

Commonwealth Games

Hockey field specifications & technical
requirements

May 2016 edition

1 General

This document has been prepared to enable the Local Organising Committee to provide hockey field(s) to the standards required for the FIH Event. It forms part of the FIH's Event's Manual and should be read in conjunction with the other FIH documentation.

The FIH reserve the right to amend, delete or add to these requirements at any time.

Not all requirements detailed apply to every FIH event.

For clarification or further information on the FIH's field, lighting and sports equipment requirements please visit www.fih.ch/hockeyturf or contact facilities@fih.ch.

2 Definitions

Competition field – a field used for competitive games during the Event.

Event - the FIH tournament.

FIH Quality Programme for Hockey Turf – all parts of the FIH Quality Programme for Hockey Turf including the *FIH Handbook of Performance, Durability and Construction Requirements for Synthetic Turf Hockey Pitches*. Unless otherwise specified by the FIH, this shall be the edition current 24 months in advance of the Event.

FIH Lighting Guide - *FIH Guide to Artificial Lighting of Hockey Pitches*. Unless otherwise specified by the FIH, this shall be the edition current 24 months in advance of the Event.

Field - the full Hockey Turf area comprising the Field of Play and Run-Offs. May also be described as the Pitch.

Field of Play - the playing area contained within the side lines and goal lines.

Hockey Turf - a synthetic turf surface specifically designed for the game of hockey and complying with the FIH Quality Programme.

Host NA - hosting National Association.

LOC - Local Organising Committee.

Operational margin – a margin outside the run-offs that is used by event management for TV camera positions, advertising boards, etc.

Run-Offs - margins around the perimeter of the Field of Play that form deceleration and safety margins for players.

Training Field – a supplementary field provided to allow teams to train prior to and during competition.

Rules of Hockey – current rules applicable at the time of the event and as published on the FIH website.

Summary of field requirements

Field designation		Competition fields		Warm-up fields		Training fields		See guidance note
Number of fields required		1		1		2		4, 16
Field dimensions & minimum run-offs	Length	Length	Width	Length	Width	Length	Width	
	Field of play	91.40m	55.00m	91.40m	55.00m	91.40m	55.00m	5.1
	Inner run-off	3.0m	2.0m	3.0m	1.0m	3.0m	1.0m	5.2
	Outer run-off	1.0m	1.0m	1.0m	1.0m	1.0m	1.0m	5.2
	Operational margin	1.0m	1.0m	-	-	-	-	5.3
	Total size	101.40m	63.0m	99.40m	61.00m	99.40m	61.00m	
Field orientation		North / South		North / South		North / South		6
Hockey Turf	Type	Non-filled, Wet		Non-filled, Wet		Non-filled, Wet		9.1
FIH Product Approval Category		Global		Global		Global		9.1
Same Hockey Turf as Competition Field		-		Yes		Yes		
Age of Hockey Turf at time of Event		Ideally less than 18 months No more than 36 months		Ideally less than 18 months No more 36 months		Ideally less than 18 months No more 36 months		4.4, 16
Colour of field of play		Blue or green		Blue or green		Blue or green		9.2
Run-off colours		As agreed with FIH		-		-		9.2

Field designation		Competition fields	Warm-up fields	Training fields	See guidance note
Recommended manufacturer / field builder		FIH Preferred Supplier	FIH Preferred Supplier	FIH Preferred Supplier	9.4
Line markings & logos	5m dashed circle lines	Required	Required	Required	9.3
	Additional line markings	No additional line markings	Preferably no additional markings	Preferably no additional markings	
	FIH Quality Programme logo	Required	Not required	Not required	9.3
Field watering		Required	Required	Required	10
Category of FIH Field certification required		Global	Global	Global	3, 14
Sports equipment per field	Goals	Three (one set and one spare)	Two (one set)	Two (one set)	11
	Nets	Three (one set and one spare)	Two (one set)	Two (one set)	11
	Corner flags	Six (one set and two spare)	Four (one set)	Four (one set)	11
Perimeter fencing	Side Line boundaries	Minimum 1.0m high	Minimum 1.0m high	Minimum 1.0m high	12
	Back Line boundaries	Minimum 7.0m high	Minimum 3.0m high	Minimum 3.0m high	12
Sports Lighting requirements		FIH International Televised Standard	FIH's Class I non-televised	FIH's Class I non-televised	15

3 Information to be provided

3.1 No less than 24 months before the Event:

The Host NA shall provide the following information to the FIH:

Table 1 – information required	Tick list
A detailed plan (full CAD drawings including vertical elevation drawings) of the existing or proposed field(s) to include:	
1. Field orientation	
2. Overall field dimensions (Field of Play and Run-Offs), including details of any Run-Off not surfaced with Hockey Turf	
3. Position of rain guns or irrigation sprinklers	
4. Position of auxiliary water supply points (hose points)	
5. Height and positions of perimeter fencing, including any temporary ball stop netting	
6. Proposed location of team benches	
7. Maintenance and emergency vehicle access to the field	
8. Overall field dimensions (Field of Play, Run-Offs and operational margin), including details of any Run-Off not surfaced with Hockey Turf	
Date any existing Hockey Turf surface was installed and details of its subsequent typical weekly use (hours and number of players per week) for each field.	
Details of the equipment currently used to maintain the field, the frequency such maintenance is undertaken and a	

list of staff trained by the Hockey Turf manufacturer to undertake the necessary maintenance.	
For Fields over two years old, a set of photographs showing the condition of the Hockey Turf in high and low use areas. This shall include photographs of any damaged or localised repairs to the Hockey Turf	
The anticipated or actual sports lighting luminance levels, to include horizontal and vertical values (in lux) and uniformity	

3.2 No less than 18 months prior to the Event:

The Host NA shall seek FIH approval of the proposed (installed) Hockey Turf product and colours (Field of Play and run-offs) no later than 18 months prior to start of the Event. On approval, these details will be announced on the FIH website. They will also be reconfirmed to Competing Teams in the Team Briefing as detailed in the FIH Events Manual.

3.3 Field certification

3.3.1 Existing fields

If existing field(s) are to be used, they shall be FIH certified to the required FIH category of performance no less than nine months in advance of the Event. The certification shall remain valid throughout the period of the Event.

3.3.2 New or resurfaced fields

If new or resurfaced field(s) are to be used, they shall be FIH certified to the required FIH category of performance no less than two months in advance of the Event.

4 Number and types of field

4.1 Competition Fields

The Host NA shall provide the number of Competition Fields detailed in the *Summary of Field Requirements* of this Specification.

4.2 Warm-up fields

The Host NA shall provide the number of Warm-up Fields detailed in the *Summary of Field Requirements* of this Specification. They shall be located at the tournament venue, as close to the competition fields as possible.

4.3 Training Fields

The Host NA shall provide the number of Training Fields detailed in the *Summary of Field Requirements* of this Specification. They shall be located at the tournament venue or as close as possible.

4.4 Age of Hockey Turf surface

To reduce any detrimental effects of use on the performance and consistency of a field, the maximum age of the Hockey Turf surface at the time of the Event shall be as specified in the *Summary of Field Requirements* of this Specification. Ideally any competition, warm-up and training fields that are not being surfaced specifically for the Event will have surfaces of a similar age and have been subjected to similar levels of use and maintenance prior to the Event.

4.5 Field design and construction

All fields shall have been designed, and constructed to ensure they can be certified to the specified requirements of the FIH Quality Programme for Hockey Turf. The design and construction should be based on the

principals of the IOC's *Guide to Sport, Environment and Sustainable Development*.

The construction shall typically comprise a stabilised formation, sub-field drainage system (vertical or horizontal) compacted aggregate sub-base, engineered (asphalt) base, shockpad and Hockey Turf playing surface, all designed and constructed in accordance with sports field engineering best practice.

5 Field dimensions

5.1 Field of Play

The dimensions of the Field of Play shall be 91.40m x 55.00m as per the Rules of Hockey.

5.2 Run-offs

Beyond the Field of Play are the run-offs. These are provided to ensure player welfare and form part of the total playing area. With the exception of approved cam carpets, the run-offs shall be kept clear of all permanent or temporary fixtures, (including advertising boards, TV cameras, etc) at all times.

The inner portion of the run-off shall be surfaced with the same quality of Hockey Turf (other than colour) as the Field of Play. The outer portion of the run-off will ideally be fully or partly surfaced with Hockey Turf. An alternative surface (asphalt, concrete pavers, etc) may be used providing it is laid at the same level and profile as the inner run-off. The transition from the Hockey Turf to the alternative surface shall be smooth and not form a potential trip point.

Run-off dimensions are minimums. Larger run-offs are acceptable.

5.3 Operational margin

For certain events as specified in the Summary of Requirements an operational margin is required outside the run-offs. The margin may be surfaced with Hockey Turf or an alternative surface such as asphalt, concrete pavers, etc. The transition from the run-off to the operational margin shall be smooth and not form a potential trip point.

If a new facility is being built to host the Event the width of the field should allow for the operational margin to be beyond the run-offs on each side of the field.

If an existing field is to be used for the Event, the outer 1m of the normal side run-off may be designated as the operational margin providing a side run-off of 2m is still provided (on each side of the field).

At the ends of the field the outer 1m of the normal end run-off may be designated as the operational margin providing an end run-off of 4m is still provided (at each end of the field).

Where part of an existing run-off is to be used as the operational margin for the Event it is preferable if a temporary line marking (min. 25mm wide) is marked onto the surface to designate the boundary of the operational margin.

6 Field orientation

Unless otherwise agreed with the FIH the Field shall be aligned North / South, with a maximum deviation from north of no more than $\pm 15^\circ$.

7 Field drainage

Unless otherwise agreed with the FIH the Field(s) shall be designed to incorporate a sub-surface drainage system (vertical or horizontal) that is

designed to cater for a rain-fall event of at least 150mm/hr or a one in ten year's rain-fall event, whichever is greater.

The Hockey Turf surface shall be designed to ensure water is able to drain vertically into the underlying sub-surface drainage system.

8 Field profile

Unless otherwise agreed in advance with the FIH Global Elite / Global category fields shall be built with a profile that satisfies the FIH's Preferred Gradient requirements detailed in Table 2. National / Multi-sport category fields shall comply with the Maximum Gradient requirements detailed in Table 2.

Table 2 – Field gradients			
Longitudinal gradient		Lateral gradient	
Preferred	Maximum	Preferred	Maximum
$\leq 0.2\%$	$\leq 1.0\%$	$< 0.4\%$	$< 1.0\%$

In locations where climatic or geographic considerations mean Global Elite / Global fields meeting the preferred gradients may not have adequate surface drainage (i.e. in areas subjected to intense rain-fall events or where free draining sub-base aggregates are not available), a Field profile that complies with the maximum gradient requirements made be used providing:

- 1 The profile does not adversely affect the ability of the field to satisfy the Global category ball roll consistency requirements as specified in the FIH Quality Programme for Hockey Turf;

- 2 The profile and field drainage system ensures water applied to wet the Hockey Turf during play does not drain from higher areas of the Field (causing the surface to dry) and collect in lower areas of the Field (resulting in the surface becoming saturated or too wet).

The longitudinal slope of the field should be symmetrical on either side of the pitch centre-line.

9 Playing Surface

9.1 Category of surface

The field(s) shall be surfaced with the specified category of FIH Approved Product.

9.2 Play surface colours

It is the FIH's preference that the Field of Play on competition fields be coloured Blue (RAL Classic Colour 5002 or RAL Classic Colour 5005). The field(s) may, however, also be a single shade of green (Olive or Field Green or similar). The run-offs should preferably be a contrasting colour to the Field of Play.

9.3 Line markings

The field(s) shall be marked in accordance with the current *Rules of Hockey* applicable at the time of the Event.

Line markings shall be 75mm wide, white in colour and preferably in-laid or tufted into the Hockey Turf carpet. All In-laid markings shall be manufactured to the same specification as the main playing surface.

If specified in the Summary of *Field Requirements* field markings shall include the dashed lines marked 5 metres from the outer edge of each

circle-line, These shall be marked in accordance with Clause 1.4 (d) of the Field and Equipment specifications detailed in the *Rules of Hockey*. If the dashed lines are not permanently marked onto the field, application may be made to the FIH, to temporarily paint the dashed lines onto the field(s).

No other marking (lines or advertising) shall be placed on the Competition Field without the FIH's prior approval.

When specified in the Summary of Requirements a suitably sized *FIH Quality Programme for Hockey Turf Certified Field* logo shall be located on a suitable position on the Run-Off of the Field. This may be temporarily painted onto the Hockey Turf for the Event, be an in-laid Hockey Turf logo or a temporary cam carpet logo.

9.4 Recommended manufacturer

FIH Preferred Suppliers is a new category of company within the FIH Quality Programme for Hockey Turf, for details visit www.fih.ch/hockeyturf. Event organisers are encouraged to appoint FIH Preferred Suppliers whenever considering new facilities or resurfacing existing fields. Event organisers are also encouraged to only nominate existing facilities with Hockey Turf surfaces manufactured by FIH Preferred Suppliers.

10 Field irrigation

For wet fields the method of irrigation shall provide a uniformly wet playing surfaces in accordance with FIH requirements across the whole of the Field of Play and run-offs. Irrigation may be provided by above-field sprinklers, rain-guns or other means agreed with the FIH or by sub-field irrigation.

The minimum quantity of water applied to the playing surface shall be in accordance with the wetting procedure used when the Hockey Turf system was tested and Product Approved.

10.1 Above-Field irrigation

If above-field irrigation is to be used there shall be no sprinklers located within the Field of Play or within 2m of a goal or side line. Rain-guns shall not be located within the run-offs.

The design of the irrigation system shall take into account prevailing wind directions and minimise water spray drift onto spectators.

The irrigation control system shall allow varying cycles and individual programs to ensure the entire playing area and surrounds can be watered. It shall allow the following cycles:

- 12-15 minutes
- 8 minutes
- 3-4 minutes
- Single station activation

Adequate water storage shall be provided to ensure the field(s) can be fully watered as required for the projected schedules of play during the Event.

The sprinklers or rain guns shall be capable of sectoring to 90° or 180°. The discharge rate shall be such that an irrigation cycle of all six emitters (operating in matched arc pairs) shall achieve an even precipitation over the Field of Play as specified in the FIH Field Handbook.

For locations where any of the conditions listed below could occur the irrigation system shall be designed to ensure the risk of water borne bacterial infection of players or spectators from diseases such as Legionnaires Disease is eliminated:

- the water temperature in all or some parts of the system is between 20 °C and 45 °C
- water is stored in an open loop system

- water is re-circulated
- there are sources of nutrients such as rust, sludge, scale, organic matter or biofilms within the irrigation or storage system
- local climatic conditions are likely to encourage bacteria to multiply

10.2 Sub-Field irrigation

The irrigation control system shall ensure water levels are uniformly maintained throughout a game with the ability to top-up during breaks in play as required.

The control mechanism shall ensure that optimum playing conditions are retained at all times and that ponding of water within the Hockey Turf surface does not occur. The system shall be sufficiently responsive so that it can self-adjust to any rain-fall event occurring during a game, so there is no adverse effect on play.

10.3 Ancillary watering

Back-up large bore hoses with a suitable supply shall be provided for additional manual watering of the field as necessary. These should be stored close to the field (not on the Run-Offs) to enable rapid deployment, and should be stored safely to avoid tripping hazards.

11 Sports equipment

Five (5) days prior to the start of the competition, the Host NA shall install the specified sports equipment. All equipment shall be free of any commercial branding unless specified in the FIH Events Manual or otherwise agreed by the FIH.

11.1 Goals

Goals shall be aluminium goals with an integral weight system that conform to the *Rules of Hockey* and European Standard EN 750. The front wall on the uprights and cross bar shall be reinforced to prevent ball impact damage. The backboard panels shall be reinforced and fitted with impact and noise absorbing panels on all inside faces to a height of 460mm. The posts and cross-bar shall be white (or another colour subject to FIH approval).

Nets shall be hung from the back bar in a way that allows them to hang freely to eliminate ball rebounds. They shall be held firmly in place with an integral net retaining system (not net hooks).

The nets shall be the same colour as the Field of Play. They shall be fixed so that the ball does not pass between the goal-posts and the net or between the cross-bar and the net. The nets shall be fixed at the back of the side-boards and back-boards so that the ball cannot pass beyond the net

11.2 Corner Flags

Corner flags shall be mounted on flexible (22mm diameter) posts and be fitted into ground sockets.

12 Field fencing

The field shall be fully enclosed by perimeter fencing. The fencing mesh (normally 50mm) shall not allow hockey balls to pass through it, but it shall allow spectator visibility.

On side boundaries fencing shall be a minimum of 1.0m high. Low level fencing shall incorporate an upper hand rail.

Behind the goals the fencing height shall be as specified in the *Summary of Field Requirements* for the full width of the boundary. Fencing above 3m in height may be ball catch netting suspended from tensions cables providing such netting is fully attached to prevent it billowing in the wind.

Player and match officials' access gates to the Field(s) shall be at least 1.2m wide.

At least one set of double gates shall be provided to allow maintenance and emergency vehicle access to the Field(s).

13 Maintenance equipment

The LOC shall ensure that all necessary maintenance equipment, as recommended by the Hockey Turf manufacturer, is available to enable the Hockey Turf on each field to be fully maintained in accordance with the manufacturer's instructions. They shall also ensure an adequate number of trained maintenance staff are available throughout the Event.

If intensive rainfall (thunder storms, etc.) may be anticipated during the Event suitable squeegees to remove any excess water ponding on the Hockey Turf shall be provided.

If painted lines are to be used the LOC shall ensure that suitable maintenance equipment and paint is available throughout the Event to allow the remarking of lines as required.

14 FIH Field Certification

New fields should be used prior to test to ensure the Hockey Turf reaches its optimum condition prior to test. This may require several week's play and an adequate allowance should be made in the commissioning programme for this.

FIH Field certification includes an assessment of the effectiveness of the field's irrigation system and this needs to be fully compliant and operational at the time of the field test.

The tests shall be undertaken by an FIH accredited test institute appointed by the LOC (see www.fih.ch/hockeyturf for details of FIH Accredited Test Institutes). To ensure impartiality the test institute should not have been involved in the design or procurement of the field.

If help is required to organise a field and or lighting tests please contact facilities@fih.ch.

15 Sports lighting

The field(s) shall be illuminated to satisfy the relevant performance requirements as specified in the *Summary of Field Requirements* and defined in the current FIH Lighting Guide.

The lighting system shall be tested after at least 10 hours use (to ensure consistency). The tests shall be undertaken by an independent lighting engineer, as agreed with the FIH or a FIH accredited test institute appointed by the LOC. The test institute/lighting engineer should not have been involved in the design or procurement of the lighting system.

If the lighting system is a permanent installation the lighting test shall be undertaken no more than six and no less than two months in advance of the Event.

If a temporary lighting system is to be used to fully light or augment an existing lighting system, the lighting tests shall be undertaken and the results submitted to the FIH for approval no more than five days in advance of the Event.

Wherever possible the FIH encourage the LOC to use sports lighting manufactured by the FIH's Preferred Lighting Supplier (see www.fih.ch for details).

16 Warm-up & training fields

16.1 General

If specified, separate warm-up and training fields shall be located at the venue or remotely as agreed with the FIH. They shall be FIH certified to the required category in accordance with the *Summary of Field Requirements* and of this Specification.

The fields must display similar playing characteristics to competition fields meaning all Event fields should be of a similar age, have been subjected to the same levels of use and be maintained to the same standards.

16.2 Sports Equipment

Warm-up and training fields shall be equipped with goals and corner flags.

For wet fields the irrigation system shall have adequate capacity for repeat use throughout the day.