11 A-SIDE HOCKEY FIELD

FIH QUALITY

CATEGORY 3

FIH field certification

Salt Rock, Durban, South Africa

The FIH is pleased to confirm that this hockey field has been tested and shown to satisfy the construction, performance, and player welfare requirements of an FIH Category 3 hockey field.

Hockey turf	*Bellin Hockey Supreme 18 IN*
Hockey turf manufactured by FIH Certified Turf Manufacturer	*Qingdao Bellinturf Industrial Co. Ltd*

SEIF EL DINE AHMED
FIH ACTING PRESIDENT

Date of Certificate: 26/09/2022 The field is certified until: 01/07/2025

Notes:

1 The field was tested in accordance with FIH Hockey Turf & Field Standards – Part 2 (2021 edition).

2 Failure to maintain the field correctly may result in a deterioration in the performance and safety of the field.

4 FIH reserves the right to retest the field at any time, to verify ongoing compliance with its standards.

CERTIFICATE N° CF-22-115

FIH International Hockey Federation
Fédération Internationale de Hockey

QUALITY PROGRAMME

ENGINEERED FOR HOCKEY

FIELD TEST REPORT

Field name / designation	Salt Rock	
City	Durban	
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	Salt Rock
	City	Durban
	State/ Province/ County	Durban
	Country	South Africa
	Post/ Zip code	N/ A
Field owner's contact details	Name	Shaun Blignaut
	Position	Sports Director
	Email	shaun.b@curro.co.za
Date of construction (handover month & year)		June 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

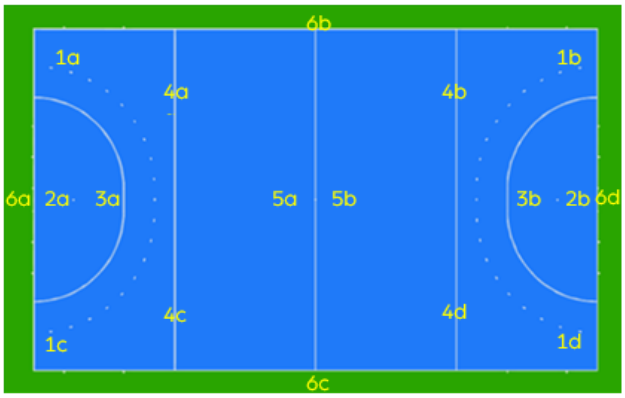
Test Institute	Sports Labs Ltd
FIH Accredited Field Test Engineer(s)	Craig Hanna
Other participating field test engineers	Finlay Taggart
Test institute project / report reference	23068/ 2336s

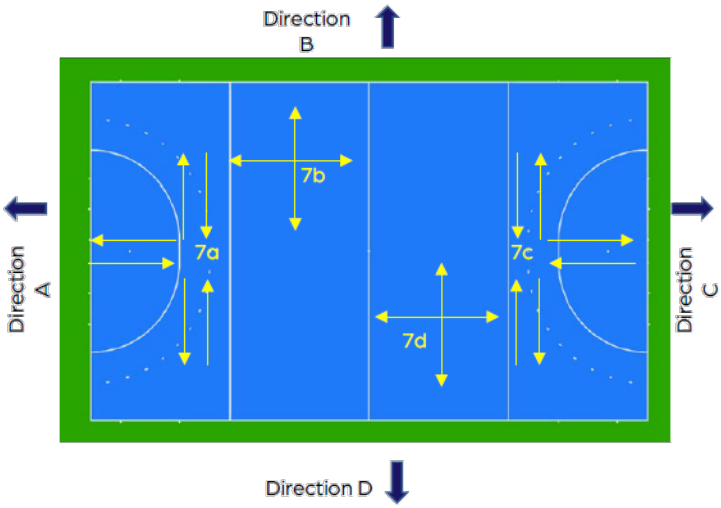
4 Test details

Date of test	01/07/2022						
Field conditions at time of test	Irrigated		Wet (rain)		Damp		Dry	X

Air temperature (°C)		Min	12	Max.	23
Surface temperature (°C)		Min.	12.1	Max.	24.2
Wind speed (m/s)	ball roll tests	Min.	0.1	Max.	0.1

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





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

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
425	411	422	413	419	418

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

Ball rebound consistency (% difference to overall mean)					
TP1	TP2	TP3	TP4	TP5	
2	2	1	1	0	

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	9.2	10.5	10.3	12.0	10.5	10.4
7b	10.0	10.5		12.2	10.5	
7c	9.5	10.8	9.9	11.4	9.6	10.1
7d	9.5	11.5		12.2	10.2	
Overall mean			10.6			

Requirements:	≥ 9.0 m	Compliant:	Yes	X
			No	

Ball roll consistency (% difference to overall mean)						
7a	12.7	0.4	2.2	14.0	0.3	1.5
7b	5.1	0.6		15.9	0.3	
7c	9.6	2.6	6.7	8.1	9.0	3.9
7d	9.5	11.5		12.2	10.2	

Requirements:	≤ ±20%	Compliant:	Yes	X
			No	

5.3 Ball roll deviation

Results (m)						
TP	Direction of test					
	A	B1	B2	C	D1	D2
7a	0.0	0.2	0.3	0.2	0.1	0.1
7b	0.4	0.3		0.2	0.2	
7c	0.3	0.3	0.3	0.3	0.2	0.1
7d	0.2	0.3		0.1	0.0	

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
60	56	59	54	58	55	57

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

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

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
8.0	7.3	7.9	6.8	7.7	7.2	7.5

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
31	30	32	29	31	28	30

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

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

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.

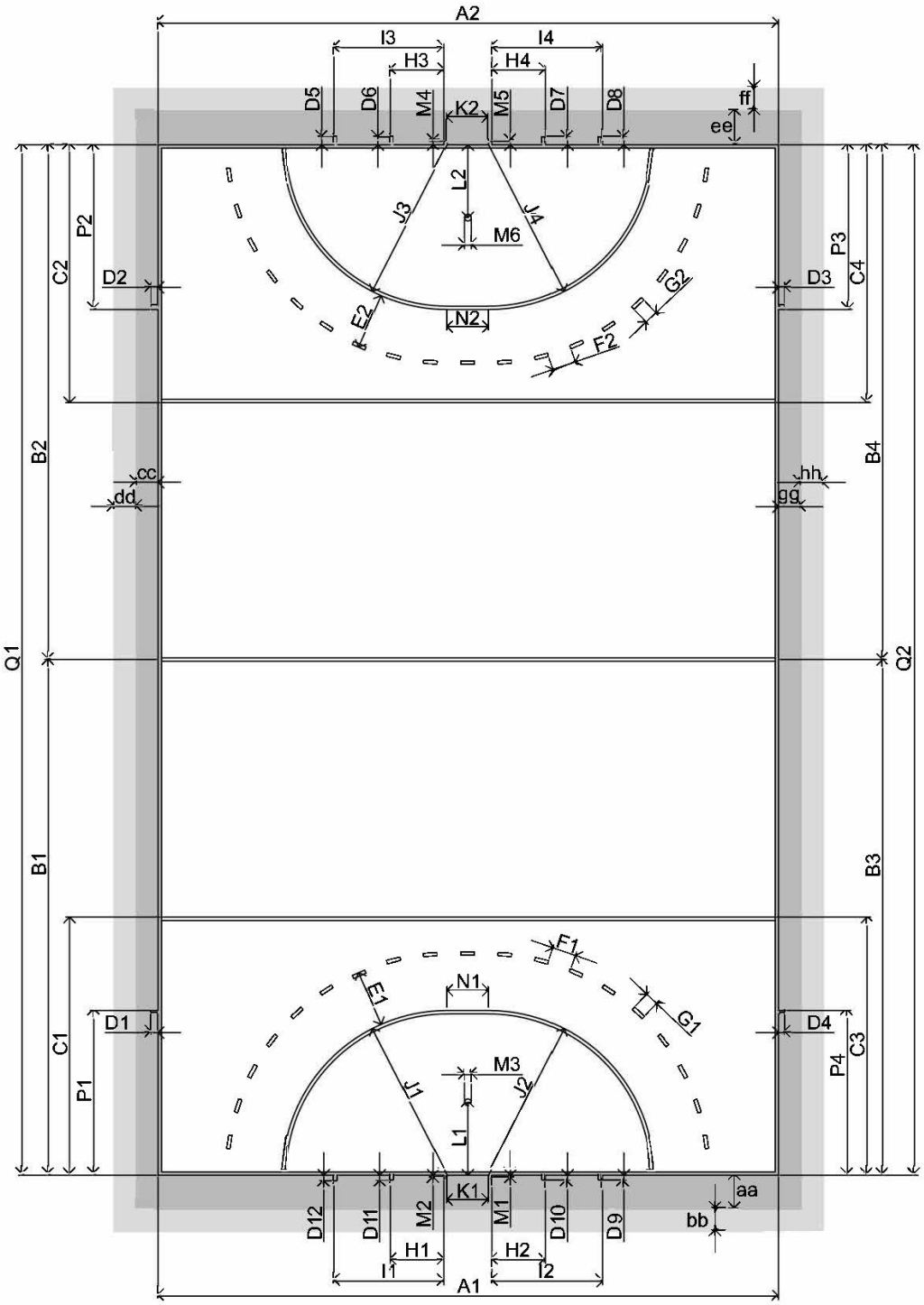
The inner run-offs must be surfaced with the same hockey turf as the field of play.

Field measurements (m)								Compliant	
	Tolerance (mm)	Ref.	Actual (m)	Error (mm)	Ref.	Actual (m)	Error (mm)	Yes	No
Length	± 50	Q1	91.400	0.000	Q2	91.390	0.010	X	
Width	± 50	A1	54.980	0.020	A2	55.020	0.020	X	
Field of play diagonals (m)		1	106.680		2	106.66			
Difference between diagonals (mm)		0.020		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	3.000	N/A	0.000	3.000	X	
End 2	Artificial turf	3.000	N/A	0.000	3.000	X	
Side 1	Artificial turf	3.020	N/A	0.000	3.020	X	
Side 2	Artificial turf	3.020	N/A	0.000	3.020	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	45.680	0.020	X		B2	45.707	0.007	X	
		B3	45.680	0.020	X		B4	45.700	0.000	X	
22.90	± 50 mm	C1	22.900	0.000	X		C2	22.876	0.024	X	
		C3	22.900	0.000	X		C4	22.914	0.014	X	
0.30	± 30 mm	D1	0.298	0.002	X		D2	0.311	0.011	X	
		D3	0.302	0.002	X		D4	0.304	0.004	X	
		D5	0.301	0.001	X		D6	0.301	0.001	X	
		D7	0.301	0.001	X		D8	0.301	0.001	X	
		D9	0.301	0.001	X		D10	0.301	0.001	X	
		D11	0.301	0.001	X		D12	0.301	0.001	X	
5.00	± 30 mm	E1	5.030	0.030	X		E2	5.010	0.010	X	
3.00	± 50 mm	F1	3.000	0.000	X		F2	3.002	0.002	X	
0.30	± 30 mm	G1	0.301	0.001	X		G2	0.292	0.008	X	
4.975	± 50 mm	H1	4.980	0.005	X		H2	4.973	0.002	X	
		H3	4.980	0.005	X		H4	4.974	0.001	X	
9.975	± 50 mm	I1	9.980	0.005	X		I2	9.998	0.023	X	
		I3	9.980	0.005	X		I4	9.979	0.004	X	
14.63	± 30 mm	J1	14.620	0.010	X		J2	14.605	0.025	X	
14.63	± 30 mm	J3	14.620	0.010	X		J4	14.656	0.026	X	
3.66	± 50 mm	K1	3.650	0.010	X		K2	3.673	0.013	X	
6.475	± 30 mm	L1	6.480	0.005	X		L2	6.481	0.006	X	
0.15	± 30 mm	M1	0.100	0.050		X	M2	0.100	0.050		X
		M4	0.100	0.050		X	M5	0.100	0.050		X
Ø 0.15	± 30 mm	M3	0.150	0.000	X		M6	0.149	0.001	X	
3.66	± 50 mm	N1	3.650	0.010	X		N2	3.690	0.030	X	
14.63	± 50 mm	P1	14.620	0.010	X		P2	14.631	0.001	X	
14.63	± 50 mm	P3	14.630	0.000	X		P4	14.625	0.005	X	
Line width (mm)	75 ± 10	A1	54.980	A2	55.020	Q1	91.400	Q2	91.390	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			
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		

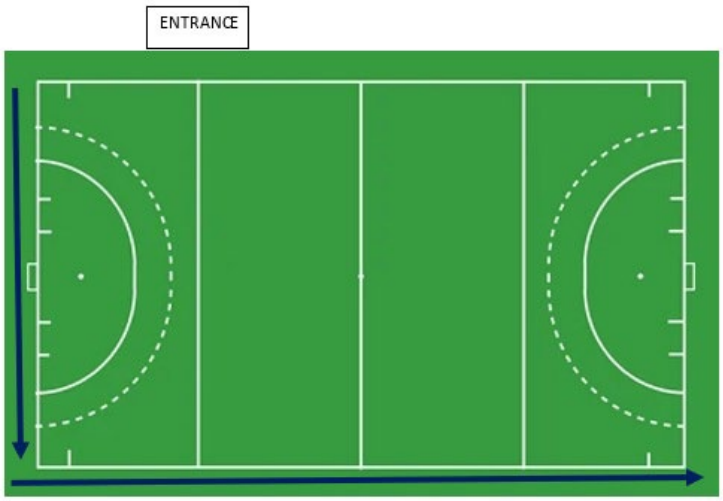
			Complaint	
			Yes	No
Play surface quality and installation	Are there any repairs to the playing surface?			
	If there are any repairs, have they been undertaken in a satisfactory way, so they do not compromise the performance or appearance of the field?	N/A	X	
	If there are any defects or repairs, has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

9 General field requirements

Orientation	Is the field aligned North / South (± 15°)	Compliant	
		Yes	No
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.

<table>
<tr><td colspan="3">Field measurements</td></tr>
<tr><td>Indicative drawing showing profile of the field</td><td colspan="2"> 
</td></tr>
<tr><td>Longitudinal gradient along length of the field</td><td>Lateral gradient across width of the field</td><td>Maximum gradient in any direction on the field</td></tr>
<tr><td>0.80%</td><td>0.50%</td><td>0.80%</td></tr>
</table>

11 Hockey turf quality assurance tests

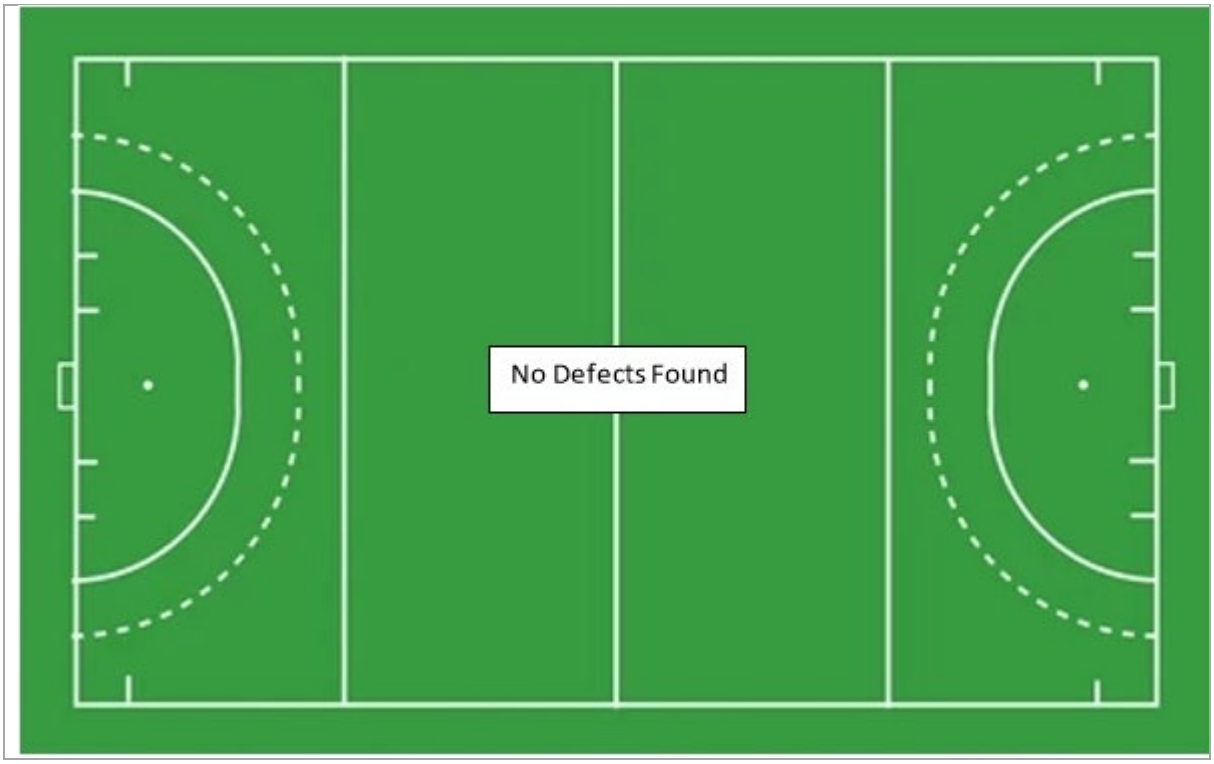
To verify that the hockey turf installed on the field is the same as the FIH Approved Product, and manufacturer's declaration, representative samples have been checked.

	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 Shape	Same profile	X	
	Pile height (mm)	18	19	± 10%	X	
	Pile weight (g/m^2)	1600	1527	± 10%	X	
	Pile dtex	7600	7313	± 10%	X	
	Pile thickness (mm)	190	190	≥ 90%	X	
	Yarn polymer & DSC peak temp.	DG: 126.50 LG: 126.30	DG: 125.43 LG: 125.90	Same polymer	X	
	Tufts/m^2	48300	47827	± 10%	X	
	Filaments/m^2	772800	765232	± 10%	X	
	Carpet mass g/m^2	3100	2901	± 10%	X	
	Water permeability (mm/h)	1186	4540	≥ 90%	X	
Shockpad	Composition (1)	Insitu 15	Insitu 15		X	
	Manufacturer (1)	Qingdao Bellinturf	Qingdao Bellinturf		X	
	Thickness (2) (mm)	15	15	90% – 130%	X	
	Mass/m^2	10	10	± 10%	X	
	Shock absorption (3) (%FR)	48	49	± 5% SA	X	
	Water permeability (mm/h)	Not Declared	8148	≥ 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	Sand	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	Similar shape	X	
	Bulk density (kg/m^3)	1.50	1.37	± 15%	X	

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



13 Additional comments by test institute

Goal Tab dimensions discussed with field owner and FIH and deemed appropriate.

14 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 McPherson
Date		22/09/22	

15 Comments by FIH

Field appears to be quite sandy. Additional brushing should be undertaken to fully work sand into the pile of the hockey turf.

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Switzerland

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