

Here are the USGA green construction recommendations:

## New green specs: Simplifying procedures

### SUBGRADE

- The subgrade need not conform to the proposed finished grade; the subgrade is to facilitate water movement to the drainage system. But, the surface of the gravel blanket layer must conform to the proposed finished grade.
- If the subgrade soil is unstable, a geotextile fabric may be used between the gravel blanket and the subgrade soil.

### DRAINAGE

- Drainage trenches shall be a

minimum of eight inches deep.

- Drainage lines shall be not more than 15 feet apart.
- Clean-out ports shall be included off the back of the green (or at the high end of the drain line) for all main drainage lines.
- A perimeter drain line (smile drain) shall be installed along the low end of the gradient, usually along the front of the green.

### GRAVEL

- Angular gravel is preferred (for stability and ease of shaping),

though pea gravel is acceptable.

- Gravel materials suspected of lacking mechanical stability to withstand common construction traffic should be checked with the LA Abrasion test — ASTM procedure C-131 (value should not exceed 40).
- Gravel materials of questionable weathering stability should be tested using the sulfate soundness test — ASTM procedure C-88 (not more than 12-percent loss by weight).
- A slight change in particle

size distribution for gravel where the intermediate layer is used. Previously, 100 percent required between 3/8 and 1/4 inch; now minimum 65 percent required between 3/8 and 1/4 inch, plus limits on percentages and sizes above and below this range.

- New recommendations developed for gravel particle size distribution for use with root-zone mixture where the intermediate layer is not used. Specific recommendations are based on the particle size distribution of the par-

ticular root-zone mix.

### INTERMEDIATE LAYER

- The acceptable particle size range has been expanded. Now, 90 percent must fall between one and four millimeters (previously one to 2 millimeters).
- Need not be included if the properly sized gravel is used.

### ROOT-ZONE MIXTURE

- The particle size range has been modified, allowing more fine sand (.15-.25 mm) but less very fine sand (.05-.15 mm).
- Provides guidelines for selection of peat materials (minimum of 85 percent organic matter by weight) and other organic composts (should be allowed to age for one year; must be shown to be non-phytotoxic; mix must meet physical properties).
- Provides guidelines for selection of soil component (if used). Soil component should have a minimum sand content of 60 percent and a clay content of between 5 and 20 percent.
- Some root-zone physical properties have been modified:
  - Total porosity: 35-55 percent (previously 35-50 percent).
  - Air-filled porosity: 20-30 percent (previously 15-25 percent)
  - Saturated conductivity (not included in the 1989 version).  
Normal range: 6-12 inches/hour.  
Accelerated range: 12-24 inches/hour.
  - Organic matter content: 1-5 percent (ideally 2-4 percent) by weight (not required in previous versions).

### SEED-BED PREPARATION

- Sterilization required only 1) in areas prone to severe nematode problems, 2) in areas with severe weedy grass or nutsedge problems, or 3) when the root-zone mix contains unsterilized soil.

### LABORATORY PROCEDURES

- A revised and expanded set of laboratory procedures has been prepared and sent to all soil-testing laboratories interested in testing materials for construction of USGA greens. Labs must agree to follow these protocols to be included on the list of soil-testing labs sent out by the USGA with the green construction booklet.

## Foxfire opens

VIDALIA, Ga. — Foxfire Golf Club, a semi-private and daily fee facility, held formal public opening Oct. 24.

The par 72, 6,900-yard layout was two years in the shaping, integrating inhospitable wetlands, gently rolling hills and tall Georgia pines — terrain termed ideal for a golf course.

The project includes a residential development owned by Edward Herndon.

James F. Bivins, Dominion Engineering Group, designed the course. Jim Hoff, formerly at Cedar Creek in Aiken, S.C., is the PGA professional and general manager.

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