ARTIFICIAL TURF FIELDS

BASE CONSTRUCTION FOR TURF FIELDS

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INITIAL CONSIDERATIONS FOR DECIDING ON A TURF FIELD

- BENEFIT
- USAGE
- COST
- SAFETY
- MAINTENANCE
TYPICAL FIELD

- DEPRESSIONS
- BALD SPOTS
- POOR DRAINAGE
- EXPOSED ROCK / STONES
- IMPROPER PITCH
SELECTING A SITE

• ISSUES
• SOIL CONDITIONS
• WATER CONDITIONS
• DRAIN OUTLETS
• ROCK
• WETLAND REQUIREMENTS
REPLACING FIELD INSIDE TRACK

- ACCESS TO SITE
- PROTECTION TO TRACK SURFACE
- PLASTIC
- PLYWOOD
- STEEL PLATES
- BRIDGE
DESIGN CONSIDERATIONS

• BUDGET
• ARCHITECT
• IN HOUSE DESIGN
• DESIGN BUILD
• BID PROCESS
• “QUALIFIED” LOW BIDDER
SITE AMENITIES

• TURF
• LIGHTING
• PARKING
• BLEACHERS
• FENCING / SECURITY
• SCOREBOARDS
• RESTROOMS
• CONCESSIONS
SELECTING A CONTRACTOR

- FIELD EXPERIENCE
- SYNTHETIC FIELD EXPERIENCE
- LASER GRADING TECHNOLOGY
CONSTRUCTION PROCESS

- MOBILIZATION
- SITE LAYOUT
- EXCAVATION
TOPSOIL REMOVAL

- AVERAGE 3” TO 6” OF TOPSOIL
- AVERAGE SIZE FIELD 70,000 TO 80,000sf
- CALCULATES TO 1000 TO 1500 YARDS PLUS AIRATION FACTOR
TYPICAL SLOPE FOR SUB-BASE & SURFACE

- Track Surface
- Trench Drain

Limit of Turf 247'-3" (V/F)
6" Min. Compacted, Stable, Permeable Processed Stone
See Specifications.

Rummer/Sand Infill Turf Surface
Slope 0.5%

Centerline of Field

Composite Drains 14' O.C.
Connected to 8" Collectors

Slope 0.5%

Compacted Subgrade Shaped for Drainage and Compacted to 95% Density

Slope 0.5%

Impermeable Moisture Barrier Recommended by the Synthetic Surface Manufacturer

19 MM E-Layer
Slope 0.5%

8" HDPE Perforated Collector

Transverse Section Thru Field
SURFACE & SUB-BASE SLOPES

1. 0.5% Surface Slope
   1.0% Subbase Slope

2. Level Surface
   0.5% to 1% Subbase Slope

3. 0.5% Surface Slope
   0.5% to 1% Subbase Slope

TRANSVERSE SECTION THRU FIELD

NT5
GRADING & COMPACTION

- FINE GRADE SUB-BASE TO PLUS OR MINUS 1”
- SLOPE GRADES TO DIRECT WATER TO DRAINAGE
- ROLL & COMPACT SUB-BASE AT OPTIMUM MOISTURE CONTENT NOT LESS THAN 95% DENSITY
- WHEN THICKNESS OF COMPACTED SUB-BASE EXCEEDS 6”, PLACE MATERIALS IN EQUAL LAYERS, WITH NO LAYER MORE THAN 6” TO 12” THICK
COLLECTOR DRAINAGE PIPE
PERFORATED PIPE
LAYING & SETTING PIPE WITH A LASER
OPEN GRAVEL DRAINAGE
DRAINAGE STRUCTURES

- PERIODIC CLEANING IN SUMPS
- CHECK SYSTEM
- CLEANOUTS ARE OPTIONAL IN FIELD
6” CONCRETE CURB

- FORMED WITH 2” x 12” WOOD FORMS
- SET TO GRADE WITH LASER & STRING
- TYPICAL #4 REBAR PLACED INSIDE
- EXPANSION JOINTS EVERY 20 FEET
12” CONCRETE CURB WITH FENCE POSTS

- 4” PVC PIPE
- FOOTINGS SET MINIMUM 3’ DEEP
- TYPICAL #4 REBAR
- EXPANSION JOINTS EVERY 20 FEET
TRENCH DRAIN @ TRACK & BORDER EDGE @ “D” ZONE
WOOD NAILER

- A PRESSURE TREATED 2” x 4” IS INSTALLED ONTO CURB 1 ½” BELOW FINISHED GRADE
PLASTIC WOOD NAILER

- A PLASTIC WOOD NAILER IS INSTALLED ON THE OUTSIDE, LEVEL WITH THE CONCRETE CURB.
- A 1 FOOT WIDE STRIP OF BROWN COLORED TURF IS DESIGNED TO COVER THE CURB ALONG THE GRASS FOR MOWING PURPOSES TO SEPARATE BASEBALL FIELD FROM SOCCER FIELD.
EDGE DETAIL @ TRENCH DRAIN

- TURF CAN BE GLUED DIRECTLY ONTO CONCRETE OR A WOOD NAILER CAN BE FASTEN ON TOP OF CONCRETE
EDGE DETAIL AT “D” ZONE

• A CONCRETE LEDGE IS FORMED WITH BORDER @ “D” ZONE
GEOTEXTILE & FLAT DRAINS

- TYPICAL FILTER FABRIC FOR PORUS BASE INSTALLATION
- 12” x 1” FLAT DRAINS WRAPPED WITH FILTER FABRIC
- FLAT DRAINS MUST GO EITHER INTO STONE AT PERIMETER DRAIN OR TIE DIRECTLY INTO COLLECTOR PIPE
PLASTIC LINERS AND FLAT DRAINS

- Plastic liners are designed for use over fields with clay type soils.
- High water table and/or wet areas.
- 12” x 1” flat drains wrapped with filter fabric.
INSTALLATION OF FLAT DRAINS

• NOTE: IN MOST CASES THE FLAT DRAINS RUN AT A 45 DEGREE ANGLE AGAINST THE DIRECTION OF SLOPE
COUPLING OF FLAT DRAINS

• ALL DRAINS MUST BE CONTINUOUS TO ALLOW WATER TO FLOW TO COLLECTOR PIPES.
STABILIZING FLAT DRAINS

• NOTE: CARE SHOULD BE TAKEN TO MAINTAIN THE STRAIGHTNESS AND LEVELNESS OF THE FLAT DRAINS

• IT IS IMPORTANT TO KEEP EQUAL DISTANCE BETWEEN EACH DRAIN
FIELD UNDERDRAIN SYSTEM

SYNTHETIC FIELD SURFACE MIXTURE OF GRADED ROCK [20' O.C. (TYPICAL)]

SYNTHETIC MIN. RUBBER SHOCK PAD

6" CRUSHED STONE

GEOTEXTILE FABRIC

4" PERFORATED HDPE PI @ 20" O.C. (TYPICAL)

EXISTING SUBGRADE 95% COMPACTED SUBSOIL

SYNTHETIC FIELD AND UNDERDRAIN DETAILS

SCALE: 1/2"=1'-0"
INSTALLATION OF STONE BASE

- TOTAL OF 6 INCHES MINIMUM BASE COMPACTED & STABLE
- ONE LIFT WITH THE PROPER STONE
- TWO LAYER STONE BASE SYSTEM
- 1st LAYER / 4” OF ¾” PROCESSED STONE
FINISHING STONE BASE

- 2nd LAYER / 2” OF STONE BLEND

- BLEND CONSISTS OF:
  50% / 3/8” STONE AND
  50% OF “SANDY” STONE
GRADING EQUIPMENT

- LASER CONTROLLED PULL BOXES CAN BE USED FOR GRADING FINISH STONE
- AUTOMATED LASER CONTROLLED GRADERS OR DOZERS ARE ALSO USED
FINE GRADING STONE BASE

• NOTE: IT IS IMPORTANT NOT TO GRADE THE STONE DRY. DUST WILL SEPARATE FROM THE LARGER STONE AND DROP DOWN, LEAVING LARGER STONE ON TOP.
ADDITIONAL STONE BLEND

- DON'T LEAVE YOURSELF SHORT, IT IS IMPORTANT TO HAVE EXTRA MATERIAL TILL THE PROJECT IS COMPLETE FOR REPAIR
COMPACCT TESTING

• ROLL & COMPACT BASE AT OPTIMUM
  MOISTURE CONTENT NOT LESS THAN 95%
  DENSITY
PERCULATION TESTING

• STONE BASE SHOULD ACHIEVE A PERCULATION RATE AT A MINIMUM OF 6” TO 12” OF RAIN PER HOUR
COMPLETED STONE BASE

• BEFORE THE INSTALLATION OF TURF:
• A GRID MAY BE REQUIRED TO ENSURE THAT THE BASE IS SMOOTH & LEVEL
• A VISUAL AND STRING INSPECTION IS NECESSARY
FIELD EQUIPMENT

- SCOREBOARD
- ELECTRICAL TRENCHING
- LIGHTING
- FIELD WATERING
FOOTBALL & SOCCER
GOALS
FIELD ACCESS & COMMUNICATION BOXES
TURF INSTALLATION
SEAMING

- SEAMS MAY BE GLUED OR SEWN
BULK BAGS OF RUBBER AND SAND INFILL
INSTALLING INFILL SYSTEM
LINES & LOGO’S
FENCING
GRASS FIELD BEFORE
COMPLETED TURF FIELD