ADDENDUM NO. 01

October 27, 2022

Carmel High School Artificial Turf Replacement
520 E. Main Street
Carmel, IN 46032

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated September 28, 2022, by Fanning/Howey Associates, Inc. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1, Specification Section 00 31 00 – Bid Form, Specification Section 01 23 00 – Bid Alternates, and attached Fanning/Howey Associates, Inc. dated October 26, 2022 consisting of 12 pages, Specification Section 32 18 13 – Synthetic Grass Surfacing.

A. SPECIFICATION SECTION 00 00 10-TITLE PAGE

1. Change Architects Contact to: Stephan Howick, Phone: 765-212-6645

B. SPECIFICATION SECTION 00 31 00 – BID FORM

1. Replace Specification Section 00 31 00 – Bid Form with the attached revised section 00 31 00 – Bid Form.

C. SPECIFICATION SECTION 01 23 00 – BID ALTERNATES

1. Replace Specification Section 01 23 00 – Bid Alternates with the attached revised section 01 23 00 – Bid Alternates.

CONTRACTOR'S BID FOR PUBLIC WORKS FORM NO. 96

Format (Revised 2013)
(Amended for CCS)

Carmel High School Synthetic Infill Turf Field Replacements

Carmel Clay Schools

Hamilton County, Indiana

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year):_____

BIDDER (Firm) _____

Address _____ P.O. Box _____

City/State/Zip _____

Telephone Number:_____ Email Address: _____

_____

Person to contact regarding this Bid_____

Pursuant to notices given, the undersigned offers to furnish labor and/or materials necessary to complete the public works project of:

_____

Insert Category No. (s) and Name(s)

Of public works project, **Carmel High School Synthetic Infill Turf Field Replacements**, in accordance with Plans and Specifications prepared by ***Fanning Howey Associates, Inc., 350 E. New York Street, Indianapolis, IN 46204***, as follows:

BASE BID

For the sum of _____

(Sum in words)

_____DOLLARS ($_____)

(Sum in figures)

ALTERNATE BID #1- Replacement of Synthetic Turf on the Two Practice Football Fields

Change the Base Bid the sum of_____

(Sum in words) DOLLARS ($_____) Add Deduct

(Sum in figures)

ALTERNATE BID #2- Provide "Predator Dual Fiber" turf product on the Stadium Football Field

Change the Base Bid the sum of_____

(Sum in words) DOLLARS ($_____) Add Deduct

(Sum in figures)

ALTERNATE BID #3- Provide "Predator Dual Fiber" turf product on the Murray Soccer Field

Change the Base Bid the sum of_____

(Sum in words) DOLLARS ($_____) Add Deduct

(Sum in figures)

ALTERNATE BID #4- Replacement of Synthetic Turf on Murray Soccer Field

Change the Base Bid the sum of_____

(Sum in words) DOLLARS ($_____) Add Deduct

(Sum in figures)

The undersigned acknowledges receipt of the following Addenda:
Receipt of Addenda No. (s) _____

PROPOSAL TIME

Bidder agrees that this Bid shall remain in force for a period of sixty (60) consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said sixty (60) consecutive calendar days shall be deemed rejected.

Attended pre-bid conference YES _____ NO_____

Has visited the jobsite YES _____ NO_____

The Bidder has reviewed the Guideline Schedule in Section 01 32 00 and the intent
Of the schedule can be met. YES _____ NO_____

Bidder has included their Written Drug Testing Plan that covers all employees of the bidder who will perform work on the public work project and meets or exceeds the requirements set in IC 4-13-18-5 or IC 4-13-18-6. YES _____ NO_____

The Skillman Corporation's diversity initiative is to create a program to encourage, assist and measure the active participation of Minority- Owned, Women-Owned, Veteran – Owned and Disabled Individual-Owned Businesses. The Program is to ensure that MWVDBEs are provided full and equal opportunity to participate in all Skillman Corporation's Projects.

Bidder has included:
DBE: YES _____% NO _____
MBE: YES _____% NO _____
WBE: YES _____% NO _____
VBE: YES _____% NO _____

The undersigned further agrees to furnish a bond or certified check with this Bid for an amount specified in the Notice to Bidders. If Alternate Bids apply, submit a proposal for each in accordance with the Plans and Specifications.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit bases, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS
(if applicable)

I, the undersigned bidder, or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

PART II

(For projects of $150,000 or more – IC 36-1-12-4)

These statements to be submitted under oath by each bidder with and as a part of his bid. (Attach additional pages for each section as needed.)

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

{PRIVATE }Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

{PRIVATE }Contract Amount	Class of Work	Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you?_____If so, where and why?

_____

_____

_____

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed Work. (Examples could include a narrative of when you could begin, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of all subcontractors (i.e. persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and addresses of each subcontractor, equipment to be used by the subcontractor, and whether you will required a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed Project? Any equipment used by subcontractors may also be required to be listed by the governmental unit.

_____

_____

_____

_____

5. Have you into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which corroborate the process listed.

_____

_____

_____

_____

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of Bidder's financial statement is mandatory. Any Bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the Contract must be specific enough in detail so that said governing body can make a proper determination of the Bidder's capability for completing the Project if awarded.

SECTION IV CONTRACTOR NON-COLLUSION AFFIDAVIT

The undersigned Bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this Bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporations has, have, or will receive directly or indirectly, any rebate, fee, gift, commission, or thing of value on account of such contract.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT

Dated at _____this _____ day of _____, 20

_____
(Name of Organization)

By
_____

_____
(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) SS:
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named
_____

Swore that the statements contained in the foregoing document are true and correct.

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

(Title)

_____
Notary Public

My Commission Expires: _____

County of Residence: _____

END OF SECTION 00 31 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including amended General Conditions and other Division 1 Specification Sections, apply to work of this Section.

1.02 PURPOSE

A. The Bids for the Alternates described herein are required in order for the Owner to obtain information necessary for the proper consideration of the Project in its entirety.

1.03 ALTERNATES

A. Definitions: Alternates are defined as alternate products, materials, equipment, installations or systems for the Work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in the Owner-Contractor Agreement to either supplement or displace corresponding 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.

1.04 SCHEDULE OF ALTERNATES

A. ALTERNATE NO. 1: Replacement of Synthetic Turf on the Two Practice Football Fields.

B. ALTERNATE NO. 2: Provide “Predator Dual Fiber” turf product on the Stadium Football Field.

C. ALTERNATE NO. 3: Provide “Predator Dual Fiber” turf product on the Murray Soccer Field

D. ALTERNATE NO. 4: Provide Replacement of Synthetic Turf on Murray Soccer Field.

PART 2 - PRODUCTS, PART 3 - EXECUTION (Not Used)

END OF SECTION 01 23 00

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

Carmel High School Synthetic Infill Turf Field Replacements

Project No. 222073.00

Carmel Clay Schools
Carmel, Indiana

Index of Contents

Addendum No. 1, 3 items, 1 page
Revised Project Manual Sections: 32 18 13 – Synthetic Grass Surfacing

Date: October 26, 2022

FANNING/HOWEY ASSOCIATES, INC.
ARCHITECTS/ENGINEERS/CONSULTANTS

TO: ALL BIDDERS OF RECORD

ADDENDUM NO. 1 to Drawings and Project Manual, dated September 28, 2022 for Carmel High School Synthetic Infill Turf Field Replacements for Carmel Clay Schools, 5201 East Main Street, Carmel, Indiana 46033; as prepared by Fanning/Howey Associates, Inc., Indianapolis, Indiana.
This Addendum shall hereby be and become a part of the Contract Documents the same as if originally bound thereto.

The following clarifications, amendments, additions, revisions, changes, and modifications change the original Contract Documents only in the amount and to the extent hereinafter specified in this Addendum.

Each bidder shall acknowledge receipt of this Addendum in his proposal or bid.

NOTE: Bidders are responsible for becoming familiar with every item of this Addendum. (This includes miscellaneous items at the very end of this Addendum.)

RE: ALL BIDDERS

ITEM NO. 1. REVISED PROJECT MANUAL SECTIONS

A. Section 32 18 13 00 – Synthetic Grass Surfacing has been revised, dated 10/26/22, and is included with and hereby made a part of this Addendum.

ITEM NO. 2. DRAWING SHEET NOS. GD1.01, GD1.02 AND GD1.03 – FIELD DEMOLITION PLANS

A. Modify Demolition Key Note No. 9 as follows:

"9. Remove synthetic turf and infill material. Contractor may elect to salvage infill for reuse following the guidance provided in the project manual. All removed synthetic turf and unused infill shall be disposed of off site. Protect existing concrete curb, nailer strips and existing drainage system during demolition work. Limit disturbance of existing stone base during construction activities."

ITEM NO. 3. DRAWING SHEET NO. G3.01 – STADIUM FIELD MARKINGS PLAN

A. Team boxes on both the home and visitor sides of the field are to be "Carmel Blue".

END OF ADDENDUM

SECTION 32 18 13 - SYNTHETIC GRASS SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Section Includes:
   1. Synthetic grass infill system and accessories.
      a. New synthetic grass infill system on prepared existing base and subgrade replacing existing synthetic grass system.
      b. Shock pad to be installed on all fields.

C. Related Work:
   1. Division 31 Section “Site Clearing”: For removal of existing synthetic grass surface.
   2. Division 31 Section “Earth Moving”: For preparation of subgrade and field base materials.
   3. Division 32 Section “Sythetic Grass Surfacing Shock Pad”: For use at Murray FIeld.

1.2 DEFINITIONS

A. Terminology Definitions:
   1. Base Materials: Materials that provide porosity and stability such as crushed aggregate or porous pavement.
   2. Denier: The weight in grams of 9000 meters of fiber.
   3. Drainage System: A method of removing surface and subsurface moisture/water.
   4. Fiber: A specific form of fibrous textile material from which yarn is manufactured.
   5. Fiber Thickness: A measurement in microns (metric) or mils. (U.S.) of the thinnest cross section of a fiber.
   6. G-Max: A measurement of impact (shock absorption) in terms of gravity units as a ratio of deceleration.
   7. Infill: Loosely dispersed materials that are added to the synthetic turf system, typically sand, rubber, other suitable material, or a combination thereof.
   8. Knitted: A process in which the yard fibers of the pile are tied to the backing which was simultaneously constructed in the same over and under, criss-cross process.
   9. Water Permeability: The rate at which water flows through a surface or system cross-section or components of the cross-section.
   10. Planarity: Uniformity of the surface as compared to certain fixed predetermined points or prescribed slopes.
   11. Primary Backing System: A single or multiple layers of woven or non-woven materials, into which the fiber is either tufted or knitted, to provide the initial construction of the synthetic turf.
   12. Secondary Backing System: A coating and/or woven or non-woven fabric layer(s) applied to the primary backing after the fiber pile has been locked into place which serves to provide tuft bind and additional structural integrity.
   13. Shock Absorbing System: Component(s) that add resiliency to the system.
   14. Subgrade: A stabilized foundation onto which the base materials and field systems are installed.
   15. Synthetic Pile Fiber: Grass-like blades made of synthetic materials.
   16. Tufted: A process by which the fiber yarns that form the pile are inserted into a previously prepared blanket-like primary backing.

1.3 PERFORMANCE REQUIREMENTS

A. General: Design of synthetic turf system is based on products and systems by manufacturers as specified in Part 2. Systems shall be engineered by manufacturer to provide a complete turf system.

B. Standard Test Methods: Systems shall comply with all applicable test standards as follows:
   1. ASTM F 1551; "Standard Test Methods for Characterization of Synthetic Turf Playing Surfaces and Materials."
      a. Suffix-DIN 18-035, Part 6 – Water Permeability of Synthetic Turf Systems and Permeable Bases.
      b. Suffix ASTM F2117-01– Turf System Ball Bounce and Ball Rebound.
   2. ASTM F2898-11 Standard Method for Permeability of Synthetic Turf Sports Field Base Stone and Surface System by Non-confined Area Flood Method
   3. ASTM D-1682; Grab Strength Test
   4. ASTM D-1335; Tuft bind
   5. ASTM D-4158; Uniform Abrasion Method
   6. ASTM F-1015; Relative Abrasiveness
   7. ASTM F-355; Procedure A; Shock Absorbency
   8. ASTM F1936-19; Standard Specification For Impact Attenuation Of Turf Playing Systems As Measured In The Field
   9. ASTM D2256; Standard Test Method For Tensile Properties Of Yarns
   10. ASTM D-1876; Peel Resistance

C. Field Markings: Conform to requirements of the National Federation of State High School Association's (NFHS) Guidelines and Rules.

D. Shock Absorbency: Field shall achieve a minimum of 130 Gmax Shock Absorbency at all tested locations and a maximum of 175.

E. Player-Surface Interface, ASTM F1936: The field surface should provide consistent footing across the entire field area in all directions. Footing includes traction, slip resistance, and rotational resistance. It should also allow for movement between the shoe and the field surface so that contact can be made between athletes without the foot locking into place.
   1. Traction: The surface should provide good traction in all types of weather with the use of conventional athletic type shoes applicable to the sports and/or activity specified.
   2. Rotational Resistance: The surface should allow for twisting movements as is common in athletic activities. Rotational resistance measures the ability of the user to perform twisting motions when in contact with the surface.
   3. Slip Resistance Component: The system should enable a predictable range of movement between the user and the surface uniformly throughout. The surface should balance traction and slippage by way of the sliding coefficient.
   4. Surface Abrasiveness: The field surface should have fibers that minimize skin abrasions.
   5. Impact Absorption (force reduction): The field surface should have the ability to adequately absorb player impact with the surface.
   6. Surface Stability (vertical deformation): The surface should provide adequate stability so that the athlete can maintain body control to help prevent or properly control contact between athletes. This is an important consideration that should be balanced with the surfaces' ability to absorb impact. If the surface is too soft, the stability provided by the field may not be optimal for player movement and body control.

F. Ball-Surface Interface, ASTM F1936: The field surface should provide consistent and predictable ball performance reaction characteristics.
   1. Surface Uniformity: The synthetic turf playing field should be as level as practical. The synthetic surface shall provide a true and uniform playing surface throughout.

2. Ball Bounce: The synthetic turf field should provide a ball bounce as close to the optimal playing characteristics of the sport or sports. The published standards for the regulatory organizations as applicable for each sport should be referenced.
3. Ball Roll: The synthetic turf field should provide a ball roll as close to optimal playing characteristics of the intended sport or sports. The published standards for the regulatory organizations as may be applicable for each sport should be referenced.

G. Appearance: Unless otherwise dictated by design, the synthetic turf should have a consistent color and shade without significantly noticeable streaks or other irregularities when observed in any direction.

1.4 SUBMITTALS

A. Shop Drawings: Prepare at scale of the construction documents and contain all pertinent information regarding installation. Drawings shall include the following:
1. Seaming plan; seams of pad are not to coincide with seams of synthetic turf or interfere with subsurface drainage system.
2. Installation details; edge detail, goal post detail, other inserts, etc.
3. Striping plan; layouts for football and soccer showing any field lines, markings and boundaries, and field logos as indicated.

B. Samples for Verification: Synthetic Turf, 30 inches by 30 inches with two 4 inch by 12 inch lines, (1 white and 1 yellow), installed per manufacturers recommended method.
1. Color samples of A/E selected colors to match School colors.

C. Quality Assurance/Control Submittals:
1. Product Data: For each type of product indicated.
2. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency for turf system performance.
a. Compliance with Pile Height, Face Weight and Total Fabric Weight per ASTM D418.
b. Primary and Secondary Backing Weights per ASTM D418.
c. Tuft Bind per ASTM D1335.
d. Grab Tear Strength per ASTM D1682.
3. Certification of Subbase, drainage system and aggregate base installation: Manufacturer/installer shall certify acceptance of subbase, storm drainage system and aggregate base for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface.
4. Certification of Installer: Proof of compliance with "Quality Assurance" provisions.
5. Warranty: Manufacturer's warranty with provisions specified herein that will be utilized for the Project. Generic warranties are not acceptable.

D. Closeout Submittals:
1. Maintenance Data: For the proper care and preventative maintenance of the synthetic turf system, including painting and striping.
2. Warranties: Special Warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Manufacturer/Installer's
1. The synthetic turf installer/manufacturer shall demonstrate experience with at least 3 similar projects with contract amounts over $1,500,000.00. Submit information with the bid.
2. The installer/manufacturer shall employ only qualified, experienced supervisors and technicians skilled in the installation of this system. All turf technicians shall be full time statutory employees of the turf manufacturer/installer.

3. The turf installer/manufacturer must provide competent workmen skilled in this specific type of synthetic grass installation. The designated supervisory personnel on the project must be certified in writing by the turf manufacturer as competent in the installation of this material, including seaming and proper installation of the infill mixture. The manufacturer shall have a representative on site to certify the installation and warranty compliance.
4. The manufacturer's representative and installation project manager shall observe establishment of the aggregate base at periodic intervals during construction and notify the Architect of any items observed that may be detrimental to final installation of the synthetic turf.
5. The Manufacturer must be a certified member of the Synthetic Turf Council (STC).

B. Prospective bidders must meet the following criteria:
1. Have proper license, in good standing, and have never had a license revoked.
2. Have not been disqualified or barred from performing work for any public Owner or other contracting entity.
3. Shall have demonstrable financial strength to fully service and warrant the systems through the provision of audited financial statement for the past 3 years.

1.6 WARRANTY

A. Turf Manufacturer's Warranty: Manufacturer shall warrant artificial grass against defects in the material provided, including ultraviolet degradation, excessive fading, wrinkling, panel movement, shock absorbency, etc.
1. The warranty submitted must have the following provisions even if not part of Manufacturer's standard Warranty form.
a. Warranty Period:
1) Base bid turf system Eight (8) years from date of Substantial Completion.
2) Alternate bid turf system Ten (10) years from date of Substantial Completion.
b. Warranty shall include materials and workmanship.
c. Must have a provision to repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
d. Must be a warranty from a single source covering workmanship and all self-manufactured or procured materials for the field surface and installation.
e. Warrant that the yarn used to make the grass-like tufts will maintain its UV stability and tensile strength such that the strength of the fiber when measured in accordance with ASTM D-2256 will not decrease by more than 50% during the warranty period due to breakdown of UV stability.

1.7 EXTRA MATERIALS

A. Furnish one additional standard infill container for each infill material for the owner's use.
1. Newrubber infill,container shall contain a min of 45 c.f. of rubber infill material.
2. Sand infill, container shall contain a min of 45 c.f. of sand infill material.
3. NaturalCool®, container shall contain a min of 45 c.f. of rubber infill material.

B. Furnish roll of additional synthetic turf fabric of each type of turf installed for owner's use. Roll shall contain a min. of 1500 s.f of turf fabric.
1. All salvageable pieces of colored turf used during the installation should be left with the Owner.

C. Maintenance Equipment:
1. Provide (2) Turfcare Grooming Brush and Sweeper Combination with magnet: As manufactured by SMG Equipment, Model: TCA1400 with magnet, or approved equal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS/PRODUCTS

A. Synthetic Grass Surfacing - Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
   1. Fieldturf / Tarkett; Calhoun, Georgia.
   2. Motz Group; Cincinnati, Ohio.
   3. Sprinturf; Atlanta, Georgia

2.2 SYNTHETIC GRASS SURFACING-Products:

A. Base Bid all fields: (Stadium, Murray Field and Practice Fields)
   1. SprinTurf-Ultrablade DFE Extreme or approved equal:
      a. Fiber: Filibrated Parallel Long-Slit and Monofilament
      b. Fiber Denier: 10,00/10,800
      c. Fiber Thickness: 120 Microns/330 Microns
      d. Pile Height 2”
      e. Face Weight 50 oz/square yard
      f. Primary Backing Triple Layer: Weight 9 oz/square yard
         1) Non-Woven
         2) Woven
         3) Woven
      g. Secondary Backing: Weight 22 oz/square yard
         1) Polyurethane
      h. Total weight without infill: 81 oz/square yard
      i. Tuft Bind: 3/8”
      j. Permeability: >40 inches/hour
      k. Infill:
         1) Stadium and Practice Fields: 70% rubber, 30% sand
         2) Murray Field: 5 pounds sand/per square foot base layer with 1 pound NaturalCool®/per square foot surface layer.
      l. Shock Pad: 20 MM, refer to Specification Section 32 18 13 .01 – Synthetic Grass Surfacing Shock Pad to be installed on all fields.
      m. G Max Warranty: <175G’s

B. Alternate Bid: (Stadium, and Murray Field)
   1. SprinTurf-Ultrablade Predator™:
      a. Fiber: SharkTooth™ Slit-Film and Apex™ Monofilament
      b. Fiber Denier: 10,00/12,000
      c. Fiber Thickness: 140 Microns/380 Microns
      d. Pile Height 2”
      e. Face Weight 50 oz/square yard
      f. Primary Backing Triple Layer: Weight 9 oz/square yard
         1) Non-Woven
         2) Woven
         3) Woven
      g. Secondary Backing: Weight 24 oz/square yard
         1) Polyurethane
      h. Total weight without infill: 83 oz/square yard
      i. Tuft Bind: 3/8”
      j. Permeability: >40 inches/hour
      k. Infill:
         1) Stadium: 70% rubber, 30% sand
         2) Murray Field: 5 pounds sand/per square foot base layer with 1 pound NaturalCool®/per square foot surface layer.
      l. Shock Pad: 20 MM, refer to Specification Section 32 18 13 .01 – Synthetic Grass Surfacing Shock Pad to be installed on all fields

m. G Max Warranty: <175G's

C. Products of other manufacturers will be considered for acceptance provided they equal or exceed the material requirements and functional qualities of the specified product. Requests for Architect's approval must be accompanied by the "Substitution Request Form" and complete technical data for evaluation. All materials for evaluation must be received by the Project Manager and Specification Department at least 10 days prior to bid due date. Additional approved manufacturers will be issued by Addendum.
1. With substitution request, manufacturer must submit all information in a matrix format that provides the same product information.

2.3 SHOCK PAD: (All Fields)

A. Refer to Specification Section 32 18 13 .01 – Synthetic Grass Surfacing Shock Pad

2.4 SYSTEM COMPONENTS

A. Base Materials by Division 31, Section "Earthwork"

B. Shock Absorbing Systems (where called for on plans): The shock absorbing elements, as part of the overall synthetic turf system should meet or exceed the performance of the design and specification, if required by synthetic turf system manufacturer.

C. Materials: All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, should be able to withstand full climatic exposure in the area of the Project, be resistant to insect infestation, rot, fungus, and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow-through drainage allowing free movement of surface run-off through turf where such water may flow to the subbase and into the field drainage system.

D. Synthetic Turf: The synthetic turf surface should provide the performance characteristics, components and construction that meet the needs of the declared use for the playing field.
1. Synthetic turf construction should provide a system that is resistant to weather, rot, mildew and fungus growth. The system components should be non-toxic, not cause commonly known allergic reactions, and conform to environmental requirements. Each synthetic turf system should be constructed to provide dimensional stability and resist damage from wear and tear during athletic and recreational usage. Each system should be resistant in its entirely to excessive ultraviolet degradation.
2. Fibers for Tufted Systems: The polypropylene or polyethylene fiber should be of flat film, extruded or texturized slit film and monofilaments.
3. Primary Backing Systems: The primary backing materials should be either polyester tire cord, utilized in the knitting process, or a woven, non-woven, or other suitable materials in one or more layers, utilized in the tufting process.
4. Secondary Backing Systems: The secondary backing materials should be applied through a coating process that can be single or multiple applications of one or several different materials. A knitted turf fabric should receive an initial acrylic coating followed by different options of polyurethane or suitable latex coatings in various weights and thickness configurations, depending on individual system design. A tufted turf fabric should receive a polyurethane or suitable latex precoat or a performance-based acceptable equal which than can be followed by an attached cushion or a laminated secondary backing utilizing polyurethane, suitable latex, or an acceptable performance-based equal. The purpose of the secondary backing is to provide the desired level of tuft bind and structural integrity of the turf components. In cases where an increased level of system resilience is desired, multiple layers of secondary backing materials of different physical characteristics can be applied.

5. Water Permeability Rate: Permeable system by design with adequate drainage, perforations should be put through all of the backing coatings to provide for adequate drainage through the system as specified.
6. Seams: New synthetic turf materials are manufactured in panels or rolls that are usually 15 feet wide. Each panel or roll should be attached to the next with a seam to form the fabric of the field. Seams should be glued with a supplemental backing material or sewn with high strength sewing thread.
7. Adhesive: All adhesives used in bonding the system together should be resistant to moisture, bacterial and fungus attacks, meet local/regional environmental requirements and be resistant to ultraviolet rays at all locations within the installed system. The bonding or fastening of all system material components should provide a permanent, tight, secure, and hazard-free, athletic playing surface.
8. Seaming Tape: Seaming tape is commonly used for inlaid lines and markings. The tape is comprised of a fabric that should be installed below the backing material on both sides of a seam or inlay. Adhesive is then applied to the seaming tape to provide a bond between adjacent turf panels to sections. The fabric used for seaming tape should provide dimensional strength and enough surface texture to bond well with the adhesive.

E. Infill Material: Infill materials are comprised of rubber,sand and other natural materials, thereof which are placed on top of the synthetic turf backing and between the synthetic surface fibers.
1. Sand: The sand material utilized as infill should be silt free, similarly sized, and rounded to sub-angular. The sand should be delivered to the site graded, washed and dried.
   a. Silica sand with a US sieve range of 20-40.
2. Rubber: The rubber infill utilizes material that is either styrene butadiene rubber (SBR) or ethylene propylene dien polimerisat (EPDM) rubber granules. Both ambient and/or cryogenic rubber can be used.
   a. Rubber granules for surface islolation layer over salvaged and reused rubber/sand infill must be clean and metal free.
3. Natural infill materials shall be NaturalCool® as manufactured by GreenPlay or approved equal.
4. Salvaged infill: Constitutes the use of sand and rubber infill from the existing fields for reuse.

F. Lines, Markings, Logos or text: Construction and materials used should be harmonious with the synthetic surface.
1. Installation: Lines, markings, logos or text shall be inlaid in the synthetic turf surface. Paint shall not be used unless otherwise approved by A/E.
2. Color of inlaid lines, markings logos or text fabric shall be in colors as selected by the Owner / Architect from custom color selections, to match school colors. Any colors selected from custom colors shall be supplied at no additional cost to the owner.
   a. Refer to Drawings for field markings, lines, graphics, text and colors.
3. Consistency: Synthetic turf and fibers utilized for the tufted or inlaid lines, markings, logos or text should be similar to that used in all other areas of the field and installed to the same tolerances.

G. Inserts: Covers for goal sleeves and anchors to synthetic turf.
1. Consistency: The synthetic turf used for the inserts should be similar to that used in the area adjacent to the insert.
2. Installation: The inserts should be anchored securely to the surrounding areas so that they cannot be displaced by the activities occurring on the field and installed to the same tolerances.

H. Nailer Strip: The nailer strip shall be 2 inch by 4 inch treated for ground contact Southern Pine.

I. The entire synthetic turf system shall be “lead-free”.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Contractor is to test and confirm the suitability of the drainage characteristics of the existing fields. Any deficiencies are to be reported to the construction manager and architect in wrting.
   1. Drainage Testing: Contractor must provide drainage testing of the prepared stone base prior to proceeding with the installation of the carpet system. Contractor to provide a minimum of 4 infiltration tests equally spaced across each field. The Owner must be given minimum 72 hours advance notice of said test. Owner shall be allowed to witness the test. Contractor must provide written summary report of test results indicating that the minimum specified field drainage requirements have been met. Such testing does not relieve the contractor of responsibilities that the final product (installed carpet and infill system) must also meet the minimum specified drainage requirements. Drainage Testing must be performed in accordance with ASTM F2898-11 Standard Method for Permeability of Synthetic Turf Sports Field Base Stone and Surface System by Non-confined Area Flood Method"

B. Contractor is to confirm the suitability of the subgrade and base stone in wrting prior to commencing new turf installation.

C. Inspection: Synthetic turf materials should be inspected prior to installation for:
   1. Damaged or defective goods.
   2. Missing goods or quantities.
   3. Correct turf pile height.
   4. Correct backing perforation diameter and spacing if applicable.
   5. Materials out of tolerance with the specification.

3.2 GENERAL, INSTALLATION

A. The installation shall be performed in full compliance with shop drawings and manufacturer's printed instructions.

B. All installation operations shall be performed by personnel directly employed by the manufacturer, fully familiar with the materials and their application, under the full time direction and supervision of a qualified technical supervisor employed by the manufacturer of the synthetic turf.

3.3 INSTALLATION

A. Subgrade Preparation, refer to Division 31, Section "Earthwork": The subgrade should provide a stabilized foundation upon which base materials and subsequent components of playing field systems will be installed.
   1. Subgrade (Rough) Planarity: The tolerances for the finished subgrade should not exceed one inch as measured by a 10 foot straight edge. Grading of the subgrade shall minimize ponding to the extent practical.

B. Aggregate refer to Division 31, "Earthwork":: Installation of the aggregate base should provide a close, evenly textured surface meeting the required tolerances.

C. Nailer: Attach the treated nailer for the turf attachment to the concrete curb or concrete encased trench drain footing by means of a galvanized 3/8 inch minimum bolt at 4 feet on center, minimum. The elevation of the nailer shall be determined by the turf manufacturers specifications.

D. Synthetic Turf Installation: All synthetic turf systems should be installed to provide stability that will prevent panels from shifting or bunching.
   1. Seaming Method: The synthetic turf panels should be securely fastened together for the warranted life of the system. These seams are typically glued or sewn, the method for which varies from system to system. Seam gaps should be uniform. For tufted infill systems the gap between the fibers should not exceed the gauge of the tufting. For other synthetic turf systems, the seam gaps should not exceed 1/16 inch.
      a. Major panel seaming: Seams must be sewn. Seams shall be flat, tight and permanent with no separation or fraying.
      b. Inlays shall be glued and warranted for workmanship per the Warranty Article.
   2. Edge Anchoring: Tie anchor to trench drain. Provide a secure anchor.

E. Infill Material Installation: Correct installation is critical to performance of these systems and should follow the manufacturer's recommendations.
   1. Environmental Conditions: It is recommended infill materials should be installed under dry field conditions.
   2. Method of Application: The infill material should be installed uniformly. The equipment used for the application of the infill materials should erect the fiber, place the infill materials, and should incorporate a metering method to provide consistent distribution. The equipment utilized should not distort or displace any base materials or damage to system in any way.
      a. Apply infill in numerous thin lifts using specialized broadcasting equipment.
      b. Infill material shall be installed to a depth of approximately 1.50 inches. A maximum of 0.50 inches of fiber can be exposed.
      c. Infill mixture can only be applied when dry.
   3. Hybrid: Constitutes the use of sand and rubber or other suitable materials in various combinations.

   4. Existing in place infill materials may be salvaged and stored for reuse on the fields.
      a. The salvaged infill is to be applied to the new infill turf at a rate of rubber and sand that will ensure that the total turf sytem meets all of the specified requirements including impact attenuation over the warranted life of the turf system installation.
      b. To isolate the salvaged infill from contact with field users, a one pound layer per square foot of new rubber and clean sand is to be placed as the top layer of the infill material.
      c. All excess salavged infill material is to become the property of the contractor and removed from the project site at the completion of the contract.

F. Fiber Conditioning: It is essential to maintain the integrity and uniformity of the fiber throughout the manufacturing, shipping and handling, installation and maintenance processes in order to prevent damage which could alter the specified performance and void the warranty.

3.4 FIELD MARKINGS

A. Installer shall install logos, numbers and additional markings as indicated in accordance with process indicated on shop drawings and in accordance with NFHS guidelines and rules.

3.5 CLEANUP

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. All useable remnants of new material shall become the property of the Owner.

C. The Contractor shall keep the area clean throughout the project and clear of debris.

D. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing.

B. G-Max Testing, ASTM F1936:
   1. Temperature: Ambient shaded air temperature of 40 – 100 degrees Farenheit.
   2. Number: 10 tests shall be conducts throughout each field area at completion of work. Test locations shall conform as closely as possible to the test sites specified in ASTM F1936 (Football) or FIFA Handbook 3-06 (Soccer).
      a. Provide complete report of testing values and diagram of locations.
      b. Acceptable industry manufacturer tolerance of +/- 2 percent.
      c. Test results shall be between 130 and 175. If test results in values above 175, adjustments should be made to the installation and materials until test results are within the acceptable range.

3.7 DEMONSTRATION

A. The synthetic turf installer shall provide detailed written maintenance instructions, suggested guidelines for the system, and training of maintenance personnel. Maintenance of the systems typically consists of cleaning, stain removal, minor seam repair, dragging or redistribution of any infill material, and management of infill compaction. Specialized equipment is typically required for the maintenance of the surface and should be included with the field contract. Utilizing this equipment as recommended by the installation builder will generate the proper maintenance in relation to any future warranty claims.

END OF SECTION 321813