the Drainage Pad have been completely reviewed by qualified representatives of the materials manufacturer and that they are in agreement that the materials and system to be used for the Drainage Pad are proper and adequate for the applications shown and in no way impact the system warranty.

B. Pre-Manufacturing Submittals

1. Product Data: Submit manufacturer's general specifications and installation instructions for all products in the Synthetic Grass Surfacing System, including certifications and other data as may be required, to show compliance with the Contract Documents.
 - a. Material Safety Data Sheets (MSDS) sheets for all products and product components, as necessary. This shall include solvents and other products required as part of clean-up.
 - b. Certified Statement of the presences of toxic and or hazardous materials. Any toxic and/or hazardous material exceeding 100 parts per million (ppm) shall be identified in list form. The list shall reference the standard in name and threshold if applicable, and the test results. This requirement is above and beyond the requirements for MSDS.
 - c. Submit manufacturer's product data for the Drainage Pad demonstrating compliance with this specification. Include manufacturer's written instructions and procedures for each product.
2. Material Testing: Submit for approval test results for all material testing performed under "Quality Control Testing, Pre-Manufacturing" herein. Provide copies of all Testing Agency reports. Testing shall be no more than 12 months old from date of submittal.
3. Material Samples: Submit three (3) samples, with required testing data, for approval for all materials under 2.1 Materials including, but not limited to, the following:
 - a. Synthetic Grass Surfacing Fiber Samples for each color used for the field, markings, and logos.
 - b. Synthetic Grass Surfacing Fiber Samples for each fiber used in the playscape synthetic grass surfacing.
 - c. Synthetic Grass Samples: Twelve-inch (12") square samples of un-filled synthetic grass for each color used for the main field and playscape. The samples shall be reviewed as the general product intended for use on the field, please not any discrepancies between the product sample submitted and the product to be manufactured for this project.
 - d. Seaming or Sewing Materials: Twelve-inch (12") long samples of all materials to be used for seaming or sewing of the synthetic grass turf system including, but not limited to, thread and seaming tape.
 - e. Synthetic Grass Surfacing Infill: One-pound samples of sand and coated rubber (in separate bags).
 - f. Drainage Pad Sample: Twelve-inch (12") square samples of drainage pad.
4. Material Testing:

- a. Synthetic Grass Surfacing Yarn testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing.
 - b. Synthetic Grass Surfacing Backing Material testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing
 - c. Synthetic Grass Surfacing Infill testing per Section 1.9 Quality Control Testing, D. Pre-Manufacturing Testing.
5. Shop Drawings: Submit for approval the following:
 - a. Seaming plan; Seams of the field shall not coincide with the subsurface drain system nor seams of pad (if applicable).
 - b. Field Marking Layout, including logos. Layouts for all sports shown on the Drawings showing any field lines, markings, boundaries on the appropriate field(s) and all specified colors. All markings shall be tufted in the factory or inlaid. Provide certification that field layouts meet all NFHS sport marking requirements as installed in the field.
 - c. Details on field construction, making special note of any details that may deviate from the Drawings or Specifications. Include: edge detail, goal post detail, covers for access to subsurface structures, other inserts, etc.
6. Warranties: Submit copies of warranties in Owner's name for all products furnished under this section for review and approval.
7. Testing Agency: Submit qualification of testing agency(s) for review and approval.
8. Synthetic grass surfacing manufacturer/vendor and installer qualifications:
 - a. Installer Qualifications: Synthetic Grass Installation Sub-Contractor shall certify in writing the designated supervisory personnel on the project are competent in the installation of the all-weather grass material, including gluing or sewing seams and proper installation of the infill mixture. The synthetic grass surfacing installer shall have a representative on-site to certify the installation and warranty compliance. Provide experience to show that installation crew is competent to complete the level of work outlined in this project. Synthetic Grass Installation Sub-Contractor's superintendent shall experience to demonstrate that the superintendent is competent to oversee and complete the level of work outlined in this project.
 - b. At a minimum, provide the following documentation: Fifteen (15) reference projects consisting of Synthetic Grass Multi-Sport Grass Fields of 75,000 square-feet or larger within the past five (5) years.
 - c. Project Information: At a minimum, provide the following information for each reference project:
 - 1) Project Name
 - 2) Project Location

- 3) Project scope
 - 4) Construction timeline
 - 5) Construction cost
 - 6) Reference name, title, affiliation, and contact information.
 9. Drainage Pad:
 - a. Drainage Pad manufacturer/vendor and installer qualifications:
 - 1) Installer Qualifications; Drainage Pad Installation Sub-Contractor shall certify in writing the designated supervisory personnel on the project are competent in the installation of the Drainage Pad material. The Drainage Pad installer shall have a representative on-site to certify the installation and warranty compliance. Provide experience to show that installation crew is competent to complete the level of work outlined in this project. Drainage Pad Installation Sub-Contractor's superintendent shall experience to demonstrate that the superintendent is competent to oversee and complete the level of work outlined in this project.
 - 2) At a minimum, provide the following documentation: Fifteen (15) reference projects consisting of Drainage Pads of 75,000 square-feet or larger within the past five (5) years.
 - 3) Project Information: At a minimum, provide the following information for each reference project:
 - a) Project Name
 - b) Project Location
 - c) Project scope
 - d) Construction timeline
 - e) Construction cost
 - f) Reference name, title, affiliation, and contact information.
 10. Surveyor: Submit name and qualifications of Professional Land Surveyor who will be responsible for layout and verification of the work of this Section.
- C. Post Manufacturing/Pre-Installation Submittals
1. Material Testing: Submit for approval test results for all material testing performed under "1.8 Quality Control Testing, Post-Manufacturing/Pre-Installation" herein. Provide copies of all testing agency reports.
 2. Material Samples: Submit three (3) samples, with required testing data, for approval for all materials under 2.1 Materials including, but not limited to, the following:
 - a. Synthetic Grass Carpet Sample: Twelve-inch (12") square samples of un-filled synthetic grass for each color manufactured for the project.
 - b. Synthetic Grass System Sample: Sample box of synthetic grass system, including infill material.
 3. Acceptance of Prior Work: Refer to section 3.2 Examination.

D. Post-Installation Submittals

1. Material Testing: Submit for approval test results for all material testing performed under “1.8 Quality Control Testing, Post-Installation” herein. Provide copies of all testing agency reports.

E. Warranty Quality Control Submittals

1. Material Testing: Submit for approval test results for all material testing performed under “Quality Control Testing, Warranty” herein. Provide copies of all testing agency reports to the Owner and Landscape Architect for review and approval for the entire warranty period.

1.6 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Owner, or Landscape Architect on the Owners behalf, reserves the right to submit any material, either before or after installation, for testing it deems necessary to satisfy the conditions of this contract.
 1. Any material tested and found not in compliance with the contract will be rejected and replaced with material conforming to the specifications. This will be done at the sole expense of the Contractor.
 2. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery to minimize on-site storage. Segregate differing materials and prevent from contamination with other materials.
- B. Packing and Shipping: Deliver products in original unopened packaging with legible manufacturers' identification. All materials shall be stored in a dry place out of the direct sunlight.
- C. Drainage Pad
 1. Follow manufacturer’s recommendations for packaging, transportation, and delivery to ensure materials are not damaged. Furnish materials in wrapping that protects the material from ultraviolet radiation and from abrasion due to shipping and hauling.
 2. Materials shall be stored on a prepared surface. Protect materials from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat or cold, or other damaging circumstances.

- D. Prior to the installation of any materials and immediately upon delivery of the synthetic grass system and components to the project site, the Contractor shall inspect materials as follows:
1. For damaged or defective items.
 2. Measure synthetic grass roll lengths, perforations, and uniformity.
 3. Adhesives and seaming tap shall arrive in sealed dry containers and be kept in adequate temperature per manufactures requirements.
 4. Rubber in-fill shall arrive in large sacks or bags without tears and loose material.
 5. Rubber in-fill shall arrive dry and loose. No Rubber shall be accepted that is bulked or solid.
 6. Rubber in-fill shall be free of exposed metal particles.
 7. Sand in-fill shall be free from contamination of site materials.
- E. Bulk Materials: Deliver materials in clean, washed and covered trucks to eliminate contamination during transportation. On site stockpiling locations to be coordinated with the Owner. Stockpile only in areas free of debris and away from drainage routes. Cover all materials with plastic or geotextile if materials are to be stockpiled more than 48 hours.

1.8 QUALITY CONTROL TESTING

- A. All sampling/testing shall be the responsibility of Contractor. Contractor shall retain and pay for the services of a third-party Testing Agency to perform all sampling/testing in accordance with applicable standards.
- B. All testing shall be completed by an independent (third-party) Testing Agency as approved by Landscape Architect. Testing must be for current materials with current date from independent testing laboratory as described herein.
- C. Certified copies of laboratory reports shall be submitted for all testing.
- D. Pre-Manufacturing Testing (Sports Fields and Landscape Synthetic Grass)
1. Timing: Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency prior to manufacturing of the Synthetic Grass Surfacing for the Project. Provide testing data for the following:

TESTING METHOD	CHARACTERISTIC	DECLARATION
SYNTHETIC GRASS YARN (include results for each yarn color separately)		
ASTM D 789	Melting Point	> 235 degrees F
ASTM D 1907	Denier	± 10% of specification
ASTM D 2859	Pill Burn Test	8 Passed/0 Failed
ASTM D 3218	Microns	± 10% of specification
ASTM D 5034	Breaking Strength (length)	> 283 lbs./ ft.
ASTM D 5034	Breaking Strength (width)	> 200 lbs./ft

ASTM F 1015	Fiber Abrasiveness Index	< 35
ASTM F 2765-09	Lead Content	< 50 ppm
EN ISO 20105-A02	Artificial Weathering (3,000 hours UVA) Turf Color Change	> Gray Scale 3
EN 13864	Artificial Weathering (3,000 hours UVA) Pile Yarn Tensile Strength	<50% reduction
SYNTHETIC GRASS BACKING MATERIALS		
ASTM D 5848	Primary Backing Weight	± 2 oz./yd2 of specification
ASTM D 5848	Secondary Backing Weight	± 2 oz./yd2 of specification

SYNTHETIC GRASS INFILL MATERIALS		
(include results for each infill separately)		
EN 71-3	Safety of Toys Part 3	Pass
ASTM F3188	Safety of Synthetic Turf Infill	Pass
EN 933	Infill Size Gradation	
EN 1097	Infill Bulk Density	
EN ISO 20105-A02	Artificial Weathering (3,000 hours UVA) Infill Color Change	> Gray Scale 3
SYNTHETIC GRASS SYSTEM		
(previous results for testing of product that closely meets specification)		
EN 13672	Lisport Simulated Wear	> 50,000 passes without splitting

2. Any material tested and found not in compliance with the contract may be rejected and Contractor shall submit a material found to be acceptable.
3. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

E. Post Manufacturing/Pre-Installation Testing (Sports Fields and Landscape)

1. Samples, as required to perform the testing below, of the synthetic grass carpet, infill material, and drainage pad shall be submitted to the independent Testing Agency.
2. Timing: Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency prior to shipping of the Synthetic Grass Surfacing to the Project. Provide testing data for the following:

SYNTHETIC GRASS SURFACING CARPET		
ASTM D 1335	Tuft Bind (w/out infill)	> 6.8 lbs. or 30N
ASTM D 5793	Stitch Gauge	< 3/8"
ASTM D 5823	Pile Height	± 1/8 inch of specification
ASTM D 5848	Pile Weight	± 5% of specification
ASTM D 5848	Total Weight	± 5% of specification
Visual	Perforations	>3/16" dia. holes, spaced 4" on center
SYNTHETIC GRASS SURFACING SYSTEM (carpet, infill, and drainage pad)		
ASTM F1551/EN 12616	Water Infiltration Rate	>16 in./hr.
EN 1969	Infill Depth Measurement	± 10% of specification (1/2" exposed fiber)
ASTM F 1936	Impact Attenuation(g-max)	< 120 G's
EN 1177	Impact Attenuation, Head Injury Criteria (HIC)	<900 @ 1.4m
EN 14808/ FIFA 04&09	Force Reduction	55% to 70%
EN 14809/ FIFA 05&09	Vertical Deformation	4mm to 9mm
EN 15301/ FIFA 06&09	Rotational Resistance	25n to 50n
FIFA 07	Linear Friction-Deceleration	3.0g to 6.0g
FIFA 07	Linear Friction-Slide	120 to 220
FIFA 08	Skin Abrasion (dry)	< 30%
FIFA 08	Skin/ Surface Friction (dry)	0.35 to 0.75
EN 12235/ FIFA 01&09	Vertical Ball Rebound	60cm to 100cm
EN /FIFA 02	Angled Ball Behavior	45% to 70%
EN 12234/ FIFA 03	Ball Roll	4m to 10m

3. Any material tested and found not in compliance with the contract may be rejected and Contractor shall submit a material found to be acceptable.
4. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

F. Drainage Testing, Pre-Construction (Sports Fields and Landscape)

1. Construct a minimum 15-foot by 15-foot (15 ft x 15 ft) sample panel of the complete subdrainage system (Field Base Stone and Drainage Pad) on top of a prepared subgrade section in an area approved by Landscape Architect.
2. Field subdrainage system sample panel shall be complete and in-place, representative of final construction per the Drawings and Specifications. Material testing and compaction testing on the sample panel shall be submitted to confirm the sample panel conforms to the drawings and specifications.

3. Perform an infiltration test, double-ring infiltrometer ASTM F1551/EN 12616 - Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials, on the completed sample panel (Field Base Stone layer and Drainage Pad). Alternative infiltration testing will not be considered valid.
 - a. Testing criteria: The mock-up complete field subdrainage system panel will be considered acceptable when an infiltration rate of no less than 20 inches per hour (20 in/hr) is demonstrated.
4. Sample panel may be utilized as part of the final work.

G. Post-Installation Testing (Sports Fields and Landscape)

1. Timing: Testing shall be completed on-site and within five (5) days of the completion of installation.
2. Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency. Provide testing data for the following:

DRAINAGE STONE (installed on-site, prior to installation of Drainage Pad)		
EN 13036	Planarity/Surface Regularity	<10 mm
ASTM F1551/EN 12616	Water Infiltration Rate	> 30 in./hr.
DRAINAGE PAD (installed on-site, prior to installation of synthetic grass and infill)		
ASTM F1551/EN 12616	Water Infiltration Rate	> 20 in./hr.
SYNTHETIC GRASS SURFACING SYSTEM (installed on-site, after installation of synthetic grass surfacing, infill, and drainage pad)		
ASTM F1551/EN 12616	Water Infiltration Rate	>16 in./hr.
EN 1969	Infill Depth Measurement	± 10% of specification
(sports field synthetic grass surfacing system only)		
EN 13036	Planarity/Surface Regularity	<10 mm
ASTM F 1936	Impact Attenuation(g-max) (minimum 10 locations)	< 120 G's (individual, not average results)
EN 1177	Impact Attenuation, Head Injury Criteria (HIC) (minimum 10 locations)	<900 @ 1.4m (individual, not average results)
EN 14808/ FIFA 04&09	Force Reduction	55% to 70%
EN 14809/ FIFA 05&09	Vertical Deformation	4mm to 9mm
EN 15301/ FIFA 06&09	Rotational Resistance	25n to 50n
FIFA 07	Linear Friction-Deceleration	3.0g to 6.0g
FIFA 07	Linear Friction-Slide	120 to 220
FIFA 08	Skin Abrasion (dry)	< 30%
FIFA 08	Skin/ Surface Friction (dry)	0.35 to 0.75
EN 12235/ FIFA 01&09	Vertical Ball Rebound	60cm to 100cm

EN /FIFA 02	Angled Ball Behavior	45% to 70%
EN 12234/ FIFA 03	Ball Roll	4m to 10m
EN 71-3	Safety of Toys Part 3	Pass (minimum of 3 samples)
ASTM F3188	Safety of Synthetic Turf Infill	Pass (minimum of 3 samples)

3. Drainage Testing (Sports Fields and Playscapes)

- a. Perform infiltration tests, double-ring infiltrometer, ASTM F1551/EN 12616 - Standard Test Method for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials, as the Drainage Pad layer of the field subdrainage system/base is completed. Alternative infiltration testing will not be considered valid.
- b. Testing Frequency: Perform one test for each 25,000 square feet (25,000 sf) of completed area.
- c. Testing criteria: Each test will be considered acceptable when an infiltration rate meets requirements. Do not proceed with installation of subsequent layers until all tests are considered acceptable.

4. Any material tested and found not in compliance with the contract may be rejected and Contractor shall rectify the issue to be acceptable. Any area/item not within conformance shall be retested at the Contractors expense after remedy is implemented until satisfactory results are achieved.

5. The Owner, or Landscape Architect on the Owner behalf, reserves the right to independently test any material. Any testing performed by the Owner will be at the Owner's expense. The Contractor is responsible for the cost of all testing that fails. Contractor will bear the cost of all retesting as required by the Owner.

H. Warranty Testing (Sports Fields)

1. Timing: Testing shall be completed on-site and annually for the warranty period.
2. Contractor shall submit to Landscape Architect a copy of all test results certified by the independent Testing Agency. Provide testing data for the following:

SYNTHETIC GRASS SURFACING SYSTEM (annually)		
EN 13036	Planarity/Surface Regularity	<10 mm
EN 1969	Infill Depth Measurement	± 10% of specification (1/2" exposed fiber)
ASTM F 1936	Impact Attenuation(g-max) (minimum 10 locations)	< 120 G's (individual, not average results)
EN 1177	Impact Attenuation, Head Injury Criteria (HIC)	<900 @ 1.4m (individual, not average results)

	(minimum 10 locations)	
EN 71-3	Safety of Toys Part 3	Pass (minimum of 3 samples)
ASTM F3188	Safety of Synthetic Turf Infill	Pass (minimum of 3 samples)

3. Any material tested and found not in compliance with the contract may be rejected and Contractor shall rectify the issue to be acceptable. Any area/item not within conformance shall be retested at the Contractors expense after remedy is implemented until satisfactory results are achieved.

1.9 PATENT RIGHTS AND INFRINGEMENT

- A. The Drawings and Specifications are not indented to be proprietary or in violation of any current or pending patents. The Contractor and subcontractors are responsible to provide the Owner and Landscape Architect with any violations contained here in prior to bidding. By bidding on the project the Contractor and subcontractors shall hold the Owner, Construction Manager, and Design Consultants harmless from infringement of any current or future patent issued for the synthetic grass surfacing system.
- B. Contractor and subcontractors shall hold the Owner, Construction Manager, and Design Consultants harmless from infringement of any current or future patent issued for the synthetic grass surfacing system, fibers, backings, including drainage pad (if required), installation methods and vertical draining characteristics. The successful bidder will be required to submit a letter for consent from their surety. The Surety shall indemnify the requirements.
- C. There are various established performance criteria throughout this request for products and services. There may exist patent coverage for some means and methods of achieving those performance criteria. Bidders are responsible for ascertaining that means and methods of the products and services which they are providing are not being provided in violation of any such patent rights. Bidder's responsibilities are as follows:
 1. To hold harmless, the Owner, Construction Manager, and Design Consultants, as to any violation to include dollar amounts that could be owed as a result of damages for infringement including potential treble damages as provided for under U.S. Patent Law.
 2. Any and all costs that the Owner, Construction Manager, and Design Consultants, would incur in replacing materials and services which are determined to infringe patent rights.
 3. All administrative, legal and other costs that would be incurred as a result of an infringement.

1.10 WARRANTY

- A. Synthetic Grass Surfacing Warranty – Sports Fields: See Specification Section 32 18 13.10 Synthetic Grass Surfacing Warranty.
- B. Synthetic Grass Surfacing Warranty – Landscape

1. The Contractor shall provide a non-prorated Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic landscape grass materials and installation as specified herein, for a minimum non-pro-rated period of fifteen (15) years to the Owner from the date of Certificate of Substantial Completion.

C. Synthetic Grass Infill Warranty

1. The Contractor shall provide a non-prorated Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic grass infill materials and installation as specified herein, for a minimum non-pro-rated period of eight (8) years to the Owner from the date of Certificate of Substantial Completion.
2. Infill material shall be warrantied against breakdown of material outside of project specifications, deterioration of infill coatings, and failure to adhere to EN 71-3 and ASTM F3188 testing.

D. Drainage Pad Warranty's

1. The Contractor shall provide a non-prorated Drainage Pad Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the Drainage Pad materials and installation as specified herein, for a minimum non-pro-rated period of sixteen (16) years to the Owner from the date of Certificate of Substantial Completion.
2. Warranty shall include coverage for the following:
 - a. Drainage issues, or Failure to drain at rate of 20" per hour or greater.
 - b. Undulations or heaving repair for any undulation caused by the padding material apparent in the turf over 1/4" in vertical height, whether periodic (due to weather) or persistent.
 - c. Persistent depressions, or deformation of the pad material 1/4" or greater caused by the Drainage Pad materials.
 - d. Any failure in the physical properties of the pad that negatively affect the aesthetics, playability, G-Max rating or longevity of the synthetic turf of the athletic field.
 - e. Costs for repair or replacement of the synthetic turf and infill above Drainage Pad in affected areas in the event of product failure.
 - f. The Contractor shall inspect and repair any areas of concern caused by the Drainage Padding system under warranty including, but not limited to, the following:
 - 1) Drainage Issues
 - 2) Base Depressions and Undulations Repair

- E. The Warranty shall cover, in general, the usability of the Synthetic Grass System (and pad); accessories, use, characteristics, and suitability, of the installation to the minimums specified in this Section.
- F. All items covered by the warranty are to be replaced or repaired with new materials, including installation at the sole expense of the warranting manufacturer/surface supplier over the life of the Warranty.
- G. Sports Field Synthetic Grass Use: The materials utilized in the sports field synthetic grass system (carpet, infill, drainage pad, seaming, logo's, inlays, etc.) shall be guaranteed for the designated uses as follows:
 - 1. Football, Rugby, Soccer, Baseball, Softball, Field Hockey, Lacrosse
 - 2. Marching Band
 - 3. Graduations and Ceremonies
 - 4. Physical Education and Intramural Sports Programs
 - 5. Physical Education exercises and activities
 - 6. Pedestrian traffic and other similar uses
 - 7. Pneumatic rubber-tired maintenance and service equipment, designed for use on athletic fields and golf courses.
- H. Landscape Synthetic Grass Use: The materials shall be guaranteed for the designated uses as follows:
 - 1. Pedestrian traffic and other similar uses
 - 2. Tables and chairs for spectator viewing
 - 3. Pneumatic rubber-tired maintenance and service equipment, designed for use on athletic fields and golf courses
- I. Warranty documents and terms of Warranty shall be in accordance with this Specification.
 - 1. The use of the Manufacturers' standard or modified form of Warranty shall in no circumstance supersede the conditions set forth in this Specification Section, which shall be considered part of the Warranty.
 - 2. This Warranty shall constitute a contract made in the State of where the project is located and shall be governed by the laws of that State.
- J. Warranty shall include coverage for the following:
 - 1. Drainage issues, or Failure to drain at the specified rate.

2. Any failure in the physical properties that negatively affect the aesthetics, playability, G-Max rating or longevity of the synthetic grass.
3. Test results, field repairs, and field concerns shall be submitted to the Owner and the Landscape Architect in a Field Inspection Report and Testing Results for review.

1.11 WARRANTY AND MAINTENANCE OBLIGATIONS

1. The Synthetic Grass Manufacture/Supplier shall be required to provide testing, as described under G. Warranty Testing, and inspection plan for the lifespan of the warranty as part of this Contract and shall submit a schedule of visits at the time of completion.
 - a. Contractor shall make corrections as necessary to meet all testing requirements.
2. The Synthetic Grass Manufacture/Supplier to return to the site once (1) per year for the duration of the warranty, no less than 8 visits.
3. The Synthetic Grass Manufacture/Supplier shall inspect any areas of concern and make repairs as necessary under warranty during each visit including, but not limited to, the following:
 - a. Nailer Board/Concrete Anchor Cub Repairs (general contractor)
 - b. Inlays, Numbers, Logo, and Seam Conditions
 - c. Fiber Conditions
 - d. Fiber Height
 - e. Infill Condition
 - f. Infill Height/ Compaction
 - 1) Sports Fields: Additional infill may be required by contractor to maintain the G-Max, HIC levels and required infill depths.
4. Test results, field repairs, and field concerns shall be submitted to the Owner and the Landscape Architect in a Field Inspection Report and Testing Results for review.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Drainage Pad

1. Commercially-available panelized/modular Drainage Pad system designed for multi-sport or playscape uses (depending on the application). Drainage Pad shall consist of pre-fabricated, interlocking units configured for installation beneath synthetic turf systems.
2. Panel Drainage Characteristics: Permeable, vertical drainage. Minimum vertical drainage rate: 50 inches per hour.
3. Compatibility: Drainage pad shall be compatible with the submitted synthetic grass surfacing, and the grass surfacing and pad shall provide an acceptable system. Drainage pad shall be in all ways compatible with the specified grass surfacing, and shall not affect the synthetic grass warranty, as well as the grass surfacing submitted shall not affect the pad warranty. Pad shall be intended for installation on a gravel base without the use of adhesives.
4. Load Capacity: No permanent deformation under periodic loading (e.g. grooming equipment, or ambulance).
5. Connectors, couplers, and other fittings: As required to complete the system and prevent heaving buckling or movement of the mat. Material of construction and configuration shall be in accordance with the Drainage Pad manufacture's requirements or recommendations, whichever is more stringent.
6. Warranty: Minimum 16-year manufacturer's warranty.
7. Drainage pad performance requirements:

<u>Drainage Pad</u>		
Characteristic	Testing Method	Requirements
Material	PVC/Nitrile Rubber Or Expanded Polypropylene	
Material Thickness	17 mm (0.67 inch) +/-0.18" (Sports Fields)	
Format / Type	Sheet - or interlocking panels	
Drainage / Permeability	BS 7044 Method 4 or EN 12616 as appli- cable	Perforated or Permeable 50 inches per hour mini- mum
GMAX, With Turf and infill	ASTM D2859	90 minimum, 120 maxi- mum. (throughout warranty pe- riod)
Impact Attenuation, Head Injury Criteria (HIC) (with pad)	EN 1177	<900 @1.4m (throughout warranty period)
Material Density	ASTM D 1056-07	3.6 to 12.5 lbs/ft3
Water Absorption	ASTM D 1056-07	<5%
Vertical Deformation w/out turf	EN 14809	4mm maximum
Thermal Expansion (per 1°C)	ASTM D696-03	0.0000833mm/mm
Compression Strength	ASTM D3575	@25% 30 psi @50% 49 psi @75% 102 psi
Compression Set – Static Load (25% strain, 22 hrs, 23°C after 24 hrs)	ISO 1856C	8.2% (0.089 in) max
Compression Set – Repeated im- pacts (106 psi, repeated, 10,000 cycles)	System Test	6.0% maximum
Friction Coefficient	ISO 8295	2.44 lbs Max 1.35 lbs average
Microbiological Analysis Bacteria Resistance, Fungal Resistance Chemical resistance	ASTM G22-76 ASTM G21-96 ASTM F925	No growth or detrimental effects
Accelerated Aging 20 yr model - % tensile strength loss 20 yr model - % elongation loss		-<10% after 120 days @ 85C -<5% after 120 days at 85C

8. Manufacturer shall provide documentations that the Drainage Pad meets the following:
 - a. Product meets human health and total threshold limit concentrations using EPA method 3052
 - b. Product meets human health and total threshold limit concentrations for Title 22 (CAM 17) metals using EPA 6020/7471A and hexavalent chromium using EPA method 7196A.

B. Synthetic Grass Surfacing Carpet

1. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields or in landscape applications (whichever is applicable). The finished surface shall resist abrasion and cutting from normal use.
2. The materials as hereinafter specified should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus, mildew, ultraviolet light, heat degradation, and be non-allergenic and non-toxic. The entire system shall be constructed to maximize dimensional stability, to resist damage and normal wear and tear from its designated uses and to minimize the ultra-violet degradation.
3. The system shall have the basic characteristics of flow-through drainage, allowing free movement of surface runoff through the synthetic grass system where such water may flow to the existing base and into the field drainage system.
4. Pile fibers shall resemble freshly grown natural grass in appearance, texture and color (except for the colored all-weather grass for markings). Streaks, discoloration, or different dye lots shall not be accepted.
5. Manufacturer is to guarantee that the synthetic grass fiber is adaptable to painted lines.
6. The synthetic grass surfacing systems shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water, and airborne pollutants.
7. All adhesives used in bonding the system together shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultra-violet rays at any location upon installation.
8. Fabric surface shall be constructed and installed in minimum widths of 15 feet with no longitudinal or transverse seams, except for inlaid lines with a finished roll assembly.
9. The Synthetic Grass System shall remain free draining at all times before, during, and after the infill materials are installed.

10. Landscape: The synthetic grass surfacing shall be made up of the following system:
1) Tufted combination of polyethylene and a thatch/rootzone/spikezone fibers.

Denier	10,000 (mono & slit-film) 5,000 (thatch/rootzone/spikezone)
Microns	>310 microns (mono) > 120 microns (slit-film)
Pile Height	1-5/8" 1-1/4" - (thatch/rootzone/spikezone)
Pile Weight	50 oz. – Grass Zone 80 oz. – Total Pile Weight
Total Weight	108 oz.
Stitch Gauge	< 3/8"
Primary Backing Weight (multiplayer)	> 8 oz./yd ²
Secondary Backing Weight	> 20 oz./yd ²

11. Sports Fields: The synthetic grass surfacing shall be made up of the following systems:
- Multi-Sport Field – Tufted combination of Diamond Shaped Monofilament, Slit-Film, and a thatch/rootzone/spikezone fibers.
 - Baseball Field (Green) – Tufted combination of Diamond Shaped Monofilament, Slit-Film, and a thatch/rootzone/spikezone fibers.
 - Baseball Base Path, Pitchers Mound, and Catchers' Box (Clay) – Tufted combination of Monofilament, Slit-Film, and a thatch/rootzone/spikezone fiber.

Denier	10,000 (mono & slit-film) 5,000 (thatch/rootzone/spikezone)
Microns	>310 microns (mono) > 120 microns (slit-film)
Pile Height	2" – Multi-Sport Field 2" – Baseball Field 1-1/2" – Baseball Base Path 1-1/2" – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Pile Weight	60 oz. – Multi-Sport Field 60 Oz. – Baseball Field 60 oz. – Baseball Base Path 90 oz. – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Total Weight	88 oz. – Multi-Sport Field 88 Oz. – Baseball Field 88 oz. – Baseball Base Path 118 oz. – Baseball Pitcher's Area, Catchers Area, & Batters' Box
Stitch Gauge	< 3/8"
Primary Backing Weight (multiplayer)	> 8 oz./yd ²
Secondary Backing Weight	> 20 oz./yd ²

C. Perforations

1. Synthetic grass carpeting shall be perforated to provide vertical drainage as specified herein.
2. Size and spacing of perforations shall be as specified herein. Spacing of perforations shall be uniform in both directions.
3. Perforations shall be complete and full diameter for a minimum of 95% of each roll.
4. Perforations shall be tested by passing a 3/8" drill bit through the holes with no more than 7 lbs. pressure.

D. Markings and Logos

1. All field lining, marking, field boundary system with team area limits, logos, etc. shall be same material (yarn, infill, and backing) as playing field system.
2. Lines, logos, and graphics to be installed on the synthetic grass surface as per documents are to be tufted in the factory to the maximum extent practical. Those not tufted in the factory shall be inlaid in the field (shaving is not permitted).
3. A complete field lining, marking, and field boundary system with team area limits, etc. shall be provided with the initial installation. Layouts shall be accurately surveyed and marked prior to installation. Layouts shall include all incidental markings required by the NFHS or state athletic organization, whichever is applicable.
4. All markings shall be uniform in color, providing a sharp contrast with the synthetic grass field color and shall have sharp and distinct edging.
5. Logos and lines shall be true and shall not vary more than 1/2" from specified width and location.
6. Provide logo(s) as shown on the Drawings.
 - a. Color(s): As shown on the Drawings.

E. Adhesive Materials and Seaming Tape

1. Adhesive material to fix the synthetic grass carpet to the seaming tape shall be a polyurethane adhesive:
 - a. NORDOT Adhesive by Synthetic Surfaces Inc.
 - b. Turfbond Synthetic Turf Adhesive
 - c. Mapei Ultrabond Turf PU Single Component Adhesive

2. If a hot melt welding method is used, the glue shall have an application temperature of 325 degrees F. with a melting point of 180 degrees F. Material shall be National Adhesive #34-5372 or equal. Submission of all hot melts shall be 10 calendar days prior to installation.
3. Bonding surfaces shall be clean, dry, and free from grease, oil, wax, weak oxide films, mold release agents, and other surface contaminants.
4. The adhesive shall be applied at the rate not to exceed 60 square feet per gallon.
5. The adhesive shall have the same warranty period as the synthetic grass system.
6. Seaming tape shall be a 12" wide polypropylene or polyethylene fabric acceptable for use with the synthetic turf carpet system and the adhesive material.
7. Seaming tape shall meet FIFA Joint Strength >25N/100mm

F. Infill

1. Sports Fields: Infill Materials shall be uniformly filled to a depth which leaves no more than 1/2" of exposed pile after settlement.
 - a. Infill materials shall consist of a homogeneous non-compacting mixture of silica sand and recycled rubber granules meeting the following criteria: Combination of sand and coated ambient crumb rubber (SBR) are to be used as the in-fill system, the green coated crumb rubber content shall be between approximately 30-40% by weight and the sand shall be between 60-70% by weight. Manufacturer to provide infill ration based on pre-installation testing.
 - b. Coated Ambient Crumb Rubber Infill
 - 1) Shall be free of all metal and produced of 100% recycled automobile or truck tires. The material shall have a size not to exceed 10 mesh nor smaller than 20 mesh.
 - 2) The fine particles shall not exceed 10% by volume. Rubber shall have no visible evidence of steel particles present in the final synthetic grass surfacing in-fill. The bulk density of the rubber materials shall not be less than 29.75 lbs/cubic feet.
 - a) Coating color: Shall match playing surfacing color (green and/or clay/brown)
 - 3) Coated ambient crumb rubber shall be UV stabile and resistant to heat degradation.
 - c. Sand Infill
 - 1) Sand shall comprise 100% passing the #16 sieve, no more than 80% passing the #30 sieve and no more than 0.5% passing the #50 sieve per ASTM E-1.
2. Landscape: Infill Materials shall be uniformly filled to a depth as specified by manufacturer, but by which leaves no more than 1/2" of exposed pile after settlement.

G. Additional Field Materials (Attic Stock)

1. Sports Fields:
 - a. The Contractor shall supply and deliver an additional 50 lineal feet of full width material, plus 5 linear feet of full width of each color used.
 - b. The Contractor shall supply and deliver an additional 2,000 lbs crumb rubber material as specified for the sports field synthetic grass surfacing system. The rubber infill shall be placed in RubberMaid 50 gallon containers with covers and wheels.
2. Landscape:
 - a. The Contractor shall supply and deliver an additional 15 lineal feet of full width material.
 - b. The Contractor shall supply and deliver an additional 250 lbs of infill material as specified for the landscape synthetic grass surfacing system. The rubber infill shall be placed in RubberMaid 50 gallon containers with covers and wheels.
3. Seaming Tape and Adhesive: Provide 100' linear feet of seaming tape and sufficient gluing materials necessary for seaming repair. Materials shall be easily used by the Owner. 5 Gallon pails of glue material is not acceptable.

H. Field Maintenance Equipment

1. One (1) Three-Prong Infill Depth Gauges: The contractor shall supply at the end of the Project one (1) new and unused three-prong depth gauge.
2. Six (6) Single-Prong Infill Depth Gauges: The contractor shall supply at the end of the Project one (1) new and unused three-prong depth gauge supplied by The Synthetic Turf Council www.syntheticurfCouncil.org, contact: Melanie Taylor, melanie@syntheticturfcouncil.org

PART 3 - EXECUTION

3.1 GENERAL

- A. Verify site conditions before proceeding with demolition work. Field check the accuracy of the Drawings and inspect structures, utilities, and other site features prior to start of work and notify Engineer in writing, of any hazardous conditions and/or discrepancies.
- B. Weather Permitted Conditions: The Contractor shall not perform any work if the conditions for working are:
 1. Ambient air temperatures are below 45 degrees F.
 2. Material temperature falls below 45 degrees F.
 3. Rain is forecast or falling
 4. Conditions exist or are pending that will be unsuitable to the installation of the system.

- C. Drawings / Specifications: The Contractor shall perform all work in strict accordance to the Contract Drawings / Plans, Shop Drawings and manufacturer's specifications and instructions.
- D. Verification: The Contractor shall be responsible for the inspecting, verifying and completing all installed work of this section.

3.2 EXAMINATION

- A. Acceptance of Prior Work-Field Base Stone: Upon completion of the base and drainage work, the Site General Contractor shall submit a letter, addressed to the Owner, signed by the Site General Contractor, Drainage Pad Installer, and the Synthetic Grass Surfacing Installer. The letter shall confirm Field Base Stone has been reviewed, including all testing data, and is acceptable for installation of the synthetic grass surfacing system. Any discrepancies, problems, and/or conflicts shall be addressed prior to issuance of the letter. Continuing with the installation of the Drainage Pad over the field base stone without issuance of such letter shall be considered as an approval of the base by the Drainage Pad and Synthetic Grass Surfacing Installer.

3.3 PREPARATION

- A. The Contractor shall take special care to protect all field and playscape structures and utilities. Any damage shall be repair or replaced at the cost of the Contractor
- B. Layout: The Contractor shall be responsible for furnishing, setting and marking all lines, seams and markings for the field. The Contractor shall at all times maintain all necessary benchmarks and control points to locate all events and markings.
- C. Slope: The field shall be installed with a minimum 0.5% and maximum 0.75% slope unless otherwise noted in the Drawings, from the center crown to the sideline or track edge. Playscapes shall not exceed slopes noted on drawings.
 - 1. The finish profile of the crown of the field may not exceed grade shown on the Drawings. This will be maintained throughout the length of the crown. See Drawings for detail of the crown grading.

3.4 INSTALLATION

- A. Drainage Pad
 - 1. Prior to pad installation pad installer /manufacturer shall provide written acceptance of the prepared subgrade material and surface. Acceptance shall, at a minimum, include the following:
 - a. Permeability
 - b. Planarity
 - c. Suitability for synthetic turf system.
 - 2. Install Pad loose laid on gravel base in accordance with manufacturer's requirements.

3. Protect panels from damage or movement during the installation process. Damaged panels shall be rejected. Install panels and cover with turf promptly. Do not leave panels exposed overnight without ballasting. Contractor is responsible for material stability during construction and shall take all measures necessary to avoid shifting or displacement due to construction, weather or temperature changes.
4. An interlocking panel design shall be used to hold adjacent panels in place.
5. Pads shall be cut and fit tightly to the edges of the field/playscape and all objects within the field/playscape. No gaps in the pad over 1/4" are acceptable. Use largest size possible. Filler strips or piecemeal work are not acceptable.
6. Grade and planarity of installed Pad system shall comply Surface Regularity of this specification. Care shall be taken to fix any disturbances of the stone base while installing the drainage pad.

B. Synthetic Grass Surfacing Installation

1. The synthetic grass carpet shall be staged and unrolled as necessary for a daily installation. No material will be allowed to be unrolled 24 hours prior to installation.
2. Synthetic grass surfacing shall be installed over the drainage pad. Care shall be taken so as not to damage installed drainage pad.

C. Seams

1. All panel seams spacing is to be held to a minimum of 15 feet unless prior approval of seaming diagram indicates a lesser panel.
2. Fabric surface shall be constructed and installed in minimum widths of 15 feet with no longitudinal or transverse seams, except for inlaid lines with a finished roll assembly. The seams shall be 15'-0" apart. No fitted pieces shall be allowed to true alignment.
3. All panel seams shall be securely sewn or glued and lay flat. Minimum of 5" of seaming tape and glue shall be on either side of the seam.
 - a. Ridges or tenting of seams is not acceptable.
 - b. Gaps greater than 1/8" are not acceptable.
4. All synthetic grass surfacing seams shall be sewn with high strength polyester fiber cord. Sewn seams shall be a butt-sewn with double loop lock stitch. Seams shall lay flat after in-fill. Bagger type seam stitching is not permitted
5. All seams shall be brushed thoroughly before infill materials are installed.
6. All seams shall have full fastenings and no loose areas. At no time can pulling on the section separate the material.
7. The Synthetic Grass System shall remain free draining at all times before, during, and after the infill materials are installed.

D. Synthetic Grass System Edges and Termination

1. All edges and ends of the synthetic grass system shall be secured to the anchor curb by 100% glue, nailing is not acceptable. Final infill level shall be flush with adjacent anchor curb or track surfacing.

E. Lines, Markings, Logos, and In-Lays

1. Lines and markings shall be tufted in the factory to the greatest extent possible during manufacturing.
2. All lines, numbers, and field markings are to be tufted or in-laid, shaving shall not be permitted, with the specific colored synthetic grass. All lines and markings shall be accurately set and surveyed to within 1/2" tolerance.
3. All lines and markings shall be installed and verified prior to any installation of in-fill material.
4. All glued inlays shall have a 12" wide seaming tape, fully coated with adhesive. All inlays shall not have any adhesive applied to any exposed fibers. All graphics or markings can be tuft-in or cut-in (shaving is not permitted).
5. All seams and in-laid areas shall be brushed thoroughly before infill materials are installed.
6. All seams and inlays shall have full fastenings and no loose areas. At no time can pulling on the section separate the material.

F. Synthetic Grass Surfacing Infill

1. No in-fill materials shall be installed until the synthetic grass surfacing is fully installed with all lines and markings.
2. The synthetic grass surfacing shall be thoroughly brushed prior to any in-fill materials to remove any wrinkles and defibrillate the slit film.
3. Infill shall not leave more than 1/2" of exposed fiber on sports fields.
4. The in-fill materials shall be installed in layers not to exceed 0.30 lbs per sq ft per layer.
5. Infill material shall be 'worked into' the thatch/rootzone/spikezone layer. Contractor shall allow time and proper machinery to do so.

3.5 PROTECTION

- A. The Contractor shall take special care to protect all field and building structures and utilities. Any damage shall be repair or replaced at the cost of the Contractor.

3.6 TRAINING INSTRUCTION AND OWNERS MANUALS

- A. Provide a 4 hour, at a minimum, on-site training instructional program for the Owner. Prior to conducting training the contractor shall put together and test all maintenance equipment. Equipment shall be fully functional and ready to use at the time of the training. The training shall include review and demonstration generally of the following, but not be limited to:
 - 1. Daily/Weekly fiber, infill, and seam inspections.
 - 2. Low infill hand grooming and infill placement.
 - 3. Seam repair.
 - 4. Field sweeping, grooming, and decompaction (with tines groomer if applicable). Including demonstration of hock-up, detachment, and use of all equipment with the Owner's equipment.
 - 5. Field plowing (if applicable).
 - 6. Protection for events.
 - 7. Procedure for Warranty claims.
- B. The training instruction will be summarized on a DVD included in the Owner's Manual and close-out documents.
- C. Training shall take place no later than fourteen (14) days after article "Quality Control Testing, Post-Construction Testing" is completed.

3.7 AS-BUILT FIELD LAYOUT DRAWING

- A. Provide As-Built Field Layout Drawing including verification of field layout dimensions, by licensed surveyor in the State of Connecticut, to the Landscape Architect for review and approval.
 - 1. Provide as-built survey in AutoCAD and .pdf format for review.

3.8 CLEAN UP

- A. The site shall be kept clean and free of debris throughout the installation. Empty barrels, sacks, bags, and remnant materials shall be stored or disposed daily in a proper container or legal manner.
- B. After completion of the entire Project, the site shall have a general cleanup removing all debris remaining on the site that is not a part of the final Project.
- C. The equipment supply requirements for this Project shall be part of the total price and shall be the sole expense of the Contractor.

- D. All natural grass areas disturbed during this construction shall be restored to the satisfaction of the Owner at no additional cost to the Owner.
- E. All attic stock materials shall be placed in it's appropriate location as determined by the Owner.

3.9 Acceptance

- A. Should any imperfections develop in the surface areas prior to the final acceptance of the work, they shall be removed and replaced with new materials. All such repair work shall be done at no additional cost to the Owner.
- B. Acceptance will be issued to the Contractor as described under "Substantial Completion" when all work under this section is found to be completed. The Owner or Landscape Architect will not be responsible for any additional acceptance requirements by the Contractor or subcontractor.

END OF SECTION 32 18 13

SECTION 32 18 13.10 – SYNTHETIC GRASS SURFACING WARRANTY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.2 SUMMARY

- A. Section Includes:
 - 1. Synthetic Grass Sports Surfacing Warranty and Guarantee.

1.3 SIGNATORIES TO THE WARRANTY

- A. The Synthetic Grass System Warranty shall be signed by:
 - 1. An officer of the applicable party or agency duly authorized to sign contracts. The term “Contractor” specified herein shall refer to the party or agency that is furnishing the warranty.
 - 2. If the grass Manufacturer and/or Installation Contractor of the Synthetic Grass System (referred to herein as the Sub-contractor) is not the same entity as the Contractor, the warranty shall be co-signed by the Manufacturer and the Sub-contractor.
 - 3. The “Owner” is CITY OF DERBY.

1.4 GENERAL WARRANTY CONDITIONS

- A. Warranty Period: The Contractor shall provide a **non-prorated** Synthetic Grass Surfacing Manufacturer/Installer Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic grass as specified herein, for a minimum period of eight (8) years-Sports Fields and fifteen (15)-Landscape to the Owner from the date of Certificate of Substantial Completion.
 - 1. The Warranty shall cover, in general, the usability of the Synthetic Grass System (and pad if required); accessories, use, characteristics, and suitability, of the installation.
 - 2. All items covered by the warranty are to be replaced or repaired with new materials, including installation at the sole expense of the warranting manufacturer/surface supplier over the life of the Warranty.
 - 3. Field Use: The materials shall be guaranteed for the designated uses as follows:
 - a. Football / Rugby / Soccer

- b. Baseball / Softball (including metal cleats)
 - c. Field Hockey
 - d. Lacrosse
 - e. Marching Band
 - f. Graduations and Ceremonies
 - g. Physical Education exercises and activities
 - h. Pedestrian traffic and other similar uses
 - i. Plowing of snow
 - j. Pneumatic rubber tired maintenance and service equipment, designed for use on athletic fields and golf courses.
 - 4. Landscape Use: The materials shall be guaranteed for the designated uses as follows:
 - a. Surfacing below elevated play equipment, including slides.
 - b. Physical Education exercises and activities
 - c. Pedestrian traffic and other similar uses
 - d. Plowing of snow
 - e. Pneumatic rubber tired maintenance and service equipment, designed for use on athletic fields and golf courses.
- B. Warranty documents and terms of Warranty shall be in accordance with this Specification Section.
- 1. The use of the Manufacturers' standard or modified form of Warranty shall in no circumstance supersede the conditions set forth in this Specification Section, which shall be considered part of the Warranty.
 - 2. This Warranty shall constitute a contract made in the Commonwealth of Massachusetts and shall be governed by the laws of that State.

1.5 PRE-COMPLETION SUBMITTALS

- A. Provide prior to Substantial Completion, the following documents:
- 1. Manufacturer's Sample Warranty: shall be a minimum eight (8) year-sports fields, fifteen (15) year-playscape non-prorated Synthetic Turf Warranty, as specified herein, for the specific type of synthetic grass that the Contractor intends to install on this Project.
 - 2. Financial Warranty: Provide in writing from the Contractor's Insurance Agency, that the Insurance Agency intends to provide the Contractor Third-Party Insurance Policy, as specified herein, for this Project.
 - 3. Manufacturer's Warranty Certificate, noting compliance with all the conditions of this Specification.
 - 4. Written proof of A.M. Best Rating, as specified herein, for Third-party Insurers affording coverage.
 - 5. Certificate of Liability Insurance (also referred to herein as the Insurance Certificate) – applicable to Financial Warranty as specified herein.

6. Copy of Insurance Policy between the Third-party Insurer and the Synthetic Turf Manufacturer – applicable to Financial Warranty as specified herein.

1.6 CONTRACTOR'S LIABILITY

- A. General: Failure to service the requirements of the Warranty will be charged to the Contractor.
- B. Repair and Replacement: Any defects caused by delaminating, peeling, normal abrasion or raveling that is not in original conformance with the testing specifications shall be repaired or replaced at no cost to the Owner during this Warranty period.
- C. The Contractor will be responsible for all remedies, including replacement if required, required for failed testing, as specified herein, that fail the requirements of the Synthetic Grass System Warranty/Guarantee. All re-testing shall be paid for by the Contractor until such time as the system passes the requirements.
- D. Limited Liability: This warranty does not cover excessive wear of the surface caused by misuse. The Owner will be given instructions and care-taking procedures before final acceptance. The Owner is to follow the maintenance guidelines as specified by the surfacing manufacturer.

1.7 GENERAL FORM OF WARRANTY OF THE SYNTHETIC GRASS SYSTEM

- A. Warranty form: Sample form of warranty herein set forth is a suggested for use for the work under this section. Manufacturers' standard form of warranty may be used or modified provided conditions specified herein are incorporated.
- B. Contractor hereby warrants to the Owner, subject to the limitations and conditions set forth below, that its synthetic grass system consisting of the synthetic grass described as _____, the shock-absorbing under-pad (if necessary) described as _____, and the adhesives used in the installation, are free from defects in material and workmanship and shall, for a minimum period of eight (8) years from the date of acceptance by the Owner, remain serviceable for the activities as listed above.
- C. Contractor warrants to the Owner that its synthetic grass materials shall not fade, fail, shrink, wrinkle or reflect excessive wear. Contractor shall, at their sole expense and cost, replace such areas of the synthetic grass system not performing to these standards for the life of the warranty.
 1. The term "not fade" in the context of this warranty shall mean that the synthetic grass material remain a uniform shade of green or the other colors installed with no significant loss of color as defined by not greater than 20% loss or shade reduction.
 2. The term "not fail" or "excessive wear" as used in the context of this warranty shall mean that the length and weight of the face yarn or pile material in the synthetic grass surface shall not have been decreased by more than 6% per year according to ASTM D418, nor exceed 20% during the warranty period.

- D. In the event that the synthetic grass materials do not retain its fiber height or shock absorbency and is consequently no longer serviceable during the warranty period, the Contractor shall, at their sole expense, replace such portions of the system that are no longer serviceable.

1. The term “serviceable” in the context of this warranty shall mean that the synthetic grass material shall meet the following minimal requirements annually:

SYNTHETIC GRASS SURFACING SYSTEM (annually)		
EN 13036	Planarity/Surface Regularity	<10 mm
EN 1969 (Sports Fields)	Infill Depth Measurement	± 10% of specification (1/2” exposed fiber)
ASTM F 1936	Impact Attenuation(g-max) (minimum 10 locations)	< 120 G’s (individual, not average results)
EN 1177	Impact Attenuation, Head Injury Criteria (HIC) (minimum 10 locations)	<900 @ 1.4m (individual, not average results)

2. Any increase from 120 G’s to allowable 160 G’s maximum shall be at a relatively uniform rate not to exceed 10 G’s in any single year.
3. Prior to any G-Max testing on the field, the testing machine shall be calibrated in the field with a test pad to verify accuracy of the testing unit. Calibration and testing shall be witnessed by the Owner or Owner’s representative. The Contractor is required to perform the necessary testing during a scheduled time at least one time per year during the Warranty period. The results of the testing shall be submitted to the Owner within 30 days of each test. Failure to submit the results shall serve as notice to perform such testing by Owner to determine the extent of the needs under this Warranty.
4. Any material tested and found not in compliance with the contract may be rejected and Contractor shall rectify the issue to be acceptable. Any area/item not within conformance shall be retested at the Contractors expense after remedy is implemented until satisfactory results are achieved.
- E. Where applicable, the fabric shall adhere firmly and completely to the seaming tape and anchor tape over the entire warranty period.
- F. Contractor warrants to the Owner that the permeable synthetic grass system shall drain vertically a minimum of 16 inches precipitation per hour for a maximum of 24 hours continuously, without visible surface ponding.
- G. Contractor shall replace with new materials, at their sole expense, any damage to the synthetic grass system, which extends more than one meter beyond the location of foreign combustibles, which may ignite, and fire-damage the synthetic grass system. These warranties and the Contractor’s obligations here-under are expressly conditioned upon;
1. The Owner making all minor repairs to the synthetic grass system upon the discovery of the need for such repairs.

2. The Owner maintaining and properly caring for the synthetic grass system in accordance with the Contractor's maintenance manual and instructions.
 3. The Owner complying with the dynamic and static load specifications established by the Contractor.
- H. The warranty is not to cover any defect, failure, damage or undue wear in or to the synthetic grass system caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty, static or dynamic loads exceeding Contractor's recommendations.

1.8 FINANCIAL WARRANTY

- A. General: In addition to the Manufacturer's Warranty specified herein, the Contractor shall submit one of the following options to the Owner in regard to the Financial Warranty, prior to final payment.
- B. Third-party Insurance Policy: The Third-party Insurance Policy (referred to herein as the Insurance Policy) shall be pre-paid for the entire (8) eight-year period- sports fields, (15) fifteen-year period- playscapes without exceptions and must have the following policy features:
1. Insurance Policy shall be issued by a reputable third-party insurer with an A.M. Best financial strength rating of "Excellent" or A-.
 2. Insurance Certificate shall name the Owner shall as an additionally insured party. Insurance Policy coverage shall specifically provide for reimbursement to the warranty holder and/or the Owner of the turf system installed, in the event of a bankruptcy of the Synthetic Turf Provider.
 3. Insurance Certificate shall note that insurance coverage applies to the full eight (8) year period (unless a leasing program is entered into. If so, the warranty shall be for the period of the lease).from the date set by the Certificate of Substantial Completion. Insurance coverage shall have no uninsured periods or periods of self-insurance.
 4. Insurance Certificate shall note that insurance coverage offers a minimum claim limit of \$300,000 per field of 100,000 square feet or less – to be noted in the Insurance Certificate. Larger field areas or multiple fields shall be separately insured under the same terms of this specification.
 5. Insurance Certificate shall note that insurance coverage offers a minimum claim limit of \$5,000,000 in the aggregate per annum.
 6. Insurance Policy coverage shall not have exclusions for epidemic or catastrophic failure.
 7. Insurance Policy coverage shall not limit the hours of use.
 8. Insurance Policy coverage shall not exclude heavily trafficked areas or related uses such as team practices, band practices or multiple sports use.

9. Insurance Policy coverage shall apply to playing surface inclusive of the infill, seaming, labor, colored inlays, logos, lettering, numbers, and event markings.

1.9 WARRANTY INSPECTIONS AND TESTING

- A. Scheduled Inspection and Testing: Contractor shall examine the synthetic grass surfacing system and conduct testing and maintenance on the synthetic grass surface as a part of a warranty maintenance plan, see paragraph 1.10 “Warranty” in Specification Section 32 18 13 – Synthetic Grass Surfacing and paragraph 1.11 “Warranty and Maintenance Obligations” in Specification Section 32 18 13 – Synthetic Grass Surfacing.
 1. The Testing Results and Field Inspection Report shall be delivered to the Owner and Engineer within thirty (30) days of the testing.
- B. Other Inspections: Contractor shall examine the synthetic grass system in regards to any claim that the Owner makes to be present at any time, to analyze the results of all tests conducted by the Owner or Owner’s Authorized Representative(s), and to conduct such tests of his own on the synthetic grass surface.
 1. The Owner reserves the right to submit on the synthetic grass surface to the above tests at any time during the length of the Warranty. Consideration will be given to the age and intensity of use of the surface.
- C. Cost of Inspections: The Contractor shall pay for costs of scheduled inspections, testing, and analysis.

1.10 REMEDIAL WORK

- A. Notice: The Owner will notify the Contractor in writing of any issues that require remedial work on the field area.
 1. The Contractor shall respond to the notification within forty-eight (48) hours of receipt and schedule any major defect or repair within seventy-two (72) hours or as weather permits.
 2. In the event the Contractor does not respond to the Owner’s written notice within ten (10) days of receipt of the notice or does not submit, schedule and execute corrective work within sixty (60) days, weather permitting, the Owner has the option of having the work performed at the expense of the Contractor.
 3. The Contractor will be given seven (7) days’ notice in the form of a certified letter notifying the Contractor of the end of the sixty (60) day period.

- B. Repairs: The Warranty requires that the Contractor shall be required to perform all required repairs in a permanent and suitable manner as deemed necessary to maintain a safe playing condition at all times.
 - 1. Any replacement or repair area shall match (as close as possible) the appearance and requirements of section 32 18 13 of the existing surface.
- C. Schedule of Repairs: The Warranty requires that in case of any major repair or replacement, the Contractor is to schedule such work as to not interfere with the Owner's primary use or schedule.

1.11 CLAIMS

- A. All claims by the Owner under this Warranty must be made in writing to the Contractor's address, within 30 days after the Owner learns of the defect, giving rise to the claim.

END OF SECTION 32 18 13.10

SECTION 32 18 23.31 – POLYURETHANE RUNNING TRACK SURFACING –STRUCTURAL SPRAY

PART 1 GENERAL

1.1 SUMMARY

- A. The work under this section includes the installation of a cast in place, durable, permeable, resilient, all-weather track surface consisting of a polyurethane bound rubber base mat and structural spray top coat on top of a prepared asphalt base.
- B. Work of this specification consists of furnishing all the required labor, materials, equipment, parts and supplies necessary for this installation of the synthetic running track surface.
- C. The installer of all installed materials shall be authorized to do so by the manufacturer.
- D. The work hereunder shall be done and conform to:
 - 1. American Sports Builders Association Track Construction Manual and Track Construction Guidelines

1.2 REFERENCES

- A. Specification Section 32 12 16.01 – “Asphalt Paving-Running Track” for all existing and new pavement repair and preparation.
- B. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- C. National Asphalt Pavement Association (NAPA)
- D. USA Track & Field (USATF)
- E. National Federation of State High School Associations (NFHS)
- F. National Interscholastic Athletic Administrators Association (NIAAA)
- G. International Association of Athletics Federation (IAAF)
- H. American Sports Builders Association (ASBA)

1.3 JOB CONDITIONS

- A. Weather Limitations
 - 1. The urethane mixture shall not be placed whenever the surface is wet, frozen, or when the temperature is outside the limitations stated by the manufacturer’s recommendations for installation. Contractor shall be responsible for submitting the procedure at least one week in advance of any surfacing operations that may result in placement of the all-weather running track urethane surfacing outside of the temperature limitations.

1.4 BID-SUBMITTALS

- A. Only one each of the following bid submittals are required to the bidding entities at the time of bid:
 - 1. A letter on the Contractor / Sub-contractor's letterhead (whomever shall be supplying and installing the all-weather track surfacing system) shall be submitted, with the bid, confirming their intent to conform to all information presented during the bidding process for the All-Weather Track Surfacing System. Including, but not limited to, the bid Drawings, Specifications, Addendum, and RFI Clarifications.
 - 2. Non-compliance with the bid submittal requirements as specified herein will result in rejection of the bid.

1.5 SUBMITTALS

- A. Manufacturer's product data sheets including installation guidelines for components and system.
- B. Manufacturer's color options for review and selection by the Engineer/Owner.
- C. Three (3) representative samples of the system to be installed with appropriate labeling for identification and color as selected by Engineer/ Owner.
- D. Current material safety data sheets (MSDS) for the liquid components.
- E. Test reports that verify the manufacturer's specifications (data) for the product to be installed.
- F. Documentation that verifies that the synthetic surfacing material does not contain any toxic or hazardous substance, which exceeds limits set forth by the EPA.
- G. The synthetic surfacing material manufacturer shall submit a letter stating that the surfacing contractor is qualified to install its synthetic surface system.
- H. A certificate from the manufacturer of the binders and coatings stating that the materials have been produced specifically for the use in sports surfacing construction.
- I. A complete list of materials, including quantities, intended to be used in the construction of the running track system. All liquid quantities will be prior to dilution.
- J. Provide a letter stating that the surfacing contractor has reviewed the asphalt specification and accepts the specification as correct.
- K. Provide a letter after checking the prepared asphalt surface in the field & accepting it for synthetic surface installation. Should areas be found that do not meet specifications, they shall be repaired or replaced by the asphalt contractor prior to the synthetic surfacing contractor issuing its letter of acceptance.
- L. A test report that the ½" (13 mm) system has been tested to IAAF standards for force reduction and modified vertical deformation. Force reduction shall be 35-50%. Modified vertical deformation shall be 0.6-1.8 mm.
- M. Submit evidence that the synthetic surfacing contractor holds the necessary contractor's license to install synthetic surfacing.

- N. Submit evidence that the material manufacturer is ISO 9001 certified.
- O. Contractor shall provide written maintenance information on the installed product to be presented to the owner upon completion of the surface. This shall include repair methods and availability of repair materials including cost. Submit 3 copies of the approved Surfacing Care and Maintenance Guide.

1.6 COORDINATION

- A. Contractor shall coordinate with all other trades, especially Site Contractors to ensure approval of asphalt base prior to surfacing application. Any rework shall be done at no cost to the Owner.

1.7 RELATED WORK

- A. When surfacing on new bituminous pavement, the bituminous pavement must meet the specifications and standards set forth by the Architect. The contractor shall be responsible of performing an elevation survey of the bituminous pavement prior to application of the synthetic track surface. The contractor is to perform a flood test of the bituminous pavement top course prior to application of the synthetic track surface.
- B. The bituminous pavement and associated repairs shall be sufficiently cured and cleaned prior to Work of this section to be performed. The governing guidelines of track construction allow for a maximum longitudinal slope of on tenth of one percent (0.10%) in the running direction. The maximum lateral slope shall not exceed one (1) percent (1.00%)
- C. Grade conformance tests may be required to be performed by the Contractor on both the leveling course and the top course of the bituminous pavement at the Architect's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within a pass should be 1/4 inch in 10 feet when measured in any direction. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections, the surface shall not allow water to stand greater than 1/16 inch deep, one (1) hour after rain has ended.
- D. The Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and event areas.

1.8 MATERIAL HANDLING AND STORAGE

- A. Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the locale of installation.
- B. Store material in accordance with manufacturer's specifications and MSDS.
- C. The contractor shall provide a secure, clean, dry location for storage of materials at temperature as above. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.
- D. Deliver products to the site in original, unopened containers with labels attached.
- E. All surfacing materials shall be non-flammable.

1.9 QUALITY ASSURANCE

- A. Provide a certificate of accuracy from a registered engineer, land surveyor or certified track builder by ASBA that the track measures 400 meters in all lanes from start to finish.
- B. The contractor shall record the batch number of each product used on the site and maintain it throughout the warranty period.
- C. The contractor shall provide the Architect, an estimate of the volume of each liquid product and the weight of the rubber granule to be used on site.
- D. The manufacturer's representative will be available to help resolve material issues.
- E. Provide, as a part of the Warranty, documents stating that the materials applied conform to the manufacturer's specifications and that the material will not separate from the asphalt or concrete base, blister, bubble, fade, crack or wear excessively during the life of the warranty.
- F. The materials will not foam, thus causing air bubbles and reduce the life expectancy of the surface.
- G. The synthetic surfacing contractor and owner will annually walk and inspect the synthetic surface during the life of the warranty. Issues will be documented in writing to the Owner. The Owner will review items with the Engineer. Warranty issues will be repaired and for non-warranty items a method for correction will be presented.
- H. Track system shall subject to successfully tested independently an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.
- I. The synthetic surfacing contractor shall maintain a clean and orderly job site. All excess materials shall be removed from the construction area and properly disposed of. Scrap shall be removed in the same manner.

1.10 GUARANTEE

- A. The Contractor shall be required to guarantee all labor, materials, workmanship and services for the Synthetic Surface and Track Markings.
- B. This guarantee shall remain in force for a period of not less than FIVE (5) YEARS from the date of written acceptance of the work.
- C. Any defects caused by delaminating, peeling, normal abrasion or raveling that is not in original conformance with the testing specifications shall be repaired or replaced at no cost to the Owner during this guarantee period.
- D. This Contractor shall be required to submit the following documents in regard to the guarantee:
 - 1. Letter from the manufacturer(s) of all materials attesting to the guarantee length and limits. This must be signed by an officer of the organization.
 - 2. Maintenance Instruction Guide for the Contract Surfaces, signed by an officer of the surface company and notarized.

3. Letter of Guarantee from the Installation Contractor for the above time period, signed by an officer of the Company and notarized.
4. These documents shall be submitted to the Owner prior to final payment. The installer and the materials manufacturer shall supply a warranty covering labor and materials respectively. The warranty period shall be for five (5) years.

1.11 INSTALLER QUALIFICATIONS

- A. Installers shall be regularly engaged in the construction and surfacing of running tracks.
- B. Installer shall be an authorized applicator of the specified system.
 1. Installers of this product are to provide a list of at least 5 installations that are a minimum of 5 years old that contain the same products, and use the same method of installation. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- C. Installer shall be a builder member of the ASBA.
- D. The installer's installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

1.12 MANUFACTURER QUALIFICATION

- A. System manufacturer shall certify that the materials provided are manufactured specifically for construction and surfacing of running tracks.
- B. System manufacturer shall be continuously engaged in the business of track surfacing materials for at least 10 years.
- C. System manufacturer of this product are to provide a list of at least 5 installations that are minimum of 5 years old that contain the same products, and use the same method of installation.
 1. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email

e. Owners Representatives Phone

2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.

D. System manufacturer shall have a designated representative available for site inspection.

PART 2 PRODUCTS

2.1 GENERAL

- A. The synthetic surfacing shall be a 13 mm thick, permeable, structural spray system, with a paved in place rubber granule and polyurethane binder base layer. Two coats of a mixture of colored polyurethane and EPDM rubber granules are structurally sprayed onto the base to form a textured finish.
 1. BSS 100 track system as supplied by Beynon Sports (A Tarkett Sports Company)
 2. Action-Track 200 track system as supplied by Copeland Coating Company
 3. BS track system as supplied by Spurtan (An APT Company)
- B. The synthetic track surface system shall have a smooth finish and may be applied for outdoor use.
- C. The structural spray applied polyurethane and rubber blended coating shall be resilient and allow moisture to pass through the surface. It shall have a textured finish for outdoor applications.
- D. The product shall meet the following minimum physical properties:
 1. Top Color: Grey and Red (Final color to be approved by Engineer based on manufacture's standard palette.)
- E. Performance Standards

	<u>Test Results</u>	<u>DIN Standard</u>
Thickness (DIN):		min. 13 mm
Force Reduction (IAAF):		35-50%
Modified Vertical Deformation (IAAF):		0.6 mm – 2.5 mm
Permeability:		min 0.01 cm/s
Friction (wet) (IAAF):		> 0.5
Friction (dry) (DIN):		<1.1
Tensile Strength (IAAF):		≥ 0.4 MPa
Elongation (IAAF):		>40%
Spike Resistance (DIN)		Class 1

- F. Product substitution: If other than the product specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate that the proposed substitution is of equal

quality and utility to that originally specified. Information must include a QUV test of at least 1,000 hours and IAAF test information for the system to be installed

- G. Any materials used must be an emulsion/water based product. Any products which require solvents such as MEK, Butyl Cellusolve or Acetone for clean up or mixing are not acceptable.
- H. Materials must have a VOC less than 150g/lit. for binder products. Top coats shall have a VOC of less than 100g/lit. measured by EPA method 24.
- I. Materials may not have a flash point of less than 200°F.
- J. All Materials shall have documented independent test results by an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

2.2 MATERIALS

A. Rubber – Polyurethane Track Basemat (SBR)

- 1. The polyurethane track base mat rubber shall be specifically graded rubber granules with a controlled gradation between 1.0mm to 3.00mm.
 - a. Dust and rubber particulate smaller than a No. 200 sieve size shall not exceed 1 percent of the total rubber.
 - b. The rubber shall be black SBR

B. Rubber – Structural Spray Top Coat (EPDM)

- 1. EPDM colored virgin rubber granules that are processed and graded to 0.5 – 1.5 mm in size unless otherwise specified. The rubber shall contain a minimum of 20% EPDM and be approved by the resin manufacturer. The specific density shall be 1.60 +/- 0.08 and Shore A hardness of 60. Color coat shall be light grey in color

C. Primer

- 1. The synthetic track surface primer shall be polyurethane based and compatible with asphalt and synthetic track surfacing materials.
- 2. When installing over a concrete pavement special developed concrete primer, manufactured by the same manufacturer of the other materials, shall be applied.

D. Binder

- 1. The synthetic track surface binding agent shall be a single component; MDI based moisture cure polyurethane binder. The binder shall not have a free TDI monomer level above 0.2% and must be solvent free.
 - a. The polyurethane binder shall be 100 percent solids.
 - b. The polyurethane binder shall be compatible with SBR and EPDM rubber granules.
- 2. All polyurethane binder shall be manufactured by the installation company and to be delivered in new unopened containers, clearly labeled by the manufacturer.

E. Structural Spray Coating

1. The spray coating shall be a MDI-based single-component, moisture cured, 100% solids, and pigmented polyurethane, specifically formulated for compatibility with EPDM granules.
 - a. The coating shall be RED.
 - b. Pigment intergraded in the field shall not be allowed.

PART 3 EXECUTION

3.1 GENERAL

- A. The bituminous pavement should be sufficiently cured and cleaned in order for work to progress
- B. The entire surface shall be swept, power blown, or high pressure washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- C. All work shall be performed by manufacturer's technicians and comply with the manufacturer's guidelines for the complete placement and installation of the base layer, the sealing and surface layers.
- D. During surface installation and striping all sprinkler systems shall be shut off, or controlled so that no water falls on the track or event surfaces.
- E. All materials shall be installed in strict compliance with the manufacturer's specifications and instructions.
- F. The Contractor shall be responsible to have the entire track area, and other pertinent areas such as football field, concessions, etc., closed and secured of all activities 24 hours per day through the curing and completion of the synthetic track surface.

3.2 WEATHER LIMITATIONS

- A. Ambient and surface temperatures must be 50°F and rising.
- B. Installation should not be conducted during rainfall or when rainfall is imminent.
- C. Do not apply when surface temperature is in excess of 140°F.
- D. Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.

3.3 SURFACE PREPARATION

- A. Asphalt shall be cleaned of all oils, spills & staining. Repairs to existing asphalt as asphalt shall be allowed to cure for a minimum of 21 days prior to the application of any surfacing materials.
- B. All concrete work is to cure for a minimum of 45 days. No curing agents are to be used. Any concrete flat work such as run ups etc. will be checked as in 3.3D.
- C. The surface must be thoroughly cleaned of all loose dirt and debris. Any oil spills (hydraulic, diesel, motor oil, etc.) must be completely removed, either by chipping out or removing and replacing with new, keyed in asphalt.

- D. D. The asphalt substrate track surface shall not vary from planned cross slope by more than +.2%, with a maximum lateral slope outside to inside of 1% for NCAA or IAAF facilities (1% to 2% for NFHS), and a maximum slope of 0.1% in any running direction. The finished asphalt shall not vary under a 10' straight edge more than 1/8".
- E. Prior to the application of resilient surface materials, the entire asphalt base surface shall be checked for planarity, surface tolerance, and flooded and checked for depressions or irregularities in the asphalt. Any puddle area covering a nickel shall or vary +/- 1/4 inch when measured with a 10-foot straightedge in any direction shall be marked and repaired with Patch Binder, according to manufacturer's specifications and approved by the Engineer. After patching, the asphalt surface shall not vary allow water to stand greater than 1/16 inch, one (1) hour after a flood test has been pre-formed. Slopes shall meet the guidelines of the ASBA and NFHS.
- F. It shall be the responsibility of the general contractor to flood the surface.
 - 1. If, after 40 minutes of drying time, there are birdbaths evident, it shall be the responsibility of the landscape architect, in conjunction with the surfacing contractor, to determine the method of correction. No cold tar patching, skin patching or sand mix patching will be acceptable.
 - 2. Any oil spills (hydraulic, diesel, motor oil, etc.) must be completely removed and replaced with either polyurethane or new, keyed in asphalt. The minimum curing time for the asphalt base repair is 21 days. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.
 - 3. It shall be the responsibility of the general contractor to determine if the asphalt substrate meets all design specifications, i.e. cross slopes, planarity and specific project criteria. After all the above conditions are met, the synthetic surfacing contractor must, in writing, accept the planarity of the asphalt receiving base, before work can commence.
- G. All-Weather running track surfacing installer representative shall be present for all testing on the asphalt base. Installer shall submit, in writing, acceptance of the asphalt base.

3.4 RESILIENT SURFACE INSTALLATION

A. Primer

- 1. The entire area to be surfaced shall receive an application of polyurethane primer applied uniformly at a rate between 0.20-0.30 lb. per sq. yd. A minimum cure time of 30 minutes is required before application of the base mat materials.
- 2. Only the area to be covered within the working day should be primed to ensure a good bond to the base. Concrete base may require additional coating based on absorption rate of applied primer.

B. Polyurethane Track Basemat

- 1. The mixing ratio of rubber to binder shall not be less than 100 parts rubber to 20 part binder as determined by the weight of the products. The materials shall be prepared in a mechanical mixer until a homogenous mix is obtained.

2. The mixed materials making up the synthetic track surface shall be applied by a mechanically operated finishing machine, which shall have an electrically heated screed, to an approximate depth of 11 - 12 mm using approximately 17.33 lbs/sy of mixed material.
3. The cured edge of each joint shall be primed with the synthetic track surface binding agent prior to the laying of the adjacent base mat. All joint work shall be troweled flush with the adjacent mat.
4. Trowel work: All seams shall be troweled smooth within the pot life of the material. All edges shall be straight and rounded by turning the trowel. All cold dry seams shall be cut straight at an inward angle and primed prior to commencing with subsequent work.

C. Structural Spray Top Coat (two applications)

1. The polyurethane track base mat shall be cleaned and prepared prior to the installation of the structural spray top coat in accordance with the manufacturer's specifications and instructions.
2. According to the manufacturer's specifications, the specified quantity of colored EPDM granules shall be mixed thoroughly with the specified quantity of the one component polyurethane of the structural spray material.
3. Structural Spray Coat (two applications) – is spray applied with air and volume-controlled spray equipment. Care is to be taken so as to provide an even surface without streaking.
4. A second coat of material over the first is applied in the opposite direction. The total rate of each coat of spray shall range from 3.5 to 4.0 lbs. per square yard.

3.5 MARKING AND MEASUREMENTS

- A. Wait 48 hours after surface completion before applying line marking.
- B. Experienced personal specializing in all-weather running track striping shall accomplish all striping.
- C. See Track Markings Section

3.6 PROTECTION

- A. During construction the installer is responsible for limiting access of non-construction personnel to the site.
- B. The installation contractor shall coordinate any irrigation of fields with the owner.
- C. The installer shall protect curbs, fences and all other structures from overspray.

3.7 QUALITY ASSURANCE

- A. Track system shall subject to successfully tested independently an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990

3.8 CLEAN UP

- A. Remove all containers, surplus and debris and dispose of in accordance with local, state and Federal regulation.
- B. Remove all spills and overruns.
- C. Leave site in a clean and orderly condition on a daily basis.
- D. Upon completion of all work, remove all containers, surplus materials, and installation debris. Leave area of work in clean orderly condition.

END OF SECTION

SECTION 32 18 23.34 RUNNING TRACK SURFACING – CRACK FILLER

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.2 SUMMARY

- A. The work under this section includes the repair of cracks and failures in the existing bituminous track base prior to installation of a new bituminous wearing course.
- B. The Asphalt paving contractor shall furnish all labor, materials, equipment, supervision and services necessary for the proper completion of the crack repairs as shown on the drawings, or as directed by the engineer. The contractor shall include in the bid an allowance (as specified in the instructions to bidders) for repair of all joints and failing pavement.

1.3 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. National Asphalt Pavement Association (NAPA)
- C. USA Track & Field (USATF)
- D. National Federation of State High School Associations (NFHS)
- E. National Interscholastic Athletic Administrators Association (NIAAA)
- F. International Association of Athletics Federation (IAAF)
- G. American Sports Builders Association (ASBA)

1.4 PERFORMANCE STANDARDS

- A. The new synthetic track surfacing system shall exhibit the following minimum performance standards.
 - 1. Thickness Average - ³ 12mm
Minimum - 10mm
 - 2. Force Reduction 35% to 50%
 - 3. Modified Vertical Deformation 0.6 mm to 2.2 mm
 - 4. FrictionTRRL Skid Resistance > 47
 - 5. Tensile Strength > 0.5 Mpa
 - 6. Elongation at Break > 40%

1.5 JOB CONDITIONS

A. Weather Limitations

1. The urethane mixture shall not be placed whenever the surface is wet, frozen or when the temperature is outside the limitations stated by the manufacturer's recommendations for installation. Contractor shall be responsible for submitting the procedure at least one week in advance of any surfacing operations that may result in placement of the all-weather running track urethane surfacing outside of the temperature limitations.

1.6 SUBMITTALS

- A. Manufacturer's specifications for components and system.
- B. Manufacturer's color options for review and selection by the Landscape Architect/ Owner.
- C. Three (3) representative samples of the system to be installed with appropriate labeling for identification and color as selected by Landscape Architect/ Owner.
- D. Current material safety data sheets (MSDS) for the liquid components.
- E. Current Authorized Applicator certificate from the surface system manufacturer.
- F. An affidavit attesting that the synthetic track surfacing material for crack repairs meets the requirements defined by the manufacturer's currently published specifications and any modifications outlined in those technical specifications.
- G. A complete list of materials intended to be used in the construction of the running track system. All liquid quantities will be prior to dilution.
- H. A synthetic track surfacing repaired sample, 6" x 6" in size, color, texture, thickness, and the crack filler of the same synthetic surfacing system specified herein.
- I. Product substitution: If other than the product specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate that the proposed substitution is of equal quality and utility to that originally specified.

1.7 COORDINATION

- A. Contractor shall coordinate with all other trades, especially Site Contractors to ensure approval of asphalt base prior to surfacing application. Any rework shall be done at no cost to the Owner.

1.8 RELATED WORK

- A. When surfacing on new bituminous pavement, the bituminous pavement must meet the specifications and standards set forth by the Engineer. The contractor shall be responsible of performing an elevation survey of the bituminous pavement prior to application of the synthetic track surface. The contractor is to perform a flood test of the bituminous pavement top course prior to application of the synthetic track surface.
- B. The bituminous pavement shall be sufficiently cured and cleaned prior to Work of this section to be performed. The governing guidelines of track construction allow for a maximum

longitudinal slope of on tenth of one percent (0.10%) in the running direction. The maximum lateral slope shall not exceed one (1) percent (1.00%).

- C. Grade conformance tests may be required to be performed by the Contractor on both the leveling course and the top course of the bituminous pavement at the Engineer's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within a pass should be 1/4 inch in 10 feet when measured in any direction. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections, the surface shall not allow water to stand greater than 1/16 inch deep, one (1) hour after rain has ended.
- D. The Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and event areas.

1.9 MATERIAL HANDLING AND STORAGE

- A. Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the locale of installation.
- B. Store material in accordance with manufacturer's specifications and MSDS.
- C. The contractor shall provide a secure, clean, dry location for storage of materials at temperature as above. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.
- D. Deliver products to the site in original, unopened containers with labels attached.
- E. All surfacing materials shall be non-flammable.

1.10 QUALITY ASSURANCE

- A. The synthetic surfacing contractor must have a minimum of five years of experience in the installation of full depth poured-in-place two component elastomeric polyurethane synthetic track surfacing.
- B. The polyurethane manufacturer must have a minimum of 10 years of experience with the compounding of two-part polyurethane for athletic surfaces.
- C. The forman for the installation must have installed a minimum of 5 full depth two component polyurethane tracks with embedded texture in the last 3 years. A reference list must be submitted.

1.11 GUARANTEE

- A. The Contractor shall be required to guarantee all labor, materials, workmanship and services for the Synthetic Surface and Track Markings.
- B. This guarantee shall remain in force for a period of not less than FIVE (5) YEARS from the date of written acceptance of the work.

- C. Any defects caused by delaminating, peeling, normal abrasion or raveling that is not in original conformance with the testing specifications shall be repaired or replaced at no cost to the Owner during this guarantee period.
- D. This Contractor shall be required to submit the following documents in regard to the guarantee:
 - 1. Letter from the manufacturer(s) of all materials attesting to the guarantee length and limits. This must be signed by an officer of the organization.
 - 2. Maintenance Instruction Guide for the Contract Surfaces, signed by an officer of the surface company and notarized.
 - 3. Letter of Guarantee from the Installation Contractor for the above time period, signed by an officer of the Company and notarized.
 - 4. These documents shall be submitted to the Owner prior to final payment. The installer and the materials manufacturer shall supply a warranty covering labor and materials respectively. The warranty period shall be for five (5) years.

1.12 INSTALLER QUALIFICATIONS

- A. Installers shall be regularly engaged in the construction and surfacing of running tracks.
- B. Installer shall be an authorized applicator of the specified system.
 - 1. Installers of this product are to provide a list of at least 10 installations that are a minimum of 5 years old that contain the same products, and use the same method of installation. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 - 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- C. Installer shall be a builder member of the ASBA.
- D. The installer's installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

1.13 MANUFACTURER QUALIFICATION

- A. System manufacturer shall certify that the materials provided are manufactured specifically for construction and surfacing of running tracks.

- B. System manufacturer shall be a US owned company that has been continuously engaged in the business of track surfacing materials for at least 10 years.
- C. System manufacturer of this product are to provide a list of at least 20 installations that are minimum of 3 years old that contain the same products, and use the same method of installation.
 - 1. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 - 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- D. Manufacturer shall be a member of the ASBA.
- E. System manufacturer shall have a designated representative available for site inspection.

PART 2 PRODUCTS

2.1 GENERAL

- A. Full depth poured-in-place two component UV stabilized elastomeric polyurethane synthetic surfacing system with embedded textured finish.
 - 1. Only a high quality polyurethane binder shall be used.
- B. Product substitution: If other than the product specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate that the proposed substitution is of equal quality and utility to that originally specified. Information must include a QUV test of at least 1,000 hours and IAAF test information for the system to be installed.
- C. Any materials used must be an emulsion/water based product. Any products which require solvents such as MEK, Butyl Cellusolve or Acetone for clean up or mixing are not acceptable.
- D. Materials must have a VOC less than 150g/lit. for binder products. Top coats shall have a VOC of less than 100g/lit. measured by EPA method 24.
- E. Materials may not have a flash point of less than 200°F.

2.2 MATERIALS

A. Elastomeric Polyurethane

1. The polyurethane track base mat rubber shall be specifically graded rubber granules with a controlled gradation between 1.0mm to 3.00mm.
2. Two component UV stabilized elastomeric polyurethane compounded from polyol and isocyanate components, based on 100% MDI.
3. The elastomeric polyurethane shall be red in color.

B. EPDM Granulate

1. Red butyl rubber processed ground to a graded size not to exceed .5 – 1mm.
2. A maximum of twenty percent, by weight, of the butyl rubber will be allowed in the force reduction layer.
3. The 1 TO 1.5 millimeter EPDM granules shall be mechanically integrated with an UV stabilized elastomeric polyurethane to the full depth of the track layer. The resilient textured finish shall be a dense matrix of embedded EPDM granules.

2.3 SURFACE PREPARATION

- A. New asphalt shall be allowed to cure for a minimum of 14 days prior to the application of any surfacing materials.
- B. The surface must be thoroughly cleaned of all loose dirt and debris.
- C. Prior to the application of resilient surface materials, the entire asphalt base surface shall be checked for planarity, surface tolerance, and flooded and checked for depressions or irregularities in the asphalt. Any puddle area covering a nickel shall or vary +/- ¼ inch when measured with a 10-foot straightedge in any direction shall be marked and repaired with Patch Binder, according to manufacturer's specifications and approved by the Landscape Architect. After patching, the asphalt surface shall not vary allow water to stand greater than 1/16 inch, one (1) hour after a flood test has been preformed. Slopes shall meet the guidelines of the ASBA and NFHS.
- D. It should be the responsibility of the contractor to flood the surface.
 1. If, after 40 minutes of drying time, there are birdbaths evident, it shall be the responsibility of the landscape architect, in conjunction with the surfacing contractor, to determine the method of correction. No cold tar patching, skin patching or sand mix patching will be acceptable.
 2. Any oil spills (hydraulic, diesel, motor oil, etc.) must be completely removed and replaced with either polyurethane or new, keyed in asphalt. The minimum curing time for the asphalt base repair is 28 days. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.

3. It shall be the responsibility of the general contractor to determine if the asphalt substrate meets all design specifications, i.e. cross slopes, planarity and specific project criteria. After all the above conditions are met, the synthetic surfacing contractor must, in writing, accept the planarity of the asphalt receiving base, before work can commence.

2.4 CRACK FILLER INSTALLATION

A. Subbase

1. The synthetic track surfacing crack repair system shall be laid on an approved asphalt base. The Contractor shall provide a clean and prepared asphalt surface.

B. Equipment

1. The synthetic track surfacing system components shall be processed and installed by specially designed machinery with automatic electronic portioning, which provides continuous mixing, feeding and finishing for accurate quality controlled installation.

PART 3 EXECUTION

3.1 GENERAL

- A. The bituminous pavement should be sufficiently cured and cleaned in order for work to progress
- B. The entire surface shall be swept, power blown, or high pressure washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- C. All work shall be performed by manufacturer's technicians and comply with the manufacturer's guidelines for the complete placement and installation of the base layer, the sealing and surface layers.

3.2 WEATHER LIMITATIONS

- A. Ambient and surface temperatures must be 50°F and rising.
- B. Installation should not be conducted during rainfall or when rainfall is imminent.
- C. Do not apply when surface temperature is in excess of 140°F.
- D. Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.
- E. During surface installation and striping all sprinkler systems shall be shut off, or controlled so that no water falls on the track or event surfaces.
- F. All materials shall be installed in strict compliance with the manufacturer's specifications and instructions.
- G. The Contractor shall be responsible to have the entire track area, and other pertinent areas such as football field, concessions, etc., closed and secured of all activities 24 hours per day through the curing and completion of the synthetic track surface.

3.3 SURFACE PREPARATION

- A. New asphalt shall be allowed to cure for a minimum of 14 days prior to the application of any surfacing materials.
- B. The surface must be thoroughly cleaned of all loose dirt and debris.
- C. Prior to the application of resilient surface materials, the entire asphalt base surface shall be checked for planarity, surface tolerance, and flooded and checked for depressions or irregularities in the asphalt. Any puddle area covering a nickel shall or vary $\pm \frac{1}{4}$ inch when measured with a 10-foot straightedge in any direction shall be marked and repaired with Patch Binder, according to manufacturer's specifications and approved by the Landscape Architect. After patching, the asphalt surface shall not vary allow water to stand greater than 1/16 inch, one (1) hour after a flood test has been preformed. Slopes shall meet the guidelines of the ASBA and NFHS.

3.4 PROTECTION

- A. During construction the installer is responsible for limiting access of non-construction personnel to the site.
- B. The installation contractor shall coordinate any irrigation of fields with the owner.
- C. The installer shall protect curbs, fences and other structures from overspray.

3.5 QUALITY ASSURANCE

- A. Track system shall be subject to testing by an independent accredited IAAF testing house. The track system must adhere to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

3.6 CLEAN UP

- A. Remove all containers, surplus and debris and dispose of in accordance with local, state and Federal regulation.
- B. Remove all spills and overruns.
- C. Leave site in a clean and orderly condition on a daily basis.
- D. Upon completion of all work, remove all containers, surplus materials, and installation debris. Leave area of work in clean orderly condition.

END OF SECTION 32 18 23.34

SECTION 32 18 23.35 RUNNING TRACK SURFACING - MARKINGS

PART 1 GENERAL

1.1 SUMMARY

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section "Summary."

1.2 SUMMARY

- A. Work of this specification consists of furnishing all the required labor, materials, equipment, parts and supplies necessary for this installation of the synthetic running track striping and markings.
- B. The work hereunder shall be done and conform to:
 - 1. American Sports Builders Association Track Construction Manual and Track Construction Guidelines
 - 2. Connecticut Interscholastic Athletic Conference (CIAC) and the National Federation of State High School Associations (NFHS) for track and field event layout.

1.3 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. National Asphalt Pavement Association (NAPA)
- C. USA Track & Field (USATF)
- D. National Federation of State High School Associations (NFHS)
- E. National Interscholastic Athletic Administrators Association (NIAAA)
- F. International Association of Athletics Federation (IAAF)
- G. American Sports Builders Association (ASBA)

1.4 JOB CONDITIONS

- A. Weather Limitations
 - 1. The striping mixture shall not be placed whenever the surface is wet, frozen or when the temperature is outside the limitations stated by the manufacturer's recommendations for installation. Contractor shall be responsible for submitting the procedure at least one week in advance of any surfacing operations that may result in placement of the all-weather running track striping material outside of the temperature limitations.

1.5 SUBMITTALS

- A. Manufacturer's specifications for components and system.
- B. Current material safety data sheets (MSDS) for the liquid components.
- C. Current Authorized Applicator certificate from the surface system manufacturer.
- D. A certificate from the manufacturer of the striping material stating that the materials have been produced specifically for the use in all-weather track surfacing striping.
- E. A complete list of materials intended to be used in the striping of the running track system. All liquid quantities will be prior to dilution.
- F. Contractor to shall provide written maintenance information on the installed product to be presented to the owner upon completion of the surface. This shall include repair methods and availability of repair materials including cost. Submit 3 copies of recommended Surfacing Care and Maintenance Guide.
- G. Upon completion, supply the Owner with all necessary as-built drawings showing markings color coding of each event.
- H. Upon completion, a letter of certification attesting to the accuracy of the markings shall be submitted by the Professional Engineer or Land Surveyor in charge of the layout. The letter shall be signed and sealed by the person or persons in charge of the layout indicating the state of registration, number and name.

1.6 COORDINATION

- A. Contractor shall coordinate with all other trades, especially all-weather track surfacing installer to ensure approval of track surfacing prior to striping application. Any rework shall be done at no cost to the Owner.

1.7 RELATED WORK

- A. The all-weather track surfacing shall be sufficiently cured and cleaned prior to work of this section to be performed.

1.8 MATERIAL HANDLING AND STORAGE

- A. Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the locale of installation.
- B. Store material in accordance with manufacturer's specifications and MSDS.
- C. The owner shall provide a secure, clean, dry location for storage of materials at temperature as above. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.
- D. Deliver products to the site in original, unopened containers with labels attached.

- E. All surfacing materials shall be non-flammable.

1.9 QUALITY ASSURANCE

- A. Track system shall be subject to testing by an independent accredited IAAF testing house. The track system must adhere to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

1.10 GUARANTEE

- A. See the warranty section
- B. The installer and the materials manufacturer shall supply a warranty covering labor and materials respectively. The warranty period shall be for five (5) years.

1.11 INSTALLER QUALIFICATIONS

- A. Installers shall be regularly engaged in the striping of running tracks.
- B. Installer shall be an authorized applicator of the specified system.
 - 1. Installers of this product are to provide a list of at least 10 installations that are a minimum of 5 years old that contain the same products, and use the same method of installation. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 - 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- C. Installer shall be a builder member of the ASBA.
- D. The installer's installing foreman must have at least 8 years' experience installing the specified type of synthetic track surface system.

1.12 MANUFACTURER QUALIFICATION

- A. System manufacturer shall certify that the materials provided are manufactured specifically for construction and surfacing of running tracks.
- B. System manufacturer shall be a US owned company that has been continuously engaged in the business of track surfacing materials for at least 10 years.

- C. System manufacturer of this product are to provide a list of at least 20 installations that are minimum of 3 years old that contain the same products, and use the same method of installation.
 - 1. Include:
 - a. Project Name
 - b. Address
 - c. Owners Representatives Name
 - d. Owners Representatives Email
 - e. Owners Representatives Phone
 - 2. Completed projects are to have been installed under the same company name and ownership that is presently bidding.
- D. Striping paint manufacturer shall have a designated representative available for site inspection.

PART 2 PRODUCTS

2.1 GENERAL

- A. Paint shall be that material as recommended by the manufacturer of the track surface.
- B. All markings shall receive two (2) coats of paint to achieve the full opaque results.

2.2 MATERIALS

- A. Paint shall be polyurethane based for all system except for rubberized asphalt and the latex systems.
- B. No thinners shall be used.
- C. No painting shall be performed when the velocity of the wind exceeds twelve (12) MPH, unless the spray equipment is equipped with the proper air curtains.

PART 3 EXECUTION

3.1 GENERAL

- A. Ambient and surface temperatures must be as recommended by the manufacturer, but not less than 50°F and rising.
- B. Installation should not be conducted during rainfall or when rainfall is imminent.
- C. Do not apply when surface temperature is in excess of 140°F.
- D. The all-weather track surfacing should be sufficiently cured and cleaned in order for work to progress.

- E. The entire surface shall be swept, power blown, or high pressure washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- F. All work shall be performed by manufacturer's technicians and comply with the manufacturer's guidelines for the complete placement and installation of the base layer, the sealing and surface layers.

3.2 WEATHER LIMITATIONS

- A. Ambient and surface temperatures must be 50°F and rising.
- B. Installation should not be conducted during rainfall or when rainfall is imminent.
- C. Do not apply when surface temperature is in excess of 140°F.
- D. Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.
- E. During surface installation and striping all sprinkler systems shall be shut off, or controlled so that no water falls on the track or event surfaces.
- F. All materials shall be installed in strict compliance with the manufacturer's specifications and instructions.
- G. The Contractor shall be responsible to have the entire track area, and other pertinent areas such as football field, concessions, etc., closed and secured of all activities 24 hours per day through the curing and completion of the synthetic track surface.

3.3 SURFACE PREPARATION

- A. New running track surfacing shall be allowed to adequately cure prior to painting.
- B. The surface must be thoroughly cleaned of all loose dirt and debris.

3.4 RUNNING TRACK MARKINGS

- A. Markings
 - 1. Shall be marked for 8 - 42" lanes and include all event markings as recommended by NFHS requirements. Also included shall be those additional events as indicated in the specifications.
- B. Computations
 - 1. Verify the locations of purposed events with the Owner.
 - 2. Calculations shall be made to the nearest 1/10,000th of a foot.
 - 3. Calculations of the angle shall be made to the nearest one second.
 - 4. Calculations shall be submitted to the Landscape Architect prior to the painting.

5. Calculations shall be made by or certified by the certified track builder or surveyor completing the work.

C. Layout

1. Lines and markings shall be made by a competent, experienced and fully qualified Track Marking Professional.
2. Locate and confirm both new radius points.
3. Establish and set all necessary control points.
4. Measurements shall be made on the track to the nearest 1/100th of a foot.
5. Angles shall be set by using a transit or theodolite capable of reading direct to 20 seconds.
6. The markings on the curve may also be set by using the chord length method.
7. Measurements shall be made with an engineering steel tape in engineering scale.
8. All markings shall be clearly identified and color coded for the painter to identify.

D. Symbols

1. All lanes and lines shall be white 2" wide markings
2. All starts and finishes shall be 2" wide lines
3. Starting Lines:
 - a. 100 Meters (on all straights)_____White
 - b. 110 HH (on all straights)_____White
 - c. 200 Meters_____White
 - d. 300 Meters_____White
 - e. 400 Meters_____White
 - f. 800 Meters_____Green
 - g. 1600/3200 Meters _____White
 - h. 4x200 Meter Relay _____Red
 - i. 4x400 Meter Relay _____Blue
4. Finish Line_____White
5. Break Line_____Green
6. Relay Exchange Zones:
 - a. 400 Meters_____Yellow

- b. 800 Meters (Lane 1 only split color – Red/Yellow)_____Red
1-2 and 2-3 Red: 3-4 Yellow (same mark as 400 meter, 2-3)
- c. 1600 Meters_____Blue
- d. 3200 Meters_____Black

7. Hurdle Locations

- a. 100 Meter HH (girls)_____Yellow
- b. 110 Meter HH (boys)_____Blue
- c. 300 Meter LH/IH (girls/boys)_____Red

8. Acceleration marks shall be a 9" wide by 9" long triangles marked clearly in the center of the lane.

9. Hurdle marks shall be 1" X 6" tic marks on the lane line on both sides of the lane.

10. Lane numbers shall be not less than 22" high and 38" wide and located as directed by the Owner in five (5) locations. Numbers shall be in two (2) colors (as selected by the Landscape Architect from the manufactures standard color line). All stencil bracing shall be filled in to achieve a solid graphic. Numbers shall be offset from starting lines and triangles to allow adequate room for starting blocks or transition areas for athletes.

11. Triangles shall be not less than 40" wide x 24" high and shall be custom "Derby Arrow" stencil to be provided by track surfacing installer.

- a. Stencil to be turned over to the Owner at completion of project.

12. Event Identification shall be 4" letters stenciled below and to the right of lane no. 2 and mark.

13. Scratch lines for the jumping events shall be 12" wide. Include markings for both men's and women's distances under NFHS regulations.

14. All starts and finishes shall be clearly marked with the start of the said events.

15. One (1) mile mark and two (2) mile mark.

16. All symbols shall have the proper color code for the event.

3.5 PROTECTION

- A. During construction the installer is responsible for limiting access of non-construction personnel to the site.
- B. The installation contractor shall coordinate any irrigation of fields with the owner.
- C. The installer shall protect curbs, fences and other structures from overspray.

3.6 QUALITY ASSURANCE

- A. Upon completion, a letter of certification attesting to the accuracy of the markings shall be submitted by the Professional Engineer or Land Surveyor in charge of the layout. The letter shall be signed and sealed by the person or persons in charge of the layout indicating the state of registration, number and name.
- B. All measurements and tolerances shall conform to those recommended by the Connecticut Interscholastic Athletic Conference (CIAC) and the National Federation of State High School Associations (NFHS) for track and field event layout.

3.7 CLEAN UP

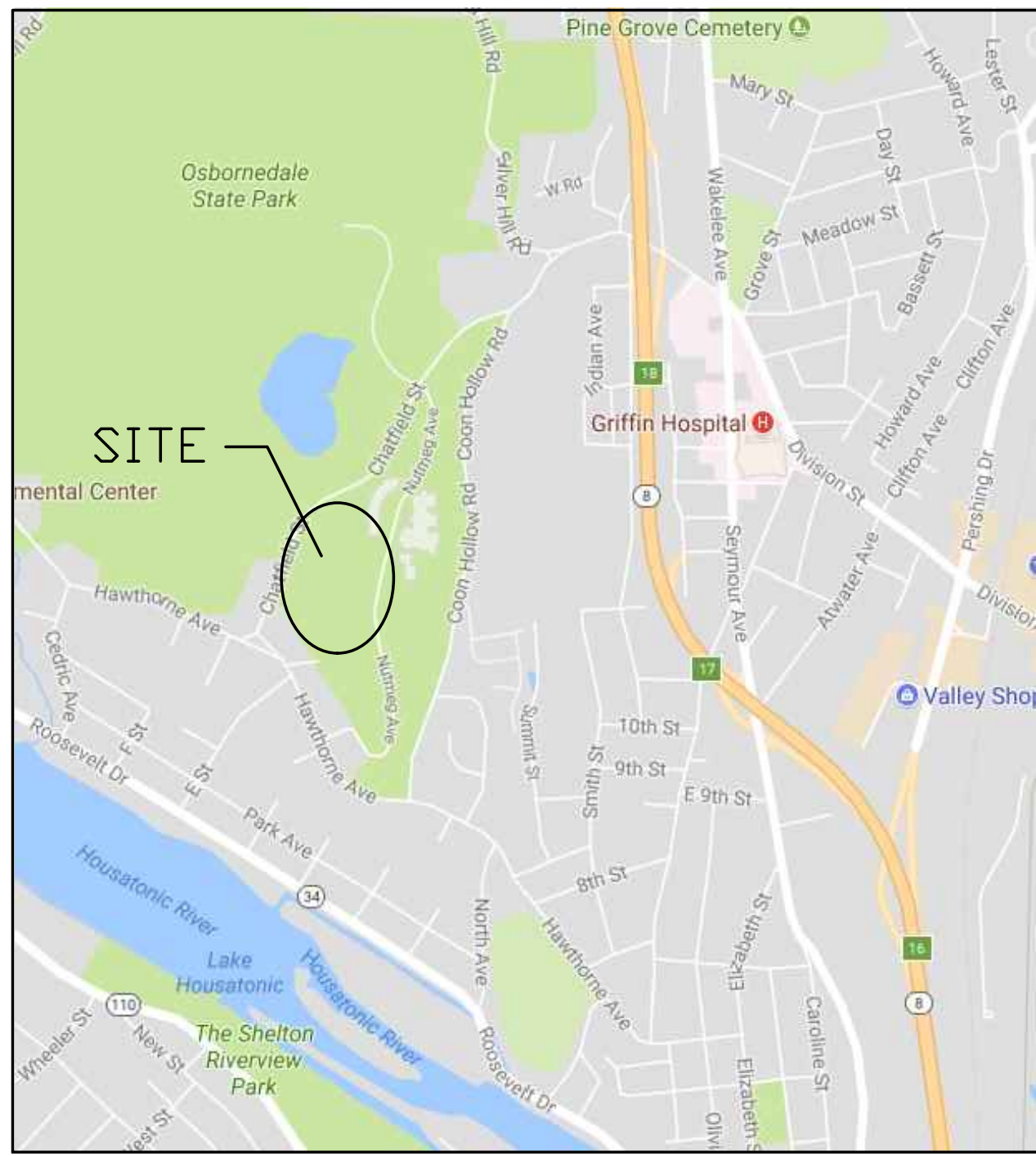
- A. Remove all containers, surplus and debris and dispose of in accordance with local, state and Federal regulation.
- B. Remove all spills and overruns.
- C. Leave site in a clean and orderly condition on a daily basis.
- D. Upon completion of all work, remove all containers, surplus materials, and installation debris. Leave area of work in clean orderly condition.

END OF SECTION 32 18 23.35

ATHLETIC MATERIALS & INSTALLATION DERBY HIGH SCHOOL

OWNER: CITY OF DERBY, CT
1 ELIZABETH STREET
DERBY, CT 06418

75 CHATFIELD STREET
DERBY, CT 06418



LOCUS PLAN
NORTH



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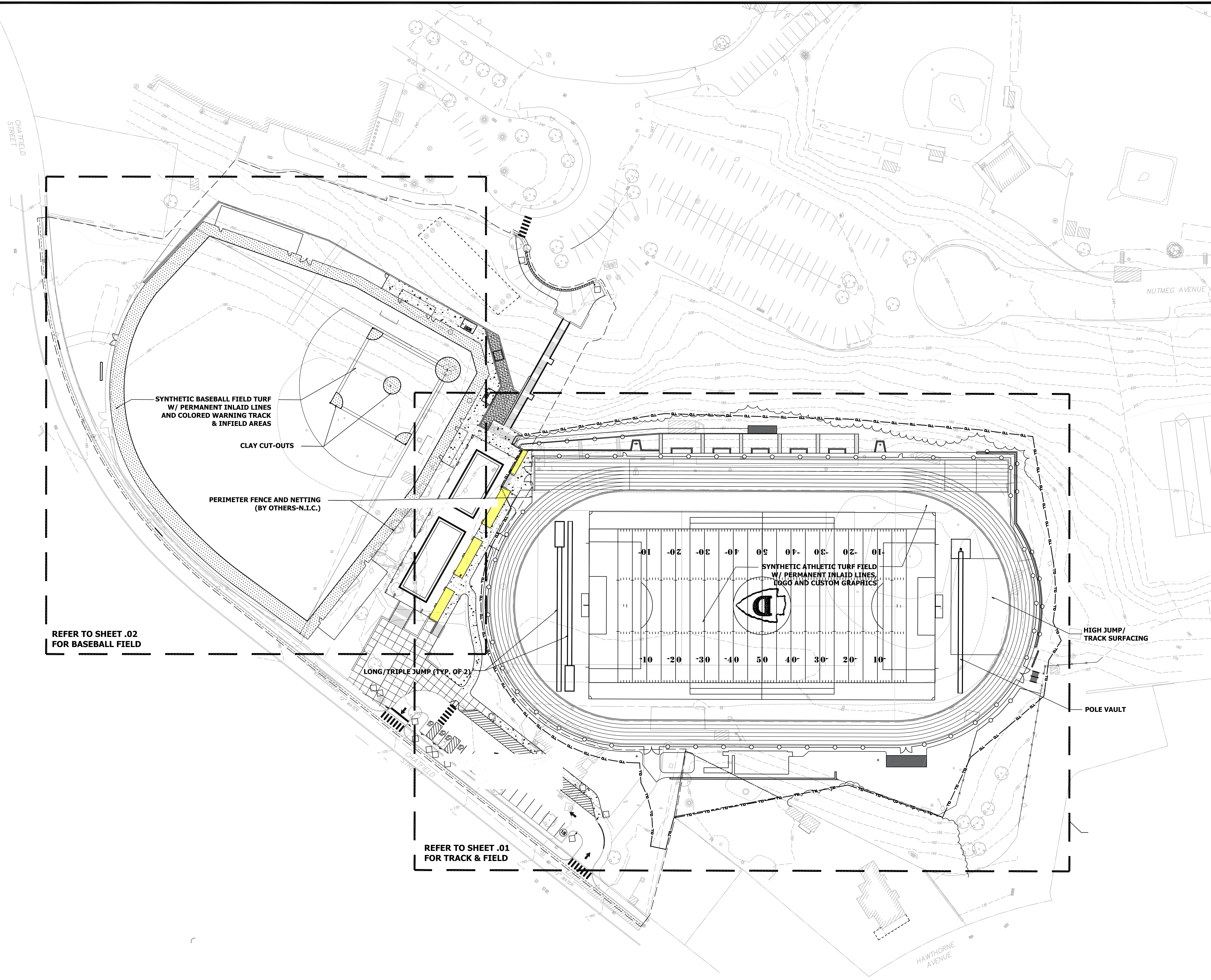
DRAWING LIST

- L0.00 OVERALL SITE PLAN
- L2.01 SITE LAYOUT & MATERIALS PLAN (TRACK & FIELD)
- L2.02 SITE LAYOUT & MATERIALS PLAN (BASEBALL FIELD)
- L4.01 SITE DETAILS
- L4.02 SITE DETAILS

SUBMITTED FOR BIDDING

02/28/2018

KAESTLE BOOS ASSOCIATES, INC. KAESTLE BOOS ARCHITECTURAL, STRUCTURAL & LANDSCAPE
associates, inc



REFER TO SHEET .02
FOR BASEBALL FIELD

REFER TO SHEET .01
FOR TRACK & FIELD

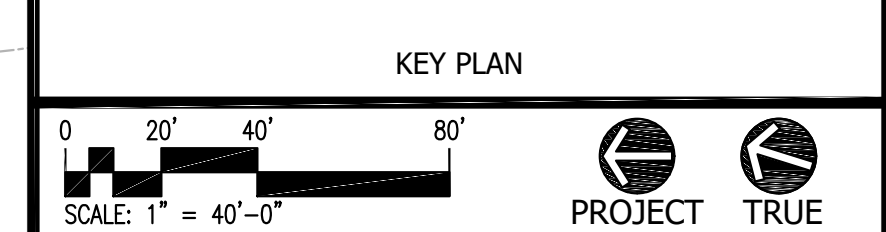
OVERALL SITE PLAN
-FOR REFERENCE ONLY-
NOT FOR CONSTRUCTION

KAESTLE BOOS
associates, inc

416 Slater Road, P.O. Box 2590, New Britain, CT 06050-2590
Phone: 860-229-0361 ▲ Fax: 860-229-5303
325 Foxborough Boulevard, Suite 100, Foxborough, MA 02035
Phone: 508-549-9906 ▲ Fax: 508-549-9907
Email: kba@kba-architects.com ▲ Web: www.kba-architects.com

ISSUE DATE	
DATE	DESCRIPTION
02-28-2018	BIDDING

REVISIONS	
DATE	REFERENCE



**DERBY
HIGH SCHOOL
ATHLETIC
MATERIALS
&
INSTALLATION**
75 CHATFIELD ST
DERBY, CT 06418

PROJECT NO.: 17015.00 DRAWN BY: EOR

**OVERALL
SITE
PLAN**

DRAWING NO.:
L0.00

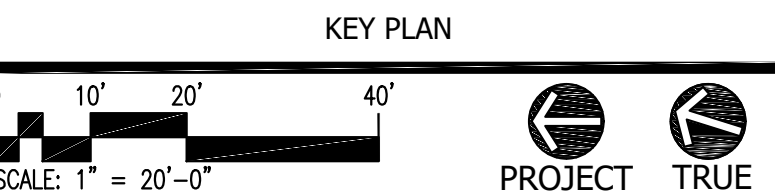
2018 © KAESTLE BOOS ASSOCIATES, INC.

PROGRESS PRINT

DATE: March 2, 2018
NOT FOR CONSTRUCTION

DATE	ISSUE DATE	DESCRIPTION
02-28-2018		BIDDING

DATE	REVISIONS	REFERENCE

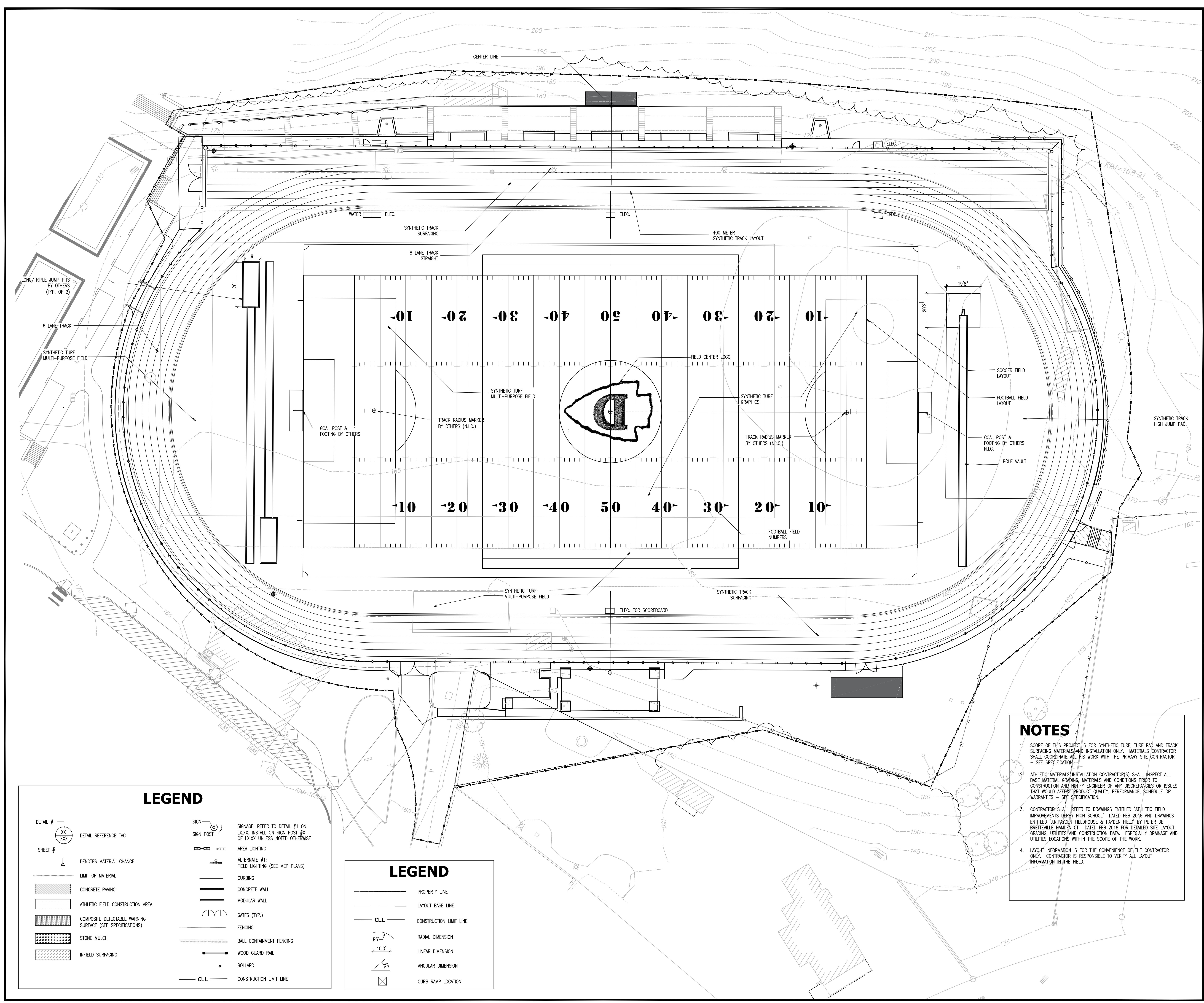


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ATHLETIC
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&
INSTALLATION**
75 CHATFIELD ST
DERBY, CT 06418

PROJECT NO.: 17015.00 DRAWN BY: EDR

**SITE LAYOUT
+ MATERIALS
PLAN
(TRACK/FIELD)**

DRAWING NO.:
L2.01



LEGEND

DETAIL #	DETAIL REFERENCE TAG	SIGN POST	SIGNAGE: REFER TO DETAIL #1 ON LXXX. INSTALL ON SIGN POST #X OF LXXX UNLESS NOTED OTHERWISE.
SHEET #	DENOTES MATERIAL CHANGE	AREA LIGHTING	ALTERNATE #1: FIELD LIGHTING (SEE MEP PLANS)
	LIMIT OF MATERIAL	CURBING	CURBING
	CONCRETE PAVING	CONCRETE WALL	CONCRETE WALL
	ATHLETIC FIELD CONSTRUCTION AREA	MODULAR WALL	MODULAR WALL
	COMPOSITE DETECTABLE WARNING SURFACE (SEE SPECIFICATIONS)	GATES (TYP.)	GATES (TYP.)
	STONE MULCH	FENCING	FENCING
	INFIELD SURFACING	BALL CONTAINMENT FENCING	BALL CONTAINMENT FENCING
		WOOD GUARD RAIL	WOOD GUARD RAIL
		BOLLARD	BOLLARD
		CLL	CONSTRUCTION LIMIT LINE

LEGEND

PROPERTY LINE	PROPERTY LINE
LAYOUT BASE LINE	LAYOUT BASE LINE
CONSTRUCTION LIMIT LINE	CONSTRUCTION LIMIT LINE
R5	RADIAL DIMENSION
10.0'	LINEAR DIMENSION
ANGULAR DIMENSION	ANGULAR DIMENSION
CURB RAMP LOCATION	CURB RAMP LOCATION

NOTES

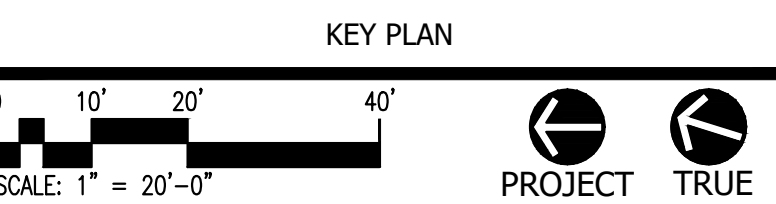
- SCOPE OF THIS PROJECT IS FOR SYNTHETIC TURF, TURF PAD AND TRACK SURFACING MATERIALS AND INSTALLATION ONLY. MATERIALS CONTRACTOR SHALL COORDINATE ALL HIS WORK WITH THE PRIMARY SITE CONTRACTOR - SEE SPECIFICATION.
- ATHLETIC MATERIALS INSTALLATION CONTRACTOR(S) SHALL INSPECT ALL BASE MATERIAL GRADING, MATERIALS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES OR ISSUES THAT WOULD AFFECT PRODUCT QUALITY, PERFORMANCE, SCHEDULE OR WARRANTIES - SEE SPECIFICATION.
- CONTRACTOR SHALL REFER TO DRAWINGS ENTITLED "ATHLETIC FIELD IMPROVEMENTS DERBY HIGH SCHOOL" DATED FEB 2018 AND DRAWINGS ENTITLED "J.R. PAYDEN FIELDHOUSE & PAYDEN FIELD" BY PETER DE GRETTENVILLE HAMDEN CT, DATED FEB 2018 FOR DETAILED SITE LAYOUT, GRADING, UTILITIES AND CONSTRUCTION DATA, ESPECIALLY DRAINAGE AND UTILITIES LOCATIONS WITHIN THE SCOPE OF THE WORK.
- LAYOUT INFORMATION IS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL LAYOUT INFORMATION IN THE FIELD.

PROGRESS PRINT

DATE: March 2, 2018
NOT FOR CONSTRUCTION

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**DERBY
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ATHLETIC
MATERIALS
&
INSTALLATION**
75 CHATFIELD ST
DERBY, CT 06418

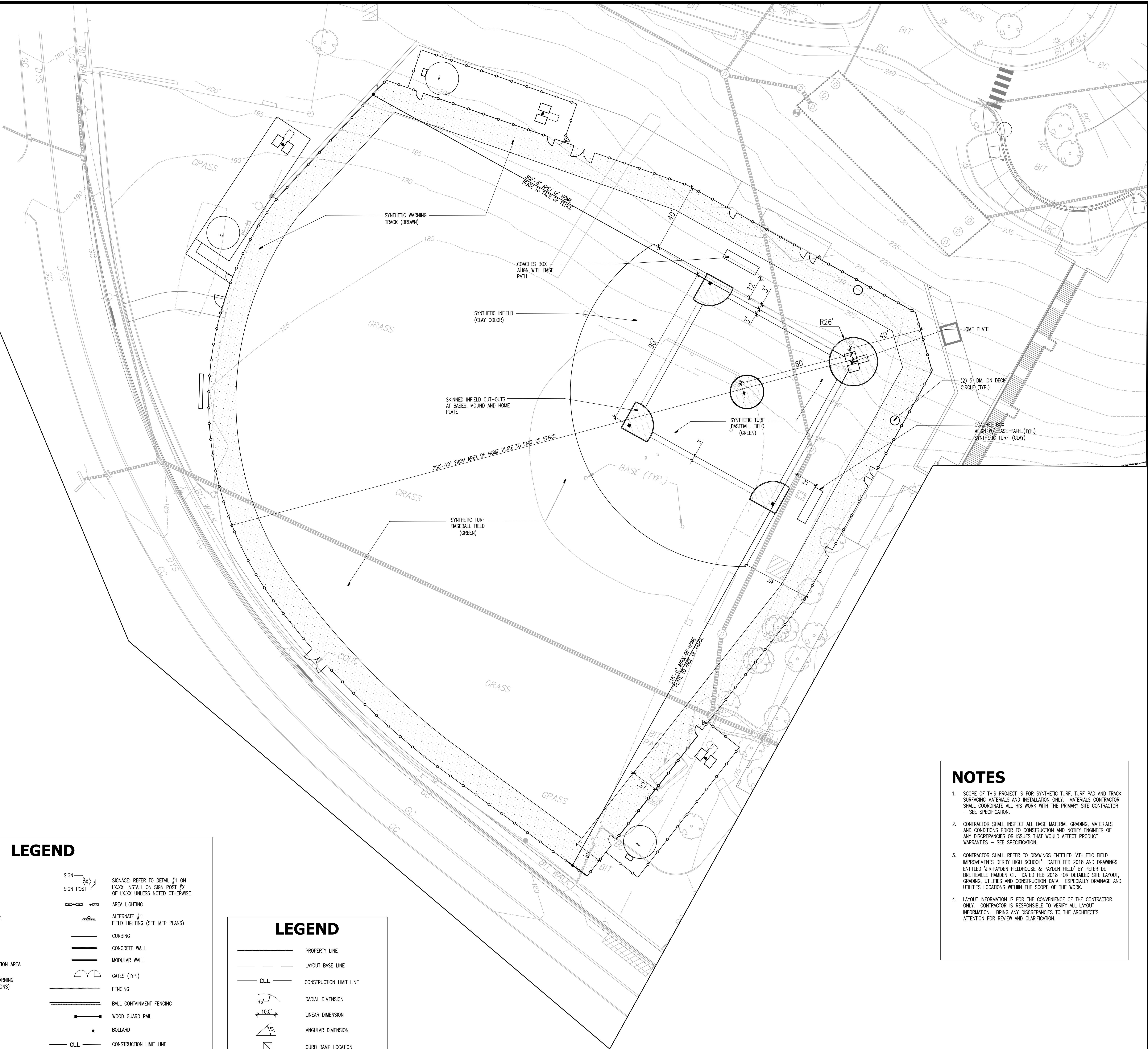
PROJECT NO.: 17015.00

DRAWN BY: EQR

**SITE LAYOUT
+ MATERIALS
PLAN
(BASEBALL)**

DRAWING NO.:

L2.02



LEGEND

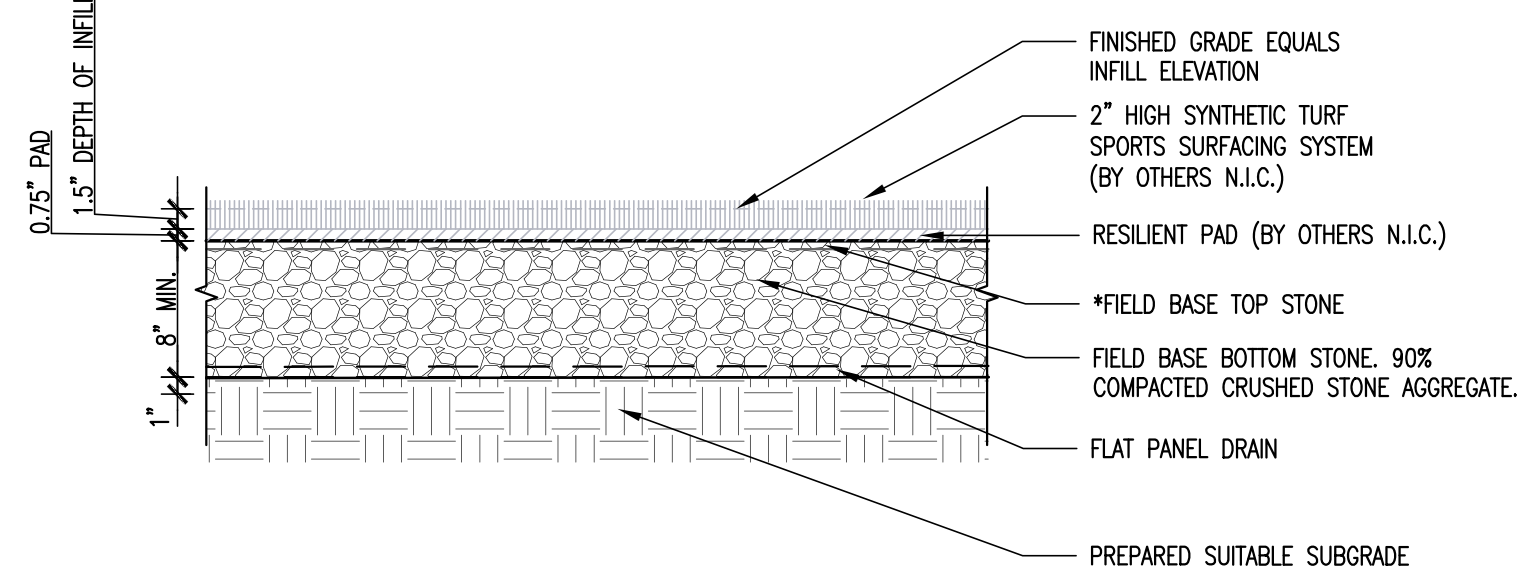
DETAIL # XX XXX	DETAIL REFERENCE TAG	SIGN SIGN POST	SIGNAGE: REFER TO DETAIL #1 ON LC.XX. INSTALL ON SIGN POST #X OF LC.XX UNLESS NOTED OTHERWISE
SHEET #		ALTERNATE #1: FIELD LIGHTING (SEE MEP PLANS)	AREA LIGHTING
	DENOTES MATERIAL CHANGE		CURBING
	LIMIT OF MATERIAL		CONCRETE WALL
	CONCRETE PAVING		MODULAR WALL
	ATHLETIC FIELD CONSTRUCTION AREA		GATES (TYP.)
	COMPOSITE DETECTABLE WARNING SURFACE (SEE SPECIFICATIONS)		FENCING
	STONE MULCH		BALL CONTAINMENT FENCING
	INFIELD SURFACING		WOOD GUARD RAIL
			BOLLARD
			CLL CONSTRUCTION LIMIT LINE

LEGEND

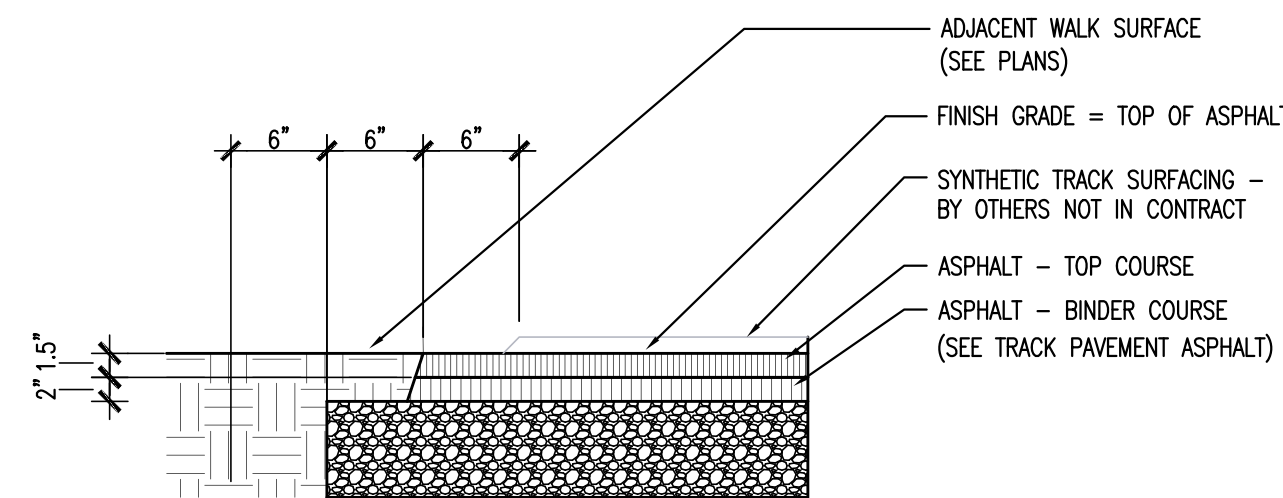
PROPERTY LINE	
LAYOUT BASE LINE	
CLL CONSTRUCTION LIMIT LINE	
R5' RADIAL DIMENSION	
10.0' LINEAR DIMENSION	
ANGULAR DIMENSION	
CURB RAMP LOCATION	

NOTES:

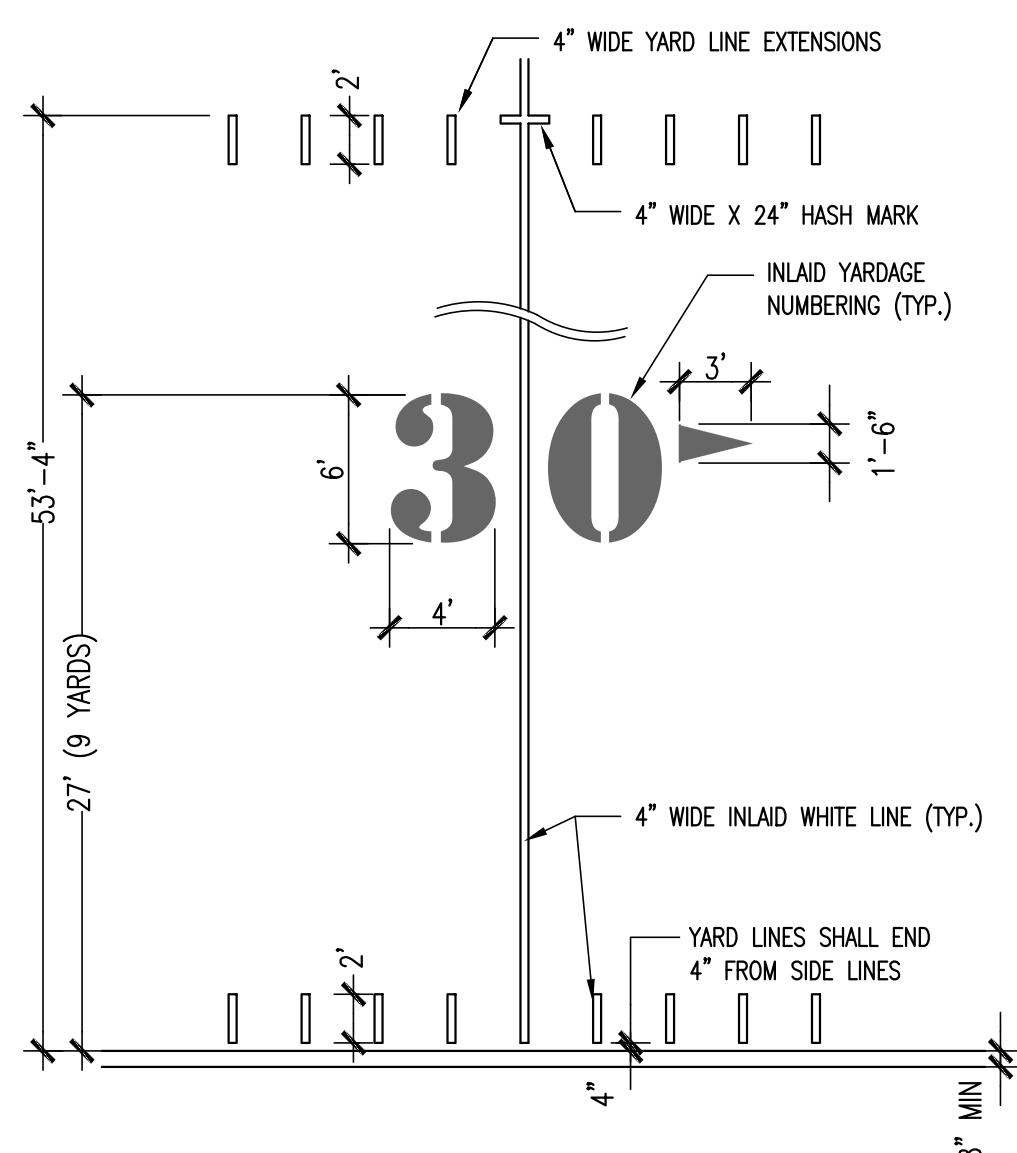
1. *CONTRACTOR MAY USE THEIR DISCRETION TO INSTALL A MAXIMUM OF 1" LAYER OF FIELD BASE TOPSTONE OVER FIELD BASE BOTTOM STONE TO ACHIEVE SPECIFIED FIELD PLANARITY.
2. CONTRACTOR SHALL PERFORM CUT OR FILL OPERATIONS AS REQUIRED TO ESTABLISH SUBGRADE ELEVATIONS IN ORDER TO COMPLETE PROPOSED IMPROVEMENTS (TYP.)
3. REFER TO CIVIL DRAWINGS FOR BASE STONE AND DRAINAGE INFORMATION.



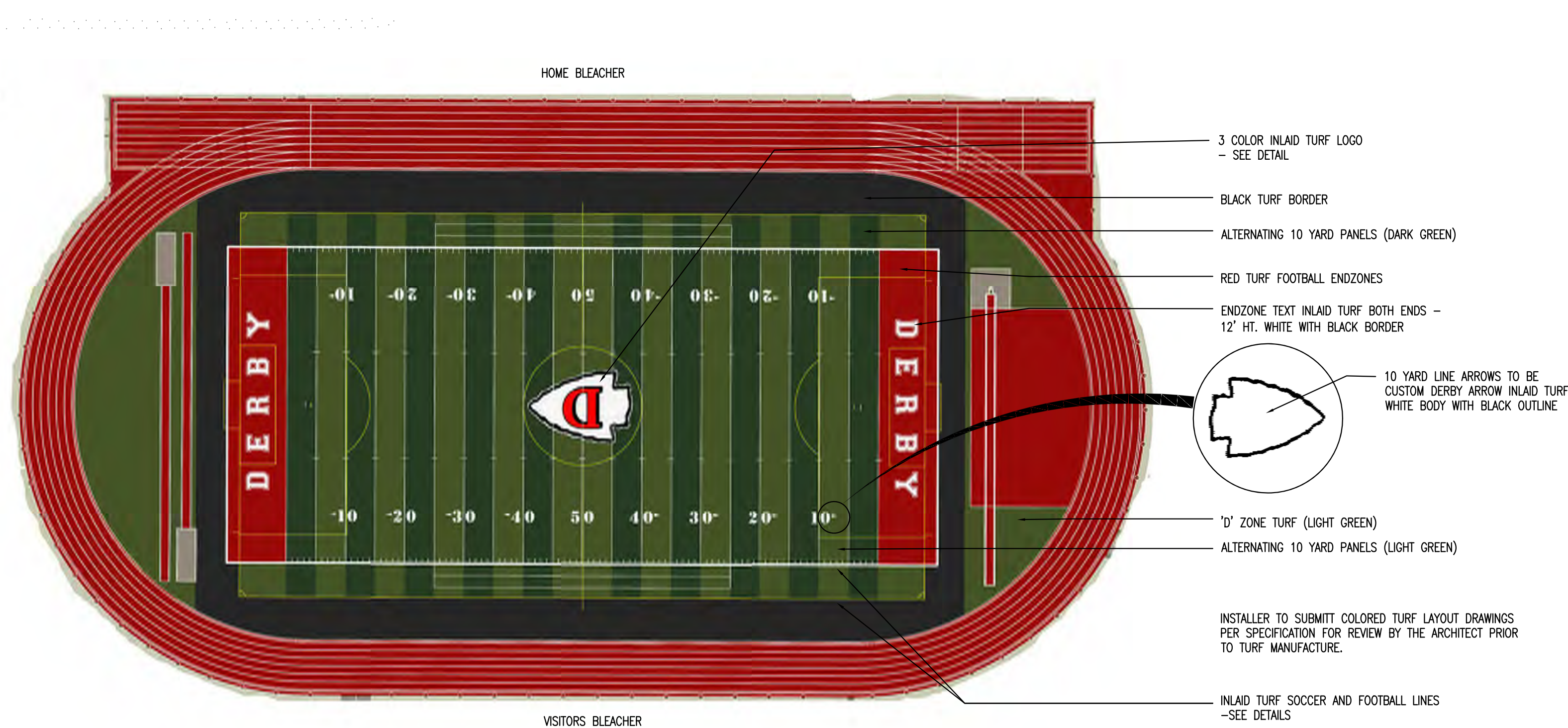
4 SYNTHETIC TURF SPORTS SURFACING
NOT TO SCALE



5 SYNTHETIC TRACK SURFACING
NOT TO SCALE



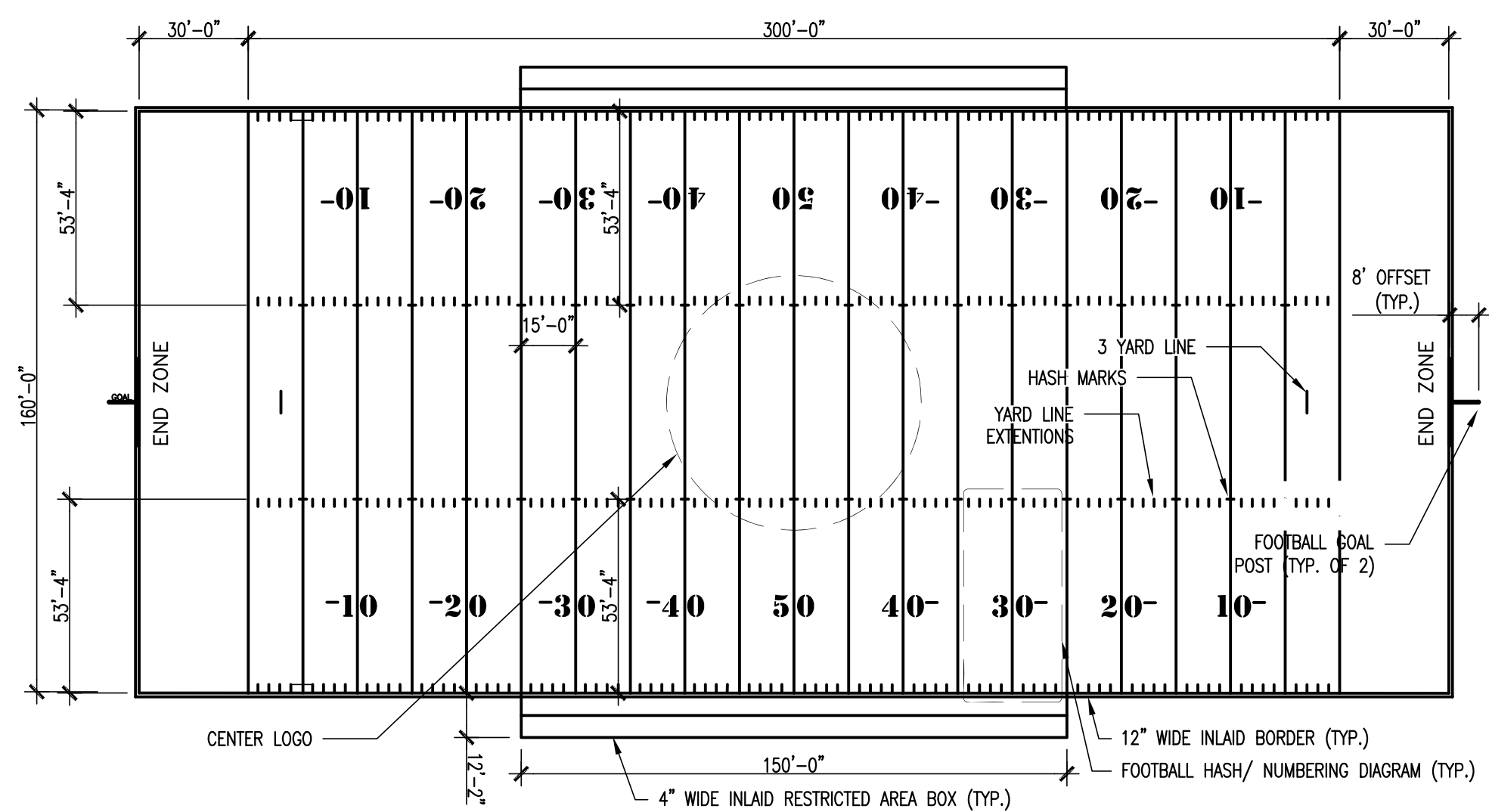
6 FOOTBALL FIELD NUMBERS
NOT TO SCALE



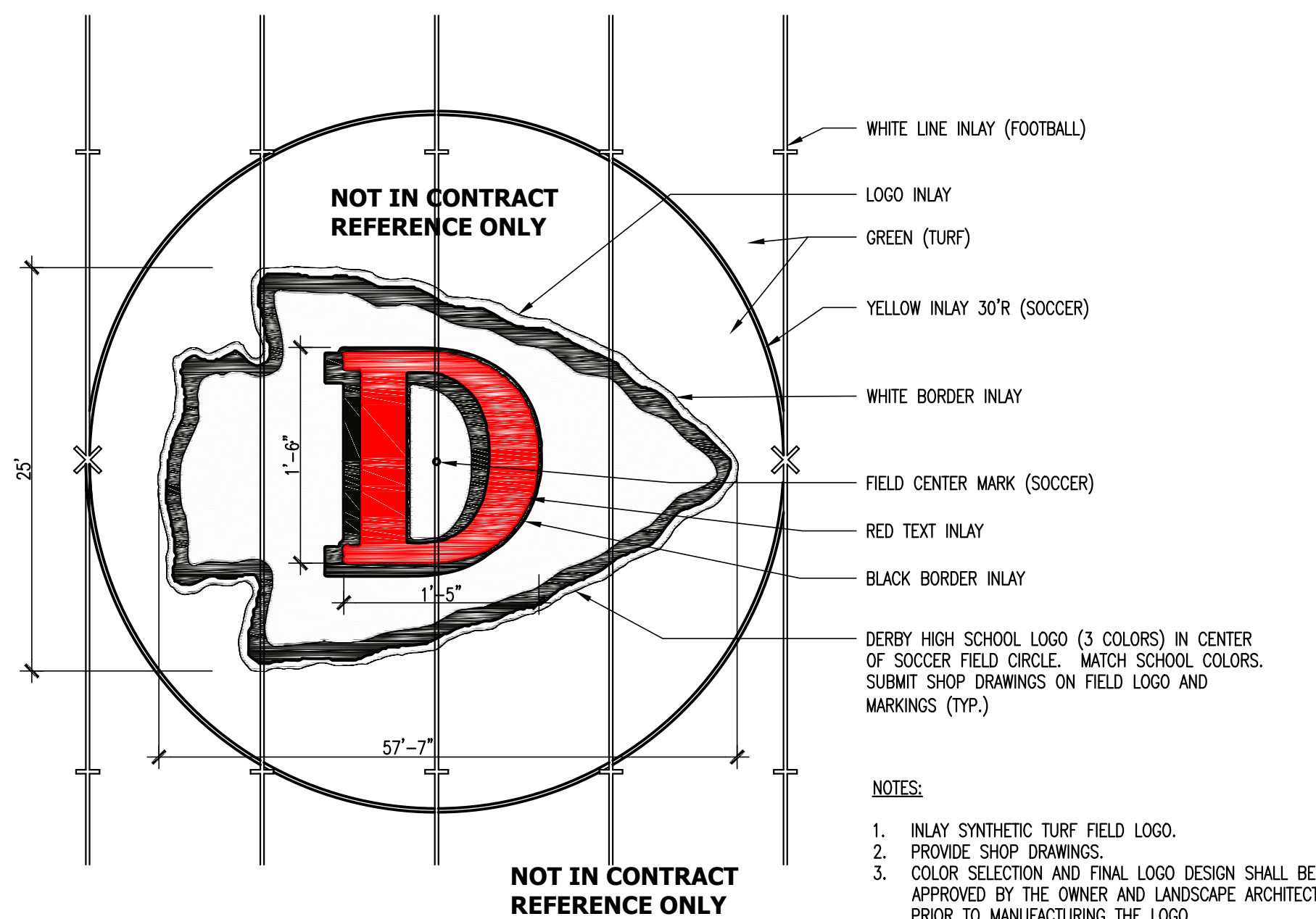
7 SYNTHETIC TURF GRAPHICS
NOT TO SCALE

NOTES:

1. ALL FOOTBALL DIMENSIONS ARE MEASURED FROM INSIDE EDGE OF LINE TO INSIDE EDGE OF LINE.
2. WHERE FOOTBALL LINES OVERLAP OTHER SPORT FIELD LINES, FOOTBALL SHALL TAKE PRIORITY.



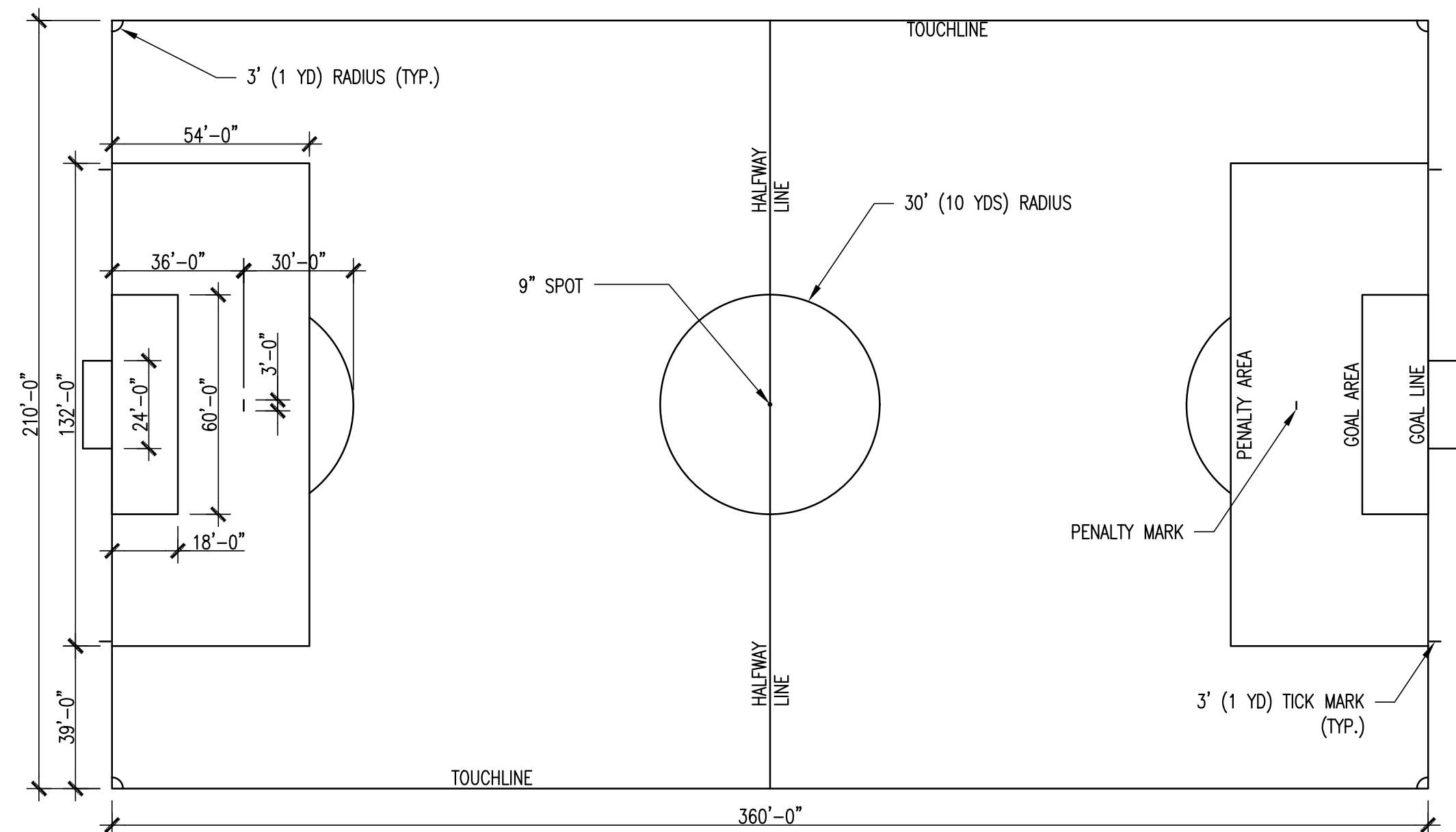
1 FOOTBALL FIELD LAYOUT (WHITE INLAI LINES) (NFHS)
NOT TO SCALE



2 SYNTHETIC TURF FIELD CENTER LOGO
NOT TO SCALE

NOTES:

1. ALL SOCCER DIMENSIONS ARE MEASURED FROM OUTSIDE EDGE OF LINE TO OUTSIDE EDGE OF LINE, UNLESS OTHERWISE NOTED.
2. TEAM AREAS TO BE PAINTED BY OTHERS (N.I.C.).



3 SOCCER FIELD LAYOUT (YELLOW INLAI MARKINGS)
NOT TO SCALE

ISSUE DATE

DATE 02-28-2018 DESCRIPTION BIDDING

REVISIONS

DATE REFERENCE

KEY PLAN

NOT TO SCALE PROJECT TRUE



DERBY
HIGH SCHOOL
ATHLETIC
MATERIALS
&
INSTALLATION
75 CHATFIELD ST
DERBY, CT 06418

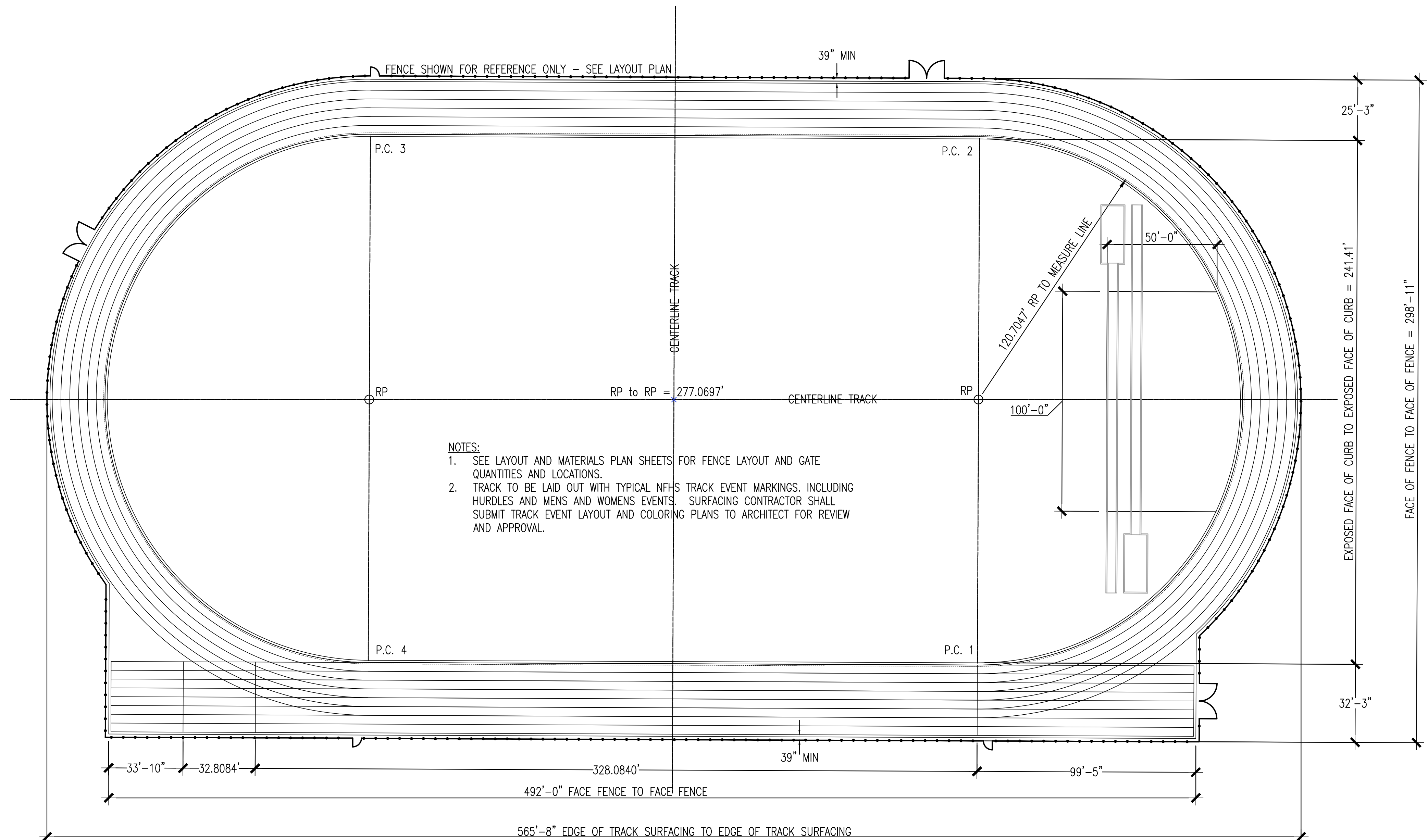
PROJECT NO.: 17015.00

DRAWN BY: EQR

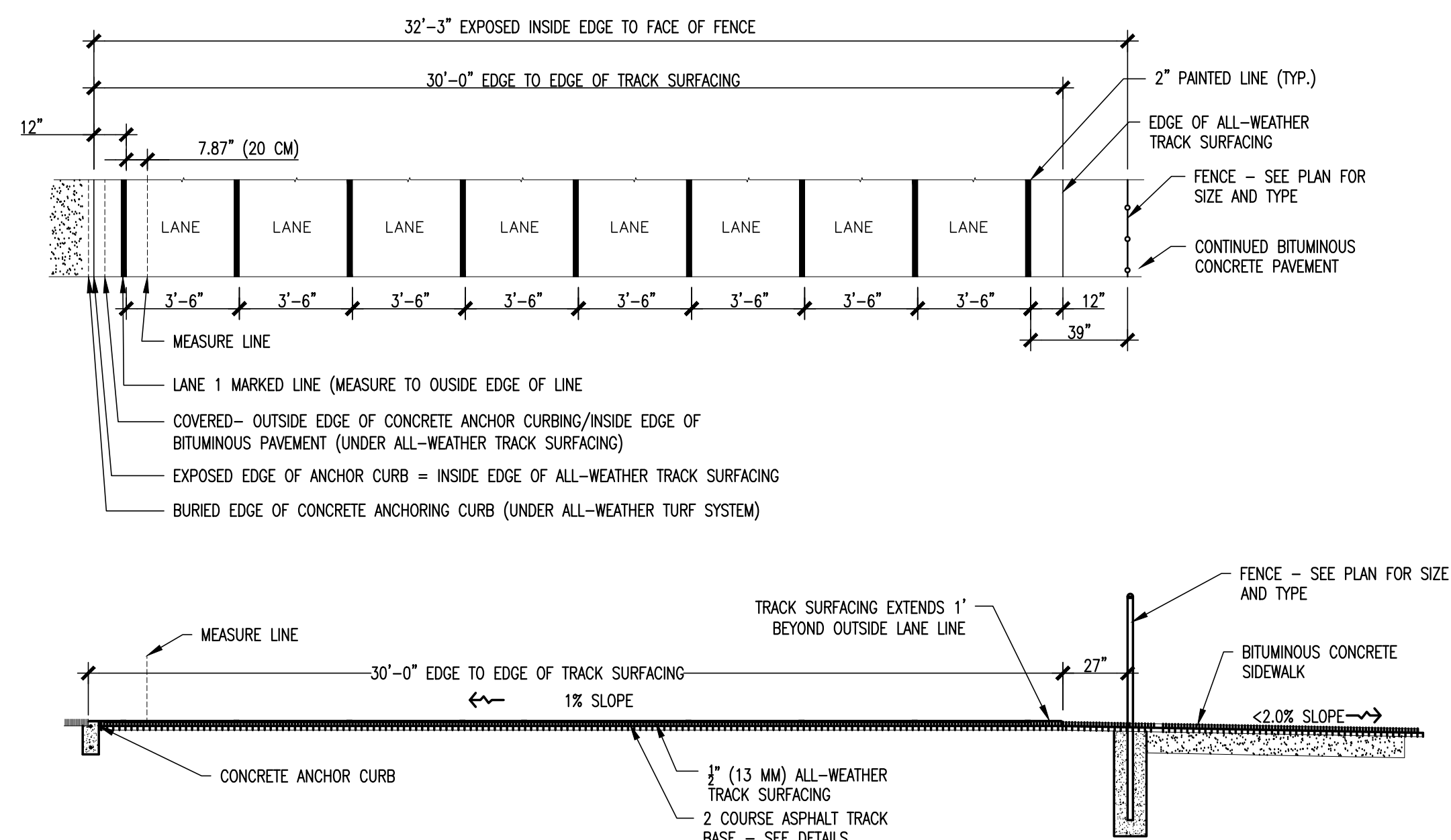
SITE
DETAILS

DRAWING NO.:

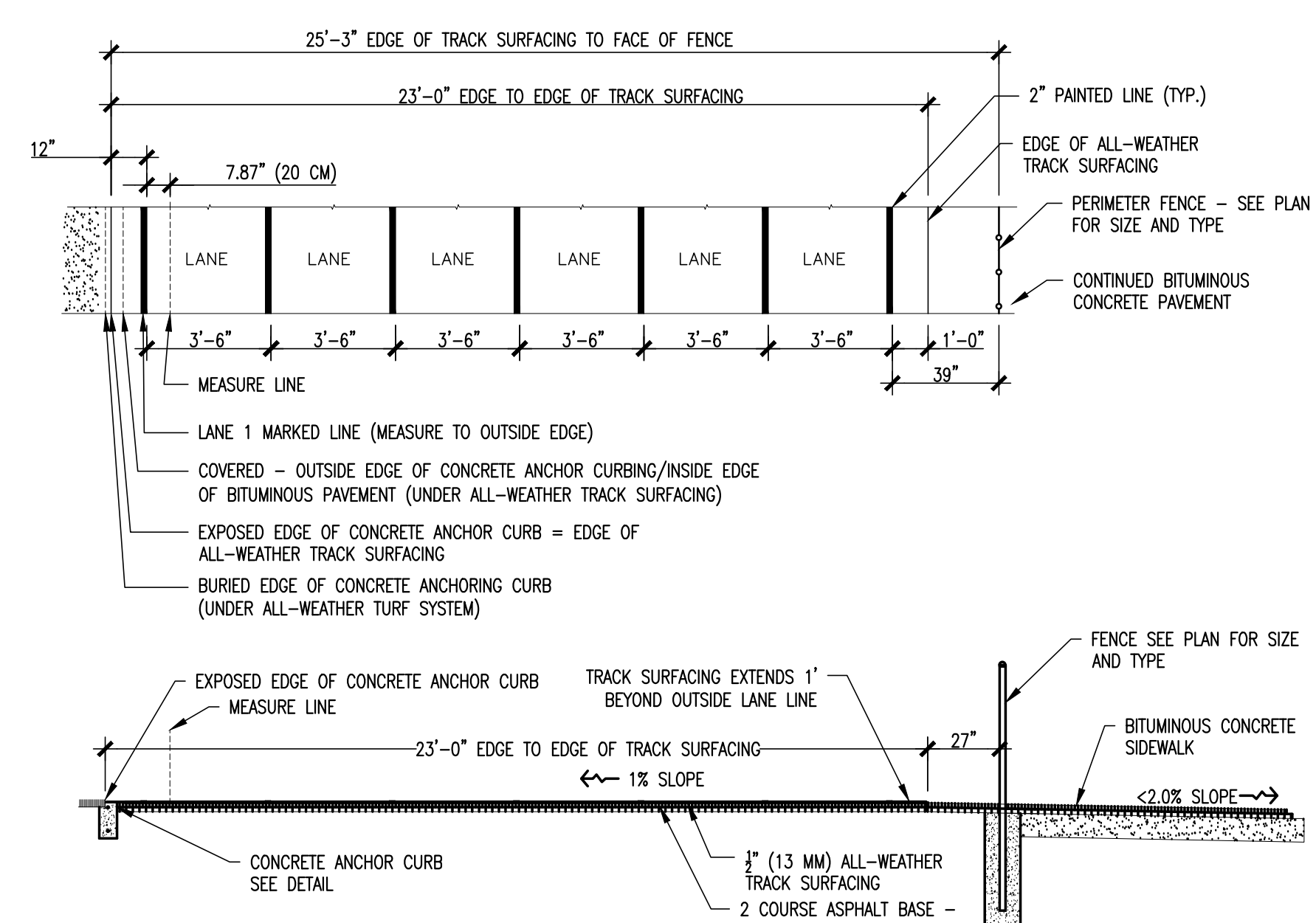
L4.01



1 400 M TRACK LAYOUT
NOT TO SCALE



3 TRACK LAYOUT SECTION - 8 LANE
NOT TO SCALE



2 TRACK LAYOUT SECTION - 6 LANE
NOT TO SCALE

ISSUE DATE

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02-28-2018 BIDDING

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KEY PLAN

NOT TO SCALE

PROJECT TRUE



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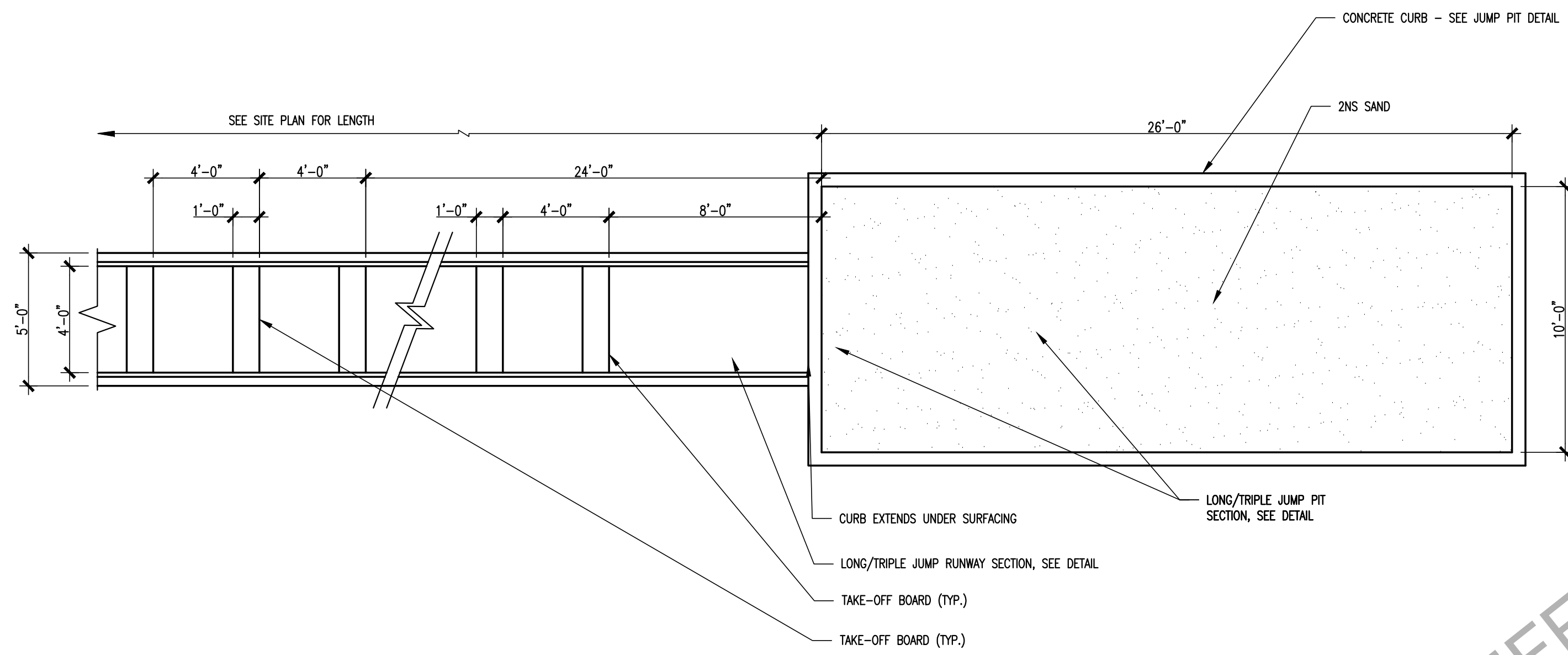
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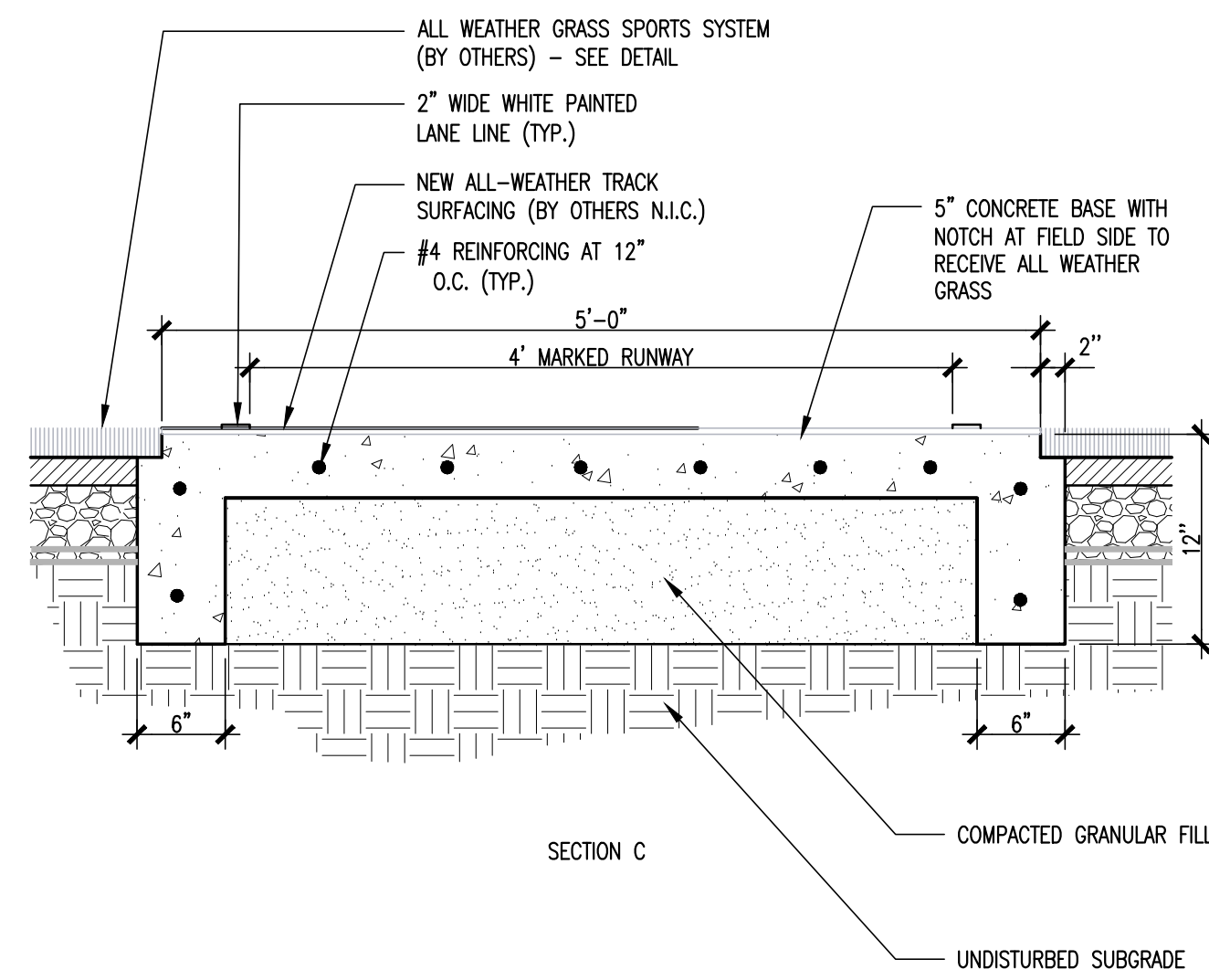
**SITE
DETAILS**

DRAWING NO.:

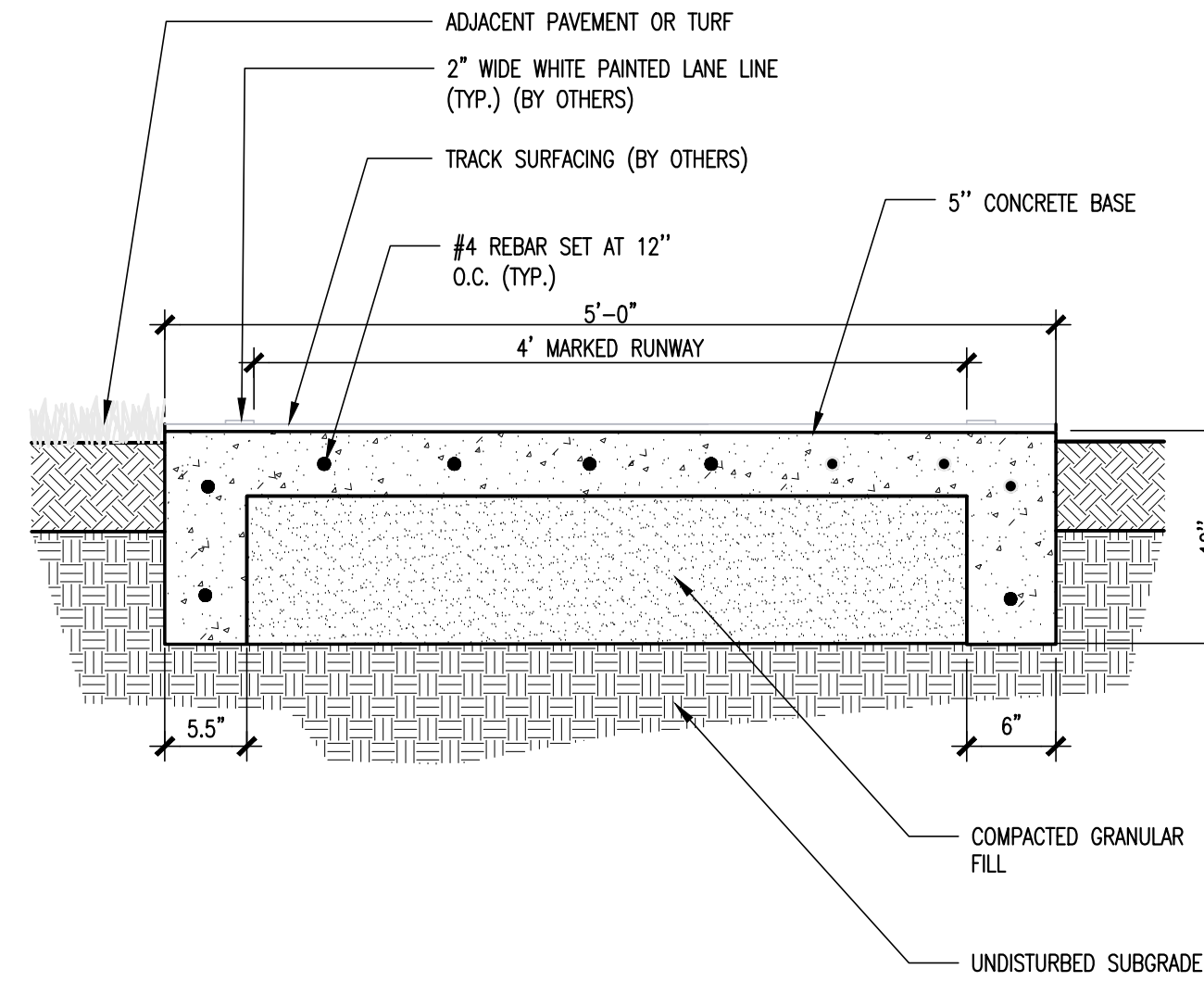
L4.02



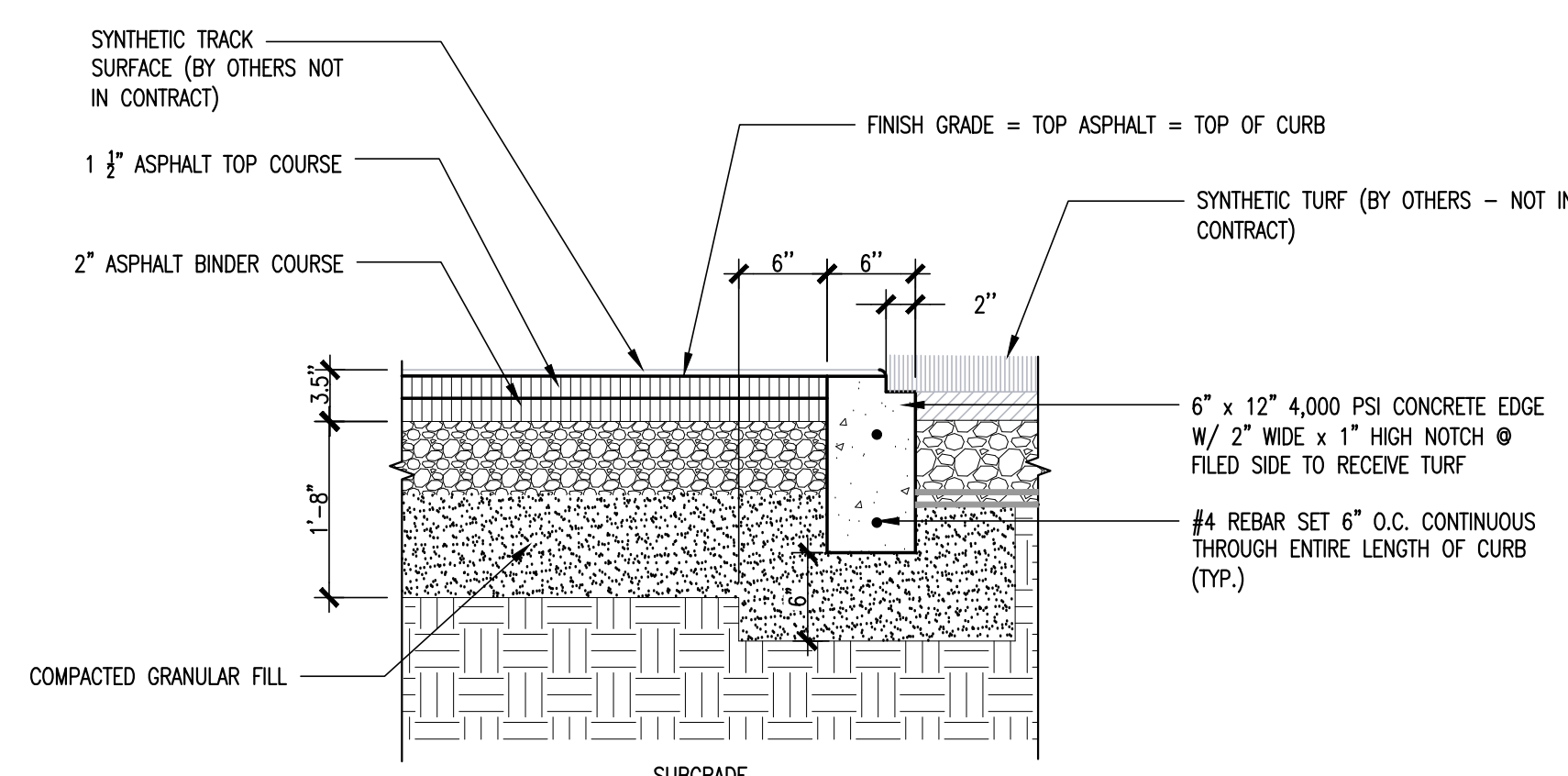
8 LONG/TRIPLE JUMP RUNWAY STRIPING PLAN
NOT TO SCALE



9 LONG/TRIPLE JUMP RUNWAY
NOT TO SCALE

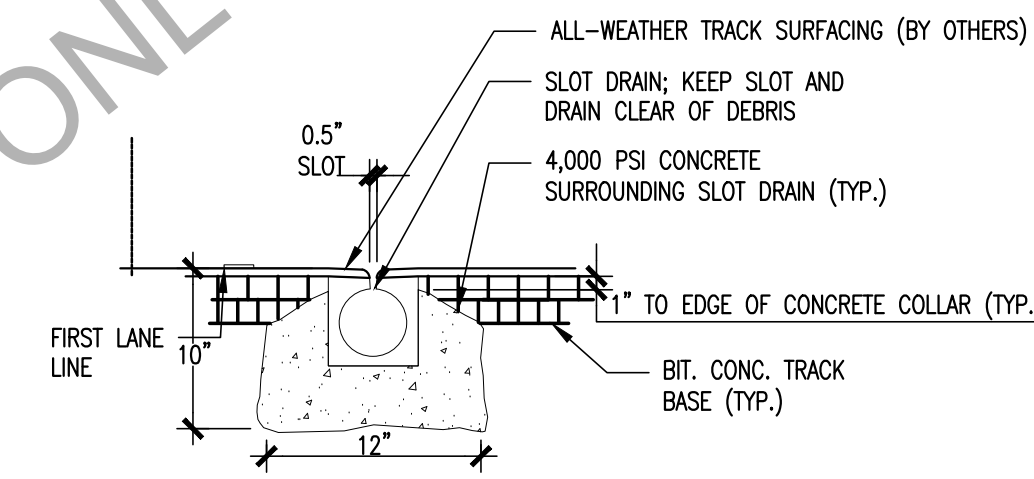


10 POLEVULT RUNWAY SECTION
NOT TO SCALE

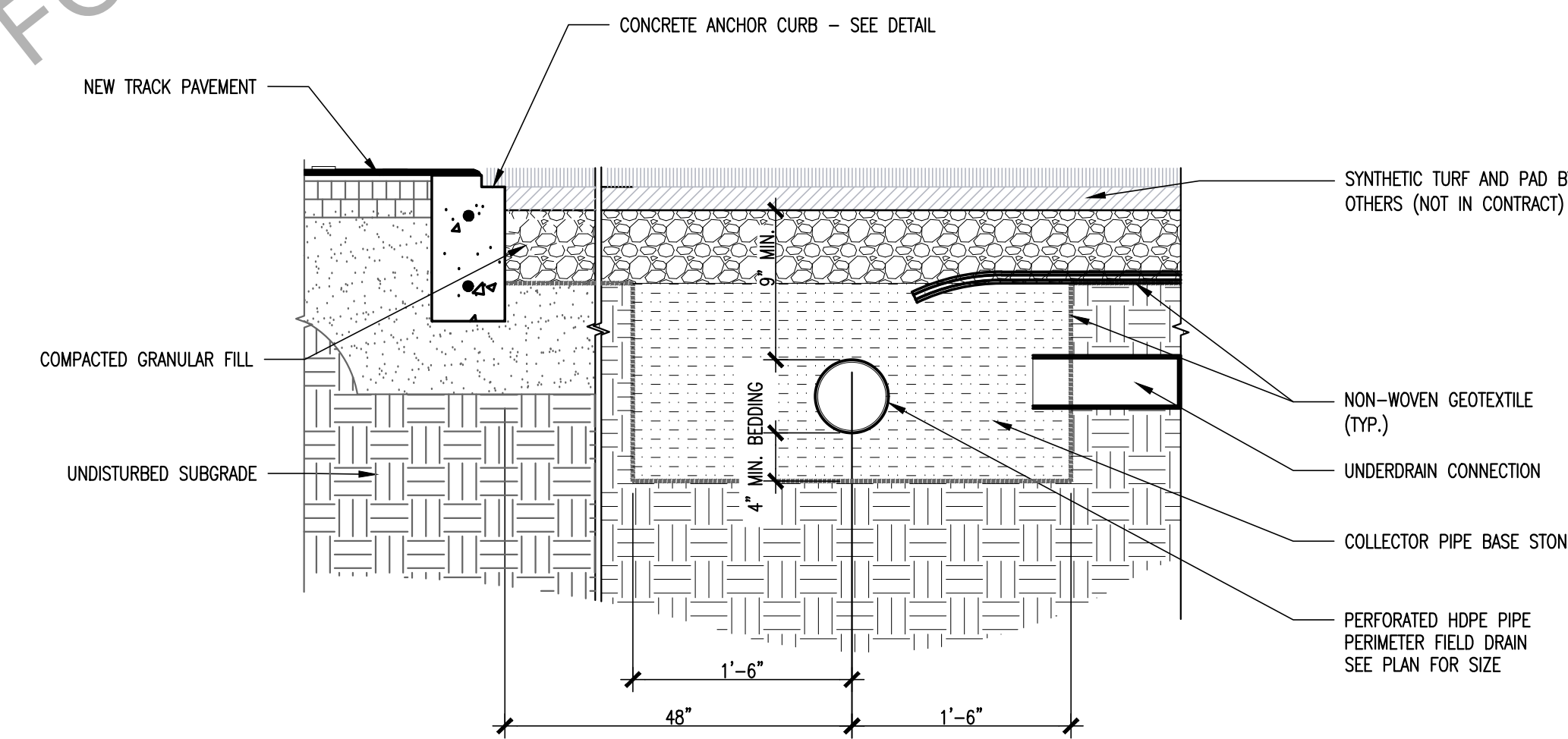


11 HIGH JUMP PAVEMENT SECTION
NOT TO SCALE

5 SLOT DRAIN IN CONC. ANCHOR CURB
NOT TO SCALE

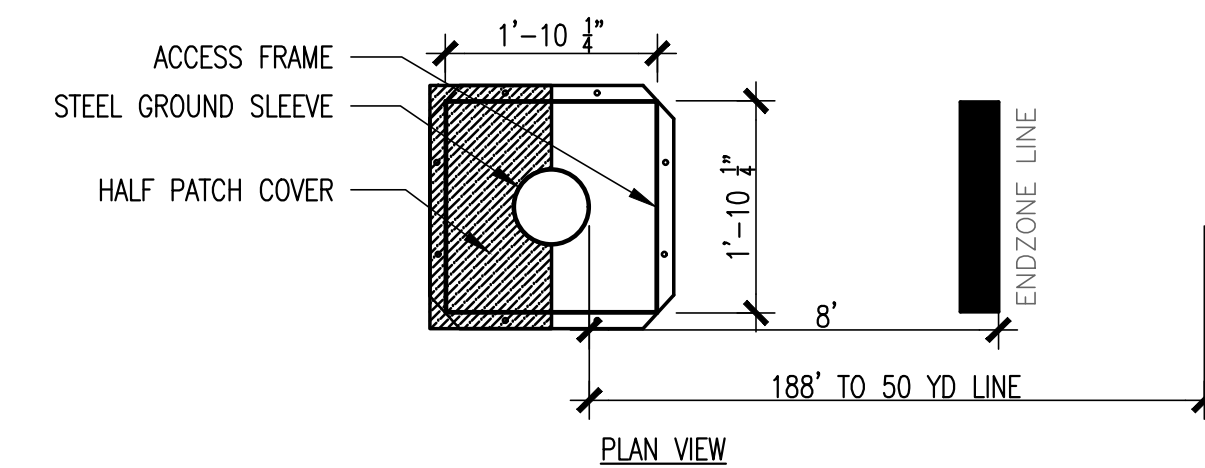


6 MAIN FIELD PERIMETER COLLECTOR DRAIN
NOT TO SCALE

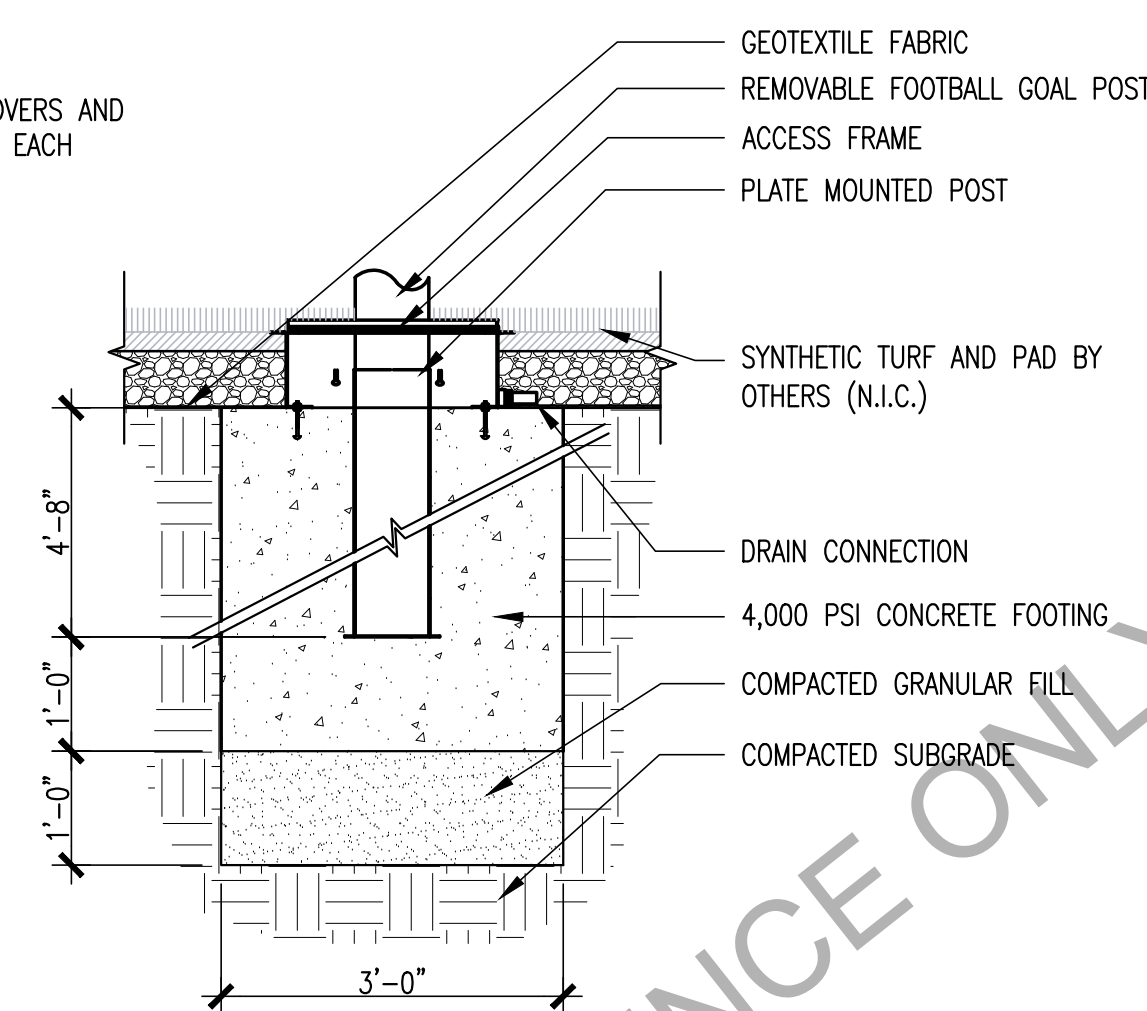


NOTES:

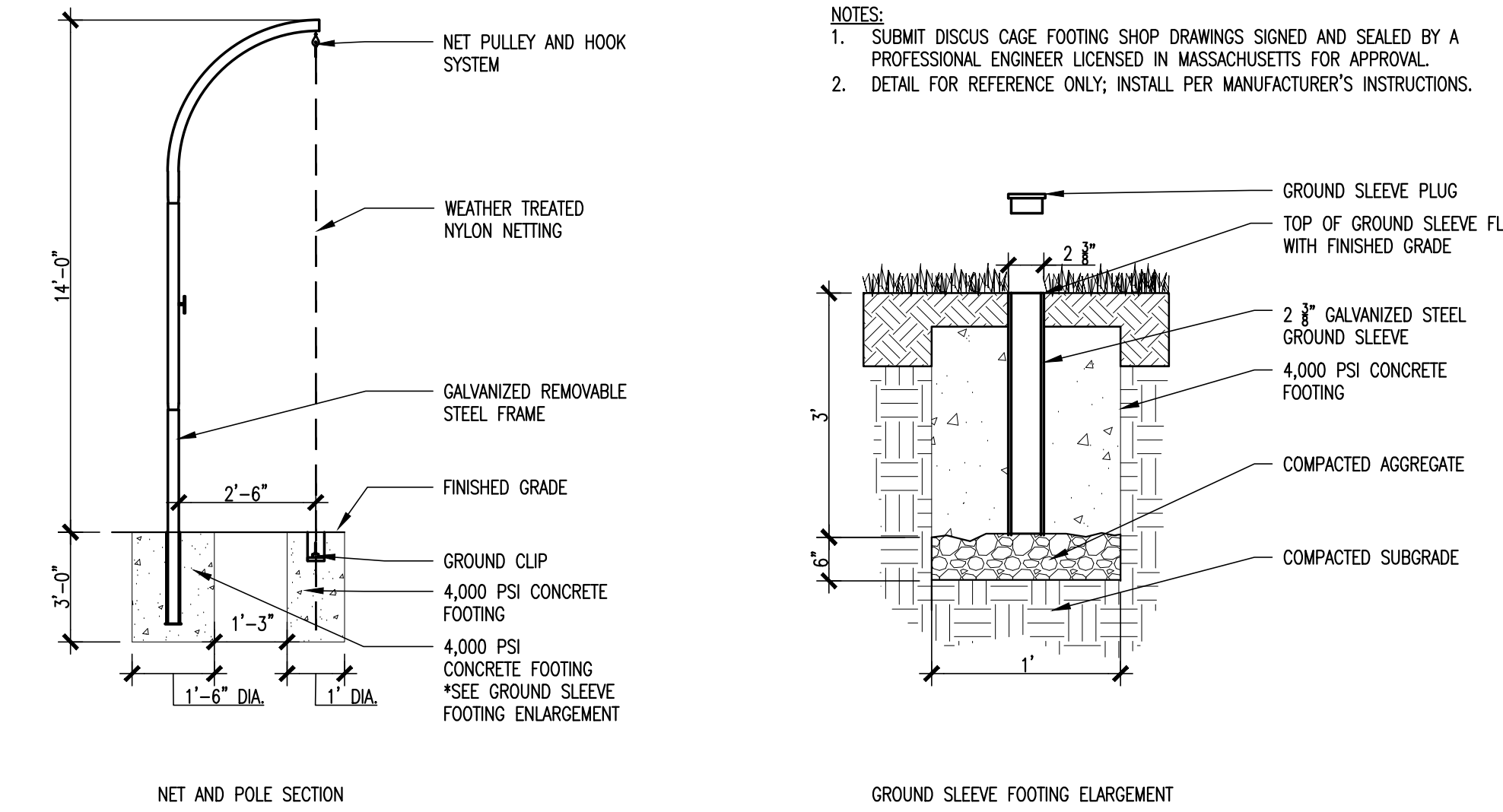
1. PROVIDE TWO HALF PATCH COVERS AND ONE FULL PATCH COVER FOR EACH GOAL POST



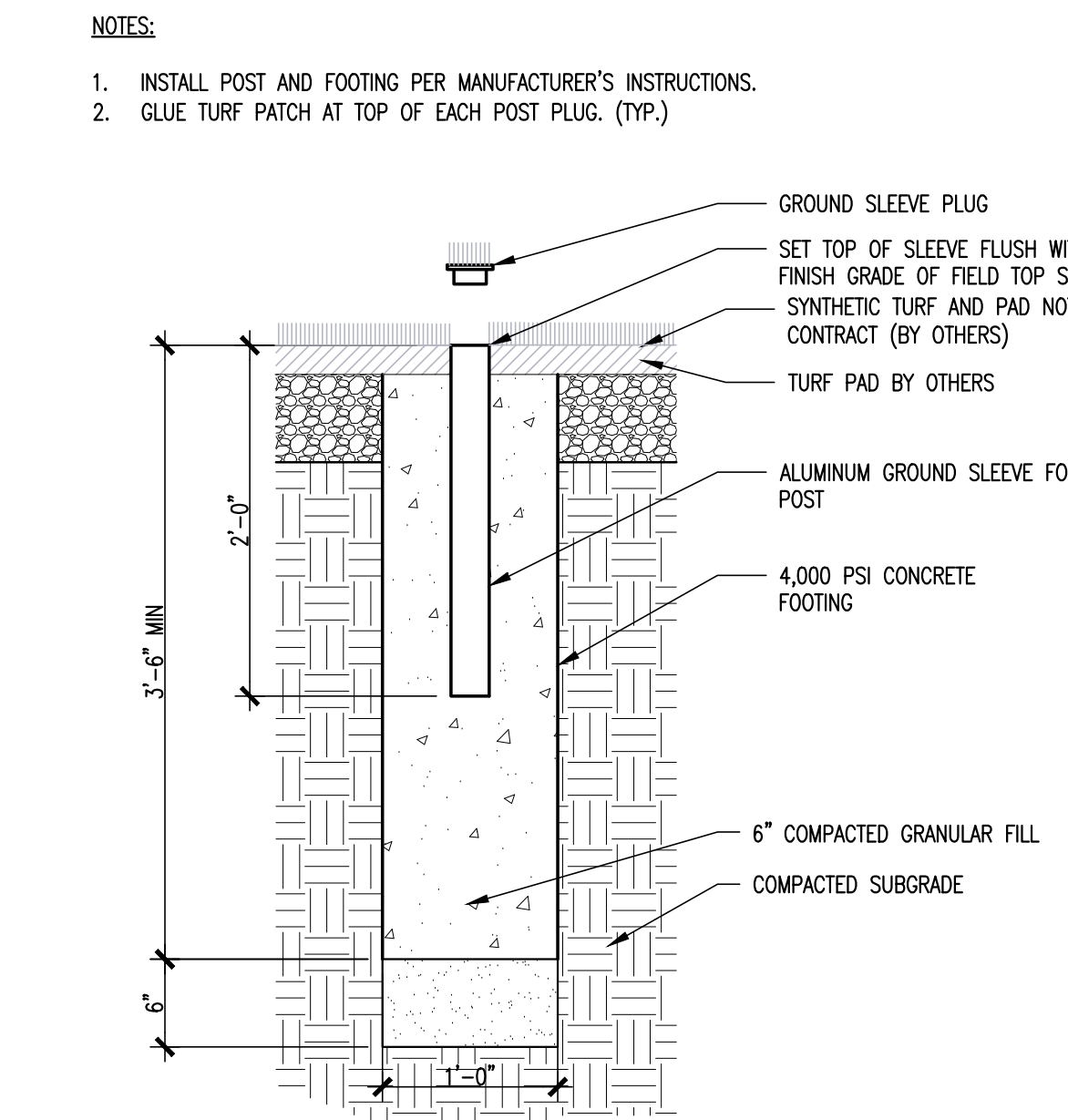
7 FOOTBALL GOAL POST FOOTING
NOT TO SCALE



1 DISCUS CAGE
SCALE: N.T.S.

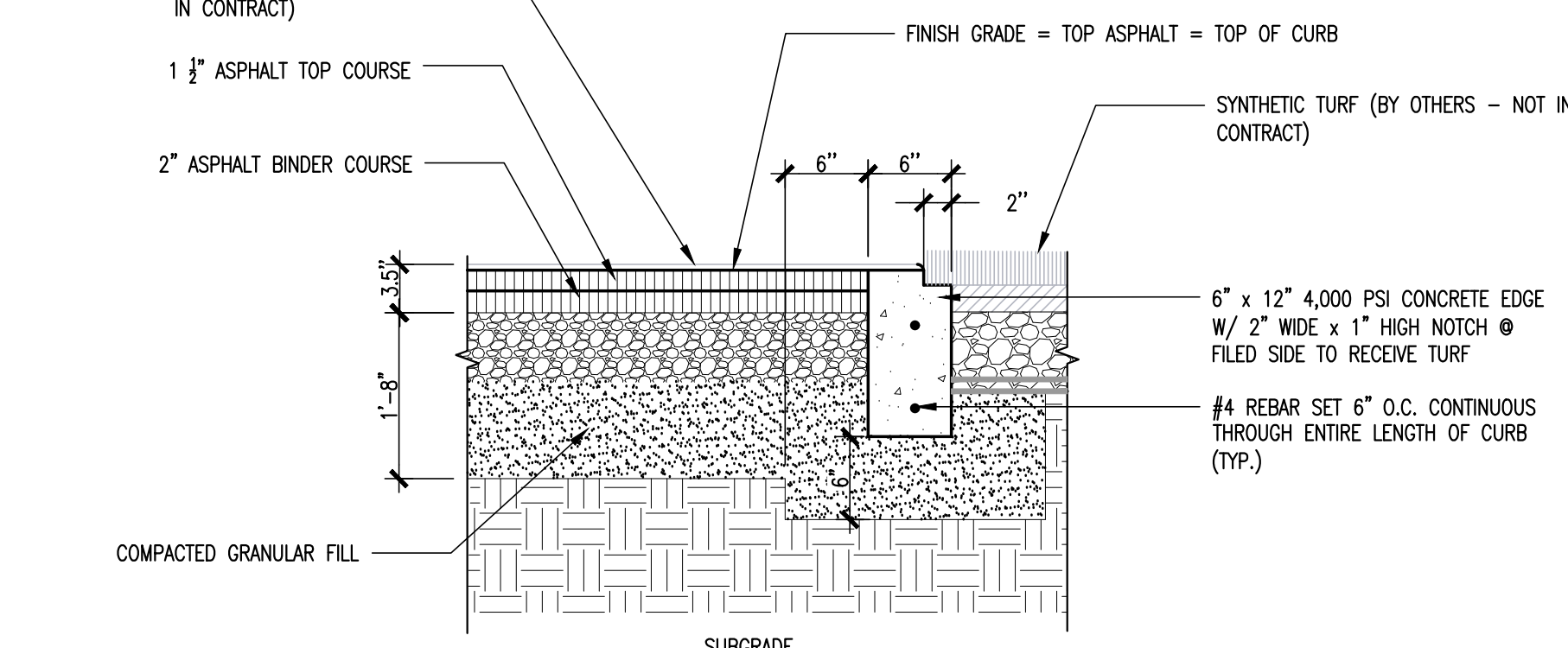
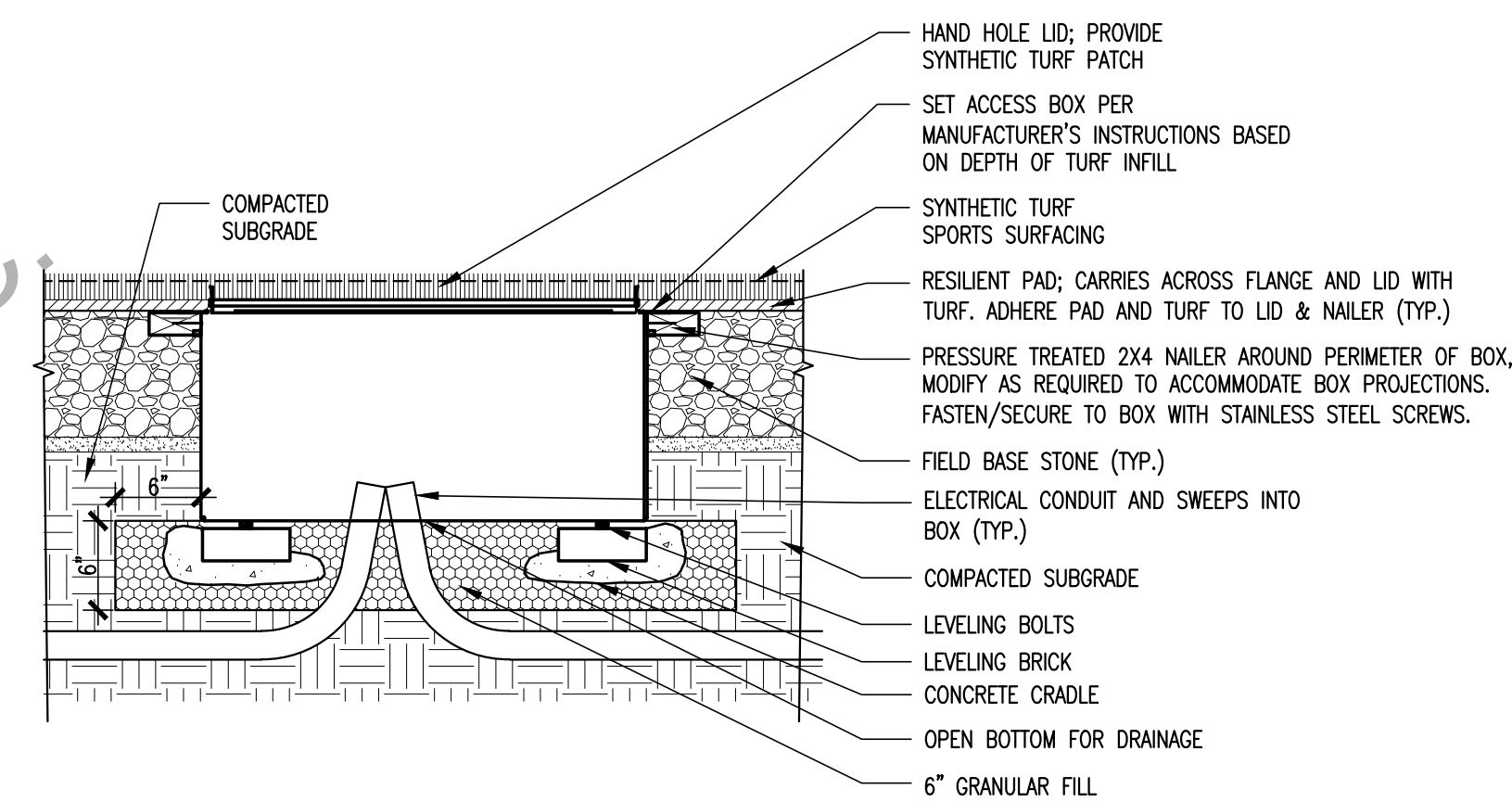


2 GROUND SLEEVE FOR BALL NETTING
NOT TO SCALE



- NOTES:**
1. THIS DETAIL IS DIAGRAMMATIC. REFER TO MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.
 2. HANDHOLE FOR ELECTRICAL SERVICE: 3500.S COMBOX AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, INC., 41155 STATE HIGHWAY 10, PO BOX 231, DELHI, NY OR APPROVED EQUAL.
 3. HANDHOLE FOR COMBINED SUBMERGED CONTROL AND ELECTRICAL SERVICE: 3500 COMBOX + AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, INC., 41155 STATE HIGHWAY 10, PO BOX 231, DELHI, NY OR APPROVED EQUAL.
 4. HANDHOLE FOR WATER SERVICE: TURFCOOL QUICK CONNECT VALVE/GATE BOX, TC-3700-0NC PLUS AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, INC., 41155 STATE HIGHWAY 10, PO BOX 231, DELHI, NY OR APPROVED EQUAL. HOSE CONNECTION TYPE TO BE DETERMINED BY OWNER.

3 COMBOX @ SYNTHETIC TURF FIELD
NOT TO SCALE



4 HIGH JUMP PAVEMENT SECTION
NOT TO SCALE

KAESTLE BOOS
associates, inc

416 Slater Road, P.O. Box 2590, New Britain, CT 06050-2590
Phone: 860-229-0361 ▲ Fax: 860-229-5303

325 Foxborough Boulevard, Suite 100, Foxborough, MA 02035
Phone: 508-549-9906 ▲ Fax: 508-549-9907

Email: kba@kba-architects.com ▲ Web: www.kba-architects.com

ISSUE DATE
DATE 02-28-2018 DESCRIPTION BIDDING

REVISIONS
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KEY PLAN
PROJECT TRUE



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75 CHATFIELD ST
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PROJECT NO.: 17015.00

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SITE
DETAILS
(REFERENCE ONLY)

DRAWING NO.:

L4.03