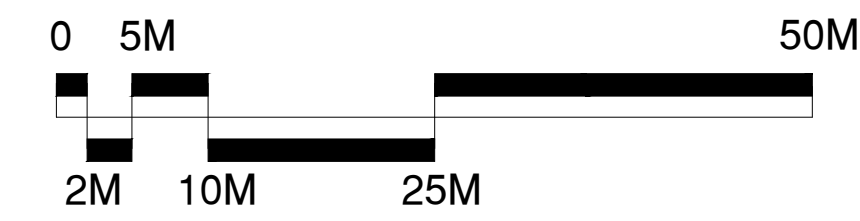


Artificial Grass Pitch



1. DO NOT SCALE FROM DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.
2. THIS DRAWING IS COPYRIGHT TO SURFACING STANDARDS LTD
3. ALL PERSONNEL SHOULD BE AWARE OF THE HEALTH AND SAFETY PLAN WHICH IS RETAINED IN THE SITE MANAGERS OFFICE



The proposed design of the AGP development is for a permeable surface construction. The surface of the synthetic turf area shall be permeable with the underlying stone sub-base acting as an attenuation/storage area for surface water. The stone base will act as an attenuation system to increase attenuation capabilities of the playing field area. This is combined with a perforated drainage system being installed underneath the pitch base to connect to the existing outfall chamber at the south east of the development site.

The granular pitch substrate (typically consisting of Type 3 unbound (SHW 800 Series) to comply with BSEN 13285) is intended to provide onsite containment and attenuation within the granular sub-base, before surface water enters an outfall.

- Provide adequate functionality over a period of twenty years.
- Ensure that surface water is removed from the surface area at a rate necessary to prevent surface flooding experienced during acute rainstorms and to ensure the facility will not be lost through rain at the highest intensity which may be expected to occur either once every five years or through continuous rainfall of 50mm over a 24 hour period.
- Ensure that surface water is effectively removed from the facility construction to ensure that load bearing capacity of the substrate is not weakened by an increase in moisture content or becomes more susceptible to frost damage.
- Protect the installation from influences of groundwater or surface water from surrounding areas.
- Prevent the risk of uncontrolled flooding elsewhere (to land adjacent to the development).
- Comply with all applicable Sustainable Urban Drainage System (SUDS) requirements with attenuated flows (containment within the granular pitch sub-base) incorporated wherever necessary, without affecting the performance of the pitch.

The area is in a Category 1 flood zone and as such is at a low risk of flooding. Water discharging from the playing field area currently reaches the existing surface water drainage system, without any control or restrictions.

The proposed restricted outfall rate is 2 l/s and calculations have been based on a 1 in 100 year storm event with a 40% allowance for climate change. The surface water attenuation calculations as per the table below show the following:

- 1 in 100 year storm event + 40% allowance for climate change at run off restricted to 6.32 l/s - would require **435m3** of attenuation

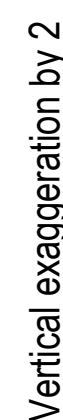
- 250mm deep layer of type 3 stone
- 40mm macadam
- 40mm infill of sand and rubber on the carpet

- The pitch layer constructed at a 1 in 350 gradient offers a volume and capacity of 1605m3
- Based on a voidage space of 37% this offers **593m3** of water attenuation.
- The drainage system, shown in drawing 'CLS-LANO-016-07 - Proposed AGP Drainage Layout', can also attenuate an additional **70m3**

Minimum Storage Required: 435 m³ incl cc allowance

FACTOR	VALUE	SOURCE	FACTOR	VALUE
Return Period (yrs):	100	Environment Agency, Water Authority, etc.	Additional Inflow (l/s):	0
Limiting Discharge (l/s):	6.32	Environment Agency, Water Authority, etc.	Calculate/Specify PR:	Calculate
Contributing Area (ha):	0.8204	Site plans	Specify PR:	100
Impervious, PIMP (%):	100	Site plans		
M5-60min (mm):	17	Volume 3 maps and site location	Climate Change Allowance	40
SAAR (mm/yr):	1043	Volume 3 maps and site location		
Ratio, r:	0.3	Volume 3 maps and site location		
Soil Type:	4	Volume 3 maps and site location		
SOIL:	0.45	Soil Type and Volume 1, Section 7.4		
UCWI:	116	SAAR and Volume 1, Figure 9.7		
Calculated PR	82.47			
Percentage Runoff =	82.47			

Duration, D (min)	M5-60 (mm)	Z1 for r=0.30	M5-D (mm)	Z2 for M100	M100-D (mm)	incl climate change	Area C (ha)	PR (%)	Runoff (m3)	Add. Runoff (m3)	Total Runoff (m3)	Limiting Discharge (m3/min)	Limiting Runoff (m3)	Storage Required (m3)
5	17	0.34	5.8	1.81	10.5	14.7	0.82	82	99.3	0.0	99.3	0.38	1.9	97.4
10	17	0.50	8.5	1.89	16.0	22.4	0.82	82	151.9	0.0	151.9	0.38	3.8	148.1
15	17	0.60	10.2	1.91	19.5	27.3	0.82	82	184.5	0.0	184.5	0.38	5.7	178.9
30	17	0.78	13.3	1.96	26.0	36.3	0.82	82	245.9	0.0	245.9	0.38	11.4	234.6
60	17	1.00	17.0	2.01	34.1	47.7	0.82	82	323.0	0.0	323.0	0.38	22.8	300.3
120	17	1.29	21.9	2.02	44.3	62.1	0.82	82	420.0	0.0	420.0	0.38	45.5	374.5
240	17	1.60	27.2	1.99	54.2	75.9	0.82	82	513.8	0.0	513.8	0.38	91.0	422.8
360	17	1.79	30.4	1.97	59.9	83.9	0.82	82	567.9	0.0	567.9	0.38	136.5	431.3
480	17	1.97	33.5	1.95	65.2	91.2	0.82	82	617.3	0.0	617.3	0.38	182.0	435.3
600	17	2.15	36.6	1.91	70.0	97.9	0.82	82	662.7	0.0	662.7	0.38	227.5	435.1
720	17	2.19	37.2	1.91	71.3	99.8	0.82	82	675.0	0.0	675.0	0.38	273.0	402.0
840	17	2.24	38.1	1.91	72.6	101.6	0.82	82	687.5	0.0	687.5	0.38	318.5	369.0
1440	17	2.81	47.8	1.83	87.2	122.1	0.82	82	826.3	0.0	826.3	0.38	546.0	280.2
2880	17	3.50	59.5	1.74	103.6	145.1	0.82	82	981.8	0.0	981.8	0.38	1092.1	-110.3

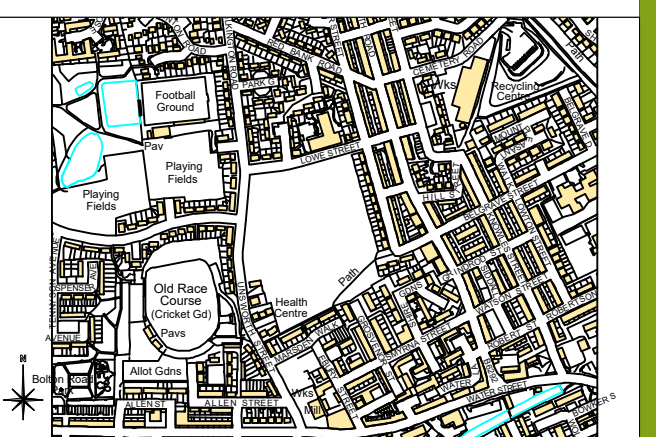


Section A-AA Showing Surface Water Attenuation Storage



Section B-BB Showing Surface Water Attenuation Storage

02	PLANNING ISSUE	ME	WB	29.11.22
01	PLANNING ISSUE	ME	WB	26.08.22
00	PLANNING ISSUE	ME	WB	21.06.22
REV	DESCRIPTION	REV	CK	DATE



ME

TITLE

Redbank Playing Fields

Artificial Grass Pitch
Proposed AGP Drainage Strategy

PROJECT <i>CLS017</i>	SCALE <i>1:500</i>	SIZE <i>A1</i>
DRAWING No <i>08</i>		REVISION <i>02</i>