In association with the Institute of Groundsmanship

Recommendation Guidelines for the Preparation and Maintenance of Cricket Pitches and Outfields at all levels of the Game
Acknowledgements

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Foreword

Across the world, all forms of the game of cricket are evolving and developing with increased popularity and the demand, from village green to Test Arena, requires safe, quality surfaces in order that players can perform to the best of their abilities.

We are living in an age where the traditional skills of the cricket groundsmen towards the management of cricket grounds and practice facilities, have never been better supported by knowledge from education and the application of a practical approach backed up by scientific research and the development of innovative machinery to facilitate tried and trusted methodology.

This document is designed to provide guidelines, awareness and understanding of contemporary procedures for groundsmen to prepare the best possible surfaces they can at all levels of the game.

Chris Wood
ECB Pitch Consultant
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Introduction

The guidelines contained in this booklet are intended as a general guide to pitch preparation and maintenance. It is accepted that with the Groundsman’s knowledge of the local conditions, he may find it necessary to vary the recommended treatment to suit a particular site. Likewise, due to varying weather conditions, the judgement of the Groundsman is necessary to determine exactly when each operation should be carried out.
Objective

To achieve the best possible playing surface at all levels of the game - at the top level a minimum of a two day game.
Aim

First class and Matches of 3 Days or More
At the commencement of the match the whole pitch should be completely dry, firm and true, providing pace and even bounce. The pitch should ideally wear sufficiently to give spinners some assistance later in the game.

Limited Over One Day Matches
For the duration of the match, the whole pitch should be completely dry, firm and true providing pace and even bounce, ideally producing good batting conditions.

At the club school level of the game, the pitch should give a consistent and safe bounce.

Guidelines

Type of Soil
The use of the right soil is most important for the production of fast pitches. The soil must bind and this is dependent on the percentage of clay content in conjunction with the other constituents of the soil structure.

The soil selection is dictated by the standard of pitch required:

1st Class & Premier Leagues
minimum of 28-35% of clay

Club standard
minimum of 25-30% of clay

School
minimum of 25-28% of clay

If there is any doubt about the quality of the topsoil loam, then samples should be sent to an ECB recommended organisation for analysis and report. (There may be a cost for this service).
Core Sample Testing

This test will determine how good the soil is in your square. This analysis must be for both the soil texture on the square and the loam being supplied.

The aim of top dressing is to bring back the levels of the pitch to produce a consistent surface while also maintaining the quality of the playing surface.

The use of top dressings on a cricket square must follow two fundamental principles;

1. Must be compatible with the existing soil in terms of particle size distribution
2. Must be compatible with the existing soil in relation to swell shrinkage characteristics.

Top dressing involves the application of sieved loam to the surface of the square to improve the surface and ameliorate the underlying soil.

The top dressing should be a heavy clay loam with a binding strength of between 55-90 Kg (120-200 lbs) and be approximately 25-35% clay, with a sand and silt fraction ranging between 25%-50%. The organic matter content should be between 2-8% with the pH above 5.5 and the soil screened through 4mm (3/16") Mesh.

As a working estimate 2-3 kgm (4-6 lb/yd).

A ‘Motty Test’ should be carried out to ascertain the binding quality. Make some ‘Motties’, (by mixing top soil with water, then kneading the mixture into a sausage shape and cutting pieces, 3cm long by 2cm diameter and then roll into balls.)

Allow to dry for 3-4 days and then using bathroom scales and a ‘stout’ board press down on the ‘Motty’ to determine at what point the motty breaks.

The scale (right) gives the answers. A light sandy soil should never be used as a top dressing.

Types of Grasses

Pace and eveness of bounce can be aided by the selection of the right types of grasses.

Some species grow better than others in certain areas and the Groundsman should choose the grasses best suited to the environment. Species that propagate by creeping stems should not be used.

It is essential that all seeds comply with the statutory requirements of National Listed varieties for purity, germination and weed content, and they should be certified as being true to type as described.

Typical seed mixtures for the cricket square are shown (right).

Cultivars of different species can be chosen from the current edition of the booklet ‘Turfgrass Seed’ which is published every year by the Sports Turf Research Institute, (available from the STRI and the IOG).

The Groundsman should decide on the best grass cultivar mixture dependent on the demands of the pitch, club and environment.
Maintenance Schedules

Spring Treatment

Pre-season rolling is absolutely crucial to the production of fast pitches, as the cricket square requires a firm, even surface and rolling should commence as soon as conditions permit. The Groundsman is the only person who can decide when conditions are suitable.

The use of rollers to firm the surface over a period of several weeks will slowly consolidate the square. Use a light roller at the earliest opportunity in the Spring, possibly at the end of February or the beginning of March, gradually increasing the weight, if possible, to a 2 ton heavy roller.

Rolling Weights:
- Light Roller: up to 254kg (5cwt)
- Medium Roller: up to 508kg (10cwt)
- Heavy Roller: 1016kg (1 ton) or more

The pitch should be rolled in all directions, but with the emphasis on cross rolling in the early stages, but finish on the line of the pitches. The aim is to consolidate the square to a depth of about 10cm (4”) before the commencement of the season.

Scarifying may be necessary in the early Spring, but this should only be done in moderation with great care being taken not to destroy grasses sown in the previous Autumn. Heavy mechanised scarification that would cut into the surface may well lead to cracking of the pitch later in the season, however a scarifier with brush attachment is recommended.

Spring fertilisers may be used at the discretion of the Groundsman (according to manufacturers instructions). Nutritional analysis of the soil is a must and will assist decision making.

A summer-based fertiliser contains more Nitrogen, which encourages top growth increasing the need for mowing more often.

Brush or dragmat the square regularly, especially when dew is on the ground, as this will remove moisture from the leaves and discourage disease.

Control worms during the muggy spells when they are active.

Mowing

Aim to start the season with the grass height on the square above 12mm (1/2”). This height should be maintained all season over the square, with it being cut at least once a week if not twice during growing conditions. Always ensure blades are set correctly.

Pitch Preparation

When the fixture list is available it is possible to establish a programme of pitch allocation for the whole season. You should aim to produce equal usage

‘The aim is to consolidate the square to a depth of about 10cm (4”) before the commencement of the season.’
of each pitch. It will be necessary to place the more important fixtures towards the centre of the square and then work out accordingly. Consecutive matches should not follow on adjacent pitches as this could mean using a strip which may be damaged from the bowlers run-off from a previous match. The two outside pitches are often reserved for junior games or practice/artificial pitches. (See fig. 1.1).

**Pitch Preparation Prior to a Match**

This should ideally commence at least 10 days before, or in the case of clubs, schools etc. 5 days before the match.

Select the pitch to be used and mow, ideally using a mower with a thin bottom blade and having at least an 8-bladed cylinder. Cut along the line of the pitch and return on the same line you have just cut. Work your way across the pitch to a width of 3.04m (10'). Dependant on how much grass is present on the surface it may be necessary to repeat this operation.

The mowing of a pitch prior to a match should be as low as possible provided that the surface is not scarred or disturbed in any way.

During preparation, the pitch should be lightly scarified between the popping creases, to reduce the density of grass. The bowling ends should not be scarified as this will assist in reducing the wear and tear, and aid recovery from the damage caused by players.

Scarification should be carried out using pedestrian or mechanical brush/rake machinery (not thatch removal type tines), hand rake or a strong broom, care being taken not to disturb the soil. Scarification should continue until satisfied that enough grass has been reduced in density. There should be no mat of grass and the surface soil should be visible between the blades of grass.

It is generally considered that water, either by rain or applied by the Groundsman, is essential in the preparation of a pitch in order to give it a firm solid surface. If the square has been consolidated before the season, pitch preparation is greatly assisted.

During a dry period it will be necessary to irrigate the pitch. There is no fixed period for the watering of a pitch, but this should be done well in advance of a match in order to ensure that the pitch is completely dry at the start of play. Ideally this should start no less than 10 days prior to the match.

The rolling of the pitch should commence with a light roller when all surface water has disappeared. As the pitch dries, the weight of the roller should increase. The Groundsman should use the heavy roller at every suitable opportunity prior to a match whilst any moisture content remains. The heavy roller should not be used once all the moisture has gone from the pitch.

Mark out the pitch with lines not more than 25mm (1") wide, using a marking frame if available,
on the morning of play or the afternoon before, (see the paragraphs on marking out for details).

At the start of the match the pitch should be completely dry. This applies not only to the top surface but also to a depth of 3 to 4 inches. Weather conditions may make this difficult but, if the weather is fine or with the correct use of covers, it should usually be possible to obtain complete dryness. A pitch which is completely dry at the start of a game is more likely to assist spin bowlers later in a game.

Covering the Pitch Before, During and After a Match (Law 11)

Test and International competitions

In all matches, the pitch shall be entirely protected against rain up to the start of play and for the duration of the period of the match. The pitch will be wholly covered at the end of each day's play, or provided the weather is fine, within two hours after the end of play.

The covers will not be removed earlier than 05.00am or later than 08.00am on each morning of the match, provided it is not raining, and will be replaced if it rains prior to the start of the game.

The following areas will be covered unless the umpires decide otherwise
- the whole square
- 30yds either side of the pitch, if the square does not already cover the area
- the bowler’s run-up to a distance of at least 20yds and a width of 10yds
- any other compacted or worn areas on the outfield, such as practice pitches

Championship and other First Class matches

In addition or instead of the above, the bowlers run up will be covered to a distance of at least 10 yds and a width of 4 yds. Also at least 20ft either side of the length of the pitch. In addition any particularly worn patches should, if possible and practicable, be covered.

A pitch being prepared for a future match may be protected by a porous mat in order to avoid unnecessary damage. A second porous mat may be put down if an additional pitch intended for use for a future Test Match, One-Day International or an ECB Cup Final, requires protection.

Premier Leagues

The covers must protect an area of at least 80 feet by 12 feet and clubs are encouraged to protect a larger area, including the bowlers’ run-ups, whenever possible.

Clubs & Schools

If covers are possessed then Law 11 may apply.
Drying of Pitch and Ground

Test & International matches

Groundsmen may use any equipment available, including any roller, for the purpose of drying the pitch and making it fit for play.

Note: An absorbent roller may be used to remove water from the covers, including the cover on the match pitch (when flat sheet covers are used an absorbent hessian type underlay matting should be used on the match pitch).

After Match Pitch Repairs and Renovation

It is essential to proceed with repairs and renovations as soon as the pitch comes out of play and not wait, as the whole square will soon be looking very sparse. Unrepaired ends on used / worn pitches can be dangerous and are not conducive to a good game of cricket. The selection and rotation of fresh pitches, of a good standard, will become increasingly difficult if the ends are not repaired promptly.

Maintenance and Repairs to Foot Holes

The Umpires shall see that wherever possible and whenever it is considered necessary, action is taken during all intervals in play to do whatever is practicable to improve the bowlers’ foot holes.

In matches of two days or more; as soon as is possible after the conclusion of each day’s play, bowlers’ foot holes will be repaired.

If the pitch is to be used the following day they will need to be filled in, using the following method:

a) Use a heavy clay soil that has been prepared three days in advance of a game. Make this up in a wheelbarrow. Screen two shovelfuls of soil into a barrow and sprinkle with water until you have a light covering. Repeat this operation until you have a barrow load. Keep under cover until needed.

b) Brush with a besom or yard broom within the creases and slightly up the pitch (no further than the protected area) cleaning out any loose material.

c) The footholds need to be thoroughly drenched. Then using hands, remove all excess water. This dampening has the effect of creating a bond for the new soil to adhere to. By mixing some grass seed with the soil there will be no need to remove the repair once the match has finished.

d) When you infill make sure that it is done in one mass, if done in layers, the soil will not bind well.

e) Start to consolidate from the outside of the foothole and tread down with your feet, off with a heavy panner / thumper / ‘elephants foot’, preferably one made of metal.

f) Ensure that the finished, filled area is not higher than
the rest of the ground within the crease by means of a suitable straight edge. This will help to prevent ‘saddles’ from gradually forming.

g) Brush some dry soil / dust over the repaired area and mark out afresh.

Renovation and Reinstatement

As soon as possible after the game is over, start reinstatement of the whole pitch.

First, vigorously brush the pitch with a besom or yard broom to remove any loose soil and debris. Check that no foreign objects such as studs have been left on the playing surface, if they are not picked up they could seriously damage the mower. Worn bowler’s footholds need particular care and attention.

Flood the pitch three or four times depending on how much water it will take to become soft enough to take a Sarrel spiked roller, which will produce a good seed bed of many small holes.

It is a waste of time and money to merely scatter seed on the ground. In order to give the seed a better chance of germinating it is important that the seed is well embedded in the soil. The making of a seed bed is essential and the seed worked / brushed well into the holes produced by the Sarrel roller.

Pay particular attention to the bowling ends and run through where most of the wear and tear will have taken place. Do this by raking lightly to form grooves, or use a border fork or dibber to loosen the base. Evenly sprinkle the grass seed into the repaired footholds and cover with a light coating of loam. Always use a straight edge to level off with the surrounding area to prevent raised bowling ends and a saucer shaped square!

Any deep ball or heel marks should be attended to by raising with a screwdriver and plugging with moulded loam, level to the surface, and consolidated.

Finally, overseed the rest of the pitch brushing the seed into the holes made by the Sarrel roller (this can also be done mechanically). Apply an autumn fertiliser at a rate recommended by the manufacturer. If needed give a light dressing of loam, work in and lightly water with a sprinkler.

In normal British Summer conditions, grass seed will germinate with the pitch ready for use in four to five weeks. Use of plastic or mesh sheets (germination sheets) will speed up the germination process.

Autumn and Winter

Work at this time of year starts before the end of the season, with the planning of your priorities and the ordering of materials to carry out your repairs and renovation.

You may also have to consider the hiring of equipment. All equipment must have been
thoroughly prepared prior to the operations at this critical time of the year.

The Autumn renovation should start as soon as possible - as the playing season draws to a close.

The first step when renovating is to mow the square as low as possible without scalping the surface. Use a well set cylinder mower with a low height of cut to provide a clean surface, this may take two or three cuts.

Follow with a heavy duty scarifier fitted with thatch removal tines to remove any matted fibrous growth, after first ensuring that the surface is soft enough to enable the scarifier to be effective. It is important that the scarifier is set correctly, with the tines well into the surface of the soil without the motor labouring.

You may have to scarify several times depending on the density of fibrous material on the square.

To complete the cleaning of the surface use a mechanical brush, besoms, stiff broom or cylinder mower.

The slits created by scarifying create an ideal seedbed.

Ideally spiking should precede all applications of top dressing.

The square should be aerated by spiking, using solid tines. (Hollow tines may be used if a change of top dressing is required). This operation may be subject to the prevailing condition of the soil profile and moisture content. It may have to be delayed if the surface lifts or the tines are unable to fully penetrate. Aeration can take place later in the winter months, up to the New Year.

Fertiliser application should take place prior to overseeding and top dressing. This enables it to become absorbed into the ground in readiness for the seed germination and also prior to top dressing should the ground become wet and prevent one getting on to the square.

(An Autumn / Winter fertiliser for the square is recommended with a Nitrogen content of approximately 3-4%. This encourages root growth more than top growth, essential for keeping maintenance under control).

Overseeding should now be done with either a seeder or by hand, using a recommended quality seed mixture. Brush the seed into the slits left by scarifying. Do not wait for the aeration to be completed before seeding if the weather is dry. The sooner the reseeding is carried out the better!

This will be followed by light top dressing of suitable loam. Both soil and surface must be dry during application, which may be done by spreader or lute. Where necessary two light dressings may be applied with a suitable interval between to avoid smothering growth and causing bare patches.
Any small deviation in the levels should be corrected at this stage. It is important to maintain the same consistency of top dressing. It must be thoroughly worked in to avoid layering taking place and should normally be completed by November.

Water the square if necessary and lightly top off the grass when it has germinated and the square is dry enough to take the mower.

Further work will include aeration during the winter months with regular inspection and brushing / drag matting to minimise the opportunity of any disease developing and ensure the dispersal of worm casts, if present.

The occasional surveillance of the square will provide the opportunity of investigating any outbreak of fungal disease, treating with fungicide when the first signs appear (following all legal requirements) and also enable the detection of any excessive grass growth. In any mild spells it may be necessary to top the grass to ensure that the sward growth is not retarded in the Spring by removing too much growth in a short period of time. Any growth over 25mm (1”) should be lowered to 18mm (\(\frac{3}{4}\))

Walk the square to remove any debris or rubbish which may have accumulated to ensure that no damage will be caused to equipment.

Grass Net Practice Facilities

Where grass net areas are provided it is important that they are maintained to exactly the same criteria as the square, with true and predictable bounce enabling players to practice and perfect their skills.

Ideally these facilities should be allocated off the playing area so that practice can take place during match days. However, if not possible then consideration can be given to a suitable area on the outfield or provision made for use at the edge of the square. Such an area should allow for a minimum of 3.66m (12’) or maximum 4.57m (15’) wide bay or multiples of, with an adequate allowance for a safe bowlers run up. A batting end of a minimum of 10.67m (35’) length would suffice providing the run-ups are on a similar level surface.

‘It is important to maintain the same consistency of top dressing. It must be thoroughly worked in to avoid layering taking place and should normally be completed by November.’
### Outfield

The outfield should provide a fast and true surface for the ball to run without deviation. It should be firm enough to provide a good and safe foot hold for the fielder.

Some outfields perform a dual role and will be utilised for football or other winter sports after the cricket season. In these circumstances there is a greater opportunity for the provision of a wider range of machinery and equipment for the outfield.

Many village grounds will have an outfield that does not have satisfactory levels and contain many humps and hollows that may radically prevent a good maintenance programme being implemented. To bring a poor surface to a good standard may incur huge expense and is not affordable by a small club without assistance.

Drainage is another major problem on the outfield and the installation of a piped drainage system may be required.

The outfield should ideally be made up of a good free draining loam with suitable grasses and weed free. It must be cleared of any objects that could cause injury to players or damage to machinery.

### Maintenance

Mowing is the main operation carried out on the cricket field. The standard and quality of the facility will determine the height of cut. A good outfield will be true enough if maintained at 6-12 mm (\( \frac{1}{4}-\frac{1}{2} \)). Any unevenness in the surface would prevent close mowing and a cutting height of up to 25mm (1") will be required.

Law 10.3(d). (First Class and International competitions). The outfield shall be mown daily before play begins.

### Presentation

Every opportunity should be taken to enhance the presentation of the ground, for both spectators and players. This can be done easily by the sensible use of the mower (or trailed equipment, such as the brush or harrow).

For the best results the outfield should be cut with a 36 inch (900mm) box cylinder mower. The use of a roller mounted trailed seat with the mower will assist the smoothness of the surface. A Tripex type mower will also produce a similar quality finish, without affecting surface consolidation, while allowing increased time efficiency. The mower clippings are removed and there is less risk of thatch development on the surface. Unfortunately there...
will be a greater demand on the nutrients and additional fertiliser applications may be required. Many village clubs will have the outfield cut by gang mowers towed behind a tractor or other vehicle. These will reduce the cutting time and return the clippings to the surface. The lack of rolling from the gang mowers will reduce the need to aerate the outfield with spiking equipment.

A light rolling prior to the commencement of the playing season will resolve soil disturbance and firm the sward. A large mower, with the cutting cylinder disengaged, will prove ideal for the purpose and may also be used during the playing season to firm the outfield should the need arise. This latter difficulty often arises when gang units are used as the sole means of cutting the outfield.

Although fertiliser on the outfield is not as important as on the square, one dressing a year, usually in spring is sufficient for most grounds. However a supplement at the end of the season to enhance growth for winter sports may be useful.

Other maintenance operations could include the control of weeds, pests and diseases as required.

Where provision is allowed for the irrigation of the outfield areas, either by self-travelling or pop up systems, these should be used at the discretion of the groundsman.

**Autumn and Winter**

During this period maintenance should be kept to cutting, spiking and harrowing as conditions allow. If fields are used for winter games their requirements should be adhered to and may result in weekly spiking and mowing.

Tractor mounted scarifying equipment will remove any dead matter and speed the run of the ball. Light grassland chain harrows can be used for scarifying the outfield.

Outfield aeration should ideally be carried out at least once during the season. Slit tining will offset compaction, enabling air to reach the root zone.
Performance Quality Standards

Performance Quality Standards provide a means of determining the quality of a square or pitch at a given time. They are best described as ‘a tool’ in the management process and can be used for a range of applications as well as providing a series of ‘Benchmarks’ against which judgements can be made following the assessment/measurement of a square or pitch.

Standards are divided into three groups
- The physical structure
- The playing quality
- The presentation quality

Performance Quality Assessment and Measurement are used to determine the current quality and the information obtained can then be used to
- Improve the playing quality of the pitches.
- Determine the purchase of materials and equipment.
- Determine the quality of the square and / or pitches.
- Identify deterioration of the square or pitches.
- Plan future development.
- Develop medium and long term plans.
- Assess and measure the effectiveness of inputs, (work on the square / pitches).
- Adjust the management/maintenance programme.

Performance Quality Standards are available for natural turf pitches at Club level, in Local Authorities, Schools and for Non-turf Pitches both indoors and outdoors. These can be obtained from the ECB.

The Institute of Groundsmanship publish a document containing Performance Quality Standards for a range of cricket applications.

For further information please contact the Institute of Groundsmanship (Tel 01908-312511).
### The MCC laws of cricket and the ICC/ECB recommendations - relevant to ground preparation and markings

#### Pitch Measurements (Law 8)

<table>
<thead>
<tr>
<th>Category</th>
<th>Pitch</th>
<th>Stumps Width</th>
<th>Stumps (length)</th>
<th>Bails (length)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult</strong></td>
<td>20.12m (22 yds)</td>
<td>71.1 x 22.86 cm (28&quot; x 9&quot;)</td>
<td>10.95 cm (4 5/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Junior (Under 13)</strong></td>
<td>19.20m (21 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Junior (Under 11)</strong></td>
<td>18.29m (20 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Junior (Under 9)</strong></td>
<td>16.46m (18 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
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#### ECB Recommendations for Junior Cricket

<table>
<thead>
<tr>
<th>Category</th>
<th>Pitch</th>
<th>Stumps Width</th>
<th>Stumps (length)</th>
<th>Bails (length)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Under 15</strong></td>
<td>20.12m (22 yds)</td>
<td>68.58 x 22.86 cm (27&quot; x 9&quot;)</td>
<td>10.95 cm (4 5/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Under 14</strong></td>
<td>20.12m (22 yds)</td>
<td>68.58 x 22.86 cm (27&quot; x 9&quot;)</td>
<td>10.95 cm (4 5/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Under 13</strong></td>
<td>19.20m (21 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Under 12</strong></td>
<td>19.20m (21 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
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<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Under 10</strong></td>
<td>18.29m (20 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
</tr>
<tr>
<td><strong>Under 9</strong></td>
<td>17.37m (19 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
<td></td>
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<tr>
<td><strong>Under 8</strong></td>
<td>16.46m (18 yds)</td>
<td>68.58 x 20.32 cm (27&quot; x 8&quot;)</td>
<td>9.58 cm (3 13/16&quot;)</td>
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#### Area of pitch (Law 7.1)

The pitch is a rectangular area 20.12m (22 yds) in length and 3.05 (10') in width. It is bounded at either end by the bowling creases, which shall measure 1.52m (5') in width on either side of a line joining the two middle stumps of the wickets, each parallel to it. (Law 7).

#### Width and Pitching (Law 8.1)

Two sets of wickets, each 22.86cm (9") wide, (junior cricket is 20.32cm (8'')) and consisting of three wooden stumps with two wooden bails upon the top shall be pitched opposite and parallel to each other and at a distance of 20.12m (22 yds), (junior cricket 19.2m (21 yds)) between the centres of the two middle stumps.

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**Cricket Pitch Markings**

(Note that the total length of pitch is from the back edge of the bowling crease at each end.)

- Popping crease
- Bowling crease
- Return crease
**ECB Recommendations for Junior Cricket Boundary Sizes**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pitch Length</th>
<th>Boundary Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 9</td>
<td>18 yards</td>
<td>30 yards</td>
<td>45 yards</td>
</tr>
<tr>
<td>Under 10</td>
<td>19 yards</td>
<td>30 yards</td>
<td>45 yards</td>
</tr>
<tr>
<td>Under 11</td>
<td>20 yards</td>
<td>30 yards</td>
<td>45 yards</td>
</tr>
<tr>
<td>Under 12</td>
<td>21 yards</td>
<td>35 yards</td>
<td>55 yards</td>
</tr>
<tr>
<td>Under 13</td>
<td>21 yards</td>
<td>35 yards</td>
<td>55 yards</td>
</tr>
<tr>
<td>Under 14</td>
<td>22 yards</td>
<td>40 yards</td>
<td>70 yards</td>
</tr>
<tr>
<td>Under 15</td>
<td>22 yards</td>
<td>40 yards</td>
<td>70 yards</td>
</tr>
</tbody>
</table>

Boundaries to be measured from the centre of the match pitch.

These recommendations can be overridden by the playing conditions of individual competitions or to accommodate local ground conditions.
Stumps (Law 8.2)
Stumps shall be of equal and sufficient size to prevent the ball from passing between them. Their tops shall be 71.1 cm (28”) above the ground, junior cricket 68.58 cm (27”). The portion of a stump above the playing surface and shall be cylindrical, apart from the domed top, with circular section of a diameter not less than 38.1 mm (1 1/2”) nor more than 34.9 mm (1 3/4”) (Law 8).

Stumps shall conform to the following specifications:

<table>
<thead>
<tr>
<th></th>
<th>Senior</th>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (d)</td>
<td>71.1 cm (28”)</td>
<td>68.58 cm (27”)</td>
</tr>
<tr>
<td>Width (e) max</td>
<td>3.81 cm (1 1/2”)</td>
<td>3.49 cm (1 3/8”)</td>
</tr>
<tr>
<td>Width (e) min</td>
<td>3.49 cm (1 3/8”)</td>
<td>3.18 cm (1 1/4”)</td>
</tr>
<tr>
<td>Overall width of Wicket (f)</td>
<td>22.86 cm (9”)</td>
<td>20.32 cm (8”)</td>
</tr>
</tbody>
</table>

Bails
The bails, when in position on top of the stumps
(i) shall not project more than 1.27 cm (1/2”) above them
(ii) shall fit between the stumps without forcing them out of the vertical.

Bails shall conform to the following specifications:

<table>
<thead>
<tr>
<th></th>
<th>Senior</th>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall (a+b+c)</td>
<td>10.95 cm (4 1/16”)</td>
<td>9.68 cm (3 13/16”)</td>
</tr>
<tr>
<td>Longer Spigot (a)</td>
<td>3.49 cm (1 3/8”)</td>
<td>3.18 cm (1 1/4”)</td>
</tr>
<tr>
<td>Length of Barrel (b)</td>
<td>5.40 cm (2 1/4”)</td>
<td>4.60 cm (1 4/8”)</td>
</tr>
<tr>
<td>Shorter Spigot (c)</td>
<td>2.06 cm (3/16”)</td>
<td>1.91 cm (3/8”)</td>
</tr>
</tbody>
</table>

The bowling crease (Law 9.1)
This is the back edge of the crease marking, shall be marked in line with the stumps at each end and shall be 2.64 m (8’8”) in length with the stumps in the centre.

The popping crease (Law 9.2)
This is the back edge of the crease marking, shall be in front of, and parallel with the bowling crease. It shall have the back edge of the crease marking 1.22 m (4’) from the centre of the stumps and shall extend to a minimum of 1.83 m (6’) on either side of the line of the wicket. For Test and International Competitions, the 6’ minimum will be replaced by a minimum of 15 yds. The popping crease shall be considered to be unlimited in length.

The return creases (Law 9.3)
These are the inside edges of the crease markings, shall be at right angles to the popping crease at a distance of 1.32 m (4’4”) either side of the line joining the centres of the two centre stumps. Each return crease shall be marked to a minimum of 2.44 m (8’) behind the popping crease and shall be considered to be unlimited in length.

Wherever possible the creases shall be remarked during the game. The width of all lines shall be under 25 mm (1”) and as near to 12.5 mm (1 1/2”) as possible.
Preparation and Maintenance of the Playing Area (Law 10)

1. Rolling

The pitch shall not be rolled during the match except as permitted in (a) and (b) below.

(a) Frequency and duration of rolling

During the match the pitch may be rolled at the request of the captain of the batting side, for a period of not more than 7 minutes, before the start of each innings, other than the first innings of the match, and before the start of each day’s play.

(b) Rolling after a delayed start

In addition to the rolling permitted above, if, after the toss and before the first innings of the match, the start is delayed, the captain of the batting side may request to have the pitch rolled for not more than 7 minutes. However, if the umpires together agree that the delay has had no significant effect on the state of the pitch, they shall refuse the request for the rolling of the pitch.

(c) Choice of rollers

If there is more than one roller available the captain of the batting side shall have the choice.
(d) Timing of permitted rolling

The rolling permitted (maximum 7 minutes) before play begins on any day shall be started not more than 30 minutes before the start of play. The captain of the batting side may, however, delay the start of such rolling until not less than 10 minutes before the time scheduled or rescheduled for play to begin, should he so desire.

(e) Insufficient time to complete rolling

If a captain declares an innings closed, or forfeits an innings, or enforces the follow-on, and the other captain is prevented thereby from exercising his option of the rolling permitted (maximum 7 minutes), or if he is so prevented for any other reason, the extra time required to complete the rolling shall be taken out of the normal playing time.

2. Sweeping

(a) If rolling is to take place the pitch shall first be swept to avoid any possible damage by rolling in debris. This sweeping shall be done so that the 7 minutes allowed for rolling is not affected.

(b) If no rolling is to take place the pitch shall be cleared of any debris before the start of each day's play, between innings and at all intervals for meals. See Law 15.1 (An interval).

(c) Notwithstanding the provisions of (a) and (b) above, the umpires shall not allow sweeping to take place where they consider it may be detrimental to the surface of the pitch.

3. Mowing

(a) Initial mowing

All mowings which are carried out before the toss shall be the responsibility of the Ground Authority. The pitch shall be mown before play begins on the day the match is scheduled to start or, in the case of a delayed start, on the day the match is expected to start.

(b) Subsequent mowings in a match of more than one day's duration

All subsequent mowings shall be carried out under the supervision of the umpires. The pitch shall be mown daily. Mowing shall be completed at least 30 minutes before the time scheduled or rescheduled for play to begin. Should it not be possible to mow the pitch on any day because of weather conditions, rest days or other reasons, the pitch shall be mown on the first day on which the match is due to be resumed.
(c) Mowing of the outfield in a match of more than one day’s duration

In order to ensure that conditions are as similar as possible for both sides, the outfield shall be mown before the commencement of play on each day of the match, if ground and weather conditions allow.

If for reasons other than ground and weather conditions complete mowing of the outfield is not possible, the Ground Authority shall notify the captains and umpires of the procedure to be adopted for such mowing during the match.

4. Watering

The pitch shall not be watered during the match.

5. Re-marking creases

The creases shall be re-marked whenever either umpire considers it necessary.

6. Maintenance of footholes

The umpires shall ensure that the holes made by the bowlers and batsmen are cleaned out and dried whenever necessary to facilitate play. In matches of more than one day’s duration, the umpires shall allow, if necessary, the re-turfing of footholes made by the bowler in his delivery stride, or the use of quick-setting fillings for the same purpose.

7. Securing of footholds and maintenance of pitch

During play, the umpires shall allow the players to secure their footholds by the use of sawdust provided that no damage to the pitch is caused and that Law 42 (Fair and unfair play) is not contravened.

8. Non-turf pitches

Wherever appropriate, the provisions set out in 1 to 7 above shall apply.

Boundary: (Law 19)

The boundary is the perimeter of the field of play. For senior matches the boundary should be a minimum of 45.72m (50yds) from the centre point of the pitch in use. The boundary must not exceed 82.26m (90yds). For Test and International matches, the boundary shall be a minimum of 60yds from one boundary and square to the pitch. If this minimum is used then the other boundary on the opposite side will be a minimum of 80yds. The straight boundary at both ends of the pitch will be a minimum of 60yds. All distances are measured from the centre of the match pitch.
**Protected Area**

The protected area on a pitch is the area contained by an imaginary line 1.22m (4') from the Popping Crease and parallel to it and within two imaginary lines drawn down the pitch from points on that line 30.48cm (1') on either side of the middle stump (Law 42).

For Test and International Competitions, First Class, Minor County and Leagues (where league regulations require) Law 42 Note C shall apply except that the reference to ‘4’ shall be replaced by ‘5’.

**Selection and Preparation**

Before the toss for innings the Groundsman and Grounds Authority shall be responsible for the selection and preparation of the pitch. Thereafter, the Umpires shall control its use and maintenance.

**Fitness of the Pitch for Play**

The umpires shall be the final judges of the fitness of the pitch for play.

**Changing the Pitch**

The pitch shall not be changed during the match unless the Umpires decide that it is dangerous for play to continue on it and then only with the consent of the two captains.

**Non-Turf Pitches**

In the event of a non-turf pitch being used, the artificial surface shall conform to the following measurements (Law 10.8):

- **Length**: a minimum of 17.68m (58')
- **Width**: a minimum of 1.83m (6')

*Laws are under review and may be subject to change in October 2000*
ICC/ECB Restrictions on the Placement of Fielders

Applies to competitions where regulations require restriction on the placement of fielders. This may vary subject to the playing regulations of the competition authority.

Markings

27.5m (30yds) Outer Circle

Two semicircles shall be drawn on the field of play. The semi-circles have as their centre the middle stump at either end of the pitch. The radius of each of the semicircles is 27.5m (30yds). The ends of each semicircle are joined to each other by a straight line drawn on the field on the same side of the pitch.

The field restriction area should be marked by a continuous painted white line or 'dots' at 4.5m (5yd) intervals, each 'dot' to be covered by a white plastic or rubber (not metal) disc measuring 18cm (7") in diameter.

At the instant of delivery, there may not be more than five fielders on the leg side.

For the first 15 overs only two fielders are permitted to be outside the field restriction marking at the instant of delivery. For the remaining overs only five fielders are permitted to be outside the field restriction at the instant of delivery.

13.72m (15yds) Inner Circles

Two inner circles shall be drawn on the field of play. The circles have as their centres the centre point of the popping crease at either end of the pitch. The radius of each of the circles is 13.72 m (15 yds). The field restriction area should be marked by 'dots'. The segment of the circles reserved for the slip positions shall not be demarcated. (See marking plan)

In the first 15 overs there must be a minimum of two stationary fielders within the 15 yd field restriction of the striker at the point of delivery. The two stationary fielders may be permitted to stand deeper than 15 yds (in the demarcated area) provided only that they are standing in the slip, leg slip and gully positions.

Where play is delayed or interrupted affecting the innings of the team batting first and the total number of overs available is reduced, the number of overs in regard to field restrictions shall be reduced proportionately. Fractions are to be ignored.

In the event of an infringement, the square leg umpire shall call and signal a no ball.
Restrictions on the Placement of Fielders

The final mark of the 15 yards radius shall be in a line placed at an angle of 45° measured from the popping crease at a point level with the middle stump.

Continuous white line or dots at 4.5m (6yds) intervals

Marked by 'dots' at regular intervals

27.5m (30yds) radius

13.72m (15yds) radius

1m line
These guidelines describe the standards of facilities required by Premier League Clubs. Umpires will be asked to mark the playing facilities after each game and to comment on any deficiencies.

1. Pitch & Square

The square should be well maintained and in good condition with the whole of it being cut within 2 days of the start of each match. The pitch should be clearly distinguishable from the remainder of the square and shall be marked and rolled before play. The pitch should be appropriate for matches of at least 120 overs duration. The bounce of the pitch should be true and predictable throughout the match, and should not produce excessive spin or movement off the seam. Any holes or ruts on the square caused by previous matches must have been levelled, filled and firmed. It shall not have been artificially watered within forty-eight hours of the match. The popping crease shall be marked for a minimum of twelve feet to conform with Law 9 and the restricted area for the bowlers’ follow-through (Law 42 Note C) shall be indicated with markings off the playing surface four feet in front of the popping crease and also on the bowling crease one foot on either side of the middle stump.

Stumps, which should be properly matched sets in good condition and with matching bails, shall be pitched by the groundsman with holes adequately watered to allow easy resetting by the umpires. The pitch shall be brushed and re-marked (rolled if required) during the interval between innings. At least one roller must be available for use during the match.

2. Outfield

The outfield should be well maintained and adequately drained. It should be closely mown with no noticeable grass cuttings. Balls should be able to run true and the outfield should be free of holes, ruts or other obstructions that might pose a hazard to fielders.

3. Boundary

The boundary should be clearly marked by rope or white line and with markers approximately 20 yards apart. Alternatively where a gutter is used the edge shall be cleanly cut; if a picket fence or advertising boards form part or all of the boundary they shall be secure and in good condition. No boundary shall be less than 50 yards or more than 90 yards from the nearer middle stump on the match pitch unless explicit dispensation is given by the League Management Committee.
4. Sight Screens
The structure and non-reflective paintwork of the sight screens should be in good condition. They should be of an adequate and appropriate size for the ground and should be completely outside the playing area whenever possible. Screens should be properly positioned before the commencement of play. Screens are to be provided at both ends unless explicit dispensation is given by the League Management Committee. A rope or boards should be provided to define the boundary if the sight screen(s) stand within the playing area, and the roped/boarded area must be of sufficient size to allow screens to be moved from side to side without adjusting the ropes/boards.

5. Covers
Covers must be available to protect the pitch and the bowlers’ run-ups from rain both during the match and in the preceding days as appropriate. Arrangements should be made for the groundstaff, players or other helpers to put the covers in place as quickly as possible. Wheeled covers are recommended, although plastic sheets/tarpaulins can be used provided that they are well maintained and are laid over a hessian underlay or coconut matting which covers the pitch area. The covers must protect an area of at least 80' by 12' and clubs are encouraged to protect a larger area, including the bowlers’ run-ups, whenever possible. Clubs will be required to show that their covering arrangements are adequate to protect the pitch, taking into account the contours and draining characteristics of the ground.

6. Drying Equipment
An adequate supply of sawdust and cloths should be available to minimise lost playing time due to wet ground conditions. Additional covering for areas likely to cause a delay in play (eg. the ends of previously used pitches) should be provided whenever possible. Coconut matting can be used to protect pitches under preparation. Other drying facilities, including brushes, forks, squeegees, absorbent rollers etc. can also be useful.

7. Rollers
Light (5-10cwt) and heavy (minimum 30cwt) rollers should be available for use on the pitch. At least one roller must be available for use during the match.

8. Ground Surrounds
The surrounds should be maintained by regular cutting. Fences and walls should be well maintained. The entrance(s) to the ground should be clearly signed, showing the name of the club.
Seating for spectators should be in good condition. Suitable measures should be taken to ensure that lost balls do not delay play.

9. Practice Facilities

Clubs should ensure that they have access to good quality practice facilities for mid-week practice for senior players and either mid-week or weekend practice for junior players. Net practice facilities should be available for use by both sides (ideally a minimum of two nets) before matches whenever possible. Any grass nets must be in good condition with true and predictable bounce. Artificial net pitches should be regularly maintained and rolled where appropriate to ensure true and predictable bounce.

10. Umpires

The Umpires will assume responsibility for the pitch and ground 30 minutes before the scheduled start of play on each day. Their responsibility will end at the close of play on each day or when play has been abandoned for the day. The home ground authority is responsible at all other times.

*Each club is recommended to contact their own League authority for confirmation.
The equipment listed below is the minimum recommended items required to maintain a cricket pitch to a safe and consistent condition. Some items may be hired / borrowed at the optimum operation time as opposed to owned.

1. Mowers
   a. Pitch Mower
      Cylinder mower (with no less than 8 blades, capable of a minimum of 130 cuts per metre, no wider than 600mm, variable speed and collection box), suitable for pitch / square preparation, with adjustment tools.
   b. Outfield Mower
      Either, trailed or mounted gangs, width 1.8 - 2.1m or, ride-on, width 1.2 - 1.8m

2. Rollers
   a. Hand roller
      - Weight 75 - 250 kg (light)
      - Width 0.6 - 1.0m
   b. Motor Roller
      - Self propelled
      - Medium up to 500kg, heavy 1,016kg or more
      - Width 1.2m

3. Scarifiers
   a. Hand
      - Width 68cm
   b. Self propelled
      - Width 35 - 50cm (operating)
      - Engine 5hp (3.7 kW)
      - Tines; thatch control / thatch prevention / brush

4. Aerators
   a. Sarrel Roller
      - Width 900mm - 1.2m
      - Solid tines 37 - 50mm deep, set spirally along the drum
   b. Pedestrian / self propelled - hydraulic ram
      - Width 1.0 - 1.2m
      - Tine depth 75 - 100mm
      - Tine spacing 50 - 100mm
      - 75 to 100 holes per sq metre
   c. Tractor mounted
      - Width 1.2 - 2.5m
      - Tine depth 230mm
      - Tine spacing 100mm
5. Fertiliser distributors
   a. Belt 61 - 92cm
   b. Cyclone / disc 1.2 - 2.4 distribution pattern

6. Pesticide Applicator
   ■ Knapsack / walk-over sprayer
     (groundsman must be qualified)

7. Setting Out Equipment
   a. Tape measures 2 x 30m, 1 x 50m, 1 x 100m
   b. Lines 2 x 50m
   c. Pegs 12 x 150mm (minimum)

8. Marking Out Equipment
   a. straight edge 1 x 3.6m
   b. marking frame / template
   c. paint brushes / line marking material
   d. Boundary marking equipment / material

9. Irrigation Equipment
   ■ system to get water to the square in sufficient quantities

10. Hand Tools
    a. Springbok rake
    b. wheel barrow
    c. switch / whale bone brush
    d. True lute
    e. drag mat / drag brush
    f. Besom broom / stiff brush
    g. stump hole marker
    h. hammer
    i. wooden mallet
    j. setting bar
    k. shovel
    l. fork
    m. Tool kit
    n. bucket
    o. Thumper / heavy panner
The equipment listed below is the minimum recommended items required to maintain a cricket pitch to a safe and consistent condition.

1. Tractor
Tractor unit, 25hp (or equivalent), low pressure tyres.

2. Mowers
   a. Pitch Mower
      Cylinder mower (with no less than 8 blades, capable of a minimum of 130 cuts per metre, no wider than 600mm, variable speed and collection box), suitable for pitch / square preparation, with adjustment tools (minimum of 1 per square).
   b. Outfield Mower
      - 36in cylinder mower, suitable for outfield preparation (ideally 2 required)
      - Either triplex ride-on, width 1.2 - 1.8m or,
      - Trailing / mounted gangs, width 1.8 - 2.1m

3. Rollers
   a. Hand roller (x2)
      - Weight 75 - 250 kg (light).
      - Width 0.6 - 1.0m
   b. Motor Roller (x2)
      - Self propelled
      - Weight up to 500kg (medium), weight 1,016kg or more (heavy)
      - Width 1.2m

4. Scarifiers
   a. Hand
      - Width 68cm
   b. Self propelled
      - Width 35 - 50cm (operating)
      - Engine 5hp (3.7 kW),
      - Reels; thatch control / thatch prevention / brush
   c. Outfield
      - Tractor drawn

5. Aerator
   a. Sarel Roller
      - Width 900mm - 1.2m
      - Solid tines 37-50mm deep, set spirally along the drum
   b. Pedestrian / self propelled
      - Hydraulic ram
      - Width 1.0 - 1.2m
      - Tine depth 75 - 100mm
      - Tine spacing 50 - 100mm
      - 75 to 100 holes per sq metre
**10. Irrigation Equipment**
- System to get water to the square in sufficient quantities.
- Underground system (Pop-up), Self-travelling system to cover square, outfield & practice areas, with sufficient pressure. Stand cock of a minimum of 25mm diameter.

**11. Tractor attachments**
- Drag brush / drag mat / harrow
- Overseeder
- Trailer
- Leaf sweeper
- Top dresser distributor

**12. Hand Tools**
- Springbok rakes
- wheel barrow
- switch / whale bone brushes
- True lutes
- drag mat / drag brushes
- Besom brooms / brushes
- stump hole markers
- hammers
- wooden mallets
- setting bars
- shovels & forks
- watering cans
- Tool kit
- buckets
- Thumper / heavy panner

**13. Covers / Pitch Protection**
- Push on or flat covers
- Sponge absorbent drying equipment
- Coconut matting

**14. Miscellaneous**
- airline
These guidelines have been produced to assist clubs contemplating square or pitch construction. Outlined below are the planning and resource considerations along with specifications, which will help when assessing contractors or consultants reports.

**Initial Planning**
Identify the level of cricket to be played and therefore the standard of pitch required. Plan on the square having a life span of 25 years, dependent on maintenance standards!

**Initial Site Investigation**
One pitch area is 75’ x 10’, therefore the size of the square will depend on the likely fixture list (suggested maximum of 5 matches per pitch during the season). The number of likely teams that will want to use the facility and time given to the groundsman to maintain and prepare pitches. Once the size of the square has been determined, the pitch orientation must be taken into account when considering the overall layout. A north / south orientation is preferable to minimise the effects of the sun on bowlers and batsman, though a possible east / west variation of 55° from the north point is acceptable.

The boundary must be considered when planning the site; the boundary should be a minimum of 45.72m (50yds) from the centre of the pitch in use. The ideal planning size should be a minimum of 50 yds from the centre point on each side of the square.

The local indigenous soil must be identified for its texture before any construction is undertaken. It is recommended that when soil analysis be carried out, a minimum of 6 locations on the site are used and a professional report gained. Topsoil and subsoil should be analysed.

**Drainage**
Identify the natural run off and any drainage lines if present. If the site has been previously used any drainage plans must be obtained.

When considering a site confirm reasonable access for construction vehicles and consider what protection will be required for the outfield during construction. Heavy laden vehicles if allowed to drive to the square will damage the outfield.

**Result of initial site investigation**
This must give you the:
- Size of the square
- The depth to dig for square construction
- Drainage requirements (when planning, allow for future increase of size)
Decision on suitable Materials

Recommended suppliers, the wrong selection (cheap option) will cause future problems.

Topsoil choice will be dictated by standard of pitch required:
- 1st Class and County standard: minimum of 28-35% of clay
- Club standard: minimum of 25-30% of clay
- School: minimum of 25-28% of clay
- Should be compatible with the local indigenous soil
- Initial planning will indicate depth and therefore quantities
- The use of marl is not recommended

Grasses
There are a number of mixtures and various cultivars available on the market. A careful balance must be made between the ideal type of grass and the maintenance that will be carried out.

Typical seed mixtures are:
a) 65% Turf type Perennial ryegrass (Lolium perenne)
   30% Chewing Fescue (Festuca rubra commutata)
   5% Brown top bent (Agrostis tenuis)
b) 50% Turf type Perennial ryegrass
   50% Turf type Perennial ryegrass

The various types of cultivars of the different species can be chosen from the current edition of ‘Turfgrass Seed’, published every year by the STRI.

Drainage
Identify the need for drainage - if any, natural run off may meet your needs. If standing water is present, then drainage will have to be considered. Drainage system is laid around the square only, and if in future, extension of the square is likely, then allow space so that the drainage will not be affected or need to be moved. A drainage raft should only be planned in exceptional circumstances, this will not normally be required. To determine the type of drainage required, the amount of water to be removed within a defined period must be calculated. This calculation will determine the amount of work and materials required.

Pipe drains should not be located below the surface of the square.

Falls/gradients; finished levels must blend with the fall of the outfield and a minimum gradient is required. Drains should not be laid at a fall of less than 1:200.

The square should be level along the direction of play, however a fall of 1:100 is acceptable and a cross fall of 1:60 to 1:80 is desirable to assist with surface water run off.
Method of Construction

1. Excavate and remove topsoil and subsoil to required depth
2. Drainage laid as planned
3. If depth excavated exceeds 100mm (4") then a loam can be put in as subsoil - this must be compatible with the topsoil and keyed in during construction.
4. **Consolidation - This is the most important part of construction.** Consolidation of soil must be done every 50mm (2"), the best method is by heeling. This is time consuming, but must be done and carefully supervised. There are other methods available, but care must be taken. All levels must be keyed in and air pockets removed. The projected planning time will only be achieved if this is done correctly!
5. Levelling and construction can be done with levelling pegs or rails / shuttering. If done correctly there should not be a need for overlapping. Exact marrying up with the level of the outfield must be achieved. The final levelling should not be done with a roller as this may leave small isolated pockets, which walking and heeling will locate and eradicate. Technology, incorporating laser levelling, now allows for precision construction and a reduction in the time contractors remain on site.

Seeding
- The surface is raked,
- Pre-seeding fertiliser may be used if considered necessary
- Seed at 35gm/m (13/4oz/sq yd)
- Lightly rake and roll with a hand roller
- Water after seeding

The turfing of a pitch or square is strongly discouraged! After the square has been constructed some form of fencing around the square will be required to prevent encroachment.
After Care

A feature of newly laid squares or pitches are that during the process of maturing a certain amount of settlement can occur, the severity of which usually depends on how well accomplished consolidation and construction methods were applied. This may appear as overall slight or deeper sinkage and excessive cracking during the formative years.

To counteract this primary settlement and expedite maturity, wide cracks should be methodically filled by firming screened loam and using an implement such as a wide builder’s cold chisel and seeding in order to knit the cracks together. Just rubbing in top dressing will not facilitate the procedure.

The fine cracks that appear during normal pitch preparation are an accepted feature that can often be limited by use of covers to prevent the surface from drying too rapidly.

‘Rippling’ can also occur especially after initial use of the heavy roller, which should not be used excessively in the first year. Priority should be given to cross and diagonal rolling.

By use of a 12 foot straight edge or similar device, routine checks on surface levels should be made so that, where considered necessary, carefully applied top dressing can be administered to correct levels. Attention to after care is important as there are usually higher demands for nutrients, and a firm surface will require constant and consistent standards of maintenance support in overseeding, irrigation and monitoring of surface levels, in order to sustain a good and even bounce when the pitches are considered ready for play.

It will be 18 months to 2 years before the square is ready for use.

It should be noted that these are just outline guidelines and that expert advice must be sought prior to construction. The Institute of Groundsmanship can be contacted on Tel 01908-312511, Fax 01908-311140, Email www.iog@iog.org

The Cricket Development Officers can also be contacted as per the list at the end of this booklet.
In order to obtain value for money it is essential 
Non-Turf cricket pitches are regularly maintained 
and used intelligently otherwise they will soon 
deteriorate and cease to be suitable for the game.

There are two basic types on Non-Turf Pitch:
- Systems laid on to an unbound base
- Systems laid on to a bound base

Systems laid on to an unbound base play more like 
a natural turf pitch, particularly those structures 
laid directly on to soil. Within the two types there 
are a range of permutations.

Unbound based pitches
For the purpose of these guidance notes it is 
important to distinguish between the different 
types of unbound pitches of which there are 
3 main groups:
- Pitches without an underlay between the unbound 
  mineral material and the synthetic surface.
- Pitches with an underlay between the unbound 
  mineral material and the surface.
- Pitches with an underlay or a number of underlays 
  between the soil and the surface.

Where unbound bases are used without an underlay, the maintenance inputs are higher 
and the risk of displacement of the unbound particles is greater.

Bound based pitches
There are 2 types of bound bases:
- Pitches laid on Bitmac
- Pitches laid on concrete.

Note, the ECB do not currently recommend a concrete based outdoor system.

Maintaining the Non-Turf Pitch
Remark the crease areas on a weekly basis, partic-ularly during early days of settlement.
Remove any debris from the surface of the pitch 
by brushing, particularly the bowling ends and 
popping crease. This needs to be carried out 
regularly, twice a week if possible.
On unbound pitches occasionally roll, perhaps 
one or twice a week for the first few weeks. Use 
a 5-6cwt roller in order to settle the base 
formation. During such work, wrinkles may 
appear in the surface at each end of the pitch as a 
result of rolling. The nails at the end of the mat 
should be removed and the wrinkles pulled out 
followed by refixing with nails.
The stump holes will need weekly repair by 
watering and firming with clay loam if required.
The pitch surrounds should be mown weekly to 
blend in with the rest of the square.
Occasionally it may be necessary to apply a 
weed / moss killer to the pitch exercising great care 

Where unbound bases are used without an 
underlay, the maintenance inputs are higher 
and the risk of displacement of the unbound 
particles is greater.
and being mindful not to leach the materials in to the surrounding ground, killing vegetation, therefore ‘contact herbicides’ are recommended. Calcined sulphate of iron is effective on moss on synthetic pitches.

No vehicles should be allowed on to the surface especially when newly laid.

On some pitches it may be necessary to refill the bowlers delivery area with particulate material, this taking place on a regular basis.

Out of season maintenance
During the autumn, following the cleaning of the ends, on some pitches, a top dressing should be applied and worked in to the bowler’s delivery area. After the pitch has settled down and been used for a season, it may be necessary to carry out remedial work to the base formation and undertaken as follows:

- Remove the surface matting.
- Remove the underlay if one is used.
- Break up the unbound mineral base by lightly pricking with a fork, particularly in areas with depressions.
- Incorporate new material in to the disturbed unbound mineral base.
- Level the base with a straight edge and appropriate equipment.
- The underlay should then be relaid and tensioned.
- Relay the surface and tension, followed by filling the stumps holes with new clay loam.

Where major depressions have formed, it is important to fork to a greater depth, working in sufficient new material in to the holes to build up levels. This is then followed by pricking the remainder of the unbound mineral material, top dressing with new material and working in after which the area is screened and consolidated. Consolidation can either be with a roller or preferably, a vibrator plate. The underlay, if used, and the surface is then relaid.

Potential hours of use per week: 30+

Maintenance inputs, Time allocation.
- When first laid: 1-2 hours per week
- After first 3 months: 1 hour per week
- Autumn work: 8 to 10 hours
- Spring work: 3 to 4 hours

The allocation of time and the input of maintenance will ensure the pitch lasts for years.
ECB Approved
Non-Turf Pitches
and Suppliers
(As at 1st October 2002)

Actionweave Pitch
'T' Base Pitch
Supplier
Exclusive Leisure
28 Cannock Street, Leicester LE4 9HR
Tel 0116 233 2255

Clubturf Natural Pitch
Clubturf International Pitch
Supplier
Club Surfaces Ltd.
The Barn, Marlow, Buckinghamshire SL7 1RS
Tel 01628 485969

Notts'D'Pitch
Envelope Pitch
Supplier
Notts Sport Ltd.
Launde House, Harborough Road, Oadby
Leicestershire LE2 4LE
Tel 0116 272 0222

Test Match Pitch
Supplier
Verdi Sports Ltd.
Gabbotts Farm Barn, Bury Lane, Whithnell
Chorley, Lancashire PR6 8SW
Tel 01254 831666

Flick United Kingdom
24 Oaktree Road
Tilehurst
Reading
RG31 6JX
flickx@ecb.co.uk
www.flickx.com

Non-Turf Pitch Consultant to the ECB
Peter Dury Jnr
facilities@ecb.co.uk
Introduction

The Pitch advisory scheme is funded by Sport England and ECB and represents the first governing body to address the issue of groundsmanship, in particular at recreational/non professional level. The project is to place 45 pitch advisers across England and Wales and for their activities to be fully embraced into the work of County Cricket Boards (CCB's).

The purpose of the scheme is to address issues regarding:

- Minimum Quality Performance Standards
- Consistent advice across England and Wales
- Active response to clubs
- Higher profile for groundsmanship
- Accurate assessment of cricket priority sites
- Identified costs
- Proactive move between professional and voluntary sector

Duties of a pitch Adviser

The appointed advisers have three duties

1. Prioritised detailed assessment
2. Create a response team for basic assessments (perhaps annual)
3. Help build an effective Groundsmanship Association

Funds

There are two bands of fees applicable to Pitch Advisers

1. Prioritised detailed assessment £250 (inclusive of follow up visits)
2. Basic Assessments £75 - 150 (by arrangement with club)

Prioritised assessments may be subsidised by the CCB via the Cricket Foundation Fund. Basic Assessments are paid entirely by the club and the fee set at the direction of the CCB.
Courses
To become a pitch adviser the candidate must be nominated to the ECB by the CCB. Once nominated the candidate must attend a residential course (course dates will be published)
Minimum qualifications:
  Level 2 Understanding the Science
  Minimum 20 years practical Knowledge
  Other relevant nationally recognised certification

Improving Our Surfaces
The ECB has been fortunate in attracting sponsorship and the support of the Sport England Lottery Fund for the upgrade of 260 cricket pitches across England. The Pitch Advisers will be central to the project in three ways.

1. Provide the initial assessment that set the work programme
2. Monitor the sites up to three years after the initial investment
3. Assess work and sign off contractors
Cricket Groundsmanship Courses

The England & Wales Cricket Board in association with The Institute of Groundsmanship have developed a structured short course scheme to develop the skills and expertise of Cricket Groundsmen. The scheme consists of three levels of progressive training offered in four courses. The initial stage is the Spring and Autumn Practical courses, Level 1 Parts A & B, then followed by ‘Understanding The Science’, Level 2 and culminating in the ‘Management Practices’, Level 3 course.

The outline programme for each course is:

**Level 1, Part A**

- **‘Spring Preparation’**
  - Early Spring Maintenance
  - Preparation of the Square
  - Machinery, Mowing, Rolling, Watering
  - Scarifying & Brushing
  - Fertiliser Application
  - Preparation of the Match Pitch
  - After Match Repairs & Renovation
  - Maintenance of Non-Turf Pitches

**Level 1, Part B**

- **‘Autumn Renovation’**
  - Sequence of Operations
  - End of Season Repairs & Renovation
  - Scarification, Aeration
  - Overseeding
  - Top Dressing
  - Fertiliser Application
  - Care of the Outfield
  - Maintenance of Non-Turf Pitches
  - Winter Work

**Level 2**

- **‘Understanding the Science’**
  - Pitch Specification
  - Soils Grasses
  - Fertilisers used in Turfculture
  - Pests, Diseases & Weeds of Turf
  - Synthetic Pitches
  - Machinery & Equipment

**Level 3**

- **‘Management Practices’**
  - Performance Quality Standards (PQS)
  - Pitch Construction
  - Preparing the Ideal Pitch
  - Pitch Allocation - The Outfield
  - Net and Practice Areas
  - Budgeting - Resources
  - Health & Safety Management

These are one day courses at various sites around the counties.

For further information and application forms contact your County Cricket Development Officer, County Cricket Board or The Institute of Groundsmanship on 01908 312511