ARTIFICIAL GRASS PITCH INTRODUCTORY GUIDE

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1 INTRODUCTION

The last 15 years has seen major innovations in the development of artificial turf surfaces for sport. Most significant for Rugby Union is the emergence of longer pile surfaces that replicate both the playing qualities of the best quality natural turf pitches and allow significantly higher levels of usage. The success of these surfaces is such that they are now being used in major competitions for a number of sports including Rugby Union and Football.

To assist potential developers of artificial turf rugby pitches the RFU has produced two guidance notes. This guidance note is a general introduction to artificial turf pitches and has been written to assist organisations considering such a facility. Guidance Note Seven describes in more detail many of the factors that need to be considered during the development of an artificial grass pitch. It is aimed at professionals responsible for the design, specification and construction of such facilities.

2 WHAT IS ARTIFICIAL RUGBY TURF?

Artificial Rugby Turf is the term the International Rugby Board (IRB) uses to describe artificial grass surfaces designed for use in the game of Rugby Union. Diagram 1 shows a typical cross section of an Artificial Rugby Turf surface.

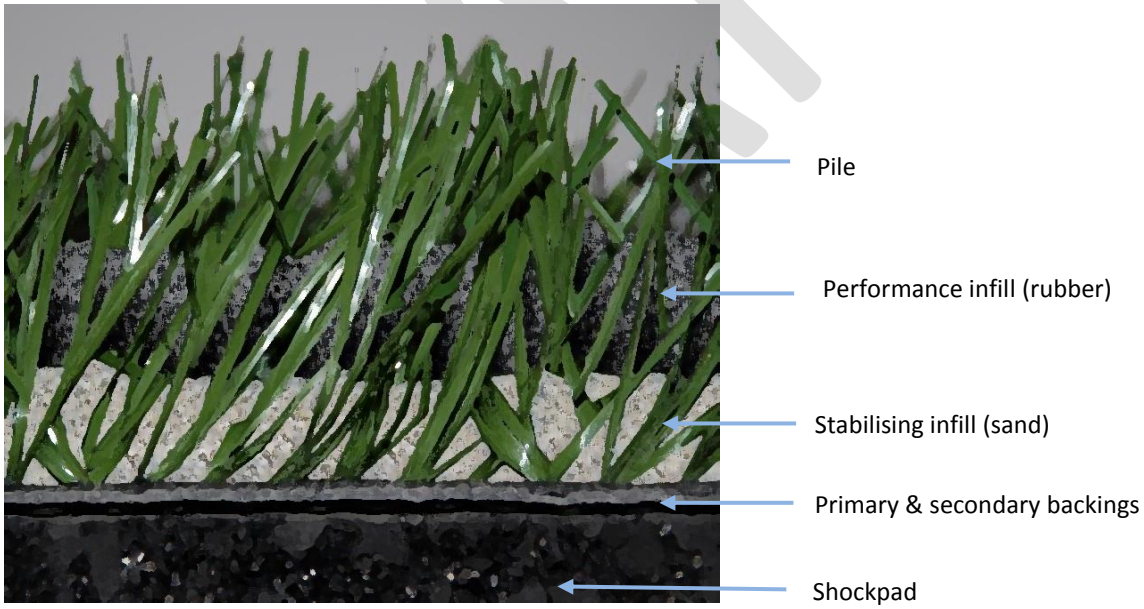

Diagram 1 – principal elements of an Artificial Rugby Turf surface

The surface is comprised of a long pile tufted carpet normally laid on a shock-absorbing pad which is then laid on a free draining stone or macadam base. The pile of the carpet is partly filled with rubber granules to provide a cushioned surface which, in conjunction with the shockpad underneath, provides the comfort and protection players require. Beneath the rubber granules is a layer of sand which stabilises the pitch and provides weight to hold the carpet in place.

3 IRB REGULATION 22 AND THE IRB ARTIFICIAL RUGBY TURF SPECIFICATION

The IRB is the international governing body for the game of Rugby Union. It believes Artificial Rugby Turf pitches have a major role to play in developing the game in regions of the world where natural turf is not a viable alternative; either due to an unsuitable climate, inadequate maintenance resources or where the intensity of use is too great to maintain good quality natural turf – which is often the case in England. The IRB wants to ensure that only artificial grass pitches of acceptable quality are used for Rugby to prevent players being exposed to any greater risk of injury than when playing on natural turf. To achieve this they have developed their *Artificial Rugby Turf Performance Specification* and incorporated this into IRB Regulation 22. This Regulation states that Rugby matches (at any level of competition) may only be played on an artificial turf pitch which meets the IRB *Artificial Rugby Turf Performance Specification* and IRB Law 1 – The Ground.

The RFU require any pitch on which full contact activities (including line-outs, tackling, scrums or rucking) are to take place to be designed, constructed and certified in accordance with IRB Regulation 22.

As required by the IRB, the RFU maintains a register of certified pitches. This will be available to anyone wanting to verify that a pitch is IRB Regulation 22 compliant prior to playing or training on it. This is information can also be provided by the IRB and all sites should themselves be able to provide a copy of an up to date independent laboratory test demonstrating IRB Regulation 22 compliance.

The IRB *Artificial Rugby Turf Performance Specification* may be downloaded from www.irb.com. It has been written to ensure artificial grass pitches are constructed with surfaces of proven quality; that the surfaces are installed correctly and that they continue to provide satisfactory playing environments throughout the lifespan of the pitch. This is achieved by three stages of testing and inspection.

Stage 1 – Product type approval
The artificial turf surface is subjected to a comprehensive series of laboratory tests that assesses its performance, durability and material qualities. Only artificial grass products that have been tested by an IRB Accredited Test Institute and are shown to comply with the IRB standard should be considered when designing an artificial grass pitch on which Rugby Union is going to be played or Rugby training will take place. Confirmation that a particular artificial grass product has been shown to comply with this first stage may be obtained from the IRB.

Stage 2 – Initial facility testing and certification
Once installed, a pitch must be tested by an IRB Accredited Test Institute to verify the artificial grass surface has been installed correctly and is providing the required levels of performance. Even the best quality surfaces will not perform acceptably if they are poorly or incorrectly installed.

Stage 3 – Pitch recertification
The pitch must be re-tested by an IRB Accredited Test Institute every two years throughout its life to verify it is still providing a satisfactory and safe playing environment and to adhere to RFU insurance requirements.

The testing of pitches requires specialist test equipment and expertise and the IRB has a number of Accredited Test Institutes which have been independently assessed and shown to achieve the levels of competence and standards required. Only accredited laboratories can undertake IRB testing of products and pitches. Details of suitable laboratories may be obtained from www.IRB.com.

From a regulatory perspective, an artificial grass pitch that has been constructed and tested to IRB Regulation 22 is treated in the same way as a natural turf pitch. This means that any level of league rugby can be played on the pitch and clubs do not have the right to refuse to play on an IRB Regulation 22 compliant artificial grass pitch.

Artificial grass pitches that are not compliant with IRB Regulation 22 should not be used for any contact rugby union activity. A comprehensive risk assessment should be carried out before using a non IRB regulation 22 compliant artificial grass pitch for any other type of rugby union activity.

4 PITCH LOCATIONS

The design and cost of a new Artificial Rugby Turf Pitch will be greatly influenced by the site on which it is to be built and it should be recognised that some sites are not cost effective to develop. Factors that will influence the construction costs include topography, access, drainage, availability of an adequate power supply (for lighting) and ground conditions.

Before commencing the design of the pitch, the project team will require as much information as possible about the site and its surroundings. It is therefore essential that adequate resources are budgeted for at an early stage of a project as this greatly reduces the risk of unforeseen problems (and increased costs), during construction or even later. Of greatest importance is an understanding of the ground conditions, as the largest risk of unforeseen problems and additional cost normally occurs here. A specialist geo-technical survey should be undertaken where boreholes or trial pits are excavated to allow a detailed examination of the substrata across the proposed site.

When considering the location for a pitch the following should be considered:

- pitch size, ground levels and any adjustments required
- surface water drainage proposals
- possible future developments, other pitch locations, pitch layouts and safety margins
- existing trees and shrubs
- new tree planting and landscaping
- ecological and environmental issues
- relationships with clubhouse, including viewing and access to changing facilities
- paved access for spectators and people with disabilities
- other sports users' activities
- player and spectator shelters
- maintenance access – paved access routes for machinery and maintenance equipment storage

To avoid problems with glare from low sun in winter mornings and afternoons the pitch, whenever

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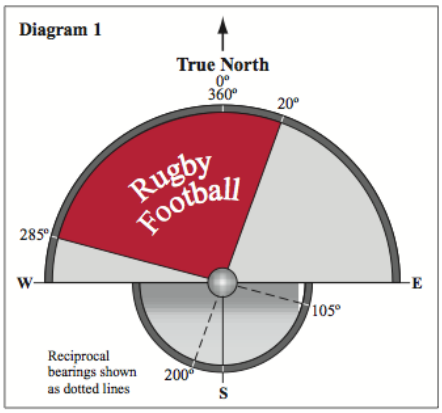
possible, should be laid out (end to end) within the orientation limits shown in Diagram 2.



5 PITCH DIMENSIONS

The pitch comprises the Playing Enclosure (the field of play and in-goal areas) and the perimeter areas, or run-offs. All parts of the Playing Enclosure should be surfaced with the same quality of Artificial Rugby Turf surface as the playing area. The dimensions for a fifteen-a-side pitch are set out in Diagram 3 and Table 1. These exclude line markings, which should not exceed 100 mm.

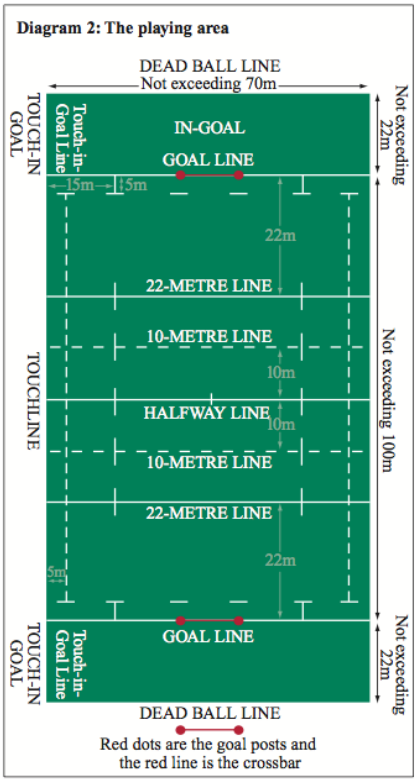


Table 1 summarises the dimensions of various pitch configurations for Rugby Union and dual use Rugby Union/Football pitches.

Table 1 – recommended pitch dimensions					
Type of pitch	Field of play		Areas outside beyond field of play		
	Length	Width	In goal	Perimeter Area run-off	
				Ends of pitch	Sides of pitch
Full size Rugby Union pitch	Max 100m Min 94m	Max 70m Min 68m	Max 22m Min 6m	5.0m	5.0m
Under 7 and Under 8 Mini Rugby	Max 60m	Max 30m	N/A	3.0m	3.0m
Under 9 and Under 10 Mini Rugby	Max 60m	Max 35m	N/A	3.0m	3.0m
Under 11 and Under 12 Midi Rugby	Max 60m	Max 43m	Max 5m	5.0m	5.0m
Full size Rugby and Association Football pitch	Max 100m Min 94m	Max 70m Min 68m	Max 22m Min 6m	5.0m	5.0m
Training Areas (Rugby and Association Football)	55.0m	36.5m	N/A	3m	3m

6 MULTI-SPORTS USE

Many artificial turf pitches are used for more than one sport which could potentially result in compromises in performance. In order to accommodate more than one sport on these surfaces it is important that the playing characteristics of the sports and the safety provided to players is not compromised. Football and Rugby League can both be successfully played on certain forms of turf that can also be used for Rugby Union without a major impact on the playing characteristics of any of the three sports. The IRB promotion of the 'One Turf' standard goes towards facilitating multi-use surfaces.

Whilst hockey is also played on artificial turf pitches, the requirements of the game, and especially their desire for a surface on which a hockey ball rolls in a fast and true manner means that artificial turf surfaces that are suitable for rugby union do not comply with the recommendations and competition regulations of the Federation of International Hockey.

7 FENCING

Perimeter fencing is normally erected around community pitches to contain balls, to protect the playing surface from contamination and to help prevent unauthorised use and vandalism. Fencing heights vary, 3m is often used but this can increase where site security and ball retention is not a serious issue. Where an internal spectator compound is provided, 1.2m high fencing with a top rail is often used to enable good spectator viewing.

The fencing is normally constructed from weld mesh panels or rolls that are suspended from box section posts. Weld-mesh is used, as it is better suited to the repeated impacts of balls hitting the fence than cheaper chain-link mesh. Steelwork should be galvanised to minimise premature corrosion and may be plastic coated to improve its appearance.

Access gates should open outwards to ensure the safety of players. At least one pair of double gates should be provided to allow maintenance and emergency vehicle access.

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Guidance on the design and specification of fencing systems for artificial turf pitches may be found in the *Guide to the Construction and Maintenance of Fencing Systems for Sports Facilities* published by the Sport and Play Construction Association.

8 FLOODLIGHTING

In order to maximise the use of the pitch, most are floodlit. Lighting of full size pitches is normally achieved by a number of lamps mounted on columns positioned along the sides of the pitch. Typically eight columns, 15 – 16m high, are used on full sizes pitches.

As many league and cup competitions specify the minimum level of lighting they require it will be necessary to determine the competitions that the teams using the pitch will compete in and design accordingly. Guidance on floodlighting and lighting levels is provided in the RFU's Facilities Guidance Note 4 – Floodlighting.

When designing a floodlighting system it is important that an assessment of the available power supply is made to determine if adequate capacity is on hand, as bringing a new supply to site can dramatically increase costs. The total installed power requirements for a full size pitch is likely to be in the order of 35 to 40 kilowatts.

9 MAINTENANCE

The maintenance of the artificial turf surface is of vital importance if the pitch is to retain acceptable performance and longevity. The manufacturer's guarantee will also usually be conditional on the recommended maintenance requirements being carried out with reasonable diligence. Failure to make adequate allowance for the required maintenance equipment and training may result in a field not being certified to the relevant IRB Regulation 22.

Prior to selecting a surface the manufacturer's advice must be sought on the maintenance equipment to be used and how regularly the maintenance works should be carried out given the proposed programme of use. If you cannot follow the recommendations you should not select the surface. You should also look to agree how often the manufacturer/installer should return to site to perform more major rejuvenation works to ensure the infill is evenly spread over the site to protect the fibres. This maintenance agreement will help protect your warranty provided by the surface manufacturer. Many installers offer a periodic (quarterly) inspection service as part of their after-sales. This should be welcomed and encouraged so any shortcomings in maintenance are identified before they have a detrimental effect on the playing surface.

10 SUMMARY

Artificial Rugby Turf surfaces provide a viable alternative to natural turf Rugby pitches and training areas where high usage levels are required. In order to be used for Rugby Union activity, the surface must comply with IRB Regulation 22 and as such, a high quality approach to the procurement, installation, management and maintenance of these facilities is crucial.

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