

**TOWNSHIP OF EAST HANOVER
MUNICIPAL BUILDING
411 RIDGEDALE AVENUE
EAST HANOVER, NEW JERSEY 07936**

**NOTICE OF INTENT TO AWARD CONTRACT TO PURCHASE OUTDOOR
ATHLETIC TURF UNDER A NATIONAL COOPERATIVE PURCHASING
AGREEMENT (KPN, CONTRACT #201801-01)**

The Township of East Hanover intends to participate in the KPN Cooperative Purchasing contract to purchase outdoor athletic turf (Dean D'Ambola Field Improvements) from Field Turf USA, Contract #201801-01.

Information regarding the contract may be found on the Keystone Purchasing Network website at www.thekpn.org and the East Hanover Township website www.easthanovertownship.com.

Contract Period Expiration: 02/28/2020

It is the intent of the Township of East Hanover to make a contract award to FieldTurf USA pursuant to the proposal submitted in response to the Township of East Hanover Municipal Engineer comparison of Competitor Contractor pricing and KPN pricing. Comments should be sent to Kenneth Huelbig, Chief Finance Officer, Township of East Hanover, 411 Ridgedale Avenue, East Hanover, NJ 07936 or kennyh@easthanovertownship.com.

The Township of East Hanover is permitted to join National Cooperative Purchasing Agreements under the authority of N.J.S.A. 52:34-6.2(b)(3).

Comment period ends 10/07/2019.

DIVISION 800 – LANDSCAPING

SECTION 803 – PREPARATION OF EXISTING SOIL

803.04 MEASUREMENT AND PAYMENT

the section is revised as follows:

Separate payment for the preparation of the existing soil for the installation of topsoil, seed and fertilizer adjacent to curb and sidewalk to be replaced shall not be made and shall be paid under various items.

Section 804 – topsoiling

804.04 MEASUREMENT AND PAYMENT

The entire subsection is replaced by the following:

All grassed areas disturbed by construction activities shall be restored by topsoiling, fertilizing and seeding in accordance with these specifications. No separate payment shall be made for the restoration of grassed areas disturbed outside the limit of disturbance as delineated on the construction plans.

<i>Item</i>	<i>Pay Unit</i>
TOPSOILING, 6" THICK	SQUARE YARD

Section 806 – fertilizing and seeding

806.04 MEASUREMENT AND PAYMENT.

The entire subsection is replaced by the following:

All grassed areas disturbed by construction activities shall be restored by topsoiling, fertilizing and seeding in accordance with these specifications. No separate payment shall be made for the restoration of grassed areas disturbed outside the limit of disturbance as delineated on the construction plans.

The seed mix used and location used shall be as described within the construction plans and details. No separate payment shall be made for the seed mixes of various types. Include costs in the below pay item.

806.04 MEASUREMENT AND PAYMENT

<i>Item</i>	<i>Pay Unit</i>
FERTILIZING AND SEEDING	SQUARE YARD

SECTION 809 – MULCHING

809.04 MEASUREMENT AND PAYMENT

The following pay items are described:

<i>Item</i>	<i>Pay Unit</i>
STRAW MULCHING	
SQUARE YARD	

vision 900 – Materials

1*****
*****1

Section 917 – Landscaping Materials

917.05.01

THE FOLLOWING SHALL BE ADDED:

Grass Seed Mixture (ERNMX-106) or approved equal

	Botanical Name	Common Name
30.00%	Festuca arundinacea, 'Fawn'	Tall Fescue, 'Fawn'
30.00%	Lolium perenne, 'Homerun'	Perennial Ryegrass,
'Homerun' (turf type)		
15.00%	Poa pratensis, 'Shamrock'	Kentucky Bluegrass,
'Shamrock'		
15.00%	Poa pratensis, 'Volt'	Kentucky Bluegrass, 'Volt'
10.00%	Lolium multiflorum	Annual Ryegrass
100.00%		

Seeding Rate: 75-150 lb per acre, or 3-5 lb per 1,000 sq ft

1*****
*****1

BDC10s-02 dated Oct 14, 2010

SECTION 924 - SLIT filament Synthetic Turf INCLUDING INFILL

The installation of the Concrete Turf Footing with the nailer board, NJDOT COARSE AGGREGATE #9 (2" THICK), NJDOT COARSE AGGREGATE #57 (6" THICK), 6" PERFORATED PIPE (turf base), filter fabric AND GEOGRID (IF/WHERE DIRECTED) shall be the sole responsibility of the contractor. the installation of the synthetic turf including infill (turf) shall be performed by others (turf sub-contractor) and is not included in this contract. the contractor shall be responsible for coordination with the turf sub-contractor. The contractor shall certify the date the turf base has been installed in conformance with the contract documents on the form attached herein. the turf sub-

contractor and the engineer shall inspect the turf base and indicate acceptance of the turf base on the same date. the contractor shall be responsible for correcting any deficiencies in the turf base noted by the turf sub-contractor or the engineer.

GENERAL

1.1 RELATED DOCUMENTS

- Drawings and general provisions of the Contract, including General and Supplementary Conditions and Technical Specification, apply to this Section.

1.2 SUMMARY

- This Section includes the following:

Adjust list below to suit Project.

1. Furnishing all labor, materials, tools and equipment necessary to install, in place, all synthetic turf and infill materials as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturers written installation instructions, and in accordance with all approved shop drawings.
2. The turf contractor must provide competent workmen skilled in 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 sewing seams and proper installation of the infill mixture. The manufacturer shall certify the synthetic turf installation and provide a warranty.
3. The surface to receive the synthetic turf shall be inspected and certified, in writing, by the turf manufacturer as ready for the installation of the synthetic turf system. The base must be perfectly clean as installation commences and shall be maintained in that condition throughout the process by the synthetic turf contractor.
4. It is the both the site contractor's and synthetic turf contractor's responsibility to coordinate with each other during construction. Coordination shall be supervised by the Engineer. All cost associated with the coordination shall be included in the various pay items of the contract.

1.3 SUBMITTALS (N/A to Site Contractor)

- A. Product Data: Including full specification cut sheets of the product and the type of infill that shall be utilized for the infill. **Material Safety Data Sheets shall be provided. All products utilized for the playing surface shall be lead free.**
- B. Manufacturer Certificates: Certified list of ten (10) existing installations of the synthetic turf infill system that is specified for this project within the last three (3) years, including Owner representative and telephone number, attesting compliance with quality assurance information. These fields must comply with the materials section of the specification. All must be located in the continental United States. The contractor must provide evidence from the turf manufacturer stating that they are certified by the manufacturer to install the proposed turf. Minor fiber variations from spooned to concave slit filament will be

acknowledged as compliant in determining system experience requirements. All other system components must be strictly adhered to.

Alternate Products: Bidders wishing to use products by manufacturers other than those specified within the technical specifications must submit documentation certified by a licensed N.J. Professional Engineer that the particular proposed alternate product meets or exceeds any physical and historical characteristics of the specified acceptable products. Any system presented for equivalency shall be reviewed for compliance post bid. **Failure to submit the certification at the time of bid opening will be grounds for rejection.**

Coordinate paragraph below with qualification requirements retained in "Quality Assurance" Article.

Qualification Data: The turf manufacturer must have ten (10) football specific installations of 65,000 square feet or more of this specific type infill system that have been in use for a minimum of three years all being located in the Continental United States in locations similar in climate to the Northeast USA. These fields shall not have been constructed over an E-Layer (elastic) or a formed under pad. Turf manufacturer must also have at least five (5) FIFA recommended / approved installations, past or present. Turf manufacturer shall be a FIFA preferred producer. Certification must be provided with the bid documents. These installations must be constructed utilizing the same infill components and methods of installation described within these specifications. These installations must be located in the United States. Minor fiber variations from spooned to concave slitfilament will be acknowledged as compliant in determining system experience requirements. All other system components must be strictly adhered to.

The contractor must provide evidence from the turf manufacturer stating that they are certified by the manufacturer to install the proposed turf.

- F. Sample Warranty: Provide a sample of the third party, pre-paid, fully insured warranty that shall include the following:

Warranties: The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf for a period of **8 years** from the date of substantial completion. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the Owner or the manufacturer. **The warranty shall be fully third (3rd) party, non-prorated, pre-paid for the entire 8 year term insured to the Owner.** The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's

representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner an insurance policy, guaranteeing the warranty to the Owner. The insurance must reflect the following values:

1. Minimum of ten - million dollar annual aggregate (\$10,000,000) provided on a single insurance policy. The use of multiple insurance policies provided by one or more insurance broker is prohibited.
 2. No maximum per claim coverage amount up to the minimum annual aggregate. As stated above, this item shall be provided on a single insurance policy. The use of multiple insurance policies provided by one or more insurance broker is prohibited.
 3. Must cover full 100% removal and replacement value of total square footage installed.
 4. Must warrant the materials installed meet or exceed the product specifications.
 5. Must have a provision to either make a cash refund, repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable playing field.
 6. Warranty must not include a deductible. Owner shall not be responsible for deductible. Policy must be in place by the manufacturer at the time of the bid.
 7. Self-Insurance Policies, Umbrella Policies, Self-Retention Clauses or Excess Insurance Policies shall not be acceptable and will not be considered for this project.
- G. Synthetic turf system shall be approved as ADA Handicap accessible as determined by Test Method - ASTM 1951-99 (Standard Specification for determination of accessibility of surface under and around playground equipment). Proof of passing must be submitted upon request by the Owner.
- H. Shop Drawings: Show fabrication and installation details for synthetic turf.
- I. Shop Drawings: Include plans, elevations, sections, seam layout, details (particularly those that differ from the construction details and specifications included in this bid package), and attachments to other Work. The shop drawings shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the engineer for approval prior to the manufacturing and shipment of materials. The shop drawing shall depict the inlaid lines, markings and system to anchor the synthetic turf to the concrete turf footings.
- J. Samples for Verification: For the following products, in manufacturer's standard sizes.
1. A 12-inch x 12-inch, minimum sample of the exact synthetic turf and infill system that is specified for this project, if different than specified.
 2. Only cryogenic rubber shall be utilized.

Retain paragraph below if "Manufacturer Qualifications" Paragraph is retained in "Quality Assurance" Article.

Coordinate paragraph below with qualification requirements in Division 1 Section "Quality Requirements."

Coordinate paragraph below with qualification requirements in Division 1 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article.

Coordinate paragraph below with qualification requirements retained in "Quality Assurance" Article.

Retain paragraph above or below.

Retain paragraph below if preconstruction testing is specified in "Quality Assurance" Article as Contractor's responsibility.

Retain paragraph below if Contractor is responsible for field quality-control testing.

Insert specific model code organization in paragraph below or revise if report must be from another source.

1.4 QUALITY ASSURANCE

- **Installer Qualifications:** An authorized representative of synthetic turf manufacturer for installation and maintenance of units required for this Project. The turf installer shall be either the turf company or a contractor who is certified by the turf company to install the synthetic turf system.

Revise subparagraph below to suit Project location.

Retain paragraph below if Contractor **{[or manufacturer]}** selects testing agency.

- **Source Limitations:** Obtain synthetic turf through one source from a single manufacturer.

Retain paragraph above or below. Retain below to allow drawing details based on one manufacturer's product to establish requirements and still allow competition. Coordinate with Division 1 requirements.

Delete paragraph below if no welding. Retain "Welding Certificates" Paragraph in "Submittals" Article if retaining below. AWS states that welding qualifications remain in effect indefinitely unless welding personnel have not welded for more than six months or there is a specific reason to question their ability.

Retain first paragraph if only one AWS standard is applicable. Retain second paragraph if more than one AWS standard is referenced.

Delete paragraph below if no fire-resistance-rated units are required.

Delete paragraph and subparagraphs below if not required. If retaining, indicate location, size, and other details of mockups on Drawings or by inserts. Revise wording if only one mockup is required.

Delete paragraph below if work of this Section is not extensive or complex enough to justify a preinstallation conference. If retaining, coordinate with Division 1.

- **Pre-installation Conference:** Conduct conference at Project site prior to installation of the synthetic turf as part of the Pre-Construction Meeting.
- 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 Northern, Central and Southern NJ, 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 and directly into the prepared granular base and into the field drainage system.

- The synthetic turf and all components shall have been utilized at all levels of competition, including professional and collegiate levels of Football, Soccer, Baseball and Softball. The turf fabric shall be produced by the manufacturer and installed by factory-authorized distributors directly employing the installation crew.
- The turf manufacturer must be experienced in the manufacture and installation of the specific type of synthetic infilled grass system proposed and must comply with this specification.
- Prior to the beginning of installation, the manufacturer/ installer of the synthetic turf shall inspect the sub base and supply a Certificate of Subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface. Prior to leaving the site, the site contractor is required to receive a letter from the synthetic turf contractor approving the installation and preparation of the surface (base courses) and provide a copy of the documentation to the supervising Engineer. If the base courses are not installed to the synthetic turf contractor's satisfaction, then the site contractor shall remediate the concerns of the synthetic turf contractor prior to the installation of said synthetic turf. The turf contractor shall not receive any compensation for certifications, coordination or inspections.

1.5 Retain paragraph above if requirements in Division 1 are adequate for Project. Retain below if additional requirements are necessary; include information about conference. Identify specific participants not mentioned in Division 1.

Insert agenda items below not listed in Division 1 Section "Project Management and Coordination."

1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit synthetic turf to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Indicate measurements on Shop Drawings.

1.6 WARRANTY

- A. Special Warranty: Turf must maintain an ASTM F 355 G Max of less than 180 for the life of the warranty.
- B. Warranty Period: eight (8) years from date of Substantial Completion.

PART 2 – PRODUCTS

MATERIALS

Manufacturers: Subject to compliance with requirements as described within these specifications. The contractor shall provide products by the following:

Fieldturf USA

Fieldturf USA, (800) 724-2969 or approved equivalent.

Materials:

Synthetic Grass System: A complete synthetic grass system consisting of minimum **2.5** inches long polyethylene-blended fiber or an upgrade to a true slitfilament extruded spined fiber or ridged fiber, tufted to a double primary porous backing and a porous secondary backing. Flat tape slitfilament fiber shall not be acceptable. The fiber shall be a concave, ridged, extruded slitfilament fiber. The fiber shall be a minimum of **8,000** denier, low friction fiber, measuring a minimum of **2.5** inches high. The low friction fiber shall be specifically designed to virtually eliminate abrasion.

The tufted fiber weight shall not be less than **36** ounces per square yard. The low friction fiber shall be custom blended polyethylene fiber, treated with UV inhibitors. The tufted rows of fiber are to be spaced a 3/8 inch to 3/4 inch apart. Should the manufacturer desire to submit a product that exceeds the minimum requirements it shall be at no additional cost to the Owner.

At a minimum, the carpet shall consist of two (2) backings. The carpet's primary backing shall be a layered polypropylene fabric treated with UV inhibitors. The secondary backing shall consist of an application of porous, heat-activated material to permanently lock the fiber tufts in place. Tuft bind must be 9 lbs. or greater and testing data must be supplied at time of bid if other than specified herein.

The carpet shall be delivered in a minimum of fifteen (15) feet wide rolls. The rolls shall be of sufficient length to go from sideline to sideline. Head seams, other than at sidelines, will not be acceptable. Cord for sewing seams of turf shall be as recommended by the synthetic turf manufacturer. Perimeter edge details required for the system shall be as detailed and recommended by the manufacturer, and as approved by the manufacturer.

Carpet shall be tested by a certified 3rd party laboratory, after the installation, to show that all levels are below the residential soil-cleanup standard for lead. The testing shall be at no additional cost to the Owner.

Resilient Layered Infill: The cryogenic rubber/silica sand infill mix and installation process shall be a mix design and installation process as proposed by the manufacturer of the synthetic turf proposed for installation and shall consist of a minimum of 6 lbs of sand and 3 lbs of rubber for a total infill amount of 9 lbs per square foot. Infill shall be inserted into the carpet pile in a manner designed to guarantee that the top course of the infill remains rubber only, to prevent abrasive characteristics of sand particulates. Shop drawings regarding the material utilized and installation process is required prior to

commencement of infilling. The Owner has the right to accept or deny the infill system proposed during the shop drawing process.

Ambient rubber shall not be permitted. Crambient rubber shall not be permitted.

Base Stone: **(To be constructed by the site contractor)**

Refer to construction plans and details for stone type

RESTRICTIONS:

To ensure structural stability: $D_{60}/D_{10} > 5$ and $1 < \frac{D_{30}^2}{D_{10} D_{60}} < 3$

Fragmentation must be 100%.

To ensure separation of both stones: $\frac{D_{85} \text{ of finishing stone}}{D_{15} \text{ of base stone}} > 2$

and $3 < \frac{D_{50} \text{ of base stone}}{D_{50} \text{ of finishing stone}} < 6$

To ensure proper drainage:

- Permeability of base stone > 50 in/hr (3.5×10^{-2} cm/sec)
- Permeability of finishing stone > 10 in/hr (7.0×10^{-3} cm/sec)
- Porosity of both stones $> 25\%$ (When stone is saturated and compacted to 95% Proctor.)

Perimeter Edge: **(To be constructed by the site contractor)**

Underdrain System **(To be constructed by the site contractor)**

Refer to Drainage Plan

Turf Groomer: The **synthetic turf sub-contractor** shall provide a turf grooming system, which consists of spiked wheels designed to penetrate the infill in order to loosen the infill without damaging the grass fibers and light raking tines attached to the rear of the unit designed to properly groom the exposed grass fibers to keep them from matting down excessively and place loose infill back into place. Multiple “V” front and rear brushes to move easily through infill.

Physical dimensions are below:

- Overall width – 72.178”
- Length (Hitch to rear) – 154.457”

- Height (Jack Handle to Ground) – 40.670”

This equipment shall be approved by the turf manufacturer and the Owner to be used by the Owner as directed by the Manufacturer. No additional payment will be made for providing the equipment, but the costs for providing the equipment shall be included in the price bid for the synthetic turf.

The contractor shall be responsible for the maintenance associated with the field grooming for the first 120 days after the acceptance of the field at no additional cost to the Owner in order to properly train the municipality’s maintenance staff. Maintenance records shall be kept in accordance with the turf company’s warranty requirements. The contractor is also responsible to provide training seminars to the Owner and properly familiarize the maintenance staff of the upkeep requirements. A maintenance manual from the turf manufacturer shall be provided. Maintenance shall be in accordance with the requirements of the warranty. Coordination with the turf manufacturer shall be required.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. The surface to receive the synthetic turf shall be inspected and certified by the turf manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process. **(To be constructed by the site contractor)**
- D. The installation shall be performed in full compliance with approved shop drawings. Only factory-trained technicians skilled in the installation of athletic caliber synthetic turf systems, working under the direct supervision of the manufacturer’s supervisors, shall undertake the placement of the system. 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 sewing seams and proper installation of the infill mixture. The manufacturer shall certify the installation and warranty compliance. The surface to receive the synthetic turf shall be inspected and certified by the manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.

3.2 PREPARATION (To be constructed by the site contractor)

- A. Preparation of Subgrade: All topsoil, organic, and non-compactable materials need to be removed.
- B. The soil bed must have a minimum slope of 0.5% or more, depending on the soil analysis, from the longitudinal center of the field towards the sidelines or as depicted on the plans and specifications.
- C. The soil bed must be compacted in both directions to attain the specified compaction rate of 95% standard Proctor.
- D. The soil bed must be prepared to tolerances of not more than 1/2 inch from design grade to allow for even drainage.
- E. A geotextile fabric is required to cover the soil bed.

3.3 INSTALLATION

- A. Underdrain System **(To be constructed by the site contractor)**
- B. Perimeter Edge **(To be constructed by the site contractor)**
- C. Base Stone **(To be constructed by the site contractor)**
 - a. The base stone must be laid without damaging the soil bed, geotextile liner or drains. It is very important to not create any depressions with heavy equipment. The specified stone or aggregate supplied must conform to the recommended specifications. The finished crushed stone or aggregate base supplied must be stable and permeable. The contractor should adhere to the construction details and manufacturers' specifications.
 - b. If the required compacted depth of the base course exceeds 6 inches, the base shall be constructed in 2 or more layers or lifts of approximate equal thickness. Each layer must be compacted in both directions to attain the specified compaction rate.
 - c. The base course must be sloped 0.5% from the center longitudinal axis towards the sidelines or as specified.
 - d. The grade of the base course shall not vary from the specified grade by more than 1/2 inch from design grade.
 - e. The base course must be compacted in both directions to attain the specified compaction rate of 95% standard Proctor.
 - f. Prior to the beginning of installation, the installer of the synthetic turf shall inspect the stone subbase and supply a certificate of stone subbase acceptance for the

purpose of obtaining manufacturer's warranty for the finished synthetic turf. **Prior to leaving the site, the site contractor is required to receive a letter from the synthetic turf contractor approving the installation and preparation of the surface (base courses) and provide a copy of the documentation to the supervising Engineer.**

D. Finishing Stone (To be constructed by the site contractor)

- a. The final grade aggregate layer should not be more than 2 inches deep.
- b. The final grade material must be sloped 0.5% from the center longitudinal axis towards the side lines unless otherwise specified.
- c. The final grade must be compacted in both directions to attain the specified compaction rate of 95% standard Proctor.
- d. The final grade of the finishing stone shall not vary from the specified grade by more than 1/2 inch from design grade, nor by more than 1/4 in over 10 ft. Laser guided grading is highly recommended.
- e. The site contractor shall provide 16 C.Y. of stone dust for leveling and use by turf contractor at no additional cost.
- f. Upon completion of the installation of the finishing stone and prior to the installation of the synthetic turf, the contractor, Owner and Engineer shall witness a rain event (natural or artificial) in order to determine that the stone subbase drains vertically. Synthetic turf shall not be installed until this rain event takes place.

E. Synthetic Turf (To be constructed by the synthetic turf sub-contractor)

- a. The carpet rolls are to be installed directly over the properly prepared base stone. Extreme care should be taken to avoid disturbing the base stone, both in regard to compaction and planarity. A 2-5 ton static roller shall be on site and available to repair and properly compact any disturbed areas of the base stone.
- b. The full width rolls shall be laid out across the field. The turf contractor shall install the turf as per the manufacturer's recommendations.
- c. Utilizing standard state of the art sewing procedures, each roll shall be attached to the next. Each seam will be double sewn. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed at right angles to the playing field turf. **GLUING OF ROLLS SHALL NOT BE ACCEPTABLE.** Minimum gluing will only be permitted to repair problem areas, and corner completions. All cross field carpet panels must be 100% sewn. Gluing of carpet pans shall not be acceptable. All sport markings shall be inserted into the field by

tufting directly into the carpet rolls a time of manufacture process or by shearing fiber out and using a system best known as “hot melting” markings on top of the sheared carpet areas without piercing the carpet panel backing.

- d. Turf panel seams shall be sewn. All turf panel seams shall be sewn with high strength thread. All seams shall be transverse to the field direction; i.e., run perpendicularly across the field. Seams shall be flat, tight, and permanent with no separation or fraying.
- e. Synthetic turf shall be installed across the field and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed.
- f. The turf contractor shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient material to maintain proper mixing ratios and that the material delivered meets or exceeds the specifications for this particular project.
- g. Carpet panel backing may be opened only in the center field logo area if the logo is substantial in size as determined during the installation process by the Engineer responsible for the construction management of the project.

F. Resilient Layered Infill (To be constructed by the synthetic turf sub-contractor)

- a. The infill material shall be spread evenly with a large spreader, (minimum 5-foot wide). Between applications the infill area shall be brushed with a motorized rotary nylon broom. Infill depth shall be such that a maximum of 3/4 inch of fiber is exposed.
- b. The infill system shall be the only acceptable cushioning system. E-layers and formed rubber pads shall be deemed unacceptable.

G. Miscellaneous (To be constructed by the synthetic turf sub-contractor)

- a. The turf contractor shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient material to maintain proper mixing ratios.
- b. Infill materials shall be properly mixed on site and applied in numerous thin lifts using special broadcasting equipment. The turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to an approximate depth of 2/3 of the fiber heights in order to comply with the initial G-MAX standards. The mixture can only be applied when dry.

H. Inlaid Lines (To be constructed by the synthetic turf sub-contractor)

- a. The synthetic turf field shall have inlaid lines sewn into the turf. All required lines and markings, including football, soccer and little league baseball/softball shall be inlaid as per the project plans and specifications and as approved by the Owner.

- b. The inlaid lines shall be installed as per the manufacturers' recommendations of the color as approved by the Owner as depicted on the approved shop drawings.
- c. Inlaid line colors will be as follows:
 - Football - White
 - Soccer – Yellow
 - Baseball – Blue or Gray to be determined by owner

Final acceptance of shop drawings for line work shall be performed by the OWNER.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner must approve the qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports for the turf contractor. The turf contractor shall receive no additional compensation for testing and inspection of the turf.
- B. Testing Services: Testing and inspecting of completed applications of synthetic turf system shall take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of the next stage until test results for previously completed applications show compliance with requirements.
- C. Remove and replace applications where test results indicate that it does not comply with specified requirements.
- D. Test Locations: The installed system will be tested for GMAX (by a company approved by the Owner) at locations defined in ASTM F1936 as modified with two (2) additional locations for the baseball/softball fields: at home plate area and at first base area. All test locations will be offset approximately 12-inches from any fabric seam, and all subsequent retesting will be performed at the exact same locations as previous test locations for comparisons. The Contractor is responsible for all costs associated with Testing.
- E. At substantial completion the G-MAX average shall not exceed 125 G's with no single location value in excess of 130. The testing company shall submit three (3) copies of the G-MAX test report to the engineer prior to the date of substantial completion.
- F. Four (4) additional retests are required. One retest at the first anniversary and the other three (3) as requested by the engineer. After the first anniversary and until the end of the 10 year anniversary period, the maximum G-MAX shall not exceed 180 at any location.
- G. Costs associated with G-MAX testing shall be the Contractor's responsibility and shall be included in the bid price for synthetic turf. The company utilized to perform the GMAX testing shall be selected by the Owner.

- H. If after a G-MAX test the surface exceeds a G-MAX rating of 130 in the first year after installation or exceeds a G-MAX of 180 from warranty years 2 through 10, the turf contractor will be required to provide procedures and a schedule to repair the field at no cost to the Owner. The Owner and the engineer on the project shall review the proposed remediation procedures prior to the contractor performing the repairs.
- I. If after two (2) attempts to repair the field the G-MAX rating exceeds the requirements noted above, the contractor shall replace the field at no cost to the Owner. If replacement is required, replacement of the field shall be completed within 90 days.

3.5 FINAL ACCEPTANCE

- A. Prior to Final Acceptance, the Contractor shall submit to the owner three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.
- B. The Contractor shall provide evidence that the turf can be plowed with conventional rubber bladed snow removal equipment.
- C. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use.

3.6 CLEANING

- A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items. All usable remnants of new material shall become the property of the Owner. The Contractor shall keep the area clean throughout the project and clear of debris. 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.

PART 4 - PAYMENT

4.1 METHOD OF MEASUREMENT AND PAYMENT

Payment for synthetic turf, including inlaid markings, geotextile fabric, warranty, turf grooming equipment and G-MAX testing is excluded from this contract.

The site contractor shall prepare the surface (base courses) for the synthetic turf installation. It shall be the responsibility of both the turf contractor and the site contractor to coordinate during the turf installation process at no additional cost to the Owner.

It is the responsibility of the contractor to coordinate with his/her subcontractors and the Engineer for the successful completion of this project. If at any time a concern arises with the construction or coordination of the site work and synthetic turf installation the Engineer shall be contacted immediately.

The Borough will pay for installation of synthetic turf under separate contract

ATHLETIC FIELD ACCEPTANCE FORM

The purpose of this form is to establish the date the contractor has installed the turf base in conformance with the contract documents and turf sub-contractor requirements.

I certify the turf base has been installed as per the contract documents and I have corrected any deficiencies noted by the turf sub-contractor or the engineer.

Contractor

Date

I certify the turf base is acceptable for turf installation.

Turf sub-contractor

Date