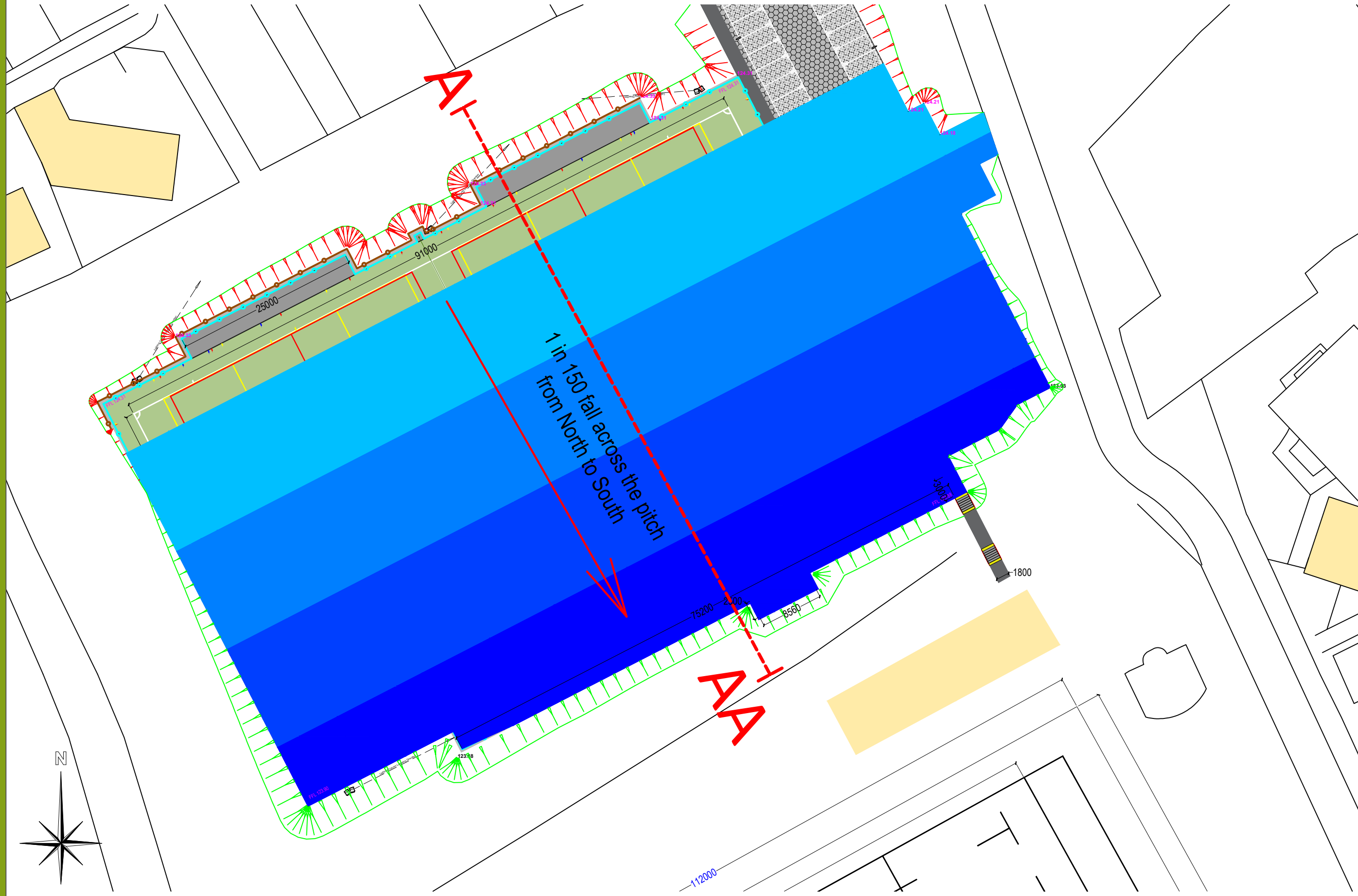


AGP

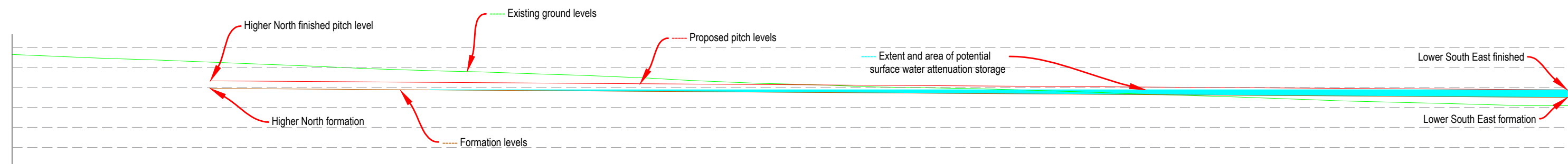
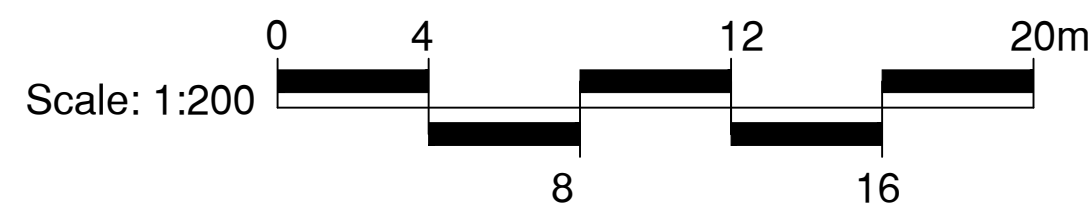
Scale: 1:500



0 10 20 30 40 50m



AGP Attenuation Scheme - Scale 1:500

[illegible]

Section A-AA Showing Surface Water Attenuation Storage - Scale 1:200

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. 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 existing outfall on the site.

- 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.

In terms of the proposed restricted outfall rate, Leicestershire Council stipulate a greenfield runoff rate of 5.0 litres per second (l/s) should be used. We have, therefore, used 5l/s as the suggested limited discharge rate. Calculations have been based on a 1 in 100 year storm event with a 40% allowance for climate change.

The foundations of the new synthetic turf area (shown in drawing 'G-227556 07 - Proposed AGP Drainage Layout') includes a total build up of 380mm through the various layers of construction:

- Type 3 stone
- Macadam
- Shock Pad System
- Infill of sand and rubber on the carpet

- The pitch layer constructed at a 1 in 150 gradient offers a volume and capacity of 1133m3
- Based on a voidage space of 37% this offers **419m3** of water attenuation.
- The drainage system, shown in drawing 'G-272556 07 - Proposed AGP Drainage Layout', can also attenuate an additional **51m3**

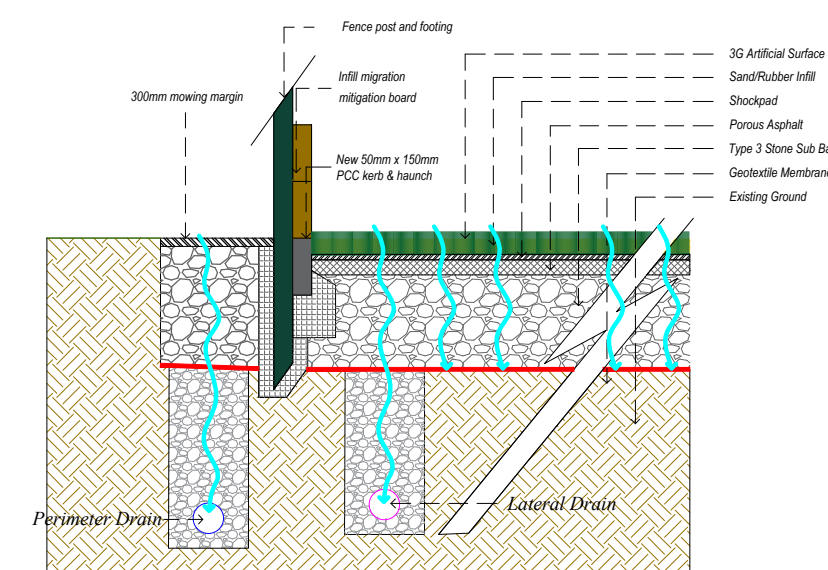
- 1 in 100 year storm event + 40% allowance for climate change at run off restricted to 5 l/s - would require **470m3** of attenuation

The 470m3 attenuation provided by the pitch design will comfortably cater for a 1 in 100 storm event +40% requirement of 415m3 without flooding either the pitch surface or surrounding areas.

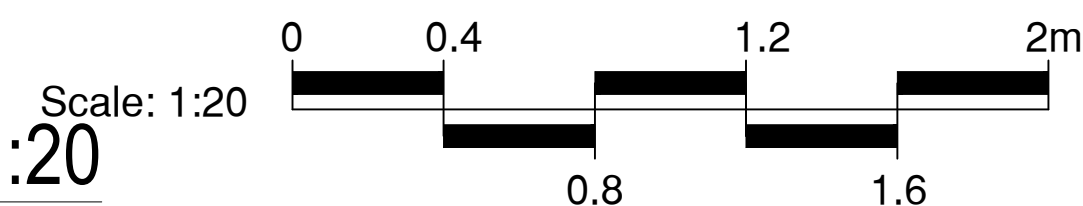
Minimum Storage Required:		415 m ³			
FACTOR	VALUE	SOURCE		FACTOR	VALUE
Return Period (yrs):	100	Environment Agency, Water Authority, etc.		Additional Inflow (l/s):	0
Limiting Discharge (l/s):	5	Environment Agency, Water Authority, etc.		Calculate/Specify PR:	Calculate
Contributing Area (ha):	0.7808	Site plans		Specify PR:	100
Impervious, PIMP (%):	100	Site plans			
M5-60min (mm):	20	Volume 3 maps and site location		Climate Change Allowance	40
SAAR (mm/yr):	685	Volume 3 maps and site location			
Ratio, r:	0.4	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:	71	SAAR and Volume 1, Figure 9.7			
Calculated PR	78.97				
Percentage Runoff =	78.97				

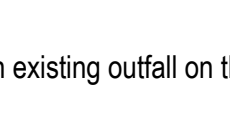
Duration, D (min)	M100-D (mm)	incl climate change	Area C (ha)	PR (%)	Runoff (m3)	Add. Runoff (m3)	Total Runoff (m3)	Limiting Discharge (m3/min)	Limiting Runoff (m3)	Storage Required (m3)
15	23.1	32.4	0.78	79	199.6	0.0	199.6	0.30	4.5	195.1
30	30.4	42.6	0.78	79	262.5	0.0	262.5	0.30	9.0	253.5
60	38.0	53.2	0.78	79	328.0	0.0	328.0	0.30	18.0	310.0
120	46.3	64.8	0.78	79	399.5	0.0	399.5	0.30	36.0	363.5
240	55.3	77.4	0.78	79	477.2	0.0	477.2	0.30	72.0	405.2
360	60.6	84.8	0.78	79	523.0	0.0	523.0	0.30	108.0	415.0
480	64.2	89.9	0.78	79	554.1	0.0	554.1	0.30	144.0	410.1
600	66.9	93.7	0.78	79	577.7	0.0	577.7	0.30	180.0	397.7
720	69.1	96.8	0.78	79	596.7	0.0	596.7	0.30	216.0	380.7
840	71.0	99.3	0.78	79	612.5	0.0	612.5	0.30	252.0	360.5
1440	77.4	108.4	0.78	79	668.5	0.0	668.5	0.30	432.0	236.5
2160	82.8	115.9	0.78	79	714.6	0.0	714.6	0.30	648.0	66.6
2880	87.2	122.1	0.78	79	753.0	0.0	753.0	0.30	864.0	-111.0
3000	87.9	123.1	0.78	79	759.1	0.0	759.1	0.30	900.0	-140.9
3300	89.7	125.6	0.78	79	774.2	0.0	774.2	0.30	990.0	-215.8
3600	91.4	127.9	0.78	79	788.8	0.0	788.8	0.30	1080.0	-291.2
3900	93.0	130.2	0.78	79	803.1	0.0	803.1	0.30	1170.0	-366.9
4200	94.7	132.5	0.78	79	817.1	0.0	817.1	0.30	1260.0	-442.9
4500	96.3	134.8	0.78	79	830.9	0.0	830.9	0.30	1350.0	-519.1
4800	97.8	137.0	0.78	79	844.6	0.0	844.6	0.30	1440.0	-595.4

AGP Attenuation Volume Calculations



AGP Section - Scale 1:20





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gh the following calculations:

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REV	DESCRIPTION	REV	CK	DATE



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AUTHOR	WB	
TITLE	Burbage Parish Council AGP Proposed AGP Drainage Strategy	
PROJECT	SCALE	SIZE
G-227556	Varies	A1
DRAWING No	REVISION	
08	00	