Specification Table of Contents:

SECTION 11 68 33.43 - TRACK & FIELD EQUIPMENT
SECTION 321823.40 - TRACK & FIELD SYNTHETIC SURFACE

SECTION 015713
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 RELATED REQUIREMENTS

A. Section 311000 - Site Clearing: Limits on clearing; disposition of vegetative clearing debris.

B. Section 312200 - Grading: Temporary and permanent grade changes for erosion control.

1.03 REFERENCE STANDARDS

A. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus; 2014.

B. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a (Reapproved 2014).

C. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2011.

D. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 2015a.

E. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2012.

F. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2002 (Reapproved 2009).

G. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; Current Edition.

H. FHWA FLP-94-005 - Best Management Practices for Erosion and Sediment Control; 1995.

I. USDA TR-55 - Urban Hydrology for Small Watersheds; USDA Natural Resources Conservation Service; 2009.

1.04 PERFORMANCE REQUIREMENTS

A. Comply with requirements of EPA (NPDES) for erosion and sedimentation control, as specified by the NPDES, for Phases I and II, and in compliance with requirements of Construction General Permit (CGP), whether the project is required by law to comply or not.

B. Also comply with all more stringent requirements of State of Kentucky Erosion and Sedimentation Control Manual.

C. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.

D. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
   1. Obtain and pay for permits and provide security required by authority having jurisdiction.
   2. Owner will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.

E. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

F. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
   1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
   2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

G. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
   1. Control movement of sediment and soil from temporary stockpiles of soil.
   2. Prevent development of ruts due to equipment and vehicular traffic.
   3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

H. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
   1. Prevent windblown soil from leaving the project site.
   2. Prevent tracking of mud onto public roads outside site.
   3. Prevent mud and sediment from flowing onto sidewalks and pavements.
   4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

I. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
   2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

J. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

K. Open Water: Prevent standing water that could become stagnant.

L. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.05 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Erosion and Sedimentation Control Plan:

1. Submit within 2 weeks after Notice to Proceed.
2. Include:
    a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
    b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.
    c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
    d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
    e. Other information required by law.
    f. Format required by law is acceptable, provided any additional information specified is also included.
3. Obtain the approval of the Plan by authorities having jurisdiction.
4. Obtain the approval of the Plan by Owner.

C. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

D. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

E. Maintenance Instructions: Provide instructions covering inspection and maintenance for temporary measures used during construction and temporary measures that must remain after Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

A. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:
1. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D4751.
2. Permittivity: 0.05 sec^-1, minimum, when tested in accordance with ASTM D4491.
3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355/D4355M after 500 hours exposure.
4. Tensile Strength: 100 pounds-force, minimum, in cross-machine direction; 124 pounds-force, minimum, in machine direction; when tested in accordance with ASTM D4632/D4632M.
5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.
6. Tear Strength: 55 pounds-force, minimum, when tested in accordance with ASTM D4533.
7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
8. Manufacturers: subject to compliance with requirements, manufacturers offering the following products that may be incorporated into the work include:
    a. TenCate: www.tencate.com/#sle.
    b. North American Green: www.nagreen.com/#sle.
    c. Propex Geosynthetics: www.geotextile.com/#sle.

B. Silt Fence Posts: One of the following, minimum 5 feet long:
1. Steel U- or T-section, with minimum mass of 1.33 pound per linear foot.
2. Hardwood, 2 by 2 inches in cross section.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.03 SCOPE OF PREVENTIVE MEASURES

A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.

B. Construction Entrances: Traffic-bearing aggregate surface.
   1. Width: As required; 20 feet, minimum.
   2. Length: 50 feet, minimum.
   3. Provide at each construction entrance from public right-of-way.
   4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.

C. Linear Sediment Barriers: Made of silt fences.
   1. Provide linear sediment barriers:
      a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
      b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
      c. Along the toe of cut slopes and fill slopes.
      d. Perpendicular to flow across the bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200 feet apart.
      e. Across the entrances to culverts that receive runoff from disturbed areas.
   2. Space sediment barriers with the following maximum slope length upslope from barrier:
      a. Slope of Less Than 2 Percent: 100 feet..
      b. Slope Between 2 and 5 Percent: 75 feet.
      c. Slope Between 5 and 10 Percent: 50 feet.
      d. Slope Between 10 and 20 Percent: 25 feet.
      e. Slope Over 20 Percent: 15 feet.

3.04 INSTALLATION

A. Silt Fences:
   1. Store and handle fabric in accordance with ASTM D4873.
   2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
   3. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.
   4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.
   5. Install with top of fabric at nominal height and embedment as specified.
   6. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
   7. Fasten fabric to wood posts using one of the following:

a. Four nails per post with 3/4 inch diameter flat or button head, 1 inch long, and 14 gage, 0.083 inch shank diameter.
b. Five staples per post with at least 17 gage, 0.0453 inch wire, 3/4 inch crown width and 1/2 inch long legs.

8. Fasten fabric to steel posts using wire, nylon cord, or integral pockets.
9. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

3.05 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:
1. Promptly replace fabric that deteriorates unless need for fence has passed.
2. Remove silt deposits that exceed one-third of the height of the fence.
3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Clean out temporary sediment control structures weekly and relocate soil on site.

E. Place sediment in appropriate locations on site; do not remove from site.

3.06 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Architect.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

SECTION 11 68 33.43 - TRACK & FIELD EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install a first-class track & field equipment.

B. The SSC is responsible for the purchase and installation of all track & field equipment. The SSC is responsible for installation of synthetic surface in, around and on top of the specified equipment, as needed.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics (formerly IAAF), the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly the IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. GC = General Contractor

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC prior to installation.
   1. Standard printed specifications and diagrams or drawings depicting installation directions and dimensions for all in-ground sports equipment.
   2. Installation process and requirements for subbase (stone and asphalt) and any conditions that may limit the installation or affect quality of installation.
   3. Material safety data sheets on all products, as necessary.

1.6 QUALITY ASSURANCE

A. The SSC shall only accept bids from those vendors or manufacturers that have been pre-approved or identified as approved equal.

PART 2 - PRODUCTS

2.1 T&F EQUIPMENT

A. The following vendors/manufacturers are approved for bidding:
   1. Gill Athletics, Mike Cunningham at 217-898-3038
   2. UCS Spirit, Mike Chappell at 530-228-5826
   3. SportsField Specialties, Dave Moxley at 607-287-9460

B. Basis of Design: the manufacturer's product number listed in this specification establishes the minimum quality for each product. SSC may not substitute products from the other manufacturers.

C. T&F Inground/Embedded Equipment
   1. Sportsfield Specialties and their products are the basis of design.
   2. Pole Vault Boxes:
      a. Twelve Cast Aluminum Vault Boxes, white, pole vault boxes with the covers/lids. Model # PVBCAW.
   3. Long & Triple Jump:
      a. Twelve Adjustable 12” Take Off-Board Systems for NCAA long & triple jump. This product is the 8 inch wide synthetic board, with 4 inch foul board and blanking lids are required. Model # LJTJOB12.
   4. Steeplechase:
      a. One Water Jump Hurdle with barrier seal with custom logo. Model # SCWJH.
   5. Portable Curb:
      a. One aluminum curb, powder coated white, for a non-permanent install for the 400 meter oval. Model # TCBP.
         1) The sections shall be numbered on the bottom side.
         2) The curb shall be cut with sections removeable at the entrance and exit of the steeplechase running lane and at the javelin runway.
         3) The steeplechase water jump run-up will have an aluminum curb (30cm rule).

D. T&F Barrier Netting / Ball Stopping System – not included in this specification.

E. T&F Loose Equipment – not included in this specification.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. The SSC prior to removing the embedded T&F equipment must measure & locate these items so the new equipment items are replaced in the exact same location.

B. The installation of the in-ground/embedded sports equipment shall follow the directions of the manufacturer and/or vendor. Shop drawings must be submitted and approved prior to ordering and installation of equipment.

END OF SECTION 116833.43

SECTION 311000
SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of existing site improvements including pavements, track surface, or other site improvements.

1.02 RELATED REQUIREMENTS

A. Section 312200 - Grading: Topsoil removal.

B. Section 312316.13 - Trenching: Filling holes, pits, and excavations generated as a result of removal operations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Trenching specifications.

PART 3 EXECUTION

3.01 SITE CLEARING

A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public or University utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

E. Pavements are to be saw cut to provide a clean edge for new work to be installed.

3.03 DEBRIS

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 312200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 311000 - Site Clearing.

B. Section 312316.13 - Trenching: Trenching and backfilling for utilities.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.04 DEFINITIONS

A. Finish Grade Elevations: Indicated on Drawings.

1.05 PROJECT CONDITIONS

A. The work for this project is at an existing NCAA Division 1 Track and Field complext. Protection of the existing work/facilities is of the upmost importance, and all efforts are expected to protect the facility and existing site improvements.

PART 3 EXECUTION

2.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Verify the absence of standing or ponding water. Refer to Specification Section 312319 for Dewatering requirements.

2.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

D. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading. Refer to Specification Section 312319 for additional Dewatering requirements.

E. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

F. Protect plants, lawns, and other features to remain as a portion of final landscaping.

2.03 SOIL REMOVAL and STOCKPILING

A. Remove excavated topsoil from site.

B. Stockpile subsoil that is to be re-used on site; remove remainder from site. Cover stockpile to prevent erosion and saturation of the material.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

2.04 FINISH GRADING

A. Before Finish Grading:
   1. Verify trench backfilling have been inspected.
   2. Verify subgrade has been contoured and compacted.

B. Remove debris, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products and legally dispose of it off-site.

C. Where topsoil is to be placed, scarify surface to depth of 3 inches.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

E. Place topsoil to the following compacted thicknesses:
   1. Areas with Grass: 6 inches.

F. Place topsoil during dry weather.

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Near existing improvements spread topsoil manually to prevent damage.

I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

J. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

2.05 TOLERANCES

A. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

2.06 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

2.07 CLEANING

A. Remove unused stockpiled topsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 312316.13
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavation, backfilling and compacting for new drainage utilities.

B. Backfilling of trenches excavated as a result of demolished utility lines and pavements.

1.02 RELATED REQUIREMENTS

A. Section 312200 - Grading: Site grading.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

1.04 REFERENCE STANDARDS

A. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

B. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.

C. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.

D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

E. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

F. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2010.

1.05 SUBMITTALS

A. Materials Sources: Submit name of imported materials source.

B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Structural Fill - Fill Type DGA: Conforming to State of Kentucky Highway Department standard.

B. Pipe Bedding Granular Fill - Fill Type #8 Crushed Limestone: Fine aggregate, conforming to State of Kentucky Highway Department standard.

C. Sand: Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter.
   1. Graded in accordance with ASTM C136/C136M; within the following limits:
      a. No. 4 sieve: 100 percent passing.
      b. No. 14 sieve: 10 to 100 percent passing.

c. No. 50 sieve: 5 to 90 percent passing.
d. No. 100 sieve: 4 to 30 percent passing.
e. No. 200 sieve: 0 percent passing.

2.02 ACCESSORIES

A. Geotextile Fabric: Non-biodegradable, non-woven, needle punched, 6-oz/sy(minimum weight) .

2.03 SOURCE QUALITY CONTROL

A. See Division 1 for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.02 PREPARATION

A. All trenching is unclassified.

B. Identify required lines, levels, contours, and datum locations.

C. Locate, identify, and protect utilities that remain and protect from damage.

D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect. Refer to Specification Section 312319 for additional Dewatering requirements.

3.03 TRENCHING

A. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Cut trenches wide enough to allow inspection of installed utilities, but no more than twice the pipe diameter or 12-inches, whichever is greater for the total trench width.

C. Hand trim excavations. Remove loose matter.

D. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

E. Remove excavated material that is unsuitable for re-use from site.

F. Stockpile excavated material to be re-used in area designated in Section 312200.

G. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control. Refer to Specification Section 312319 for additional Dewatering requirements.

3.04 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with:
   1. Structural Fill in areas within the building footprint or under pavements that are not located in the zone of influence.
   2. Sand in landscape areas

B. Remove loose soil and any debris from the excavation prior to installing the utility and backfill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 BACKFILLING

A. Backfill to contours and elevations indicated using unfrozen materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces. For sand fill, densify sand fill using water during installation.

D. Granular/Crushed Stone Fill: Place and compact materials in equal continuous layers not exceeding 6 inches loose depth when using heavy compaction equipment (sheepsfoot rollers, smooth drums, etc.) and not exceeding 4 inches loose depth when using hand operated or remote controlled equipment.

E. Correct areas that are over-excavated.
   1. Areas to receive paving: Fill with compacted DGA.
   2. Other areas: Use Sand Fill, flush to required elevation, compacted to minimum 98 percent of maximum dry density.

F. Compaction Density Unless Otherwise Specified or Indicated:
   1. At paving: 95 percent of maximum dry density.
   2. At landscape locations: 85 percent of maximum dry density.

G. Reshape and re-compact fills subjected to vehicular traffic.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Utility Piping, Conduits, and Duct Bank:
   1. Bedding: Use Fill Type Pipe bedding granular fill or Sand Fill for the initial 4-inch thick utility setting/leveling bed.
   2. If pipe is larger than 12-inches or if there are multiple pipes of any size utilizing the same trench (hoizontally or vertically), then the leveling bed and pipe bedding backfill is to be wrapped in filter fabric.
   3. Cover with Sand Fill in pipe and new storm drainage areas, and with compacted DGA in pavement areas..
   4. Fill up to subgrade elevation.

B. At areas excavated as a result of demolition and removal of existing pavements.
   1. At Paving Areas:
      a. Trenches are to be backfilled with DGA from the bottom of the excavation up to the subgrade elevation for the new pavements.

3.07 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1/2 inch from required elevations.

3.08 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 312319
DEWATERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Dewatering of site during construction.

1.02 RELATED SECTIONS

A. Section 312316.13 - Trenching: Excavating and backfilling for site subdrainage systems.

1.03 PROJECT CONDITIONS

A. Dewatering systems shall be installed prior to excavation activities in order to control surface and ground water flows. Dewatering measures shall be maintained and remain installed for the duration of project activities.

B. Damage or destabilization/degradation of the on-site soils due to failure to dewater or otherwise prepare the site will be repaired at the Contractors expense.

1.04 PERFORMANCE REQUIREMENTS

A. Dewatering Performance:
   1. Dewatering systems shall be installed prior to excavation activities in order to control surface and ground water flows. Dewatering measures shall be maintained and remain installed for the duration of project activities.

PART 2 - NOT USED

PART 3 EXECUTION

3.01 INSTALLATION

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades and from flooding the Project site and surrounding areas.

B. Prevent water from ponding inside pavement areas.

C. The Contractor is to provide and maintain pumps, well points, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations.

D. Do not use open-sump pumping that leads to loss of fines, soil piping, subgrade softening and slope instability.

E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property and portions of work under construction or completed. Avoid creating an inconvenience to others, and maintain sedimentation controls as required by authorities having jurisdiction.

3.02 FIELD QUALITY CONTROL

A. Dewatering systems are to be inspected at least weekly and any and all repairs or refinements performed to maintain a fully operational system that achieves the intended purpose.

B. Standby equipment is to be maintained on site so that it can be immediately installed if failure of primary equipment occurs.

3.03 PROTECTION

A. Protect pipe and dewatering system from other construction activities.

B. Remove dewatering system at the completion of construction or when determined by the Architect that it is no longer needed.

END OF SECTION

SECTION 321123
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

1.02 RELATED REQUIREMENTS

A. Section 312200 - Grading: Preparation of site for base course.

B. Section 312316.13 - Trenching: Compacted fill under base course.

C. Section 321313 - Concrete Paving: Finish concrete surface course.

D. Section 321823.40 - Track & Field Synthetic Surface: Track surface to be installed over new pavements.

E. Section 334913 - Storm Drainage Manholes, Frames and Covers: Manholes and frames.

1.03 REFERENCE STANDARDS

A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses; 1965 (2004).

B. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.

C. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

D. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.04 SUBMITTALS

A. Materials Sources: Submit name of imported materials source.

B. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

C. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. Aggregate Storage, General:
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Blended Aggregate Type DGA: Pug DGA conforming to State of Kentucky Highway Department standard.

2.02 SOURCE QUALITY CONTROL

A. See Division 1 for Quality Requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. Under Portland Cement Concrete Paving:
   1. Place Blended Aggregate Type DGA to a total compacted thickness identified on the drawings.
   2. Compact to 95 percent of maximum dry density.

B. Place aggregate in maximum 4 inch layers and roller compact to specified density.

C. Level and contour surfaces to elevations and gradients indicated.

D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

G. Apply herbicide to finished surface.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

3.05 FIELD QUALITY CONTROL

A. See Division 1 Sections for general requirements for field inspection and testing.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D2167 or ASTM D6938.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180 or ASTM D698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

E. Frequency of Tests: One (1) test for every 2000 sq. ft. or less of paved area per lift, but in no case fewer than two (2) tests per lift.

3.06 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 321313
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete pavement around existing storm structures being adjusted, and around new slot drainage system (Alternate)..

B. Crack repair of cracks in existing asphalt or concrete pavement.

C. Joint treatments for joints between asphalt and concrete pavement.

1.02 RELATED REQUIREMENTS

A. Section 312200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.

B. Section 312316.13 - Trenching

C. Section 321123 - Aggregate Base Courses: DGA base course.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

D. ACI 305R - Hot Weather Concreting; 2010.

E. ACI 306R - Cold Weather Concreting; 2010.

F. ASTM A36 - Steel plate for plate dowel systems.

G. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

H. ASTM B633 Type II - Electroplated zinc for plat dowel systems

I. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.

K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

L. ASTM C150/C150M - Standard Specification for Portland Cement; 2015.

M. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2014.

N. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

O. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.

P. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.

Q. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2014.

1.04 SUBMITTALS

A. See Division 1 Sections for submittal procedures.

B. Product Data: Provide data on admixtures, curing compound, and fiber reinforcement.

C. Installer qualifications using Macro Fiber reinforcement in finished, exterior concrete pavement.

D. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

PART 2 PRODUCTS

2.01 CRACK REPAIR AND JOINT TREATMENT

A. Track Repair and Joint Fabric:
1. ARMOR® Crack Repair System, 5050 Industrial Road, Farmingdale, NJ 07727
2. GUARDIAN® Crack Repair Product,
3. Riteway Crack Repair System, 4 Sycamore Way, Unit 7A, Branford, CT 06405
4. TitanTrax Shield System

B. Crack Fillers:
1. Acrylic Crack Patch, CourtFlex and CrackMagic by ThorWorks Industries, Inc., Sandusky, OH 44870
2. Acrylic Crack Filler, Crack Mastic, Acrylic Pourable Crack Filler by Tennis Court Supply, Sandy, UT 84092.
3. Equals as approved prior to bidding. Proposed equal requests are to include all product data, literature and product samples necessary to verify that it is of equal or greater quality than the specified products.

2.02 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Concrete Materials: Provide in accordance with State of Kentucky Highways standards.

C. Cement: ASTM C150/C150M, Air Entraining - Type IIIA High Early Strength Portland cement, gray color.

D. Fine and Coarse Mix Aggregates: ASTM C33/C33M.

E. Water: Clean, and not detrimental to concrete.

F. Fiber Reinforcement: Structural, macro synthetic, fibrilated, polypropylene fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 1.5 to 2 inch length and manufactured to provide post-cure concrete strength and increase freeze/thaw resistance.
1. Acceptable Products:
   a. TUF-STRAND SF by Euclid Chemical
   b. Nycon-XL200 by Nycon Corporation
   c. Fibermesh 650 by Propex Operating Company
   d. Forta-Ferro by Forta Corporation

G. Air-Entraining Admixtures: ASTM C260/C260M.

H. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing.
1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.03 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1, Class A. Contractor to confirm that any curing compound used is compatable with the cushioned track surface materials and will not adversely affect adhesion of the track surface material to the concrete.

2.04 CONCRETE MIX DESIGN

A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

B. Macro Fiber Reinforcement: Add to mix at rate of 7 pounds per cubic yard, or as recommended by manufacturer for specific project conditions. Fiber is to be added at the plant after all other materials have been added, and have a minimum mix time of 5-minutes..

C. Concrete Properties:
1. Compressive strength (prior to fiber), when tested in accordance with ASTM C39/C39M at 7 days; 4500 psi. Testing of the concrete mix prior to adding fiber and again after fiber has been added is required to set the compressive strength requirement for fiber reinforced concrete. This should be done for the first pour of each mix design and the results used to confirm future pours.
2. Total Air Content: 6 percent +/- 1%, determined in accordance with ASTM C 173/C 173M.
3. Maximum Slump: 4 inches using base design, 5 inches when using fiber and mid-range water reducer, 6 inches when using a mid-range water reducer, +/- 1-inch.
4. Maximum Aggregate Size: 1 inch.

2.05 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

B. Do not add water to the mix once the truck has left the concrete plant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 321123 for construction of base course for work of this Section.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.

3.04 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.05 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Do not add water to concrete.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.06 JOINTS AND CRACKS

A. Cracks in existing asphalt pavements are to be treated per below.

B. All concrete to asphalt joints are to be treated like cracks and are to receive crack repair fabric.

C. Cracks that are 1/32" wide or larger are to be cleaned, dried, primed and filled with an approved, crack filler. Cracks that are 1/4" wide or wider are to have crack filler installed to a minimum depth of three times the width of the crack (3/4" minimum) or to the bottom of the pavement. All fillers are to be pushed into the crack using a trowel or squeegee.

D. Filled cracks are to be observed after curing to check for sagging of the crack filler. If sagging or settlement of the crack filler is observed, additional crack filler is to be installed so that the filled crack is flush with the asphalt/concrete surface.

E. After the crack filler has cured, the crack is to be sanded (if required for planarity) and crack repair fabric is to be installed over all cracks per the manufacturer recommended method.

3.07 FINISHING

A. Area Paving: Light broom, texture perpendicular to pavement direction.

B. Remove "slop" created by the concrete finishing from all joints and edges.

C. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.08 TOLERANCES

A. Maximum Variation From True Position: 1/16 inch.

3.09 FIELD QUALITY CONTROL

A. Allow the independent testing agency to perform field quality control tests, as specified in Division 1.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.
   2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
   3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

B. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
   1. Test fiber reinforced concrete prior to the addition of fiber and again after fiber has been added to set the baseline for the fiber reinforced compressive strength, slump and air content. This is to be done for the first pour of each mix design, and the results used for later pour strength requirements.
   2. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
   3. Perform one slump test and one air content test for each set of test cylinders taken.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken. All test reports are to by typed.

D. Any tests or time limits that do not meet the specified requirements are to be reported to the Contractor and that concrete shall be considered unacceptable.

3.10 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 2 days minimum after finishing.

C. Do not permit vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

D. All pavements that are soiled or otherwise dirty are to be pressure washed and rinsed upon completion of the construction work and priot to track surface installation.

END OF SECTION

SECTION 321823.39 – TRACK & FIELD QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to provide survey and certification of key construction elements and the final track & field facility. The GC is responsible for completing all survey work.

1.2 CODES AND STANDARDS

A. The survey work must be completed by a licensed surveyor or registered engineer.

B. Codes and standards follow the current guidelines set forth by World Athletics (formerly IAAF), the National Collegiate Athletic Association (NCAA) and National Federation of State High School Associations (NFHS). Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced.

1.3 ABREVIATIONS

A. WA = World Athletics

B. IAAF = International Association of Athletics Federations

C. NCAA = National Collegiate Athletic Association

D. NFHS = National Federation of State High School Associations

E. T&F = Track & Field

F. SS = Synthetic Surface

G. SSC = Synthetic Surfacing Contractor

H. SSM = Synthetic Surfacing Manufacturer

I. GC = General Contractor

1.4 RELATED SECTIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface

4. 321823.41 T&F Line Markings
5. 321823.42 T&F Event Materials
6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC, this is the typical order of construction:
   1. The SSC MUST identify (mark on the survey submittal) all areas out of tolerance with the Bid Documents or the NCAA Rule book.
   2. The SSC MUST identify the elevations, the slope percentage, (mark on the survey submittal with slope arrows with % of slope value, i.e. 0.80% slope) all slopes (lateral, radial and in the direction of running & throwing), as identified in these Bid Documents.
   3. Athletes run counterclockwise around the oval and all elevations are in relation to this direction.
   4. Immediately after the T&F SS is removed:
      a. Survey the existing precast channel drain with elevations at:
         1) 1 point at each point-of-curvature (PC) plus 1 point centered on each straight between each PC plus 3 points equally spaced on each turn, total number of elevation points for the 400m oval = 12.
         2) The right-hand edge of the concrete surrounding the precast channel (in the direction of running).
         3) If the concrete is notched or held down, then two elevations are required one at the bottom & one at the top of the notch.
      b. At the outside concrete curb, survey the left-hand edge with elevations at:
         1) Perpendicular to the elevation points taken at the precast channel drain, listed above in item Submittals, 4., a.
         2) All sprint chute corners; identify cross slope perpendicular to channel drain & slope in the direction of running.
         3) If the concrete curb is notched or held down, then two elevations are required one at the bottom & one at the top of the notch.
      c. At the infield concrete curbs that are parallel to channel drain, survey the right-hand edge of the infield curb, with elevations at:
         1) Perpendicular to the elevation points taken at the precast channel drain, listed above in Submittals, 4., a.
         2) If the concrete curb is notched or held down, then two elevations are required one at the bottom & one at the top of the notch.
      d. At the straight portion of the concrete curb in the D-area (area inside the turn of the track oval & looks like the capital letter D), take 3 elevations equally spaced along the straight concrete curb that align with the elevations at the channel drain on the turn and provide a radial slope arrow with percentage.
      e. Provide verification that the 400 meter oval fits between the installed channel drain and outside concrete curb with the specified radius and number of running lanes, prior to installing T&F aggregate & asphalt subbase.
   5. After installation of all field events:
      a. Survey all field events with elevations as follows:
         1) 4 corners of all long/triple jump take-off board trays, flush with the

surrounding concrete.
2) 4 corners of all pole vault boxes (at the top of flange) and the nearest edge of surrounding concrete (concrete should be ½" lower).

b. Survey all field events with dimensions to determine:
1) The take-off boards are centered on the sand pit.
2) The take-off boards are parallel to the nearest edge of the sand pit.
3) The take-off boards (not the metal tray) are the correct distance from the sand pit.
4) The long axis of the pole vault boxes is parallel to the runway lines and all vault boxes are aligned with each other or as designed.

c. Survey javelin area:
1) Provide spot elevations at the discus along both sector lines and down the center at 100', 150', 213'-9" (Men's SEC Record) and 232'-11" (Men's Collegiate Record).
2) Provide one spot elevation at the javelin runway at middle of the foul line. Provide spot elevations at the javelin along both sector lines and down the center at 100', 150', 200', 273'-5" (Men's SEC Record) and 292'-4" (Men's Collegiate Record).

6. As needed, after installation of the asphalt or concrete subbase:
a. Survey the oval's asphalt subbase, with elevations at the inside edge of Lane 1, inside edge of Lane 5 and outside edge of lane 8, at:
1) All spot elevations to align with elevations listed above in item Submittals, 4., a.
2) All sprint chute corners and at the right-hand side of lane 1 & outside edge of the outer lane at the start lines for the 110 meter & 100 meters, provide lateral slope and slope in the direction of running.

b. Survey the asphalt or concrete subbase for all field events with elevations to determine the event meets the NCAA Rules and Bid Documents:
1) D-area for high jump
2) D-area for javelin runway: runway's lateral slope and slope in the direction of running, elevations every 10m along both runway lines, elevation points perpendicular to each other.
3) Long/triple jump asphalt base: runway's lateral slope and slope in the direction of running, elevations every 10m along both runway lines, elevation points perpendicular to each other.
4) Pole vault asphalt base: runway's lateral slope and slope in the direction of running, elevations every 10m along both runway lines, elevation points perpendicular to each other

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 321823.39

SECTION 321823.40 - TRACK & FIELD SYNTHETIC SURFACE

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install a first-class track & field re-surfacing product. The SSC is responsible for installing:
   1. All T&F SS materials and labor.
   2. All T&F line markings.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics, the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced and the NCAA notes that for technical information it yields to the World Athletics Facilities Manual.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. SSM = Synthetic Surfacing Manufacturer

H. GC = General Contractor

I. SBR = Styrene Butadiene Rubber

J. EPDM = Ethylene Propylene Diene Monomer

K. UV = Ultra-Violet

L. PU =Polyurethane

M. MDI = Methylene Diphenyl Isocyanate

N. TDI = Toluene Diisocyanate Isocyanate

O. VOC = Volatile Organic Compounds

P. TBD = To Be Determined

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC prior to installation.
   1. On-site Project Manager/Superintendent/Crew Chief Qualifications:
      a. This person will be on-site during all SS operations.
      b. Once the installation of the SS begins, no substitution of this person is allowed.
      c. This person must have completed a minimum of 5 facilities which are certified to meet NCAA or WA rules & regulations in the past 3 years utilizing the product specified in these specifications.
      d. If this person does not meet these qualifications, then SSC shall employ a person with the proper qualifications.
   2. Standard printed specifications of the SS system that is being installed and notify the Design Team of any deviations between this technical specification and the SSM specification.
   3. Installation process and requirements for subbase (stone, asphalt and concrete) and any conditions that may limit the SS installation or affect quality of installation.
   4. Temperature/climatic conditions limiting quality of installation.
   5. Standard specification and application for recommended subbase primers, crack filler, patching and leveling material.
   6. One product sample, a minimum of 6" x 6" in size, the same color, same texture, same thickness, etc. of the SS being installed. This must be a representative sample of the product. This sample must be submitted and approved by the Owner, prior to installation. During installation of the SS or at completion of the project this sample may be used as a comparison to judge the quality of the installed product. Separate SS samples are required for each color being installed.
   7. Material safety data sheets on all individual components of the product being installed.
   8. Provide a letter stating the SSC reviewed and accept the concrete and asphalt specification. Prior to installing the SS, the SSC must accept the installation of the concrete and asphalt as acceptable to receive the SS.
   9. Provide a letter from the SSM approving the SSC as a certified/acceptable installer of their SS, if applicable.

10. Provide WA certificate for all products being installed.
11. Provide WA “Report of Synthetic Surface Product Test” for the product being installed.
12. Written notice and acceptance that all embedded track equipment is installed as per the Contract Documents and as per the rules of the sport.

B. The following information shall be submitted after completion of the specified work:
1. SSC's and SSM’s standard Warranty, for installation and material respectively, noting any exceptions to the Warranty information included in this Specification Section.
2. Provide a “Care and Maintenance” manual for the Owner's use in maintaining the SS.

1.6 QUALITY ASSURANCE

A. The SSC shall coordinate all necessary information to the other sub-contractors and Owner that are working on the site. For example:
1. Watering natural grass.
2. The use of curing agents in concrete.
3. Subbase and concrete curb tolerances.
4. No vehicles allowed on the final wearing layer of asphalt.
5. Watering all dirt & dusty areas to prevent dust from contaminating the T&F SS.

B. GC must ensure all finished products are properly protected throughout the construction of this facility. For example:
1. The asphalt contractor must take great care NOT to damage the installed concrete curbs or pre-cast channel drains when rolling the asphalt.
2. The installed communication boxes are NOT damaged by adjacent construction.

C. Prior to installation, or during installation or at completion of installation of the SS, if the Owner has any question or doubt about the quality or formulation of the material, the SSC shall have the product tested. If the product meets these specifications, then the Owner shall pay for the cost of the testing; if the product does not meet these specifications or the SSM’s specifications, then the SSC shall pay for the testing. Any material failing to meet specifications will be replaced with new material at the SSC’s expense.

D. Slopes & Tolerances as per the NCAA rule book:
1. The maximum lateral inclination permitted for the outdoor oval track across the full width of the track, preferable toward the inside lane, across all separate outdoor straightaways and across all runways, should not exceed 1:100 (1%). The inside edge of the curb or lane line shall be horizontal throughout the length of the outdoor track.
2. The maximum overall downward inclination permitted in the running direction for the track, the running direction for all runways and the throwing direction for all landing sectors shall not exceed 1:1000 (0.1%). Inclination shall be measured by comparing the start and end points of the races that use a straightaway or a portion of the oval, the last 20 meters of the javelin runway, the start and end points of other runways, not to exceed 40 meters, and the full graded length of each landing sector.
3. In the high jump approach and takeoff area, the maximum overall downward inclination of the last 15 meters shall not exceed 1:167 (0.6%), in the direction toward the center of

the crossbar. If the high jump is located in the D-area, then the whole D-area must not exceed 0.6%.

4. The surface of a throwing circle shall be level.
5. The steeplechase water jump pit shall be level.
6. Depressions or humps cannot exceed 1/8 inch under a 10-foot straight edge.

1.7 SPECIAL PROJECT CONDITIONS

A. The SSC will provide a project manager/superintendent/crew chief on-site daily through the completion of the work.

B. Prior to any concrete being installed, the SSC must verify if any curing compounds or agents are allowed or acceptable.

1.8 SPECIFIC SCOPE OF WORK

A. The SSC shall verify the entire T&F subbase and all events to determine that:
   1. The T&F SS for the 400 meter track oval and all field events will accurately fit onto the Asphalt Paving base.
   2. The slopes, tolerances and elevations meet the required tolerances of these specifications and the rules of the NCAA.
   3. No bird baths or areas exceed the allowable limits as specified.

B. The SSC shall provide all labor, materials and equipment to perform the following work as designated in these specifications:
   1. The installation of all T&F SS materials, line markings and NCAA Certification.
   2. Review and approve installation of all T&F embedded equipment before any T&F SS is installed as specified and shown on the project drawings.
   3. Brush, blow, clean, wash down, etc. all areas to receive SS, as often as necessary during the installation of the T&F SS.
   4. Install removable SS (full pour polyurethane) plugs with the same wearing texture as the surrounding SS on top in all pole vault boxes, long/triple jump take-off boards (1” x 1” corner notches on one short side (12” side) of the plug), install a ¾” thick plug (cut in quarters) in all recessed throwing circles (2 x SP and 1 x DS) and apply synthetic surfacing to the steeplechase water jump covers and communication box covers.
   5. SSC must prevent PU from entering the channel drain’s slot opening. The drainage slot opening shall be neatly trimmed out (vertical 90 degree cuts only), after the synthetic surfacing installation. No PU is allowed on the inside of the drainage slot opening.
   6. Repair all damaged areas, clean-up all glue, and remove excess PU, primers and similar products. All trim cuts shall be neat and clean; on all curves & straights the trim-out shall follow the adjoining object for accuracy and neatness, i.e. concrete curb or painted line.

1.9 WARRANTY/GUARANTEE

A. Warranty period to be ten years on the newly installed T&F SS and all patches made during this installation.

B. Warranty shall cover all labor and materials to remove & dispose of defective materials and replace & install new materials during the warranty period including damaged line markings.

C. Warranties / Guarantees specified in this section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the GC under requirements of the Contract Documents.

D. The following are inclusive of the term "Track & Field Synthetic Surface" for provisions of the guarantee:
   1. All slopes & tolerances as required in this specification.
   2. T&F SS product as specified and represented by the SSC and SSM.
   3. All materials and products specified.
   4. All line markings installed in accordance with the Contract Documents.

E. SSC Guarantee: Provide in writing a "Full System Guarantee" agreement. The President/Principal(s) of both the SSC and the SSM (if different) shall sign this document and it shall include the following:
   1. All work executed under this section will be free from defects of material and workmanship for the specified period from date of Substantial Completion/Acceptance of the Owner.
   2. Any defects will be remedied on written notice at no additional cost to the Owner.
   3. The warranty shall not be prorated.
   4. All material shall be guaranteed to the extent that the surfacing:
      a. Has been manufactured, applied and will perform in accordance with these specifications, the SSC and SSM specifications & submittals and industry standards.
      b. Will hold fast and/or adhere to the primer, asphalt, concrete, edging, filler, patches or overlay materials.
      c. Is Ultra-Violet resistant, will not bubble, blister, fade, crack and wear or caulk excessively during the warranty period.
   5. One replacement of high stress areas during the warranty period at no cost to the Owner; High stress areas are estimated at 300 square yards. If possible, all replacements must be cut out to the nearest painted line and all painted lines repainted.
   6. One restriping of the T&F Line Markings during the warranty period at no cost to the Owner.

F. The SSC shall, in the presence of the Owner, inspect the T&F SS each year until the end of the warranty period, or at any time requested by the Owner. Any defects in workmanship or materials (at no fault of the Owner) shall be repaired at the expense of the SSC to the satisfaction of the Owner.

G. The Warranty does not cover any defect, failure, damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty or loads exceeding the SSC's "Care and Maintenance" manual.

PART 2 - PRODUCTS

2.1 TRACK & FIELD SYNTHETIC SURFACE

A. The SS shall be as per the SSC's specifications, plus the following requirements and where discrepancies exist, they shall be brought to the attention of the Owner or Owner's representative prior to Bidding and Installation.

B. The following SSC and their T&F SS products are approved:
1. Beynon Sports Surfaces, John Beynon, Cell # 410-935-4058
   a. **BASE PRODUCT**: BSS 2000 RE with Embedded EPDM Texture
   b. **ALTERNATE-2a**: BSS 2000 RE with Retention Coatings
2. GeoSurfaces Southeast, Danny Williamson, Cell # 828-399-1519
   a. **BASE PRODUCT**: Stockmeier Urethane, Stobitan Overpour with Embedded EPDM Texture
   b. **ALTERNATE-2b**: Stockmeier Urethane, Stobitan Overpour with Encapsulated Coatings
3. Rekortan, Serge Silva, Cell # 315-436-8892 or Keith Kernic, Cell # 609-608-2561
   a. **BASE PRODUCT**: Rekortan RT with Embedded EPDM Texture
   b. **ALTERNATE-2c**: Rekortan RT Encapsulated Coatings

C. Colors:
1. SSC to provide their standard colors (no custom colors), final colors TBD with shop drawings during the submittal phase.
2. All SS shall be Kentucky Blue with Mid-Gray accent color, colors to match existing locations.
3. **ALTERNATE-1a**: Mid-Gray for the 4x100 meter relay exchange zones using BASE PRODUCT.
4. **ALTERNATE-1b:** Mid-Gray for the 4x100 meter relay exchange zones using ALTERNATE 2 product.

D. Thickness:
1. SSC must bid & install a 2mm leveling layer and 5mm wearing layer for a total of 7mm of new product.

E. WA Certified Product:
1. The same materials used for this installation must be the same materials used in the Vendor's WA Certified Product's top wearing layer, i.e. same polyurethane and EPDM materials. The alternate & additional aliphatic coatings are exempt from this requirement.

F. **BASE PRODUCT** – Materials for a resurfacing system with Embedded EPDM Texture:
1. Product description is a two component, impermeable full depth PU with EPDM embedded wearing layer.
2. The approved SSC shall install their own proprietary product that, as closely as possible, that matches this specification. Any deviations from this specification must be approved by the Design Team in writing prior to ordering or materials arriving on-site.
3. Subbase Leveling & Patching Material: All materials must be approved by the SSC and compatible with the T&F SS, asphalt and concrete.

4. Primers: PU based primers specifically formulated to be compatible with the concrete, ACO Channel Drain or similar product, asphalt subbase and SS material.
5. The polyurethane is two-component, UV stabilized elastomeric polyurethane compounded from polyol and isocyanate components, based on 100% MDI, no TDI is allowed.
6. High quality, pigmented, virgin EPDM granules in the wearing layer, 1mm-4mm in size.
7. Colors: All pigmented materials must be the same color.

G. **ALTERNATE PRODUCT** – Same materials as Base Product listed above, but with the following addition:
   1. UV Coating: Single component, aliphatic coating, pigmented and low VOC.
   2. No EPDM granules in these spray applications.

H. All installed materials must be the standard materials as identified in the SSC's standard specifications and brochures.

PART 3 - EXECUTION

3.1 INSPECTION AND ACCEPTANCE

A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.

B. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 INSTALLATION REQUIREMENTS

A. The following installation requirements must be met by the SSC:
   1. Installation by SSC approved project manager/superintendent/crew chief, applicators and technicians. Local laborers may be hired for non-technical work, only.
   2. Upon SSC arrival, the GC shall have the subbase clean and free of dirt, oil, grease or any other residue. Once the SSC begins installation, it is the SSC's responsibility to clean the areas to receive the SS.
   3. Apply SS in dry weather when pavement and atmospheric temperatures are 50 degrees or above and are anticipated to remain above 50 degrees for 24 hours after SS installation.

3.3 PRODUCT INSTALLATION

A. As per the SSC's standard installation literature & brochure and must follow all industry standards.

B. **BASE PRODUCT** – Installation for the resurfacing system with Embedded EPDM Texture:
   1. Equipment: the material can be machined metered & mixed or mixed by hand, as specified in the Vendor's standard literature.

2. Primer shall be spray-applied or rolled in accordance with the SSC's specifications. Only those areas where SS will be installed the same day should receive primer. All concrete and ACO drain materials to be surfaced shall receive SSC's approved primer.
3. Leveling Layer: Install a two-component, pigmented polyurethane layer to the proper thickness.
4. Wearing Layer:
    a. Flow apply via a notched trowel the two component, pigmented PU. Broadcast the pigmented EPDM granules into the curing PU and ensure all PU is covered. After initial cure, the excess EPDM granules are removed by means of a mechanical sweeper. All loose granules MUST be thoroughly removed prior to the installation of line markings.
    b. The final wearing layer is a dense matrix of EPDM granules embedded into the PU with no bald spots.
    c. All excess & partially embedded EPDM granules must be thoroughly removed.
    d. All seams, including head seams, shall be flush to adjacent installation.
    e. All materials to match in color.

C. **ALTERNATE** – Same installation as Base Product listed above, but with the following addition:
1. UV Coating: Spray apply 2 coats, each in the opposite direction for a uniform coverage.
2. All adjacent materials and items must be covered with plastic to prevent those items from receiving any overspray.
3. No streaking or zebra striping allowed.

3.4 TIMING, LIMITATIONS, AND CONDITIONS AFFECTING INSTALLATION

A. Weather and Climate: If in the opinion of the SSC or the Owner, weather and climatic conditions are having or will have an adverse effect on installation; work shall be delayed until the adverse condition has passed.

B. Adjacent and Concurrent Construction: Installation shall not take place until the completion of the adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or SSC, would be harmful to the SS material. Under specific direction of the Owner, the SSC may be allowed to cover the track material with an approved covering if such harmful construction operations must occur after the SS material has been installed.

END OF SECTION 321823.40

SECTION 32 18 23.41 - TRACK & FIELD LINE MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install the NCAA T&F line markings. The SSC is responsible for the layout and installation of all painted line markings.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics, the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of World Athletics shall be enforced.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. SSM = Synthetic Surfacing Manufacturer

H. GC = General Contractor

I. UV = Ultra-Violet

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC for approved.
   1. A drawing depicting the colors of all line markings and labels of the events. Also, all symbols and markings clearly identified, illustrated, and their colors stated. The recommended WA & NCAA colors shall be used.
   2. ***Review & modify this written specification as needed and submit this specification on the SSC's letterhead as a submittal.***
   3. Installation process and requirements for line markings and any conditions that may limit the installation or affect quality of installation.
   4. Material safety data sheets on all products, as necessary.

B. The following information shall be submitted at the completion of the specified work.
   1. Upon completion of all line markings, the SSC shall submit to the Owner five diagram/drawing depicting and identifying all line markings: 1) a legend to the color codes, 2) a chart for all symbols, and 3) labels for all events.

PART 2 - PRODUCTS

2.1 PAINT

A. The latex or polyurethane paint must be approved by the SSC & SSM.

B. Temporary reference markings must be removed at the completion of the project or within the following 14 days, i.e. chalk.

C. Paint shall be UV stable and completely cover the T&F SS.

PART 3 - EXECUTION

3.1 SUMMARY

A. General line markings of the 400 meter T&F events shall be spray applied, using only paint, primers and finishes supplied and guaranteed by the SSC & SSM.

B. No line markings shall be installed if the weather conditions are not proper, i.e. too windy, cold or wet.

C. All line markings must be reviewed and verified with the Owner's representative prior to installation.

D. The line striper must NOT make any changes to the approved line marking submittal without the written approval from the Owner's representative (Architect, Engineer or T&F Consultant).

3.2 LINE MARKINGS

A. Paint – all markings to receive sufficient paint to fully cover the SS, no SS shall be visible under the installed paint. All paint shall be crisp with clean edges, no excessive overspray from working too fast or in excessive wind.

B. Track Oval

1. The measure line is not painted.
2. Oval distance is between 400.000 & 400.040 meters.
3. Existing radius to the oval's measure line is 130.000' and must be verified by SSC.
4. Track oval will utilize a portable curb, 30 cm rule.
5. Lane lines are 48 inches wide, measured from right hand side to right hand side of painted line.
6. Radius to the steeplechase right hand side of the painted line is 50.000', with 30cm rule. The SSC must measure and verify this dimension prior to demolition.
7. The steeplechase will have a portable curb, 30cm rule.
8. Steeplechase lane is 12' wide, measured from right hand side to right hand side of painted line. Both the inside and outside lines are to be painted.

C. Painted Line Precedence
1. Waterfall starting lines take precedence over straight starting lines.
2. ***Straight starting lines to taper at waterfall starting lines and maintain a 1/2" unpainted gap***.
3. Lane lines and start lines to take precedence over other markings.
4. Numbers and letters to be broken at all lane lines and start lines.

D. Straightaway Chute Extensions
1. Lines to be solid, not dashed.
2. Break chute extension lines 2" either side of track oval lane lines.

E. Assembly Lines – must be painted identical to the existing lines; color black, dashed and prior to the waterfall start line.

F. 100 Meters
1. Two directions on main straight and back straight
2. Event label
   a. 100
   b. Approximately 3" high
   c. The color is white
   d. Located in the outside lane and is above/past the starting line
3. Color of starting line is white

G. All USATF special events and all Hurdle Events must be installed and verified via submittal prior to installation, i.e. 80 meter hurdles for youth 11-12 years of age; 100 meter hurdles for youth girls 13-14 years of age; 100 meter hurdles for youth boys 13-14 and youth girls 15-16 years of age; 200 meter hurdles for youth girls & boys 13-14 years of age, etc.

H. 100 Meter Hurdles
1. Two directions on main straight and back straight
2. Event label
   a. 100
   b. Approximately 3" high
   c. The color is white
   d. Located in the outside lane and is above/past the starting line
3. Color of the starting line is white

4. The hurdle tick marks are yellow
    a. Hurdle tick marks are small triangles and pointing in the direction of running
    b. Two tick marks per lane with each tick mark adjacent to, but not touching the lane line

I. 110 Meter Hurdles
1. Two directions on main straight and back straight
2. Event label
    a. 110
    b. Approximately 3” high
    c. The color is white
    d. Located in the outside lane and is above/past the starting line
3. Color of the starting line is white
4. The hurdle tick marks are blue; if SS is blue, then use contrasting (light or dark) blue paint
    a. Hurdle tick marks are small triangles and pointing in the direction of running
    b. Two tick marks per lane with each tick mark adjacent to, but not on the lane line

J. 200 Meters
1. All in lanes
2. Both turns (normal & reverse)
3. Event label
    a. 200
    b. Approximately 3” high
    c. The color of the label to be white
    d. Located in lane 2 and is above/past the starting line
4. Color of the main starting line is white and the reverse starting line is black

K. 300 Meter Hurdles
1. All in lanes
2. Event label
    a. 300
    b. Approximately 3” high
    c. The color is white
    d. Located in lane 2 and is above/past the starting line
3. Color of the starting line is white
4. The hurdle tick marks are red; if the SS is red, then use contrasting red paint
    a. Hurdle tick marks are small triangles and pointing in the direction of running

L. 400 Meters
1. All in lanes
2. Event label
    a. 400
    b. Approximately 3” high
    c. The color is white
    d. Located in lane 2 and is above/past the starting line
3. Color of the starting line is white

M. 400 Meter Hurdles
    1. All in lanes
    2. Event label
        a. 400
        b. Approximately 3” high
        c. The color is white
        d. Located in lane 2 and is above/past the starting line
    3. Color of the starting line is white
    4. The hurdle tick marks are green; if SS is green, then tick marks are black
        a. Hurdle tick marks are small triangles and pointing in the direction of running

N. 800 Meters
    1. Waterfall start and 1 turn stagger in lanes
    2. Event label
        a. 800
        b. Approximately 3” high
        c. The color is white
        d. The 1 turn stagger start line label is in lane 2, the waterfall start line label is in the outside lane, and the labels are above/past the start line
    3. Color of the 1 turn stagger start line is white with a green insert, 2” by approx. 16” green insert centered
    4. The color of the waterfall start line is white

O. 1500 Meters
    1. Waterfall start
    2. Event label
        a. 1500
        b. Approximately 3” high
        c. The color is white
        d. Located in the outside lane and is above/past the start line
    3. The start line is white in color and painted in lane 1 out to the outer or furthest lane, into the chute if possible

P. 1600 Meters
    1. Waterfall start
    2. Event label
        a. 1600
        b. Approximately 3” high
        c. The color is white
        d. Located in the outside lane and is above/past the start line
    3. Color of the start line is white

Q. Mile Run
    1. Waterfall start
    2. Event label
        a. Mile
        b. Approximately 3” high
        c. The color is white

d. Located in the outside lane and is above/past the start line

3. Paint 3 x 1" wide by 3" long tick mark on the infield side of lane 1
    a. Tick marks are painted white and are for ¼ mile, ½ mile and ¾ mile splits, no labels painted
4. Color of the start line is white

R. 2000 Meter & 3000 Meter Steeplechase
1. Waterfall start
2. Event label
    a. 2000ST & 3000ST
    b. Approximately 3" high
    c. The color is white
    d. Located in the outside lane and is above/past the start line
3. Color of the start line is white
4. Hurdle tick marks are black and approximately 5" by 5" in size
5. Paint 2" white line at the inside and outside of the water jump lane (approach and exit)
    a. The lane is 12' wide and is measured from the right-hand side to the right-hand side of the painted line (same as track lanes)

S. 3200 Meters
1. Waterfall start
2. Event label
    a. 3200
    b. Approximately 3" high
3. The color is white
4. Located in the outside lane and is above/past the start line
5. Color of the start line is white

T. 5000 Meters
1. Waterfall start
2. Event label
    a. 5000
    b. Approximately 3" high
    c. The color is white
    d. Located in the outside lane and is above/past the start line
3. Color of the start line is white

U. 10000 Meters
1. Waterfall start
2. Event label
    a. 10000
    b. Approximately 3" high
    c. The color is white
    d. Located in the outside lane and is above/past the start line
3. Color of the start line is white

V. 4 x 100m Relay
1. All in lanes

2. Event label
    a. 400
    b. Approximately 3” high
    c. The color is white
    d. Located in lane 2 and is above/past the start line
3. Color of the start line is white, same starting line as the two turn staggered starting line for the 400 meters
4. The relay exchange zone markers are yellow
    a. The WA exchange zone marking is a straight line 1.10m from inner line, hook in 45°, outside 0.15m, for a 30 meter long exchange zone
    b. The zones must start and finish at the edges of the zone lines nearest the start line in the direction of running
5. 10m before the end of the exchange zone mark is a 2” by 16” white line, centered in the lane, for the third exchanges (second exchange uses the 200 meter start lines and third exchange uses the 300 meter start line)

W. 4 x 200m Relay
1. All in lanes
2. Event label
    a. 4 x 200
    b. Approximately 3” high
    c. The color is white
    d. Located in lane 2 and is above/past the start line
3. Color of the start line is white with a red insert, 2” by 16” red insert centered
4. The relay exchange zone markers are red
    a. The WA exchange zone marking is a straight line 1.10m from inner line, hook in 45°, outside 0.15m, for a 30 meter long exchange zone
    b. The zones must start and finish at the edges of the zone lines nearest the start line in the direction of running
    c. Only the first and second exchange zones are red, the third exchange zone uses the yellow second exchange zone for the 4 x 100m relay

X. 4 x 400m Relay
1. 3 turn stagger
2. Event label
    a. 4 x 400
    b. Approximately 3” high
    c. The color is white
    d. Located in lane 2 and is above/past the start line
3. Color of the start line is white with a blue insert, 2” by 16” blue insert centered
4. The relay exchange zone markers are blue
    a. The WA exchange zone marking is a straight line 0.80m from inner line, hook in 45°, outside 0.15m, for a 20 meter long exchange zone
    b. The first exchange of the baton shall use the staggered straight line with hooks
    c. The second and third exchange of the baton shall use the straight lines (0.80m long or 31.5” long by 2” wide) in lanes 2 thru the outer lane, 10 meters before the finish line; and the end of this exchange zone shall use the painted exchange zone in lane one (same as used in the first exchange) and the lines (0.80m long or 31.5” long by

2” wide) in lanes two thru five are in a straight line 10 meters past the finish line and parallel to the finish line

Y. 4 x 800m Relay
1. Waterfall start.

Z. Break Lines
1. One turn break line on the back straight is a solid line, curved and the color is green; painted from the outside lane to the inside of lane two
2. One turn break line on the home straight is a 2” by 2” green mark on lane fives inside lane line (a single cone will be placed on this mark during competition)
3. Provide 2” by 2” green tick marks, approx. every 13 feet (not to exceed every 4 meters), on lane fives inside lane line from the box alley start to the break line (both turns); these tick marks will indicate the location of the 15cm tall cones

AA. Finish Lines
1. Locations:
   a. Common finish line at the point of curvature (PC) on main straight
   b. Reverse finish line at the PC on the main straight and back straight
   c. Reverse 200 meter finish line located at the PC, at the end of the back straight
2. 2" wide and white in color
3. The intersection of all finish lines with the oval’s lane lines shall be alternating black marks as per the example in the current NCAA Rule Book
4. No lean lines are to be provided

BB. Staggered Alleys
1. Provide three 1 turn staggered alley start lines, two in turn 1 and 1 in turn 2, and the color is white for all staggered start lines
   a. Normal 1 turn stagger in turn 1, label painted as – 1 Turn
   b. Normal 1 turn stagger in turn 1, label painted as – Mile 1 Turn
   c. Normal 1 turn stagger in turn 2, label painted as – 1 Turn
2. Staggered alley start lines painted in lanes 5 thru outside lane

CC. Long/Triple Jump
1. Runway lines
   a. 2" wide lines
   b. White in color
   c. 48" wide runways (inside edge to inside edge of line)

DD. Pole Vault
1. Runway lines
   a. 2" wide lines
   b. White in color
   c. 48" wide runways (inside edge to inside edge of line)
   d. Terminate runway lines at zero line
2. Zero line
   a. ¾” wide line and 24' long, located at the back edge of box (not flange); should extend a minimum of 1 foot past the vault standards

b. White in color

3. NCAA Marks
   a. Provide seven runway markings in the center of the runway as per the dimensions and pattern in the current NCAA Rule Book.

EE. Javelin
1. Runway lines
   a. 2” wide lines
   b. White in color
   c. 13.123 feet wide (inside edge to inside edge of line) by 109.908’ (33.5m) long
2. Foul line
   a. 2.76” (7cm) wide line
   b. White in color
   c. Extend foul line at a right angle to the runway lines at the intersection of the foul line arc and runway lines 2.46’ (75cm)
   d. Paint sector lines from foul line to edge of SS
3. Radius Mark
   a. 6” tall triangle
   b. White in color
   c. Angle to match sector lines; Outside edge of 6” tall triangle to align with the inside edge of the sector lines and the rear point of 6” tall triangle shall mark the 8 meter distance to foul line

FF. Shot Put (inside and outside track oval)
1. Dividing lines
   a. 2" wide lines
   b. White in color
   c. Extend 2.46' (75cm) from outer edge of throw circle
   d. The 2” line is painted toward the top half of the circle, in the direction of throwing
2. Sector lines (34.92 degrees)
   a. 2" wide white lines
   b. White in color
   c. Outside the recessed throwing circle and from outer edge of throw circle to the end of concrete pad or beginning of the landing area
   d. Install 2" wide sector tick marks at the end of the landing area on the face of the concrete or timber curb (not included in project)

GG. Discus (inside and outside the track oval)
1. Dividing lines
   a. 2" wide lines
   b. White in color
   c. Extend 2.46' (75cm) from outer edge of throw circle
   d. The 2” line is painted toward the top half of the circle, in the direction of throwing
2. Sector lines (34.92 degrees)
   a. 2" wide white lines
   b. White in color
   c. Outside the recessed throwing circle and from outer edge of throw circle to the end of concrete pad

HH. Hammer/Discus (outside the track oval)
1. Dividing lines
    a. 2" wide lines
    b. White in color
    c. Extend 2.46' (75cm) from outer edge of throw circle
    d. The 2” line is painted toward the top half of the circle, in the direction of throwing
2. Sector lines (34.92 degrees)
    a. 2" wide white lines
    b. White in color
    c. Outside the recessed throwing circle and from outer edge of throw circle to the end of concrete pad

II. Lane Numbers
1. The numbers are a block style, approximately 24” to 30” high and the numbers will NOT have a color shadow
2. The color of the numbers will be white
3. Paint the following numbers:
    a. There is 1 set of numbers 1 foot before the common finish line, facing to the outside of the track oval
    b. There is 1 set of numbers staggered in the first turn, 1 foot above/past the 400M staggers
    c. There is 1 set of numbers staggered at the end of turn 1, 1 foot above/past the 300M Hurdle staggers
    d. There is 1 set of numbers staggered in the second turn, 1 foot above/past the 200M staggers
    e. Paint a set of numbers at the very end of each chute (1 foot from the end/edge of SS), in the chute & not in the oval lanes

JJ. Letters & Logos
1. The stencils for custom fonts for the letters and the logo are to be provided by the SSC
2. The Letters are to be a custom school font, 24” high
    a. The color of the letters, TBD by Owner
    b. The painted set of letters, Kentucky or Wildcats, will be field located by Owner
3. Logo size is no greater than 20’ by 20’
    a. The colors of the Logo similar to existing logo, TBD by Owner
    b. The painted two athletic department logo (UK or similar) will be field located by Owner

KK. Interval Marks
1. Provide a 1” wide by 3” long white line, on the T&F SS, on the infield side of lane one
    a. These lines are to be at 50 meter intervals starting at the common finish line and running the entire length of the track oval

END OF SECTION 321823.41

SECTION 32 18 23.42 - TRACK & FIELD EVENT MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install high quality track & field event special materials. The SSC is responsible for installing:
   1. Re-using existing sand for the long and triple jump sand pits.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics (formerly IAAF), the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced.

1.3 ABREVIATIONS

A. WA = World Athletics

B. IAAF = International Association of Athletics Federations

C. NCAA = National Collegiate Athletic Association

D. NFHS = National Federation of State High School Associations

E. T&F = Track & Field

F. SS = Synthetic Surface

G. SSC = Synthetic Surfacing Contractor

H. GC = General Contractor

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC prior to installation.
   1. Installation process and requirements for the special materials and any conditions that may limit the installation or affect quality of installation.
   2. SSC to supply Design Team with a one-half gallon sample of new product for visual inspection and testing, if existing sand must be added to.

1.6 QUALITY ASSURANCE

A. The physical make-up of the existing sand is approved by the Owner.

PART 2 - PRODUCTS

2.1 SAND FOR LONG & TRIPLE JUMP SAND PITS

A. The SSC shall protect the existing sand in the sand pits from contamination.

PART 3 - EXECUTION

3.1 INSPECTION AND ACCEPTANCE

A. SSC must cover and protect the existing sand from contamination.

B. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.

C. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 INSTALLATION REQUIREMENTS

A. None.

END OF SECTION 321823.42

SECTION 32 18 23.43 - TRACK & FIELD CERTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to provide an NCAA certification for all new work performed in this project.

B. The SSC shall be responsible for this certification.

1.2 CODES AND STANDARDS

A. The survey work must be completed by a licensed surveyor or registered engineer.

B. Codes and standards follow the current guidelines set forth by World Athletics, the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced and the NCAA notes that for technical information it yields to the World Athletics Facilities Manual.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. GC = General Contractor

1.4 RELATED SECTIONS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 Track & Field Equipment
   2. 321823.39 Track & Field Quality Control
   3. 321823.40 Track & Field Synthetic Surface
   4. 321823.41 Track & Field Line Markings
   5. 321823.42 Track & Field Event Material

6. 321823.43 Track & Field Certification

PART 2 - CERTIFICATION SURVEY

2.1 FACILITY INFORMATION

A. Owner: _____

B. Facility Name: _____

C. Location: _____

2.2 SURVEYOR / ENGINEER INFORMATION

A. Firm Name: _____

B. Address: _____

C. Contact: _____

D. Phone #: _____

E. Email: _____

F. Registration: _____

2.3 SURVEY INFORMATION

A. Date of Survey: _____

B. Weather Conditions: _____

C. Surveyor must provide and attach a Certificate of Instrument Accuracy for the instrument used in the survey, current at the time of the survey (less than one year old), that can be traced back to national and international standards of measurement.

D. Notes:
1. Distances longer than 20m are to be measured by electro optical instruments.
2. Angles are to be measured by theodolite.
3. If there are more events than allowed for on this form, the additional information must be provided on additional pages.
4. All measurements & calculations of length must be to the nearest mm (0.000).

PART 3 - TRACK OVAL MEASUREMENTS

3.1 All measurements and calculations to 0.001m

3.2 Raised aluminum curb (Y/N): _____

A. Note: measure line at 30cm for portable raised curb and 20cm for no curb

3.3 Maximum length of the 400 meter oval is 400.040 meters: distance is _____

3.4 Radius to measure line: _____

3.5 Distance between radius points: _____

3.6 Oval - lane 1 distance: _____

3.7 Lane widths

A. Note: lanes shall have the same width of 1.067m (42") and of 1.220m (48") including the white line to the right (+/- 1cm)

	Lane Width								
Location	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Beginning - turn 1 (PC)									
1/4 way - turn 1									
1/2 way - turn 1									
3/4 way – turn 1									
End of turn 1 (PC)									
Middle of back straight									
Beginning - turn 2 (PC)									
1/4 way – turn 2									
1/2 way - turn 2									
3/4 way – turn 2									
End of turn 2 (PC)									
Middle of main straight									

3.8 TRACK OVAL – LATERAL SLOPE

A. Note: maximum lateral slope across the full width of the track oval shall not exceed 1:100 or 0.010 (1.0%)

B. Slope from outside lane to inside lane 1 (Y/N): _____

C. Elevation shots taken on the right-hand edge of lane 1 to the right-hand edge of outer lane

Oval Location	**Max.**	**Lateral Incline**
Beginning – turn 1 (PC)	0.010	
1/4 way - turn 1	0.010	
1/2 way - turn 1	0.010	

3/4 way - turn 1	0.010	
End of turn 1 (PC)	0.010	
Middle of back straight	0.010	
Beginning – turn 2 (PC)	0.010	
1/4 way - turn 2	0.010	
1/2 way - turn 2	0.010	
3/4 way - turn 2	0.010	
End of turn 2 (PC)	0.010	
Middle of main straight	0.010	

3.9 OVERALL SLOPE – RUNNING EVENTS

A. Maximum downward inclination in the direction of running shall not exceed 1:1000 or 0.001m (0.1%) over the entire length of the event

Overall Incline										
Event	**Max.**	**Lane 1**	**Lane 2**	**Lane 3**	**Lane 4**	**Lane 5**	**Lane 6**	**Lane 7**	**Lane 8**	**Lane 9**
100m	0.001									
100m Rev.	0.001									
100m Other	0.001									
110m	0.001									
110m Rev.	0.001									
110m Other	0.001									
200m	0.001									
200m Rev.	0.001									
300m	0.001									

PART 4 - EVENT MEASUREMENTS AND MARKINGS

4.1 All entries to be in meters unless otherwise noted

4.2 No event distance can be less than the event length

4.3 The stated running event cannot exceed +0.01% x length of race (i.e. 200m x 0.01% = 0.02m or 200.020m)

4.4 Races run on straightaway – distance shall be measured in a straight line from the starting line to the finish line.

4.5 Lane one – distance from the measuring line to the inside painted line (right-hand edge of the line, in the direction of running) with a raised portable curb shall be 30cm; if a raised portable curb is not present in lane one, then the distance shall be 20cm.

4.6 Lane 2 through the outer lane – distance shall be measured 20cm from the right-hand edge of the lane line, in the direction of running.

A. Notes:

1. 4 x 100m relay start line is the same as the 400m start line run in lanes with a 2 turn stagger
2. Sprint medley relay (200m, 200m, 400m, 800m) start line is the same as the 4 x 400m relay with a 3 turn stagger

		Event Distance per Lanes								
Event	**Max.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
100m	100.010									
100m Rev.	100.010									
110m	110.011									
110m Rev.	110.011									
200m	200.020									
200m Rev.	200.020									
300m	300.030									
400m	400.040									
800m	800.080									
4 x 200m	800.080									
4 x 400m	1600.160									

4.7 WATERFALL STARTING LINES

A. Events: 800m, 1500m, 1600m, 1-mile, 2-mile, 2000m steeplechase, 3000 steeplechase and 5000m.

1. Surveyor to identify on a separate sheet of paper any waterfall curved start line that is not in compliance with the rule.

B. Waterfall curved start lines are marked in a way that all competitors will run the same distance: Y/N _____.

C. Box alley (lane 5 to outer lane) curved start lines are marked in a way that all competitors will run the same distance: Y/N _____.

4.8 RELAY RACES – MEASURED DISTANCE OF EXCHANGE ZONES

A. In the 4x100 and 4x200 meter relays the exchange zone shall be 30 meters, of which the scratch line is 10 meters from the end of the zone.

B. In the 4x400 meter relay the exchange zone shall be 20 meters, of which the scratch line is in the middle of the zone.

C. World Athletics allows +/- 2cm tolerance for the exchange zone

Event	**Lanes**								
4x100m	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Tolerance for 30m zone: 29.98m -30.02m									
Length of Zone 1									
Length of Zone 2									
Length of Zone 3									
4x200m	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Tolerance for 30m zone: 29.98m-30.02m									
Length of Zone 1									
Length of Zone 2									
*Note: Exchange zone 3 for the 4x200m relay is the same as exchange zone 2 for the 4x100m relay									
Tolerance for 20m zone: 19.98m-20.02m									
4x400m	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Length of Zone 1									
Length of Zone 2									

4.9 HURDLE EVENTS

A. **Item 0** is the distance of start line to first hurdle

B. **Items 1-10** is the distance between hurdles for 100mh, 110mh & 400mh; items 1-8 for 300mh

C. **Item 11** is the distance of last hurdle to finish line for 100mh, 110mh & 400mh; item 9 for 300mh

D. Tolerance of +/- 0.01m (1cm) for 100mh and 110mh as stated by WA

E. Tolerance of +/- 0.03m (3cm) for 300mh & 400mh; as stated by WA, assumed tolerance for 300mh since NFHS does not list a tolerance

F. For additional hurdle races please provide on separate document

Event: 100mh		**Lanes**								
Items	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-13.00m	12.99-13.01									
1-8.50m	8.49-8.51									
2-8.50m	8.49-8.51									
3-8.50m	8.49-8.51									
4-8.50m	8.49-8.51									
5-8.50m	8.49-8.51									
6-8.50m	8.49-8.51									
7-8.50m	8.49-8.51									
8-8.50m	8.49-8.51									
9-8.50m	8.49-8.51									
10-8.50m	8.49-8.51									
11-10.50m	10.49-10.51									
Event: 110mh		**Lanes**								
Item	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-13.72m	13.71-13.73									
1-9.14m	9.13-9.15									
2-9.14m	9.13-9.15									
3-9.14m	9.13-9.15									
4-9.14m	9.13-9.15									
5-9.14m	9.13-9.15									
6-9.14m	9.13-9.15									
7-9.14m	9.13-9.15									
8-9.14m	9.13-9.15									

9-9.14m	9.13-9.15									
10-9.14m	9.13-9.15									
11-14.02m	14.01-14.03									
Event: 300mh		**Lanes**								
Item	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-45.00m	44.97-45.03									
1-35.00m	34.97-35.03									
2-35.00m	34.97-35.03									
3-35.00m	34.97-35.03									
4-35.00m	34.97-35.03									
5-35.00m	34.97-35.03									
6-35.00m	34.97-35.03									
7-35.00m	34.97-35.03									
8-35.00m	34.97-35.03									
9-10.00m	9.97-10.03									
Event: 400mh		**Lanes**								
Item	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-45.00m	44.97-45.03									
1-35.00m	34.97-35.03									
2-35.00m	34.97-35.03									
3-35.00m	34.97-35.03									
4-35.00m	34.97-35.03									
5-35.00m	34.97-35.03									
6-35.00m	34.97-35.03									
7-35.00m	34.97-35.03									
8-35.00m	34.97-35.03									
9-35.00m	34.97-35.03									
10-35.00m	34.97-35.03									
11-40.00m	39.97-40.03									

Event: 100mh Reverse		**Lanes**								
Item	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-13.00m	12.99-13.01									
1-8.50m	8.49-8.51									
2-8.50m	8.49-8.51									

3-8.50m	8.49-8.51									
4-8.50m	8.49-8.51									
5-8.50m	8.49-8.51									
6-8.50m	8.49-8.51									
7-8.50m	8.49-8.51									
8-8.50m	8.49-8.51									
9-8.50m	8.49-8.51									
10-8.50m	8.49-8.51									
11-10.50m	10.49-10.51									
Event: 110mh Reverse		**Lanes**								
Item	**Tolerance**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0-13.72m	13.71-13.73									
1-9.14m	9.13-9.15									
2-9.14m	9.13-9.15									
3-9.14m	9.13-9.15									
4-9.14m	9.13-9.15									
5-9.14m	9.13-9.15									
6-9.14m	9.13-9.15									
7-9.14m	9.13-9.15									
8-9.14m	9.13-9.15									
9-9.14m	9.13-9.15									
10-9.14m	9.13-9.15									
11-14.02m	14.01-14.03									

4.10 STEEPLECHASE

A. Length of 3000m steeplechase: _____

B. Length of 2000m steeplechase: _____

C. Water jump location (inside/outside oval): _____

D. Is the water jump the fourth jump in each lap (Y/N): _____

E. Are there four hurdle jumps in each lap (Y/N): _____

F. Raised curb at steeplechase water jump (Y/N): _____

G. Water Jump:

1. Water jump is level, all 4 corners at same elevation (Y/N): _____

2. Length from face of barrier to end of water (3.66m +/- 2cm): _____
3. Width (3.66m +/- 2cm): _____
4. Depth (at least 50cm to 70cm): _____
5. Flat bottom distance (approx.)1.2m: _____
6. Angle of slope coming out of water jump (12.4° ±1°): _____

H. Barrier height

1. Women's (0.762m +/- 3mm): _____
2. Men's (0.914m +/- 3mm): _____

4.11 POLE VAULT

A. Rules:

1. Recommended runway width 1.22m (+/- 0.01m)
2. Minimum runway length of 40m and optimum length of 45m

Runways		
Location/Direction of Runway	**Length (m)**	**Width (m)**
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

B. Runway markings

1. Center of runway
2. Line width of 5cm
3. Short line length of 30cm
4. Long line length of 90cm at 3.650m
5. Distance: the distance from the edge of the long 90 cm line closest to the landing pit to the point where the back of the vaulting box meets the zero line is 3.65m (12'). Each line is 30cm from the same respective point of the adjacent line
6. Zero line painted 3/4" wide by 24' long at back edge of vault box, not flange
7. Runway markings correct (Y/N): _____.

C. Lateral Slope

1. Rule: Maximum lateral inclination across the full width of runways shall not exceed 1:100 or 0.01 (1.0%)

Runway - Lateral Incline Less than 1.0%								
Yes / No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Yes / No								

D. Overall Slope

1. Rule: Maximum downward inclination in the direction of running shall not exceed 0.1% over the entire length of the runway, not to exceed 40 meters

Runway – In the last 40m, Overall Downward Incline is Less than 0.1%								
Yes / No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Yes / No								

4.12 LONG & TRIPLE JUMP

A. Rules:

1. Recommended width 1.22m (+/- 1cm)
2. Minimum length 40m (131.234ft.) from the furthest takeoff board from the sand pit
3. Distance between the foul line and the nearer edge of the sand in the landing area shall not be less than 1m or greater than 3m for the long jump.
4. Distance between the foul line and the farther edge of the sand in the landing area shall be at least 10m for the long jump.
5. Distance from nearest edge of sand in the landing area to the triple jump foul line
   a. Men's: 11m (min.) and 12.5m (recommended)
   b. Women's: 8.5m (min.) and 11m (recommended)

Runways						
			Takeoff Boards (Distance in meters from takeoff board/foul line to nearest edge of sand)			
Location/Direction of Runway	**Length (m)**	**Width (m)**	**Board 1**	**Board 2**	**Board 3**	**Board 4**
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

Takeoff Boards Centered on Sand Pit

	Takeoff Boards Centered (Yes or No)			
Location/Direction of Runway	**Board 1**	**Board 2**	**Board 3**	**Board 4**
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

B. Sand Pit Width

1. Sand pit #1 inside width (2.75m – 3.0m): _____
2. Sand pit #2 inside width (2.75m – 3.0m): _____
3. Sand pit #3 inside width (2.75m – 3.0m): _____
4. Sand pit #4 inside width (2.75m – 3.0m): _____

C. Sand pit or landing area border level may not be more than 0.02m lower than the highest part of the highest take-off board.

1. Sand pit #1 (Y/N): _____
2. Sand pit #2 (Y/N): _____
3. Sand Pit #3 (Y/N): _____
4. Sand Pit #4 (Y/N): _____

D. Runway Lateral Slope

1. Rule: Maximum lateral inclination across the full width of runways shall not exceed 1.0%

Runway - Lateral Incline Less than 1.0%								
Yes / No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Yes / No								

E. Overall Slope

1. Rule: Maximum overall downward inclination of the runway in the last 40m in the direction of running shall not exceed 0.1% when measured to the level of the lowest part of the take-off board.

Runway - Overall Downward Incline Less than 0.1%								
Yes / No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
40m to men's TJ board								

40m to women's TJ board								
40m to LJ board								

4.13 HIGH JUMP

A. Rules:

1. The maximum overall downward inclination of the last 15 meters shall not exceed 1:167 or 0.6% (rule change - prior to Dec 2022 was 0.4%), in the running direction toward the center of the crossbar
2. The minimum overall length shall be 15m for NCAA; optimum of 25m for WA
3. Takeoff area shall be a semicircle enclosed by a 3m radius; whose center point is directly under the center of the crossbar

B. If the high jumps areas are located in the D-area, then the maximum overall downward inclination in the D-area shall not exceed 1:167 or 0.6%, in the running direction toward the center of the crossbar

Yes / No	**Maximum Overall Downward Inclination is Less than 0.6%**
#1 (if not in D-area)	
#2 (if not in D-area)	
D-area #1	
D-area #2	

4.14 JAVELIN

A. Rules:

1. Maximum lateral inclination across the full width of the runways shall not exceed 1:100 or 0.01 (1.0%)
2. Maximum downward inclination in the direction of running or throwing shall not exceed 1:1000 or 0.001 (0.1%) over the last 20 meters of the javelin runway
3. The Javelin runway shall have a minimum length of 33.5m for NCAA
4. The Javelin Runway shall be 4m wide (13.123') plus the 5cm painted lines
5. Arc Radius: 8m
6. Maximum downward inclination of the landing area shall not exceed 1:1000 or 0.001 (0.1%) when measured from the level of the center of the throwing arc

Runway (add plus sign (+) if upward & minus sign (-) if downward to the Landing Area value)				
Location/Direction of Runway	**Length (m)**	**Width (m)**	**Radius of Arc (m)**	**Landing Area Incline**
1.				
2.				

B. Lateral Slope

Runway - Lateral Inclination Less than 1.0%		
Yes / No	**Runway 1**	**Runway 2**
Yes / No		

C. Overall Slope in the Direction of Running

Runway - Overall Inclination in the Last 20m is Less than 0.1%		
Yes / No	**Runway 1**	**Runway 2**
Yes / No		

END OF SECTION 32 18 23.43

SECTION 334101
SITE STORM DRAINAGE PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Storm drainage piping, fittings, and accessories.

1.02 RELATED REQUIREMENTS

A. Section 312316.13 - Trenching: Excavating, bedding, and backfilling.

B. Section 334416 - Trench Drains

1.03 DEFINITIONS

A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.04 REFERENCE STANDARDS

A. AASHTO M 252M AND M 294M - Standard Specification for Corrugated Polyethylene (PE) Drainage Pipe.

B. ASTM F 667 - Standard Specification for Large Diameter Corrugated Polyethylene (PE) Pipe and Fittings.

C. ASTM F 447 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

D. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating pipe, pipe accessories,and fittings.

C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Project Record Documents:
   1. Record location of pipe runs, connections, and invert elevations.

PART 2 PRODUCTS

2.01 SEWER PIPE MATERIALS

A. Corrugated PE Drainage Pipe and Fittings: Type S, dual wall with smooth waterway for coupling joints and PE sleeve with gasket material that mates with pipe and fittings to make them watertight. Approved manufacturers are:
   1. Advanced Drainage Systems, Inc., N-12 Pipe (www.ads-pipe.com)
   2. Timewell, Dual Wall Pipe(www.timewelltile.com)
   3. Baughman Tile Company, Dual Wall Pipe (www.baughmantile.com)
   4. Hancor, Blue Seal Pipe (www.hancor.com)
   5. Prinsco, Goldflow WT (www.prinsco.com)
   6. J.M. Eagle- product Eagle Corr Dual Wall Watertight Pipe. (www.jmeagled.com)
   7. Substitutions: As submitted for review and approved by architect by addendum during the bidding process.

2.02 PIPE ACCESSORIES

A. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required wye, bends, elbows, cleanouts, reducers, traps and other configurations required.

B. Trace Tape: Magnetic detectable conductor, clear plastic covering, imprinted with "Storm Sewer Service " in large letters.

2.03 BEDDING AND COVER MATERIALS

A. Bedding: As specified in Section 312316.13.

B. Cover: As specified in Section 312316.13.

PART 3 EXECUTION

3.01 TRENCHING

A. See Section 312316.13 for additional requirements.

B. Hand trim excavation for accurate placement of pipe to elevations indicated.

C. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.02 INSTALLATION - PIPE

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on layout drawings.

B. Lay pipe to slope gradients noted on layout drawings; with maximum variation from true slope of 1/8 inch in 10 feet.

C. Connect to existing storm drainage system, foundation drainage system, and utility/municipal sewer system.

D. Install continuous trace wire 6 to 12 inches below finish grade, above pipe line; coordinate with Section 312316.13.

3.03 FIELD QUALITY CONTROL

A. See Division 1 Sections for general requirements for testing and inspections.

B. Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

C. Piping that is crushed, cracked, broken or otherwise damaged will require repair or replacement as determined by the Architect.

D. The contractor is to provide someone to remove and replace all grates or covers on storm water structures for any punch list visits that involve the storm water system.

3.04 PROTECTION

A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 334416
TRENCH DRAINS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Monolithic FRP trench drains, anchorage, and accessories.

1.02 RELATED REQUIREMENTS

A. Section 015713 - Temporary Erosion and Sediment Controls for temporary inlet protection

B. Section 321313 - Concret Paving for trench drain concrete.

1.03 REFERENCE STANDARDS

A. ASTM D 3753 - Standard Specification for Glass-Fiber-Reinforced Polyester Structures; 2005.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate structure identification designations, locations, elevations, piping sizes and elevations of penetrations.

C. Product Data: Provide structure data including configuration, grates, frames and other components .

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Stainless Steel: Type 304 or 316

B. Approved Manufacturers:
   1. Aco-Drain
   2. Equivalent approved through addendum during bidding.

2.02 TRENCH DRAIN COMPONENTS

A. Grates: Slot parallel to channel, vehicular rated.

B. Trench Channel: pre-molded polyester or Fiber-reinforced resin with traffic duty H-20 load rating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into Work.

C. Verify excavation for structure is correct.

3.02 INSTALLATION

A. Form bottom of excavation clean and smooth to correct elevation.

B. Form and place cast-in-place concrete anchors as required by system manufacturer.

C. Establish elevations and pipe inverts for inlets and outlets as indicated.

D. Anchor pre-manufactured channel sections to prevent floating during concrete installation.

E. Coordinate with other sections of work to provide correct size, shape, and location.

3.03 FIELD QUALITY CONTROL

A. Structures that are cracked, broken or otherwise damaged will require repair or replacement as determined by the Architect.

B. The contractor is to provide someone to remove and replace all grates or covers on storm water structures for any punch list visits that involve the storm water system.

END OF SECTION

SECTION 11 68 33.43 - TRACK & FIELD EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install a first-class track & field equipment.

B. The SSC is responsible for the purchase and installation of all track & field equipment. The SSC is responsible for installation of synthetic surface in, around and on top of the specified equipment, as needed.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics (formerly IAAF), the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly the IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. GC = General Contractor

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC prior to installation.
   1. Standard printed specifications and diagrams or drawings depicting installation directions and dimensions for all in-ground sports equipment.
   2. Installation process and requirements for subbase (stone and asphalt) and any conditions that may limit the installation or affect quality of installation.
   3. Material safety data sheets on all products, as necessary.

1.6 QUALITY ASSURANCE

A. The SSC shall only accept bids from those vendors or manufacturers that have been pre-approved or identified as approved equal.

PART 2 - PRODUCTS

2.1 T&F EQUIPMENT

A. The following vendors/manufacturers are approved for bidding:
   1. Gill Athletics, Mike Cunningham at 217-898-3038
   2. UCS Spirit, Mike Chappell at 530-228-5826
   3. SportsField Specialties, Dave Moxley at 607-287-9460

B. Basis of Design: the manufacturer's product number listed in this specification establishes the minimum quality for each product. SSC may not substitute products from the other manufacturers.

C. T&F Inground/Embedded Equipment
   1. Sportsfield Specialties and their products are the basis of design.
   2. Pole Vault Boxes:
      a. Twelve Cast Aluminum Vault Boxes, white, pole vault boxes with the covers/lids. Model # PVBCAW.
   3. Long & Triple Jump:
      a. Twelve Adjustable 12” Take Off-Board Systems for NCAA long & triple jump. This product is the 8 inch wide synthetic board, with 4 inch foul board and blanking lids are required. Model # LJTJOB12.
   4. Steeplechase:
      a. One Water Jump Hurdle with barrier seal with custom logo. Model # SCWJH.
   5. Portable Curb:
      a. One aluminum curb, powder coated white, for a non-permanent install for the 400 meter oval. Model # TCBP.
         1) The sections shall be numbered on the bottom side.
         2) The curb shall be cut with sections removeable at the entrance and exit of the steeplechase running lane and at the javelin runway.
         3) The steeplechase water jump run-up will have an aluminum curb (30cm rule).

D. T&F Barrier Netting / Ball Stopping System – not included in this specification.

E. T&F Loose Equipment – not included in this specification.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. The SSC prior to removing the embedded T&F equipment must measure & locate these items so the new equipment items are replaced in the exact same location.

B. The installation of the in-ground/embedded sports equipment shall follow the directions of the manufacturer and/or vendor. Shop drawings must be submitted and approved prior to ordering and installation of equipment.

END OF SECTION 116833.43

SECTION 321823.40 - TRACK & FIELD SYNTHETIC SURFACE

PART 1 - GENERAL

1.1 SUMMARY

A. This section covers all labor and materials required to install a first-class track & field re-surfacing product. The SSC is responsible for installing:
   1. All T&F SS materials and labor.
   2. All T&F line markings.

1.2 CODES AND STANDARDS

A. Codes and standards follow the current guidelines set forth by World Athletics, the National Collegiate Athletic Association and National Federation of State High School Associations. Where discrepancies are noted between these various governing bodies, the rules of the NCAA shall be enforced and the NCAA notes that for technical information it yields to the World Athletics Facilities Manual.

1.3 ABREVIATIONS

A. WA = World Athletics (formerly IAAF)

B. NCAA = National Collegiate Athletic Association

C. NFHS = National Federation of State High School Associations

D. T&F = Track & Field

E. SS = Synthetic Surface

F. SSC = Synthetic Surfacing Contractor

G. SSM = Synthetic Surfacing Manufacturer

H. GC = General Contractor

I. SBR = Styrene Butadiene Rubber

J. EPDM = Ethylene Propylene Diene Monomer

K. UV = Ultra-Violet

L. PU =Polyurethane

M. MDI = Methylene Diphenyl Isocyanate

N. TDI = Toluene Diisocyanate Isocyanate

O. VOC = Volatile Organic Compounds

P. TBD = To Be Determined

1.4 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section. The following Sections are specifically related to this Section:
   1. 116833.43 T&F Equipment
   2. 321823.39 T&F Quality Control
   3. 321823.40 T&F Synthetic Surface
   4. 321823.41 T&F Line Markings
   5. 321823.42 T&F Event Materials
   6. 321823.43 T&F Certification

1.5 SUBMITTALS

A. The following information must be submitted by the SSC prior to installation.
   1. On-site Project Manager/Superintendent/Crew Chief Qualifications:
      a. This person will be on-site during all SS operations.
      b. Once the installation of the SS begins, no substitution of this person is allowed.
      c. This person must have completed a minimum of 5 facilities which are certified to meet NCAA or WA rules & regulations in the past 3 years utilizing the product specified in these specifications.
      d. If this person does not meet these qualifications, then SSC shall employ a person with the proper qualifications.
   2. Standard printed specifications of the SS system that is being installed and notify the Design Team of any deviations between this technical specification and the SSM specification.
   3. Installation process and requirements for subbase (stone, asphalt and concrete) and any conditions that may limit the SS installation or affect quality of installation.
   4. Temperature/climatic conditions limiting quality of installation.
   5. Standard specification and application for recommended subbase primers, crack filler, patching and leveling material.
   6. One product sample, a minimum of 6" x 6" in size, the same color, same texture, same thickness, etc. of the SS being installed. This must be a representative sample of the product. This sample must be submitted and approved by the Owner, prior to installation. During installation of the SS or at completion of the project this sample may be used as a comparison to judge the quality of the installed product. Separate SS samples are required for each color being installed.
   7. Material safety data sheets on all individual components of the product being installed.
   8. Provide a letter stating the SSC reviewed and accept the concrete and asphalt specification. Prior to installing the SS, the SSC must accept the installation of the concrete and asphalt as acceptable to receive the SS.
   9. Provide a letter from the SSM approving the SSC as a certified/acceptable installer of their SS, if applicable.

10. Provide WA certificate for all products being installed.
11. Provide WA “Report of Synthetic Surface Product Test” for the product being installed.
12. Written notice and acceptance that all embedded track equipment is installed as per the Contract Documents and as per the rules of the sport.

B. The following information shall be submitted after completion of the specified work:
1. SSC's and SSM’s standard Warranty, for installation and material respectively, noting any exceptions to the Warranty information included in this Specification Section.
2. Provide a “Care and Maintenance” manual for the Owner's use in maintaining the SS.

1.6 QUALITY ASSURANCE

A. The SSC shall coordinate all necessary information to the other sub-contractors and Owner that are working on the site. For example:
1. Watering natural grass.
2. The use of curing agents in concrete.
3. Subbase and concrete curb tolerances.
4. No vehicles allowed on the final wearing layer of asphalt.
5. Watering all dirt & dusty areas to prevent dust from contaminating the T&F SS.

B. GC must ensure all finished products are properly protected throughout the construction of this facility. For example:
1. The asphalt contractor must take great care NOT to damage the installed concrete curbs or pre-cast channel drains when rolling the asphalt.
2. The installed communication boxes are NOT damaged by adjacent construction.

C. Prior to installation, or during installation or at completion of installation of the SS, if the Owner has any question or doubt about the quality or formulation of the material, the SSC shall have the product tested. If the product meets these specifications, then the Owner shall pay for the cost of the testing; if the product does not meet these specifications or the SSM’s specifications, then the SSC shall pay for the testing. Any material failing to meet specifications will be replaced with new material at the SSC’s expense.

D. Slopes & Tolerances as per the NCAA rule book:
1. The maximum lateral inclination permitted for the outdoor oval track across the full width of the track, preferable toward the inside lane, across all separate outdoor straightaways and across all runways, should not exceed 1:100 (1%). The inside edge of the curb or lane line shall be horizontal throughout the length of the outdoor track.
2. The maximum overall downward inclination permitted in the running direction for the track, the running direction for all runways and the throwing direction for all landing sectors shall not exceed 1:1000 (0.1%). Inclination shall be measured by comparing the start and end points of the races that use a straightaway or a portion of the oval, the last 20 meters of the javelin runway, the start and end points of other runways, not to exceed 40 meters, and the full graded length of each landing sector.
3. In the high jump approach and takeoff area, the maximum overall downward inclination of the last 15 meters shall not exceed 1:167 (0.6%), in the direction toward the center of

the crossbar. If the high jump is located in the D-area, then the whole D-area must not exceed 0.6%.

4. The surface of a throwing circle shall be level.
5. The steeplechase water jump pit shall be level.
6. Depressions or humps cannot exceed 1/8 inch under a 10-foot straight edge.

1.7 SPECIAL PROJECT CONDITIONS

A. The SSC will provide a project manager/superintendent/crew chief on-site daily through the completion of the work.

B. Prior to any concrete being installed, the SSC must verify if any curing compounds or agents are allowed or acceptable.

1.8 SPECIFIC SCOPE OF WORK

A. The SSC shall verify the entire T&F subbase and all events to determine that:
   1. The T&F SS for the 400 meter track oval and all field events will accurately fit onto the Asphalt Paving base.
   2. The slopes, tolerances and elevations meet the required tolerances of these specifications and the rules of the NCAA.
   3. No bird baths or areas exceed the allowable limits as specified.

B. The SSC shall provide all labor, materials and equipment to perform the following work as designated in these specifications:
   1. The installation of all T&F SS materials, line markings and NCAA Certification.
   2. Review and approve installation of all T&F embedded equipment before any T&F SS is installed as specified and shown on the project drawings.
   3. Brush, blow, clean, wash down, etc. all areas to receive SS, as often as necessary during the installation of the T&F SS.
   4. Install removable SS (full pour polyurethane) plugs with the same wearing texture as the surrounding SS on top in all pole vault boxes, long/triple jump take-off boards (1” x 1” corner notches on one short side (12” side) of the plug), install a ¾” thick plug (cut in quarters) in all recessed throwing circles (2 x SP and 1 x DS) and apply synthetic surfacing to the steeplechase water jump covers and communication box covers.
   5. SSC must prevent PU from entering the channel drain’s slot opening. The drainage slot opening shall be neatly trimmed out (vertical 90 degree cuts only), after the synthetic surfacing installation. No PU is allowed on the inside of the drainage slot opening.
   6. Repair all damaged areas, clean-up all glue, and remove excess PU, primers and similar products. All trim cuts shall be neat and clean; on all curves & straights the trim-out shall follow the adjoining object for accuracy and neatness, i.e. concrete curb or painted line.

1.9 WARRANTY/GUARANTEE

A. Warranty period to be ten years on the newly installed T&F SS and all patches made during this installation.

B. Warranty shall cover all labor and materials to remove & dispose of defective materials and replace & install new materials during the warranty period including damaged line markings.

C. Warranties / Guarantees specified in this section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the GC under requirements of the Contract Documents.

D. The following are inclusive of the term "Track & Field Synthetic Surface" for provisions of the guarantee:
   1. All slopes & tolerances as required in this specification.
   2. T&F SS product as specified and represented by the SSC and SSM.
   3. All materials and products specified.
   4. All line markings installed in accordance with the Contract Documents.

E. SSC Guarantee: Provide in writing a "Full System Guarantee" agreement. The President/Principal(s) of both the SSC and the SSM (if different) shall sign this document and it shall include the following:
   1. All work executed under this section will be free from defects of material and workmanship for the specified period from date of Substantial Completion/Acceptance of the Owner.
   2. Any defects will be remedied on written notice at no additional cost to the Owner.
   3. The warranty shall not be prorated.
   4. All material shall be guaranteed to the extent that the surfacing:
      a. Has been manufactured, applied and will perform in accordance with these specifications, the SSC and SSM specifications & submittals and industry standards.
      b. Will hold fast and/or adhere to the primer, asphalt, concrete, edging, filler, patches or overlay materials.
      c. Is Ultra-Violet resistant, will not bubble, blister, fade, crack and wear or caulk excessively during the warranty period.
   5. One replacement of high stress areas during the warranty period at no cost to the Owner; High stress areas are estimated at 300 square yards. If possible, all replacements must be cut out to the nearest painted line and all painted lines repainted.
   6. One restriping of the T&F Line Markings during the warranty period at no cost to the Owner.

F. The SSC shall, in the presence of the Owner, inspect the T&F SS each year until the end of the warranty period, or at any time requested by the Owner. Any defects in workmanship or materials (at no fault of the Owner) shall be repaired at the expense of the SSC to the satisfaction of the Owner.

G. The Warranty does not cover any defect, failure, damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty or loads exceeding the SSC's "Care and Maintenance" manual.

PART 2 - PRODUCTS

2.1 TRACK & FIELD SYNTHETIC SURFACE

A. The SS shall be as per the SSC's specifications, plus the following requirements and where discrepancies exist, they shall be brought to the attention of the Owner or Owner's representative prior to Bidding and Installation.

B. The following SSC and their T&F SS products are approved:
1. Beynon Sports Surfaces, John Beynon, Cell # 410-935-4058
   a. **BASE PRODUCT**: BSS 2000 RE with Embedded EPDM Texture
   b. **ALTERNATE-2a**: BSS 2000 RE with Retention Coatings
2. GeoSurfaces Southeast, Danny Williamson, Cell # 828-399-1519
   a. **BASE PRODUCT**: Stockmeier Urethane, Stobitan Overpour with Embedded EPDM Texture
   b. **ALTERNATE-2b**: Stockmeier Urethane, Stobitan Overpour with Encapsulated Coatings
3. Rekortan, Serge Silva, Cell # 315-436-8892 or Keith Kernic, Cell # 609-608-2561
   a. **BASE PRODUCT**: Rekortan RT with Embedded EPDM Texture
   b. **ALTERNATE-2c**: Rekortan RT Encapsulated Coatings

C. Colors:
1. SSC to provide their standard colors (no custom colors), final colors TBD with shop drawings during the submittal phase.
2. All SS shall be Kentucky Blue with Mid-Gray accent color, colors to match existing locations.
3. **ALTERNATE-1a**: Mid-Gray for the 4x100 meter relay exchange zones using BASE PRODUCT.
4. **ALTERNATE-1b:** Mid-Gray for the 4x100 meter relay exchange zones using ALTERNATE 2 product.

D. Thickness:
1. SSC must bid & install a 2mm leveling layer and 5mm wearing layer for a total of 7mm of new product.

E. WA Certified Product:
1. The same materials used for this installation must be the same materials used in the Vendor's WA Certified Product's top wearing layer, i.e. same polyurethane and EPDM materials. The alternate & additional aliphatic coatings are exempt from this requirement.

F. **BASE PRODUCT** – Materials for a resurfacing system with Embedded EPDM Texture:
1. Product description is a two component, impermeable full depth PU with EPDM embedded wearing layer.
2. The approved SSC shall install their own proprietary product that, as closely as possible, that matches this specification. Any deviations from this specification must be approved by the Design Team in writing prior to ordering or materials arriving on-site.
3. Subbase Leveling & Patching Material: All materials must be approved by the SSC and compatible with the T&F SS, asphalt and concrete.

4. Primers: PU based primers specifically formulated to be compatible with the concrete, ACO Channel Drain or similar product, asphalt subbase and SS material.
5. The polyurethane is two-component, UV stabilized elastomeric polyurethane compounded from polyol and isocyanate components, based on 100% MDI, no TDI is allowed.
6. High quality, pigmented, virgin EPDM granules in the wearing layer, 1mm-4mm in size.
7. Colors: All pigmented materials must be the same color.

G. **ALTERNATE PRODUCT** – Same materials as Base Product listed above, but with the following addition:
   1. UV Coating: Single component, aliphatic coating, pigmented and low VOC.
   2. No EPDM granules in these spray applications.

H. All installed materials must be the standard materials as identified in the SSC's standard specifications and brochures.

PART 3 - EXECUTION

3.1 INSPECTION AND ACCEPTANCE

A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.

B. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 INSTALLATION REQUIREMENTS

A. The following installation requirements must be met by the SSC:
   1. Installation by SSC approved project manager/superintendent/crew chief, applicators and technicians. Local laborers may be hired for non-technical work, only.
   2. Upon SSC arrival, the GC shall have the subbase clean and free of dirt, oil, grease or any other residue. Once the SSC begins installation, it is the SSC's responsibility to clean the areas to receive the SS.
   3. Apply SS in dry weather when pavement and atmospheric temperatures are 50 degrees or above and are anticipated to remain above 50 degrees for 24 hours after SS installation.

3.3 PRODUCT INSTALLATION

A. As per the SSC's standard installation literature & brochure and must follow all industry standards.

B. **BASE PRODUCT** – Installation for the resurfacing system with Embedded EPDM Texture:
   1. Equipment: the material can be machined metered & mixed or mixed by hand, as specified in the Vendor's standard literature.

2. Primer shall be spray-applied or rolled in accordance with the SSC's specifications. Only those areas where SS will be installed the same day should receive primer. All concrete and ACO drain materials to be surfaced shall receive SSC's approved primer.
3. Leveling Layer: Install a two-component, pigmented polyurethane layer to the proper thickness.
4. Wearing Layer:
    a. Flow apply via a notched trowel the two component, pigmented PU. Broadcast the pigmented EPDM granules into the curing PU and ensure all PU is covered. After initial cure, the excess EPDM granules are removed by means of a mechanical sweeper. All loose granules MUST be thoroughly removed prior to the installation of line markings.
    b. The final wearing layer is a dense matrix of EPDM granules embedded into the PU with no bald spots.
    c. All excess & partially embedded EPDM granules must be thoroughly removed.
    d. All seams, including head seams, shall be flush to adjacent installation.
    e. All materials to match in color.

C. **ALTERNATE** – Same installation as Base Product listed above, but with the following addition:
1. UV Coating: Spray apply 2 coats, each in the opposite direction for a uniform coverage.
2. All adjacent materials and items must be covered with plastic to prevent those items from receiving any overspray.
3. No streaking or zebra striping allowed.

3.4 TIMING, LIMITATIONS, AND CONDITIONS AFFECTING INSTALLATION

A. Weather and Climate: If in the opinion of the SSC or the Owner, weather and climatic conditions are having or will have an adverse effect on installation; work shall be delayed until the adverse condition has passed.

B. Adjacent and Concurrent Construction: Installation shall not take place until the completion of the adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or SSC, would be harmful to the SS material. Under specific direction of the Owner, the SSC may be allowed to cover the track material with an approved covering if such harmful construction operations must occur after the SS material has been installed.

END OF SECTION 321823.40