11 A-SIDE HOCKEY FIELD
FIH QUALITY
CATEGORY 3

Certificate of Field Compliance

Curro Mossel Bay High School

Mossel Bay City, South Africa

FIH is pleased to confirm that this hockey field has been tested and shown to comply with the requirements of an FIH Category 3 hockey field.

Certification & field details

Hockey surface	Product	BELLIN HOCKEY SUPREME 18 IN	
	Manufacturer	Qingdao Bellinturf Industrial Co. Ltd	
Certificate No.		CF-23-118	
Date of field test	15/03/2023	Certificate valid till	15/03/2026

Tayyab Ikram
FIH President

Date of certificate: 30 May 2023

Note: Category 3 hockey fields are intended for national & local competitions (subject to local competition rules), and training

ENGINEERED FOR HOCKEY

FIELD TEST REPORT

Field name / designation	Curro Mossel Bay High School	
City	Mossel Bay	
Country	South Africa	
Category of field	3	Hockey field intended for national & local competitions, and training
Type of test	Initial field certification	

1 Introduction

A hockey field is a major investment, so it is very important that it meets the expectations of players, funders, site operators, and those organising matches to be played on it. To ensure good quality fields are built, the FIH has developed its *Hockey Turf and Field Standards* (HTFS). These define the qualities required from the playing surface and the layout and construction criteria of 11 a-side hockey fields.

The HTFS describes five categories of hockey fields, based on the various levels of play and use that takes place, from elite level competitions to grassroots development and community play. The field detailed in this report has been tested as a Category 3 field. This category is typically used by clubs, colleges and schools participating in national and regional competitions.

This report details the results of the field test recently undertaken. The field test included measurements of the sports performance and player welfare properties of the playing surface. A comprehensive series of quality control checks were also undertaken to verify that the installed hockey turf surface is the same as the product previously approved by the FIH, ensuring manufacturing mistakes have not occurred.

The tests were undertaken by a FIH accredited test institute. The results obtained are detailed on the following pages. Results highlighted in green show compliance with the requirements of the HTFS. Results highlighted in pink indicate non-compliance. When non-compliance is noted, further details are provided at the rear of this report. Results not highlighted are provided for information only.

On the basis of this report, the FIH will assess the suitability of the field for FIH Field Certification. If the field is found to comply with the FIH requirements, a certificate of compliance will be issued, and the field will be listed on the FIH website.

Fields less than 12 months old at the time of the initial field test are certified for 3 years from the date of the field test. Fields older than 12 months are certified for 2 years.

Over time and through use, the performance, condition and suitability of the field to host hockey matches will change. It is therefore important that the field is re-checked periodically. This allows the site operator to demonstrate that the field is continuing to provide a safe and suitable playing environment; re-checking is good practice and a simple way for the site operator to demonstrate they are continuing to meet their obligations to provide a facility that is fit for purpose. The FIH recommends, and some National Hockey Associations require, fields to be re-tested at the end of each certification period.

Please think about the environment before printing this report. If you do require a paper copy, please set your printer to print on both sides of the paper.

2 Field details

Location	Road	Seemeeu Road
	City	Heiderand
	State/ Province/ County	Mossel Bay
	Country	South Africa
	Post/ Zip code	6506
Field owner's contact details	Name	Brian O'Neil
	Position	Executive Head
	Email	Brien.o@curro.co.za
Date of construction (handover month & year)		10/ 08/ 2022
Installed hockey turf (product name)		BELLIN HOCKEY SUPREME 18 IN
Manufacturer (FIH licensee)		QINGDAO BELLINTURF INDUSTRIAL CO. LTD
Hockey turf approval category (as shown on FIH certificate)		NATIONAL
Hockey turf certificate number (as shown on FIH certificate)		HT-22-030
Field builder's name (only required if the field was built by an FIH Preferred Supplier or FIH Certified Field Builder)		

3 Test institute details

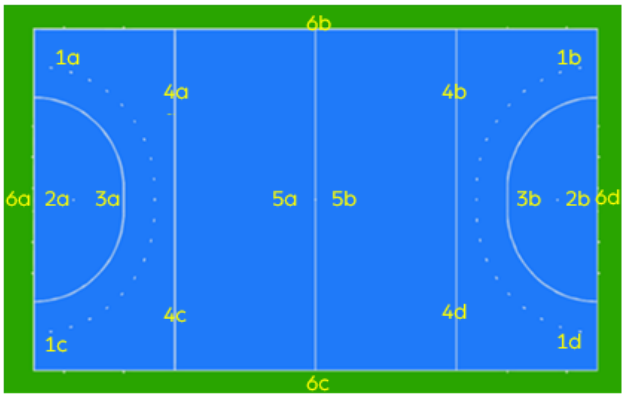
Test Institute	Sports Labs Limited
FIH Accredited Field Test Engineer(s)	Ryan Latto
Other participating field test engineers	Craig Hanna
Test institute project / report reference	23455/ 3956s

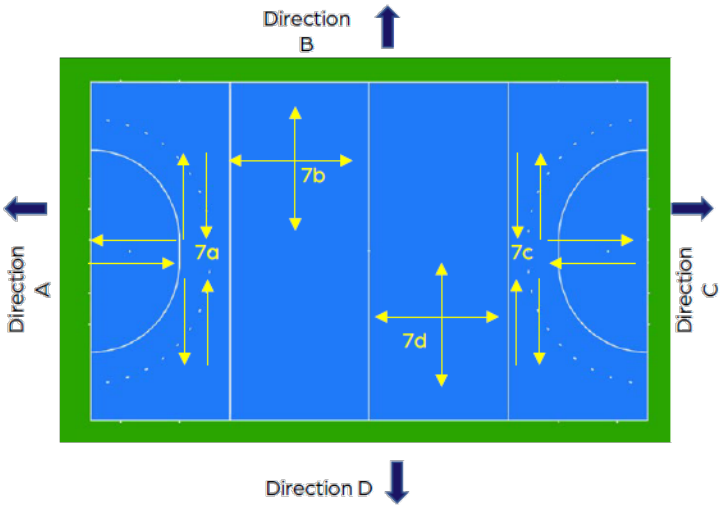
4 Test details

Date of test		15/ 03/ 2023						
Field conditions at time of test	Irrigated		Wet (rain)	X	Damp		Dry	

Air temperature (°C)		Min	16.4	Max.	16.6
Surface temperature (°C)		Min.	14.1	Max.	14.2
Wind speed (m/ s)	ball roll tests	Min.	0.4	Max.	0.8

Test positions – spot tests, ball roll & ball roll deviation





1a		1b		1c		1d	X
2a	X	2b		2c		2d	
3a		3b	X	3c		3d	
4a		4b		4c	X	4d	
5a		5b	X	5c		5d	
6a		6b		6c	X	6d	
7a		7b		7c		7d	

Field orientation

5 Sports performance

5.1 Ball rebound

Hockey balls should not bounce too high or too low; the bounce also needs to be consistent. These aspects of a field's performance are assessed by measuring the height a hockey ball rebounds when dropped vertically from a height of 2.0 m. Tests are made in a number of locations on the field. For a field to comply, the rebound in each test position must be within the specified range, and the rebound properties must be consistent across the field.

Results (mm)					
TP1	TP2	TP3	TP4	TP5	Overall mean
334	338	348	336	318	335

Requirements:	100 mm – 425 mm	Compliant:	Yes	X
			No	

Ball rebound consistency (% difference to overall mean)					
TP1	TP2	TP3	TP4	TP5	
0	1	4	0	–5	

Requirements:	≤ ± 20%	Compliant:	Yes	X
			No	

5.2 Ball roll

Ball roll assesses the speed of the surface. It is measured by rolling a hockey ball down a ramp and measuring the distance it travels and the degree to which it deviates from a straight line. Tests are made in a number of locations on the field and in different directions. To satisfy the FIH requirements the ball roll must exceed the minimum ball roll distance, be consistent irrespective of direction and not excessively deviate from a straight line.

Results (m)						
TP	Direction of test					
	A	B1	B2	C	D1	D2
7a	11.4	11.3	12.9	15.5	16.0	16.0
7b	11.0	11.6		13.2	16.2	
7c	12.8	11.0	11.0	16.0	16.1	15.8
7d	11.5	11.0		15.3	15.5	
Overall mean			13.5			

Requirements:	≥ 9.0 m	Compliant:	Yes	X
			No	

Ball roll consistency (% difference to overall mean)						
7a	−16.1	−16.7	−4.8	14.2	18.2	18.1
7b	−18.8	−14.3		−2.7	19.3	
7c	−5.6	−18.7	−18.7	17.8	18.6	16.7
7d	−15.2	−18.7		13.2	14.2	

Requirements:	≤ ±20%	Compliant:	Yes	X
			No	

5.3 Ball roll deviation

Results (m)						
TP	Direction of test					
	A	B1	B2	C	D1	D2
7a	0.2	0.1	0.2	0.1	0.1	0.2
7b	0.2	0.1		0.1	0.0	
7c	0.1	0.2	0.1	0.3	0.2	0.1
7d	0.1	0.1		0.2	0.1	

Requirements:	≤ 0.45 m @ 8.5 m	Compliant:	Yes	X
			No	

5.4 Shock Absorption

Shock absorption assesses the cushioning provided to players as they run and fall on the surface. The impact force experienced during the test is measured and compared to the value measured on concrete; the result being expressed as a percentage reduction. The higher the result the greater the shock absorption. A minimum value is specified to ensure fields are not too hard and an upper limit is specified to ensure fields are not too soft or tiring.

Results (% Force Reduction)						
TP1	TP2	TP3	TP4	TP5	TP6	Overall mean
48	56	53	50	49	50	51

Requirements:	45% – 60%	Compliant:	Yes	X
			No	

Shock absorption consistency (difference to overall mean)						
-3	5	2	-1	-2	-1	

Requirements:	≤ ± 5	Compliant:	Yes	X
			No	

5.5 Vertical Deformation

The degree to which a playing surface compresses when a player runs on it is also an important characteristic. Surfaces should allow some deformation to ensure injuries do not occur through the jarring of a player's foot, but it is also important that the deformation is not too high, or players will find the surface unstable.

Results (mm)						
TP1	TP2	TP3	TP4	TP5	TP6	Overall mean
5.6	6.5	6.1	5.6	5.6	5.9	5.9

Requirements:	4 mm – 9 mm	Compliant:	Yes	X
			No	

5.6 Shoe/ Surface Interaction (Nm)

Shoe/ surface interaction is assessed by measuring the resistance the surface offers to a loaded test plate designed to simulate a hockey shoe rotating on the surface. If the level of resistance is too low players will find the surface slippery. If the level is too high players may suffer injuries due to excessive foot grip.

Results (Nm)						
TP1	TP2	TP3	TP4	TP5	TP6	Overall mean
27	26	26	28	31	30	28

Requirements:	25 Nm – 45 Nm	Compliant:	Yes	X
			No	

Shoe/ surface Interaction consistency (variation to overall mean Nm)						
1	2	2	0	3	2	-2

Requirements:	≤± 5 Nm	Compliant:	Yes	X
			No	

5.7 Surface regularity

It is important that there are no depressions or high spots that could distort the trajectory of a ball rolling across the surface or cause it to lift. The whole field is surveyed using a 3 m straightedge and any undulations greater than 6 mm recorded. Any sudden steps (raised edges on carpet or shockpad joints, etc.) are also checked using a 0.3 m straightedge.

Excessive undulations or high spots					
	Limit	Number recorded	Compliant		
3 m straightedge	> 6 mm	0	Yes	X	
0.3 m straightedge	>3 mm	0	No		
If undulations or high spots are found their position and magnitude are indicated on the drawing at the rear of this report.					

6 Field dimensions

The field of play shall measure 91.40 m x 55.00 m and be rectangular (see section 7 for measurement key).

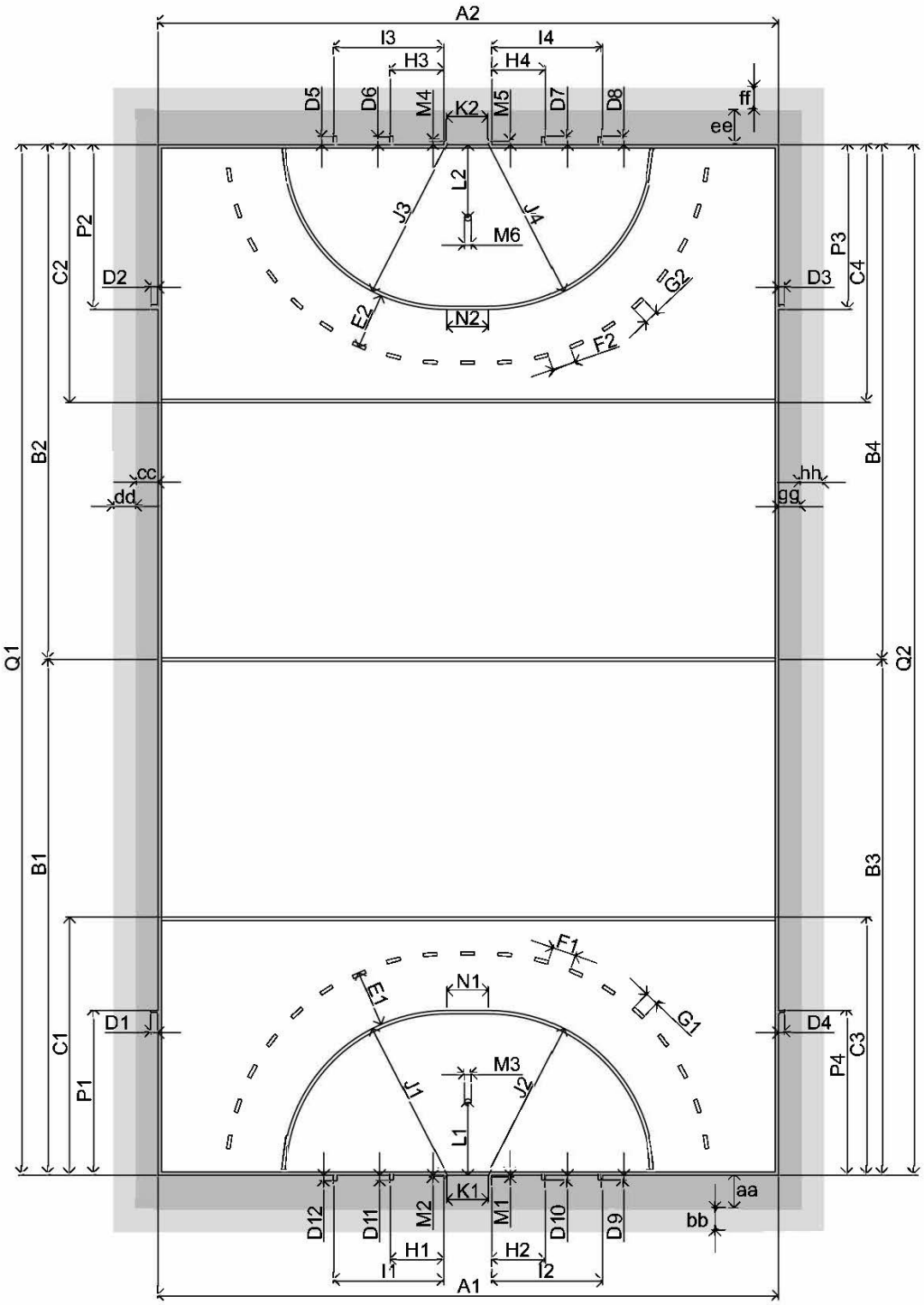
End run-offs must be at least 3.0m wide, and side run-offs must be at least 2.0m wide.

The inner run-offs must be surfaced with the same hockey turf as the field of play.

Field measurements (m)								Compliant	
	Tolerance (mm)	Ref.	Actual (m)	Error (mm)	Ref.	Actual (m)	Error (mm)	Yes	No
Length	± 50	Q1	91.435	0.035	Q2	91.435	0.035	X	
Width	± 50	A1	55.004	0.004	A2	54.999	0.001	X	
Field of play diagonals (m)		1	106.760		2	106.58			
Difference between diagonals (mm)		0.180		Requirement ≤ 300 mm				X	
Run-offs (m)									
	Inner run-off		Outer run-off		Total width			Compliant	
	Surface	Width	Surface	Width				Yes	No
End 1	Artificial Turf	3.018	N/A	0.000	3.018			X	
End 2	Artificial Turf	2.012	N/A	0.000	2.012			X	
Side 1	Artificial Turf	3.034	N/A	0.000	3.034			X	
Side 2	Artificial Turf	2.001	N/A	0.000	2.001			X	

7 Hockey line markings

Line markings are checked to ensure compliance with the Rules of Hockey and the HTFS.



Distance (m)	Tolerance	Ref.	Actual (m)	Error (mm)	Compliant		Ref.	Actual (m)	Error (mm)	Compliant	
					Yes	No				Yes	No
45.70	± 50 mm	B1	45.686	0.014	X		B2	45.678	0.022	X	
		B3	45.683	0.017	X		B4	45.722	0.022	X	
22.90	± 50 mm	C1	22.942	0.042	X		C2	22.906	0.006	X	
		C3	22.903	0.003	X		C4	22.907	0.007	X	
0.30	± 30 mm	D1	0.303	0.003	X		D2	0.303	0.003	X	
		D3	0.312	0.012	X		D4	0.302	0.002	X	
		D5	0.301	0.001	X		D6	0.303	0.003	X	
		D7	0.312	0.012	X		D8	0.301	0.001	X	
		D9	0.301	0.001	X		D10	0.302	0.002	X	
		D11	0.304	0.004	X		D12	0.301	0.001	X	
5.00	± 30 mm	E1	5.011	0.011	X		E2	5.012	0.012	X	
3.00	± 50 mm	F1	3.000	0.000	X		F2	3.003	0.003	X	
0.30	± 30 mm	G1	0.306	0.006	X		G2	0.301	0.001	X	
4.975	± 50 mm	H1	4.967	0.008	X		H2	5.021	0.046	X	
		H3	4.984	0.009	X		H4	4.963	0.012	X	
9.975	± 50 mm	I1	9.965	0.010	X		I2	10.002	0.027	X	
		I3	9.957	0.018	X		I4	10.018	0.043	X	
14.63	± 30 mm	J1	14.643	0.013	X		J2	14.654	0.024	X	
14.63	± 30 mm	J3	14.608	0.022	X		J4	14.603	0.027	X	
3.66	± 50 mm	K1	3.674	0.014	X		K2	3.661	0.001	X	
6.475	± 30 mm	L1	6.465	0.010	X		L2	6.487	0.012	X	
0.15	± 30 mm	M1	0.180	0.030	X		M2	0.179	0.029	X	
		M4	0.179	0.029	X		M5	0.180	0.030	X	
Ø 0.15	± 30 mm	M3	0.160	0.010	X		M6	0.150	0.000	X	
3.66	± 50 mm	N1	3.654	0.006	X		N2	3.706	0.046	X	
14.63	± 50 mm	P1	14.612	0.018	X		P2	14.631	0.001	X	
14.63	± 50 mm	P3	14.633	0.003	X		P4	14.620	0.010	X	
Line width (mm)	75 ± 10	A1	55.004	A2	54.999	Q1	91.435	Q2	91.435	X	

8 Playing surface			Compliant Yes	Compliant No
Is the installed hockey turf an	FIH National certified product?		X	
	FIH Global certified product?			
Is the field of play?	an approved shade of blue (RAL, 5002, 5005, 5010, 5017, 5019)		X	
	Green		X	
What colour are the run-offs	Blue			
Are the yarn colours used, detailed in the approved product test report?	Field of Play (FoP)		x	
	Run-offs		x	
	Lines		X	
Does the field have 5m dashed circle markings?			X	
Does the field have cross pitch hockey markings?				X
Does the field have markings for any other sports?				X
Play surface quality and installation	Is the installed hockey turf free from manufacturing and visual defects?		x	
	Are there any carpet rucks, wrinkles, or any other installation defects within the FOP or run-offs?			x
	Are there any excessively open or failed carpet joints?			x
	Are the any joints that may cause a ball to lift or deviate as it passes over the joint?			x
	Are there any other manufacturing or installation defects that mean in your opinion the field should not be certified?			x
	Is the surface laid in full width rolls running across the FOP without head seams?		x	
	Is the hockey turf either:	tensioned and clamped along the boundaries		X
		bonded to the shockpad		
		loose laid		

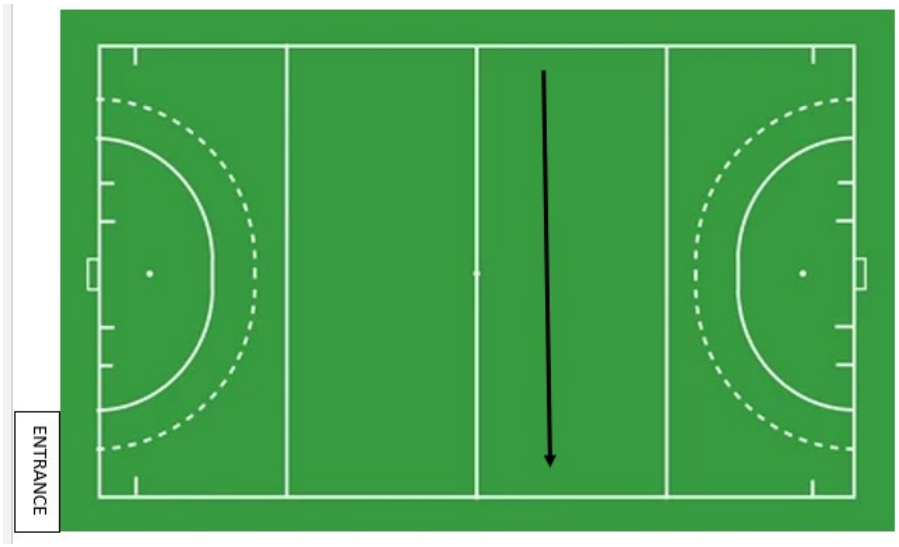
			Complaint	
			Yes	No
Play surface quality and installation	Are there any repairs to the playing surface?			x
	If there are any repairs, have they been undertaken in a satisfactory way, so they do not compromise the performance or appearance of the field?	N/A	x	
	If there are any defects or repairs, has the field owner confirmed in writing they are still willing to accept the field?		x	

9 General field requirements

		Compliant	
		Yes	No
Orientation	Is the field aligned North / South (± 15°)		
Perimeter fencing	Does the fencing ensure balls cannot pass through it and leave the field?	x	
	Is the fencing in an acceptable condition and not pose a risk to anyone colliding with it?	x	
	Is there emergency vehicle access onto the field?	X	
Field equipment	Is the field equipped with hockey goals and nets?	x	
	Are the goals FIH Approved?		X
	Are the goals in good condition and suitable for use on an FIH certified field?	x	
Maintenance equipment	Is the field equipped with the necessary maintenance equipment, recommended by the hockey turf manufacturer?	X	
Are there any other features that you consider may have an adverse effect on the playing qualities of the field or could be a possible hazard to players, officials or spectators using the facility?			x

10 Field profile and gradients

The profile and gradients of the field should comply with Clause 4.2 of the HTFS.

Field measurements		
Indicative drawing showing profile of the field		
Longitudinal gradient along length of the field	Lateral gradient across width of the field	Maximum gradient in any direction on the field
0.0%	1.0%	1.0%

11 Hockey turf quality assurance tests

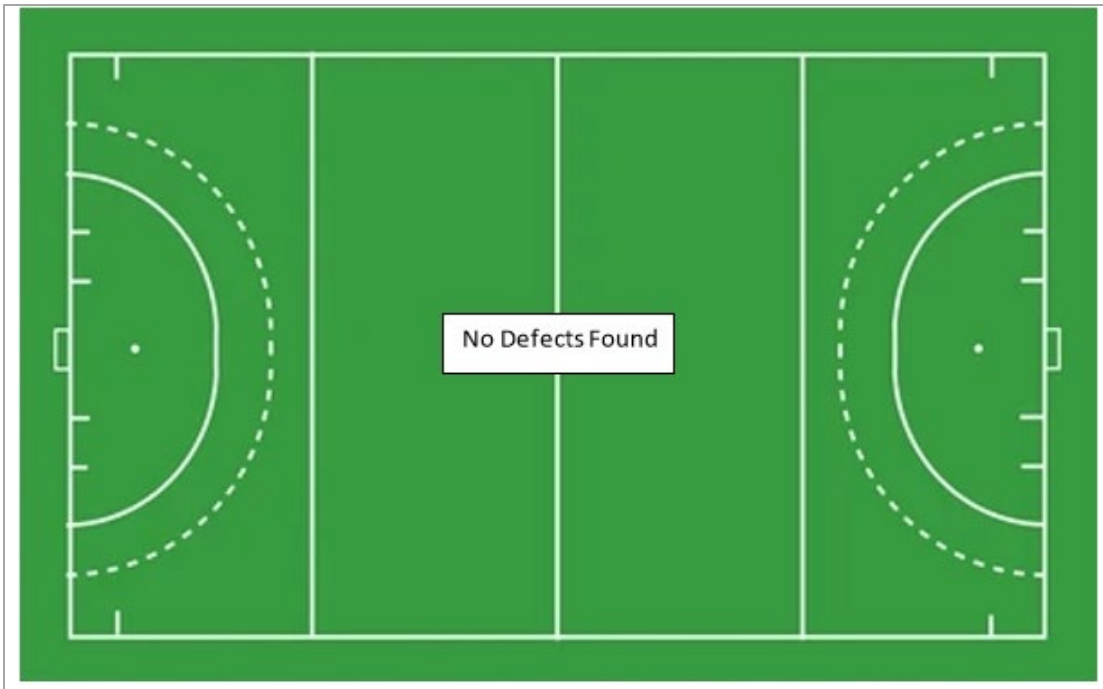
To verify that the hockey turf installed on the field is the same as the FIH Approved Product, and manufacturer's declaration, representative samples have been checked.

	Characteristic	Manufacturer's declaration	Site sample	Permitted tolerance	Compliant	
					Yes	No
Hockey turf carpet	Method of manufacture	Tufted	Tufted		X	
	Pile type	Curly Mono-filament	Curly Mono-filament	Same type	X	
	Pile profile	Olive Shape	Olive	Same profile	X	
	Pile height (mm)	18	17	± 10%	X	
	Pile weight (g/m^2)	1600	1526	± 10%	X	
	Pile dtex	7600	7610	± 10%	X	
	Pile thickness (mm)	DG: 190 LG: 190	DG: 178 LG: 208	≥ 90%	X	
	Yarn polymer & DSC peak temp.	DG: 126.50 LG: 126.30	DG: 125.13 LG: 124.77	Same polymer	X	
	Tufts/m ^{2}	48300	48301	± 10%	X	
	Filaments/m^2	772800	772808	± 10%	X	
	Carpet mass g/m^2	3100	3235	± 10%	X	
	Water permeability (mm/h)	1186	1583	≥ 90%	X	
Shockpad	Composition [1]	Insitu 15	Insitu 15		X	
	Manufacturer [1]	Qindago Bellinturf	Qindago Bellinturf		X	
	Thickness [2] (mm)	15	15	90% – 130%	X	
	Mass/m^2	10	11	± 10%	X	
	Shock absorption [3] (%FR)	48	46	± 5% SA	X	
	Water permeability (mm/h)	3000	3550	≥ 90%	X	

Notes:
1 – prefabricated shockpads only
2 – not applicable if an existing shockpad is retained when a field is being re-surfaced.
3 – applicable to new fields or when a new shockpad is laid on an existing field during re-surfacing.

Stabilising infill (if applicable)	Infill type	Silica sand	Silica sand		X	
	Particle Grading (mm)	0.50 – 1.0	0.315 – 1.25	80% d & D ≤ 5% passing 0.15 mm	X	
	Particle Shape	Rounded	C2 – Rounded	Similar shape	X	
	Bulk density (kg/m^3)	1.50	1.38	± 15%	X	

12 Plan showing location of any defects, failures, or items of concern



13 Additional comments by test institute

Test institute declaration

We certify that the tests described in this report have been carried out in accordance with the latest requirements of the *FIH Hockey Turf and Field Standards* and this report accurately reflects the outcomes.

We further certify that in our opinion there were no defects that compromise the quality, performance, player safety, or durability of the field at the time it was tested.

Report prepared by			
		Name	Michael Gillespie
Report authorised by			
		Name	Keith Macpherson
Date		23/05/23	

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