PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes the following:
   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 manufacturer’s written installation instructions, and in accordance with all approved shop drawings.

B. Related Sections
   1. Section 312201 – Field Grading
   2. Section 321800 – Infield Surfacing
   3. Section 329205 – Synthetic Turf – Project Requirements And Conditions
   4. Section 329210 – Synthetic Turf – Drainage And Base

PART 2 - PRODUCTS

2.01 MATERIALS AND PRODUCTS

A. Synthetic turf system materials shall consist of the following:
   1. Carpet made of a combination of monofilament polyethylene fiber and slit-film polyethylene fibers per manufacturer’s baseball specific installation specifications into a free draining backing with minimum pile heights as noted within the Drawings and specifications herein.

   2. Infill component of the synthetic turf system shall consist of the following:
a. Controlled mixture of graded sand and crumb rubber installed per manufacturer’s baseball specific installation specifications.

3. Glue, thread, paint, seaming fabric and other materials used to install and mark the playing surface.

B. The installed artificial playing surface shall have the following physical characteristics (+/-5%) as tested according to ASTM F1551 Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value (Infield/Warning Track)</th>
<th>Value (Grass Areas)</th>
<th>Units</th>
<th>ASTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Yarn Type</td>
<td>UV-resistant polyethylene</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yarn Structure</td>
<td>Slit Film w/ Thatch</td>
<td>Monofilament/Slit Film Blend</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Yarn Denier</td>
<td>Slit Film: 10,000</td>
<td>Mono: 11,500</td>
<td>Denier</td>
<td>D1577</td>
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<tr>
<td>Yarn Breaking Strength</td>
<td>Slit Film &gt; 20</td>
<td>Mono &gt; 20</td>
<td>lbs</td>
<td>D2256</td>
</tr>
<tr>
<td>Yarn Maximum Elongation</td>
<td>&gt;30 nominal</td>
<td>%</td>
<td></td>
<td>D2256</td>
</tr>
<tr>
<td>Pile Height</td>
<td>1.75”</td>
<td>1.75”</td>
<td>inches</td>
<td>D5823</td>
</tr>
<tr>
<td>Pile Weight</td>
<td>50</td>
<td>50</td>
<td>Oz/y d2</td>
<td>D5848</td>
</tr>
<tr>
<td>Primary Backing Weight</td>
<td>7</td>
<td>7</td>
<td>Oz/y d2</td>
<td>D5848</td>
</tr>
<tr>
<td>Secondary Backing Weight</td>
<td>20</td>
<td>20</td>
<td>Oz/y d2</td>
<td>D5848</td>
</tr>
<tr>
<td>Total Weight</td>
<td>77</td>
<td>77</td>
<td>Oz/y d2</td>
<td>D5848</td>
</tr>
<tr>
<td>Stitch Gauge</td>
<td>3/8”</td>
<td>3/8”</td>
<td>inches</td>
<td>D5793</td>
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<tr>
<td>Tuft Bind</td>
<td>&gt;10</td>
<td>lbs/fo</td>
<td>D1335</td>
<td></td>
</tr>
<tr>
<td>Grab Tear Length</td>
<td>≥200</td>
<td>lbs/fo</td>
<td>D5034</td>
<td></td>
</tr>
<tr>
<td>Grab Tear</td>
<td>≥200</td>
<td>lbs/fo</td>
<td>D5034</td>
<td></td>
</tr>
</tbody>
</table>
C. Carpet Rolls shall be 15’ wide rolls.
   1. Rolls shall be long enough to go from field sideline to sideline.
   2. The perimeter white line shall be tufted into the individual sideline rolls, where applicable.

D. Backing:
   1. Primary backing shall be a double-layered polypropylene fabric treated with UV inhibitors.
   2. Secondary backing shall consist of an application of a heat-activated urethane to permanently lock the fiber tufts in place.

E. Fibers shall be low friction, and UV-resistant fiber measuring not less than 1.5 inches high for the warning track and infield areas and not less than 2.0 inches for the outfield and foul territory areas.

F. Infill materials shall be installed to a depth as approved by the respective manufacturer.
   1. Infill shall consist of a resilient layered granular system, comprising of a selected and graded dust-free silica sand and ambient rubber crumb installed at the following percentages of total infill by weight, to optimize baseball specific performance characteristics:
      a. Infield areas: 50% sand, 50% rubber
      b. Grass areas: 50% sand, 50% rubber
      c. Warning Track: 75% sand, 25% rubber
G. Non-tufted or inlaid lines and markings shall be painted with paint approved by the synthetic turf manufacturer.

H. Thread for sewing seams of turf shall be compatible by the synthetic turf manufacturer.

I. Glue and seaming fabric for inlaying lines and markings shall be compatible by the synthetic turf manufacturer.

2.02 QUALITY CONTROL IN MANUFACTURING

A. The manufacturer shall own and operate its own manufacturing plant in North America. Both tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer. Outsourcing of either is unacceptable.

B. The manufacturer shall have full-time certified in-house inspectors at their manufacturing plant that are experts with industry standards.

C. The manufacturer’s full-time in-house certified inspectors shall perform pre-tufting fiber testing on tensile strength, elongation, tenacity, denier, shrinkage, and twist i.e., turns per inch, upon receipt of fiber spools from fiber manufacturer.

D. Primary backing shall be inspected by the manufacturer’s full-time certified in-house inspectors before tufting begins.

E. The manufacturer’s full-time in-house certified inspectors shall verify “pick count”, yarn density in relation to the backing, to ensure the accurate amount of face yarn per square inch.

F. The manufacturer’s full-time, in-house, certified inspectors shall perform turf inspections at all levels of production including during the tufting process and at the final stages before the turf is loaded onto the truck for delivery.

G. The manufacturer shall have its own, in-house laboratory where samples of turf are retained and analyzed, based on standard industry tests, performed by full-time, in-house, certified inspectors.

EXECUTION

2.03 EXAMINATION

A. Verify that all sub-base leveling is complete prior to installation.
B. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to the beginning of installation.
   1. Acceptance is dependent upon the Contractors test results indicating compaction and planarity are in compliance with manufacturer’s specifications.
   2. The surface shall be accepted by Installer as “clean” as installation commences and shall be maintained in that condition throughout the process.

C. The surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0-1/2" from design grade.

D. Correct conditions detrimental to timely and proper completion of Work.

E. Do not proceed until unsatisfactory conditions are corrected.

F. Beginning of installation means acceptance of existing conditions

2.04 PREPARATION

A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.

B. Sub-base acceptance shall be subject to receipt of test results (by others) for compaction and planarity that sub-base is in compliance with manufacturer’s specifications and recommendations.

C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.

D. When requested by Architect/Engineer, installed sub-base shall be tested for porosity prior to the installation of the synthetic turf. A sub base that drains poorly is an unacceptable substrate.

2.05 INSTALLATION – GENERAL

A. The installation shall be performed in full compliance with approved Shop Drawings.

B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing, or brushing operations.
C. 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.

D. Designs, markings and layouts shall first be approved by the Architect or Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

2.06 INSTALLATION

A. Install at location(s) indicated, to comply with final shop drawings, manufacturers’/installer’s instructions.

B. The Contractor shall strictly adhere to specified procedures. Any variance from these requirements shall be provided in writing, by the manufacturer’s on-site representative, and submitted to the Architect and/or Owner, verifying that the changes do not in any way affect the Warranty. Infill materials shall be approved by the manufacturer and installed in accordance with the manufacturer’s standard procedures.

C. Full width rolls shall be laid out across the field.
   1. Turf shall be of sufficient length to permit full cross-field installation from sideline to sideline.
   2. No cross seams will be allowed in the main playing area between the sidelines.
   3. Each roll shall be attached to the next roll utilizing standard state-of-the-art sewing procedures.
   4. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed at right angles to the playing surface.

D. Artificial turf panel seams shall be sewn or glued per manufacturer’s turf system specifications along the selvedge edging flap of the turf roll.
   1. Seams shall be flat, tight, and permanent with no separation or fraying.
   2. In the case of all lines and logos, turf carpet must be sheared to the backing (do not cut the backing) and adhered using hot melt adhesives.

E. Infill Materials:
   1. Infill materials shall be applied in lifts as necessary to allow for even distribution of infill throughout the pile height. The turf shall be brushed as the mixture is applied. The infill material shall be installed to a depth determined by the manufacturer.
   2. Layered infill shall be installed in a systematic order as per manufacturer’s standard installation procedures.
3. Infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional. Install sand and rubber infill in such a manner to minimize fiber entrapment wherever possible. Install infill in uniform layers to ensure a consistent, predictable playing surface. A final application of specifically sized non-marking rubber completes the system. The Infill shall be installed to the depth as specified by manufacturer’s baseball specific playing system.

F. Non-tufted or inlaid lines and markings shall be painted in accordance with turf and paint manufacturers’ recommendations. Number of applications will be dependent upon installation and field conditions.

G. Synthetic turf shall be attached to the perimeter edge detail in accordance with the manufacturer’s standard procedures.

H. Upon completion of installation, the finished field shall be inspected by the installation crew and an installation supervisor.

2.07 FIELD MARKINGS

A. Field markings shall be installed in accordance with approved shop drawings

B. Field markings will be inlaid or painted in accordance with the Drawings.

2.08 ADJUSTMENT AND CLEANING

A. Do not permit traffic over unprotected surface.

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

C. All usable remnants of new material shall become the property of the Owner.

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

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

2.09 PROTECTION
A. Protect installation throughout construction process until date of final completion.

END OF SECTION 329214