



FIH HOCKEY5^s WORLD CUP 2023

COMPETITION & TRAINING COURTS

SPECIFICATIONS & REQUIREMENTS

FIH

1 Introduction

The inaugural FIH HOCKEY5s World Cups will showcase this version of hockey to a global audience, many of whom will be seeing the sport for the first time. It is therefore important that the facilities used are of the quality required to enable top level HOCKEY5s to be played and create a positive and exciting image for the game.

This document has been prepared to help potential host of the World Cups understand the type and quality of playing facilities required, and to ensure they are to the standards required by athletes, broadcasters, commercial partners, fans and the FIH. It forms part of the FIH HOCKEY5s World Cups Event Manual and should be read in conjunction with all other relevant FIH documentation relating to the World Cups.

1.1 Court surfacing official supplier

Sport Group Holding GmbH represented by their brands AstroTurf and Polytan are the FIH's Global Turf Supplier for the 2023 FIH HOCKEY5s World Cups. Under their contract with the FIH it is guaranteed that the 2023 FIH HOCKEY5s World Cups will be played on hockey turfs supplied by AstroTurf or Polytan.

Any organisation wishing to host the 2023 FIH HOCKEY5s World Cups must ensure that their bid is based on using courts having hockey turf surfacing by AstroTurf or Polytan. If required, this can be surfacing temporarily laid for the World Cups. Any bid that proposes to use hockey turfs produced by other manufacturers will not be successful.

To ensure that the courts reflect the latest hockey turf technology, AstroTurf or Polytan will supply and install the surfacing for TWO courts, at NO COST to the Host, subject to the conditions detailed in Appendix A. Following the World Cup, the court surfacing will be gifted to the Host as a legacy benefit of hosting the World Cups.

1.2 Definitions

For clarity, the following definitions are used within this document:

Competition Court – a HOCKEY5s court and surrounding infrastructure used to host all pool and knockout matches within the FIH Hockey 5^s World Cups.

Training Court – courts used by teams for training and warmup during the FIH HOCKEY5s World Cups.

Hockey turf – synthetic turf surface designed to be primarily used for hockey.

Pitch Protection System – purpose made panels designed to overlay a sports field to protect the underlying playing surface when the stadium is being used for alternative activities or events.

Temporary Overlay Pitch (TOP) – a portable or temporary way of building a hockey field or court. A TOP comprises the synthetic turf playing surface, underlayer shockpad and the pitch protection panel or drainage cell that is laid above the normal ground layer. TOPs systems are FIH Approved under the FIH Quality Programme.

1.3 Reference documents

The following documents are referenced in this document. They may be downloaded from www.fih.ch/qp or obtained from facilities@fih.ch

- FIH Hand Field Standards – Construction & Performance & Performance Requirements – HOCKEY5s Courts, 2021 edition
- FIH Hockey Turf and Field Standards – Quality & Performance Requirements – FIH Approved Hockey Turfs
- FIH Guide to Sports Lighting for Televised Outdoor Hockey
- FIH Guide to Sports Lighting for Non-Televised Outdoor Hockey, 2021 edition
- FIH Approved Field Equipment – Constructions and Performance Requirements – Hockey Goals
- FIH Approved Field Equipment – Constructions and Performance Requirements – HOCKEY5s Rebound Boards
- FIH Approved Field Equipment – Constructions and Performance Requirements – Team Shelters
- FIH Approved Field Equipment – Constructions and Performance Requirements – Technical Officials Booths

1.4 Number of courts required

The 2023 FIH HOCKEY5s World Cups comprise men's and women's tournaments. 16 teams will compete in each. They will be divided into pools and play a round robin tournament culminating with semi-finals and finals. Both tournaments will be hosted at the same venue.

The scheduling of the tournaments/matches will be jointly established by the Host and FIH, but it is envisaged they may either be played concurrently meaning two Competition Courts will be required; or be played consultatively (possibly with a few days in between) meaning only one Competition Court will be required.

In addition, training courts will be required for each tournament.

2 Venue options

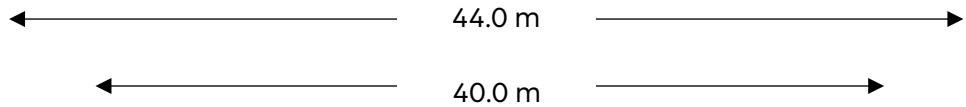
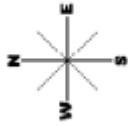
World-class sports performances require world-class venues, and infrastructure technology is a vital ingredient in creating the perfect sporting event; it helps create the optimum conditions for the players to produce truly great performances, but of course, a world-class sporting event is about more than just those competing – it’s about creating a memorable occasion for spectators, the media, the host city and all the commercial partners.



Hockey is renowned for its innovative approach to its premier sporting events; the use of synthetic turf at the Montreal Olympic Games, the blue and pink fields at London 2012, and most recently, the use of temporary hockey surfaces in rugby stadium by GB Hockey and Hockey Ireland. The 2023 FIH HOCKEY5s World Cups gives us a chance to re-write the rulebook once more. Let’s think outside the box and make another statement about where hockey is going! The ability to host the 2023 HOCKEY5s World Cups in a non-traditional iconic location (downtown, beachside, spectacular backdrop, etc) is commercially very appealing and potential hosts are encouraged to consider this option.

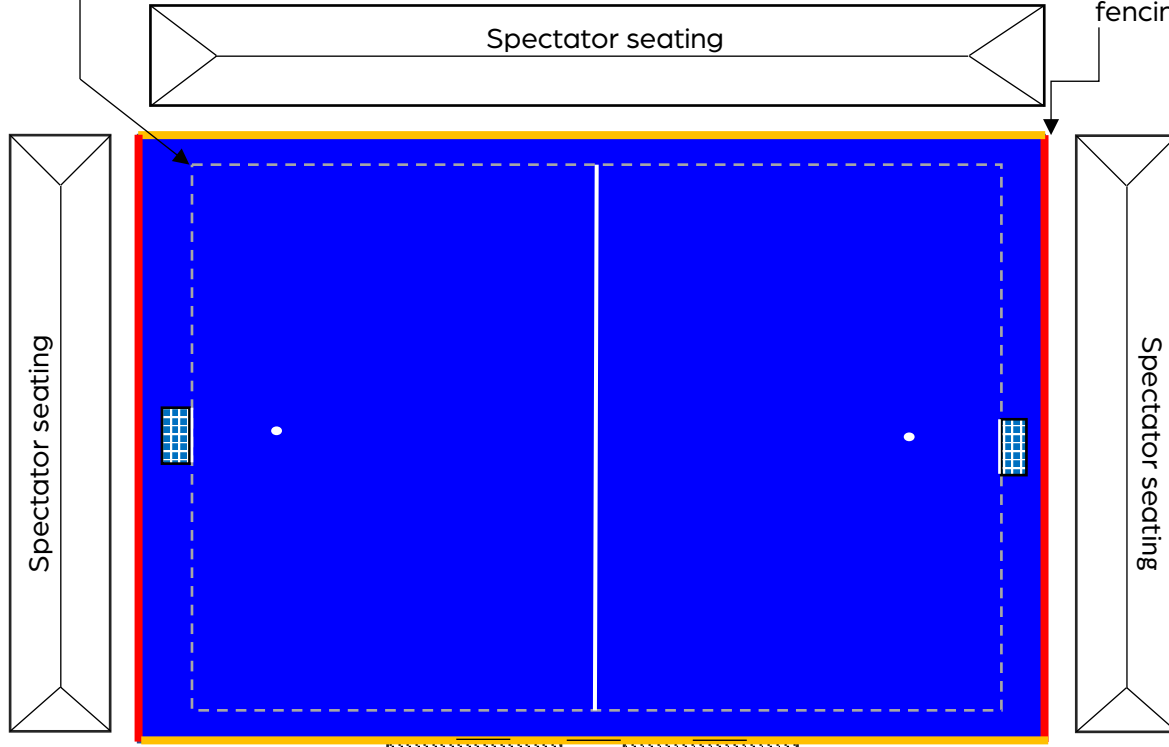
The basic court layout requirements for a temporary court(s) are schematically illustrated on Drawing 01.

An alternative, to a temporary venue, is the possibility of hosting the 2023 FIH HOCKEY5s World Cups in an existing sports stadium. This approach has the advantage of allowing much of the Stadium’s existing infrastructure to be utilised for the World Cup.



Rebound boards

7 m high end-line fencing



23.76 m

27.76 m

1.2 m high side-line fencing (with player and official's access gates)

Sin bin seats

Team bench

Spectator seating

Technical Officials Booth



INTERNATIONAL HOCKEY FEDERATION

PROJECT TITLE:

FIH Hockey5s World Cup 2023

DRAWING TITLE: COURT LAYOUT OPTION 1

APPLICATION:

STANDALONE / TEMPORARY COURT

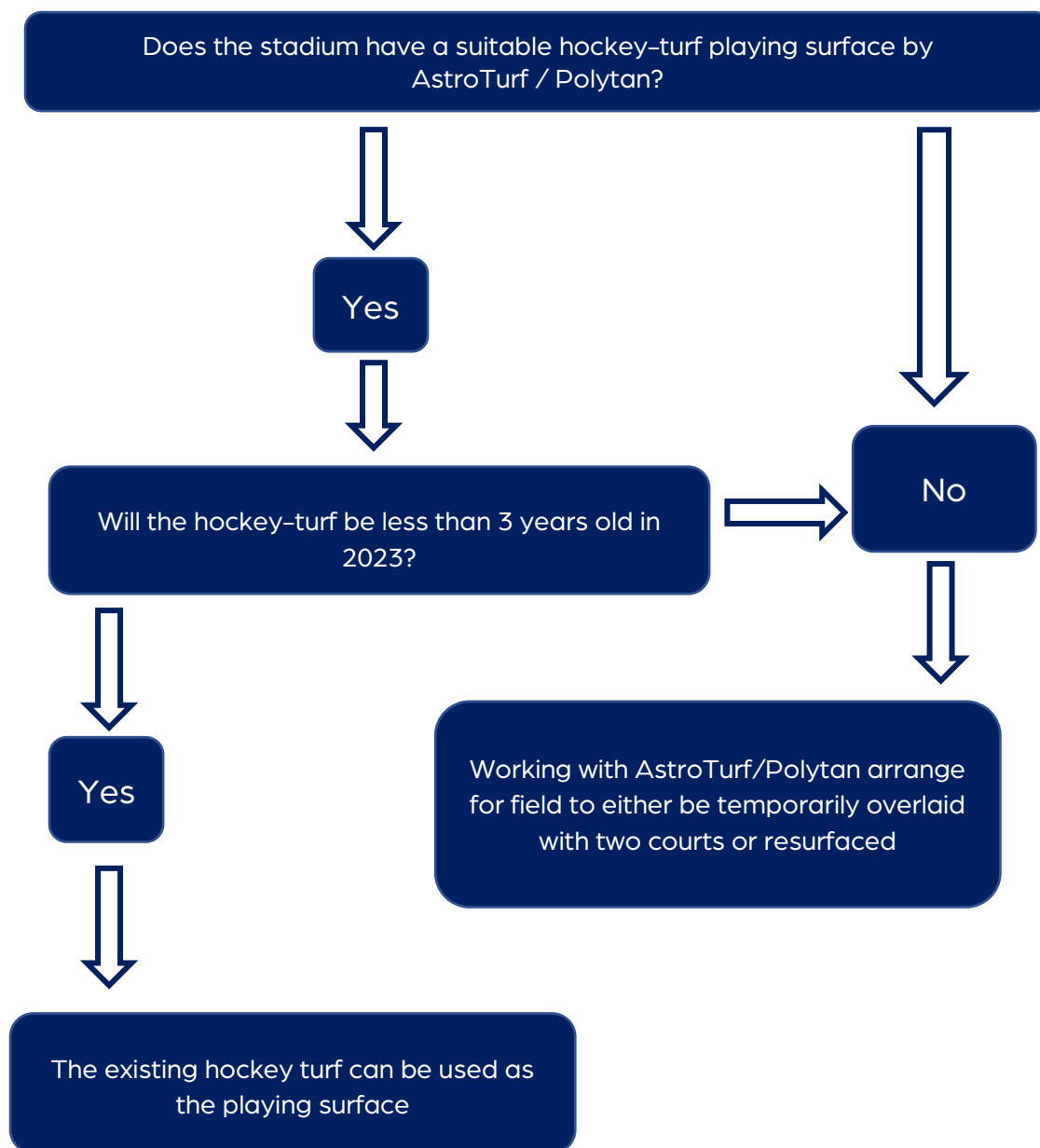
DRAWING NO	REV	SCALE
001		Not to scale

DRAWN BY: A Cox

DATE: 26/10/2020

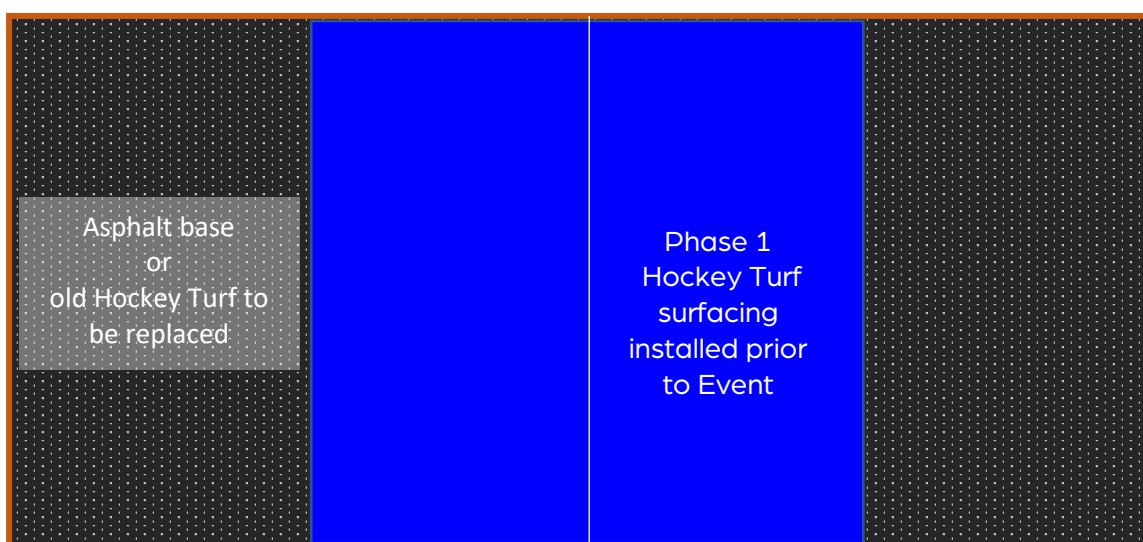
NOTES:
Spectator seating, Team Benches, and Technical Officials Booth may be located on either boundary, as agreed with FIH & Event Broadcasters

A number of different layout configurations have been developed to aid potential hosts to develop their proposals. These are shown on drawings 2, 3, and 4. In all cases determining the suitability of a venue's current surfacing to host the World Cups and comply with the contractual and technical requirements of this document will influence which options are available for a specific venue. The flowchart below outlines how to decide which options may be applicable.



To minimise the risk of damaging an existing playing surface when temporary spectator structures are positioned on the field for the World Cups, applicants are encouraged to consider using either a new hockey field that will be under construction in 2023, or an existing venue that requires resurfacing in 2023. By phasing the installation of the hockey turf surfacing the temporary spectator structures can either be positioned onto the base of the hockey field, or on the old playing surface before it is replaced as follows:

- Phase 1: surfacing of the areas forming the competition courts
- Phase 2: surfacing of the remaining portions of the hockey field following the World Cups.



Phased approach based on layout option 1

Note: hockey turf carpets are normally supplied in 4m wide rolls that are laid in across the full width of a 11 a-side hockey field.

Using this phased approach, the venue will benefit from receiving approximately 40% of the HockeyTurf required to surface the 11 a-side hockey field under the terms of the FIH/Sport Group Global Turf Supplier contract as detailed in Appendix A.

Layout option 2 – designed to allow existing side grandstands and event infra-structure to be utilised, this option may either be used on:

1. a hockey field that has a suitable hockey turf from Astroturf/Polytan, that is blue in colour, only currently has 11 a-side hockey field markings and will be less than two years old in 2023.
2. An existing field that has a temporary overlay

Layout options 3 & 4 – also designed to allow existing side grandstands and event infra-structure to be utilised, these options (due to the need for there to be no other line markings on the courts) can only be used on:

1. a new/existing field that is being surfaced /resurfaced
2. an existing field that has a temporary overlay



INTERNATIONAL HOCKEY FEDERATION

PROJECT TITLE:

FIH Hockey5s World Cup 2023

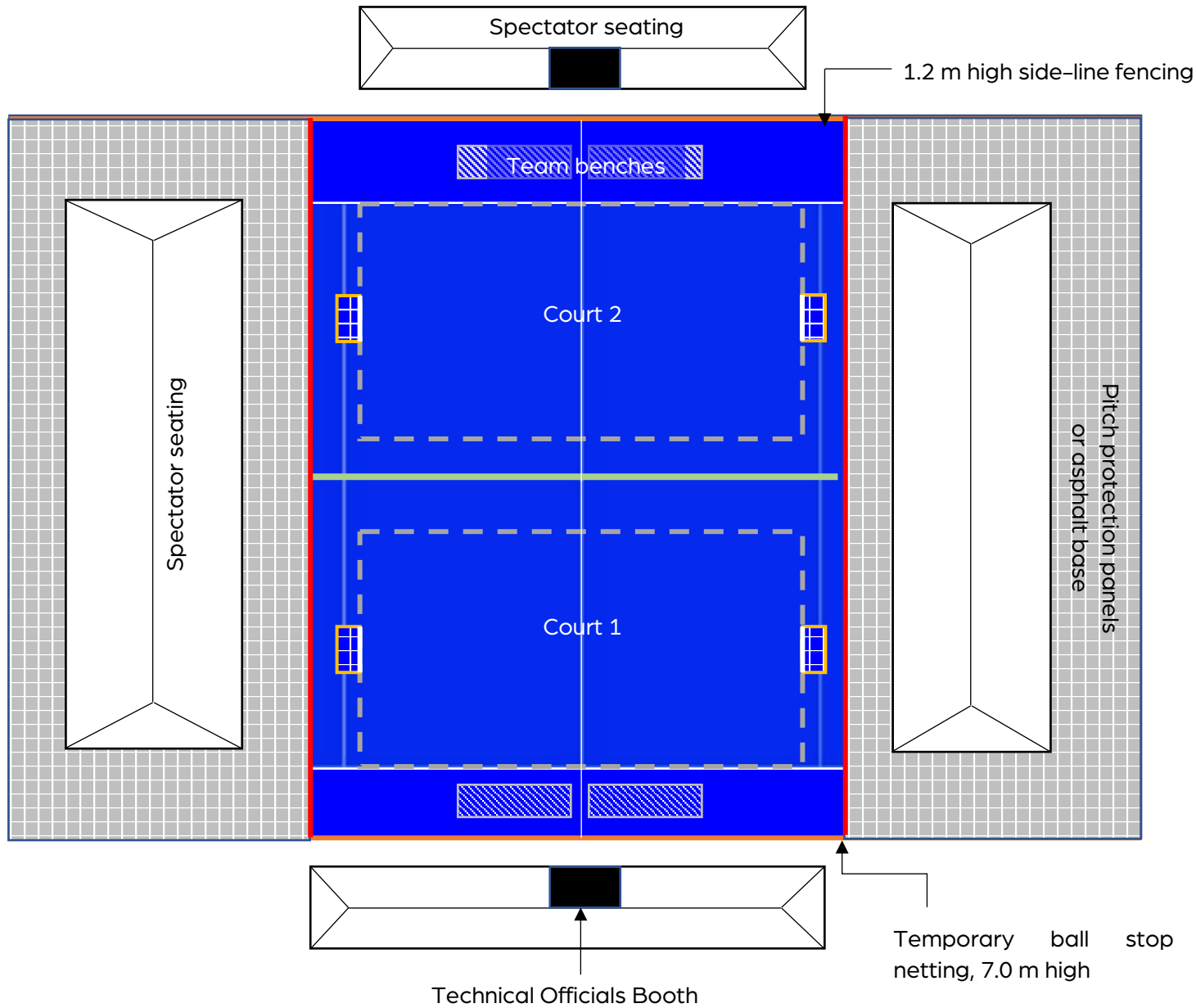
DRAWING TITLE: COURT LAYOUT OPTION 2

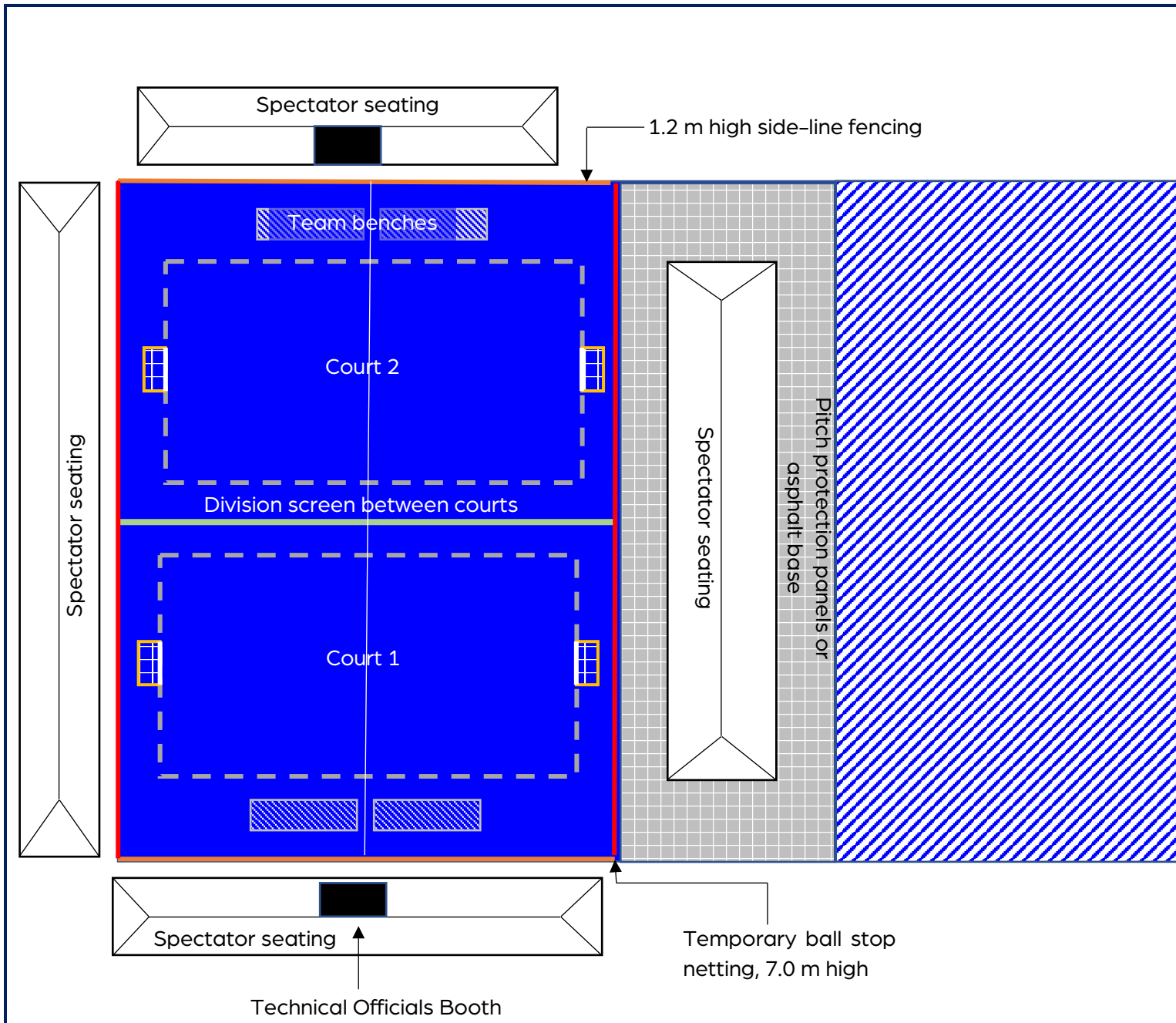
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DATE: 25/10/2020

CENTRE LINE POSITIONED ON CENTRE LINE OF 11 A-SIDE HOCKEY FIELD





PROJECT TITLE:

FIH Hockey5s World Cup 2023

COURT LAYOUT OPTIONS

DRAWING TITLE: COURT LAYOUT OPTION 3

DRAWING NO	REV	SCALE
003		Not to scale

DRAWN BY: A COX

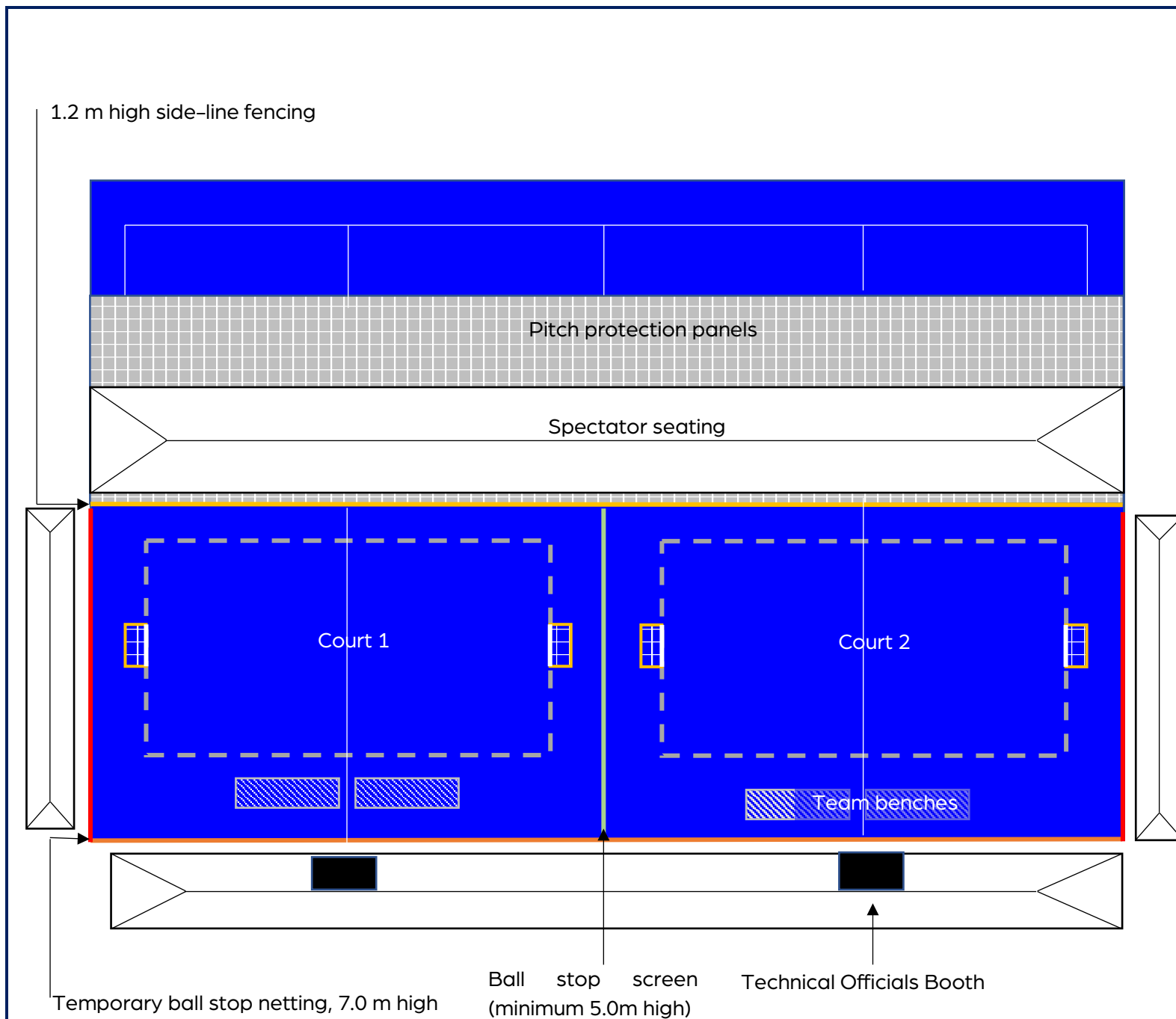
DATE: 26/10/2020

NOTES:

CENTRE LINE OF COURTS IS 23M LINE OF HOCKEY FIELD



INTERNATIONAL HOCKEY FEDERATION



PROJECT TITLE:

FIH Hockey5s World Cup 2023

COURT LAYOUT OPTIONS

DRAWING TITLE: COURT LAYOUT OPTION 4

DRAWING NO	REV	SCALE
004		Not to scale

DRAWN BY: A COX

DATE: 26/10/2020

NOTES:

TO MINIMISE CARPET JOINTS THE HOCKEY TURF CARPET ROLLS ON A 11 A-SIDE FIELD ARE NORMALLY LAID FULL WIDTH, MEANING THEY WILL BE BENEATH THE SPECTATOR SEATING

CENTRE LINE OF COURTS ARE 23M LINE OF HOCKEY FIELD

Training courts

It is envisaged the training courts will be located on an existing hockey-field having a similar type of Hockey Turf to that used on the Competition Courts.

Drawing 05 shows how four training courts can be accommodated on one full size hockey field.

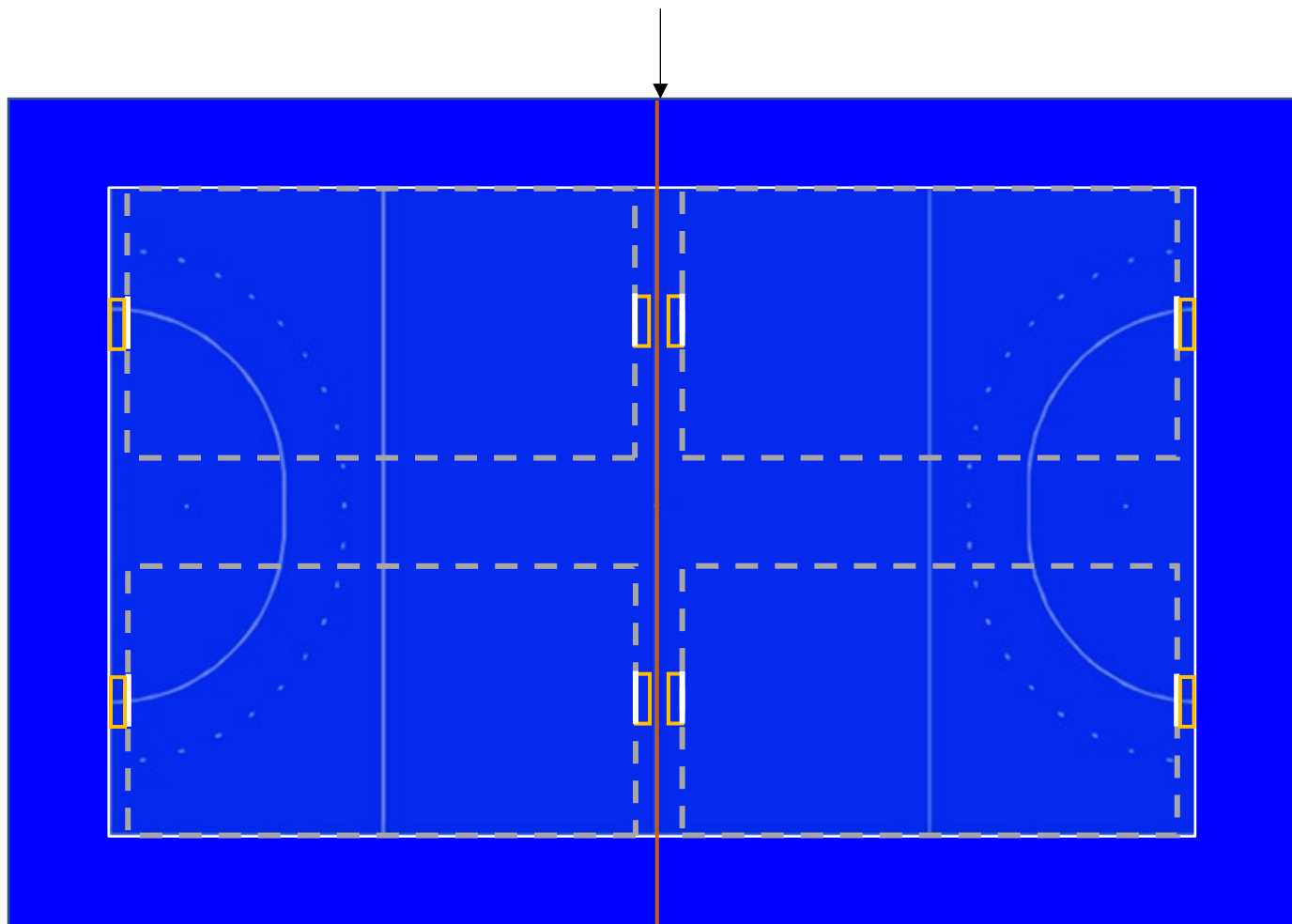
The training courts do not have to have a surface provide by AstroTurf or Polytan.

At the time of the World Cups the surface must be no more than two years old.

To minimise additional line markings, the hockey field should only have markings for 11 a-side hockey (no cross pitch markings etc).



Suspended ball stop netting or temporary fencing panels (min 5m high)



INTERNATIONAL HOCKEY FEDERATION

PROJECT TITLE:

FIH Hockey5s World Cup 2023

DRAWING TITLE:

TRAINING COURTS
OVERLAY ON EXISTING 11 A-SIDE
FIELD

DRAWING NO	REV	SCALE
005		Not to scale
DRAWN BY:	A COX	
DATE:	13/10/2020	

NOTES:

3 Technical requirements

3.1 Court layout

Drawing 06 shows the dimensions and layout of each court.

3.2 Orientation

In determining the orientation and layout of the courts, consideration should be given to the main camera positions and their relationship to the sun during the periods of play. Unless otherwise agreed the courts should be aligned on a north/south ($\pm 15^\circ$) axis.

3.3 Category of courts

Each Competition Court should be a Class 1 court as defined in the *FIH Hockey Turf and Field Standards – Construction & Performance & Performance Requirements – HOCKEY5s Courts*.

3.4 Playing surface

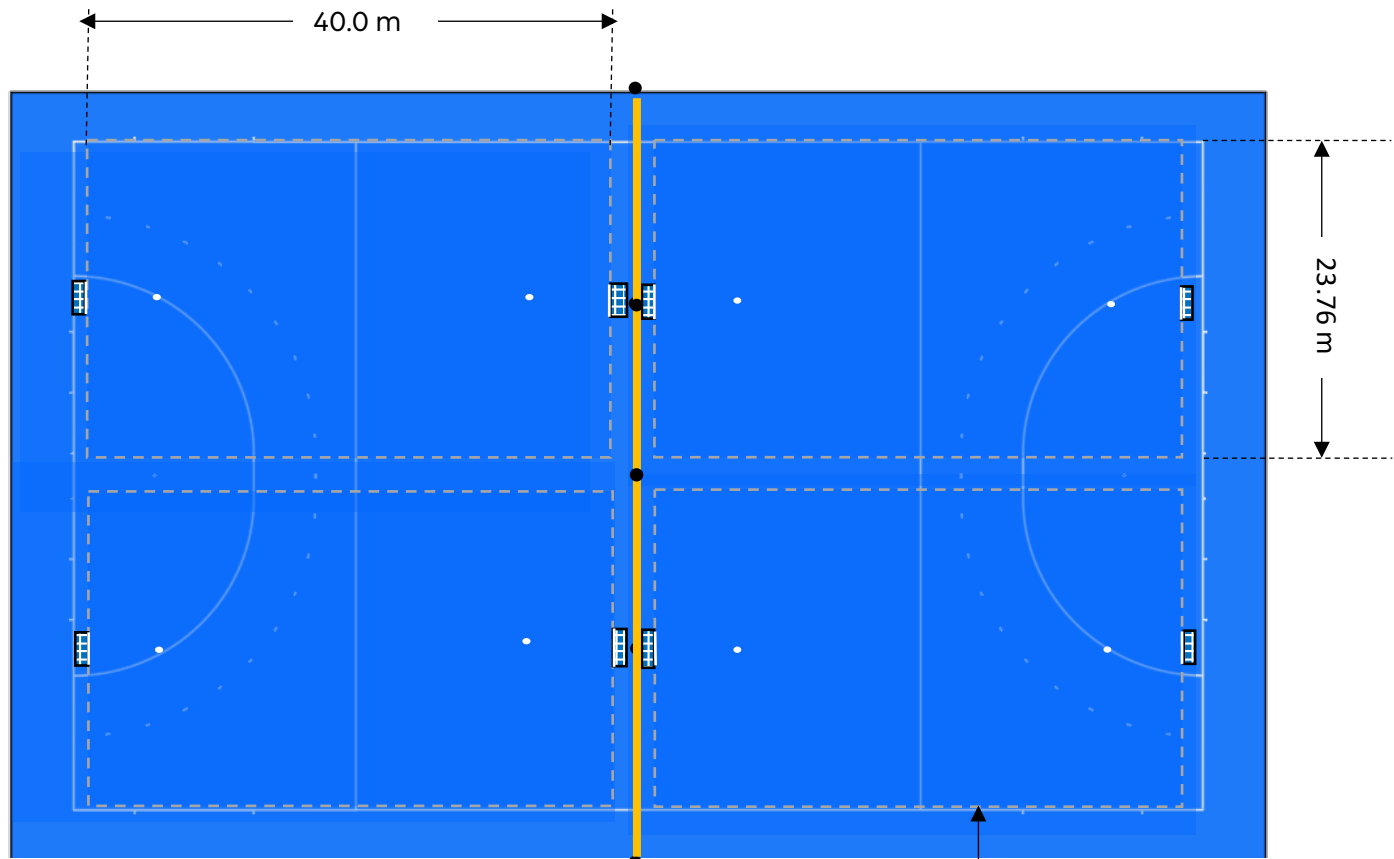
The courts should be surfaced a hockey turf designed to provide the FIH Global category of performance.

Note: At present the FIH Global category of hockey turf is based on surfaces that are non-filled and require irrigating before use. In its strategy to move towards hosting top-level hockey on surfaces that do not require irrigating the FIH is:

- Working with the synthetic turf industry (including AstroTurf /Polytan) to progress the development of hockey turfs that meet the sports' needs without irrigation.
- Commissioning research to enable us to define more precisely how a Global category of surface should perform. This will enable us to remove the restrictions of having to irrigate surfaces, etc. We currently plan to publish our updated *Hockey Turf and Field Standards* in late 2021 / early 2022.

If temporary or overlay Competition Courts are proposed their colour should be agreed by the Host/FIH/AstroTurf Polytan. If the World Cups is to be held on a 11 a-side field it should be a FIH approved shade of blue.

Line markings should be white. The centre line should be tufted into the hockey turf. The lines in the goal mouths and the penalty spots may be painted or be tufted into the hockey turf. There shall be no other line markings or logos on the Competition Courts.



4.5 m high suspended pitch division net with weighted baseline

Class 1 rebound boards



INTERNATIONAL HOCKEY FEDERATION

PROJECT TITLE:

FIH Hockey5s World Cup 2023

DRAWING TITLE:

4 TRAINING COURTS ON 11 A-SIDE FIELD

DRAWING NO	REV	SCALE
006		Not to scale

DRAWN BY: A Cox

DATE: 26/10/2020

If the playing surface requires irrigating to provide the required level of performance, a suitable means of watering the courts must be provided. The watering system should comply with the application and consistency requirements required by the hockey turf being used and as detailed in the *FIH Hockey Turf and Field Standards – Hockey Field Irrigation*.

3.5 Rebound boards

Each court shall be fitted with FIH Approved Class 1 rebound boards, as described in the *FIH Constructions and Performance Requirements – HOCKEY5s Rebound Boards*.

3.6 Goals

Each court shall be fitted with FIH Approved Class 1 goals, as described in the *FIH Constructions and Performance Requirements – Hockey Goals*.

3.6 Team shelters

Each court shall be fitted with two FIH Approved Team Shelters, as described in the *FIH Constructions and Performance Requirements – Hockey Goals*. Each shelter shall accommodate at least eight people.

3.7 Technical Official's booth

If court-side Technical Official's booths are being provided, they should be FIH Approved Class 1, as described in the *FIH Constructions and Performance Requirements – Technical Official's booths*.

3.8 Sports lighting

Scheduling of matches during the World Cups means games will be played in the evenings, and provision also needs to be made for games being played in overcast or gloomy conditions during the day. To allow high definition broadcasting of the World Cups TV quality lighting will be required.

Due to the setup of the courts required for the World Cups it is unlikely that existing lighting on a 11 a-side will be adequate due to the temporary location of spectator seating, etc on the field. This means that that temporary lighting will be required.

3.8.1 Competition Courts

Lighting should be designed to achieve the lighting (vertical and horizontal) lux and uniformity levels of at least the TV3 category, as detailed in the Appendix B and the *FIH Guide to Sports Lighting for Televised Outdoor Hockey*.

3.8.2 Training Courts

The lighting on the hockey field on which the training courts are to be located should comply with the Class 1 (500 lux) requirements detailed in the *FIH Guide to Sports Lighting for Non-Televised Outdoor Hockey*, 2021 edition.

3.9 Court certification

At the time of the World Cups each competition and training court (or whole hockey field) should be FIH Certified as Class 1 courts in accordance with the requirements of this document and FIH Hockey Turf and Field Standards – Construction & Performance & Performance Requirements – HOCKEY5s Courts.



Appendix A – Supply of playing surfaces by AstroTurf or Polytan

Sport Group Holding GmbH, represented by their brands AstroTurf and Polytan, are the FIH's Global Turf Partner. Under the terms of their contract the company has exclusive rights to supply the hockey turf surfaces used at the FIH HOCKEY5s World Cups 2023. To enable the FIH to deliver these rights they will be incorporated into the hosting contract for the FIH HOCKEY5s World Cups 2023.

Delivering these rights will provide significant benefits to the Host but will also place certain obligations onto them. These are detailed in this Appendix.

Benefits to Host and obligations of AstroTurf / Polytan

AstroTurf / Polytan will supply and install the hockey turf surfacing systems for TWO courts, as detailed below, at no cost to the Host. This specifically means they will supply:

1. The hockey turf surfacing and ancillary materials for onsite assembly of the surface (e.g. line markings, adhesives for glued systems and/or thread and requirements for sewn seam systems);
2. All materials for the elastic layer or shockpad that forms part of the hockey turf surface;
3. Two [2] specialist technicians for the installation of the shockpad (s) to the nominated location, inclusive of flight/travel costs;
4. Two [2] specialist technicians for the installation of the hockey turf surface(s), inclusive of flight/travel costs;
5. All specialist equipment required for the installation of the hockey turf surface system(s), including the shockpad / underlay;
6. Free on Board (FOB) loading of all synthetic surface materials and installation equipment, including delivery to the port of origin.

The product specification (pile type, stitch rate, etc.) and colour of hockey turf surfacing to be supplied will be agreed between AstroTurf / Polytan and the FIH. The FIH will consult with all relevant stakeholders when determining these parameters.

Each hockey turf surfaces supplied will be covered by AstroTurf / Polytan's standard commercial warranty.

Obligations of the Host

To enable AstroTurf / Polytan to provide these benefits the Host will be required to provide (or outsource) the following:

1. Design, procurement, project management and construction of appropriate formation, drainage, edgings, sub-base, and asphalt base on which the hockey turf surfaces can be installed.

Notes:

- a. The FIH recommends the items listed above are purchased by the LOC from Polytan at their normal commercial rates.
 - b. If new facilities are being constructed the design and construction of these elements must be undertaken in accordance with the specifications and requirements of AstroTurf/Polytan and the FIH;
 - c. If existing facilities are being refurbished/resurfaced the Host is responsible for:
 - I. Removal and relocation/disposal of the existing synthetic turf playing surface and shockpad;
 - II. All necessary remedial works to the base pavement of the facility to ensure it is suitable to receive the new shockpad and hockey turf carpet, all works to be undertaken in accordance with the specifications and requirements of AstroTurf/Polytan and the FIH
 - d. If a temporary overlay pitch (TOP) is to be used, the preparation of the site (profiling, grading, compacting, etc) and supply and installation of pitch protection panels, as required. All elements to be in accordance with the specifications and requirements of AstroTurf/Polytan and the FIH;
2. If required by the type of hockey turf being used, the design, procurement, and installation of an appropriate court irrigation system to meet the requirements of the FIH and the hockey turf system supplied by AstroTurf/Polytan
 3. Supply of min. six [6] labourers to assist AstroTurf/Polytan with the installation of the shockpad underlay;
 4. Supply of min. six [6] labourers to assist AstroTurf/Polytan with the installation of the synthetic grass surface;

5. Provision of an adequate power supply onsite for the operation of AstroTurf/ Polytan's specialist installation equipment for the duration of the installation process;
6. Provision of material handling equipment onsite, such as a forklift, for the duration of the Hockey Turf installation process;
7. Shipment of all hockey turf materials and installation equipment from the port of origin to the site, including customs clearance, any applicable import duties, and local transportation charges;
8. Re-export of Polytan's specialist installation equipment to the original port of export;
9. Provision of suitable accommodation, subsistence, and transportation for AstroTurf/Polytan's specialist technicians during the installation of the shockpads and hockey turf surfaces;
10. Testing of the completed courts by an FIH accredited test institute to allow FIH certification;
11. Perimeter fencing to the courts;
12. All necessary field equipment
13. All necessary maintenance equipment as specified by AstroTurf/Polytan for the hockey turf surfacing;
14. If TOP facilities are used, removal and relocation for installation elsewhere, of the TOP construction.
15. Note – the installation of the hockey turf and shockpad on legacy venues full outside the scope of the FIH / Sport Group

Potential host for the World Cups are encouraged to contact Astroturf/Polytan at the earliest opportunity.

The official FIH contact is Paul Kamphuis paul.kamphuis@polytan.com.au.

Appendix B – Competition Court TV lighting requirements

Extract from *FIH Guide to Sports Lighting for Televised Outdoor Hockey*.

			TV3	
Maintained average illuminance (lux)	Vertical illuminance - main camera	$E_{V_{mc}}$	≥ 750	
	Horizontal illuminance	E_h	≥ 1000	
Illuminance uniformities	Vertical illuminance - main camera	$E_{V_{min}} / E_{V_{max}}$	$U_{v1} \geq 0.60$	
		$E_{V_{min}} / E_{V_{ave}}$	$U_{v2} \geq 0.65$	
	Horizontal illuminance	$E_{h_{min}} / E_{h_{max}}$	$U_{h1} \geq 0.65$	
		$E_{h_{min}} / E_{h_{ave}}$	$U_{h2} \geq 0.70$	
	Minimum adjacent uniformity ratio	MAUR	Vertical	≥ 0.6
			Horizontal	≥ 0.6
Flicker factor			$\leq 30\%$	
GR-Max			< 50	
CRI			> 65	
Colour temperature (K)			$> 4000 < 6200$	



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