

Feasibility Assessment Report on Existing Sports Pitches

at

Welfare Park

for

Glynneath Town Council

Rev 1

Prepared By:

Dr A [REDACTED]

03 February 2025

Private and Confidential

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1. Site Visit Details

The Organisation: - Glynneath Town Council

Site Address: - Glynneath Welfare Park
Addoldy Road
Glynneath
SA11 5DU

Site Contact: -

[REDACTED]

Present at visit: -

[REDACTED]

Date of visit: -

14th January 2025

By:

Dr A

[REDACTED]

[REDACTED]

2. Introduction

This report looks at the site named as Glynneath Welfare Park, and it is proposed to redress surface levels, replace the existing drainage infrastructure and install a non-turf cricket pitch. The visit took place on the 14th January 2025, and representatives of the council were present for part of the inspection. The weather, at time of the visit, was overcast with patchy rain.

The report aims to examine the overall surface conditions and propose solutions to facilitate the levelling of the field to conform to performance quality standards. The total field area is approximately 14,500 m².

The purpose of this report is to investigate present site conditions, investigate possible sportsfield improvements and put forward outline specifications and industrial costs to complete ground developments.

This report has been compiled and submitted by Dr A [REDACTED] MSc F inst G.

3. Methodology

The objectives of the feasibility study are as follows:

- To undertake a detailed site investigation to characterise the characteristics that will affect the proposed project goals.
- To prepare a set of development options for the improvement of the drainage on the field.
- To derive indicative construction costs for budgetary purposes and present costed options where applicable.
- To provide an indicative work programme for the possible phasing and duration of the proposed works. This will also indicate when the sports facilities may be available for use.

4. Site location and access

The field is accessed from Addoldy Road from the B4242. The grid reference of the site is SN 87663 06581 and What3Words location *resettle.arrives.self*.



Figure 1 Site location (red line). Location indicative only and not to scale.

The site comprises a playing field containing a senior football pitch, a rugby pitch, and a small changing room. The site is bounded by domestic properties to the north, east and west, and the lower section of the park to the south.



Figure 2 General view looking north



Figure 3 General view looking west.

5. Geomorphology and climate

5.1 Hydrology

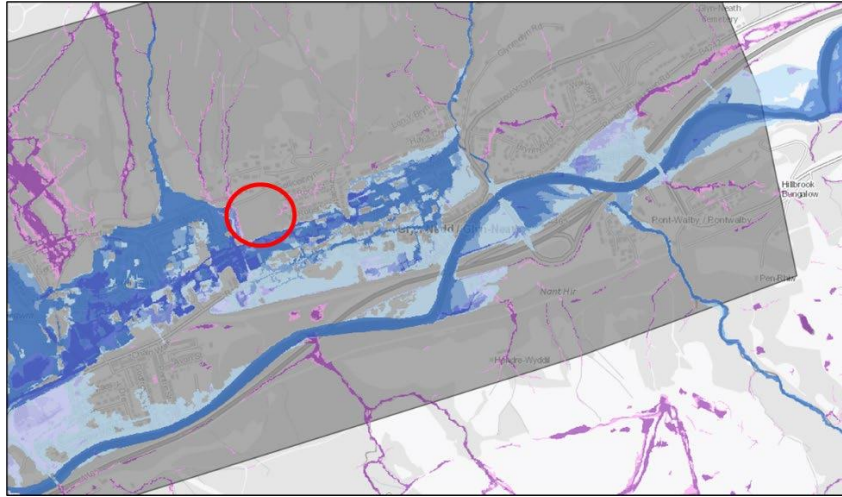


Figure 4 Risk of flooding from rivers, surface water and small watercourses (reproduced from the Resources Wales website 30/01/2025)

Based on information from Natural Resources Wales, the site is adjacent to an area that has a high risk (3.3%) of flooding from rivers, surface water or small watercourses.

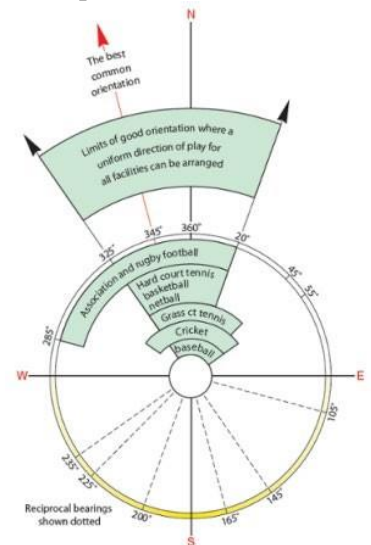
5.2 Soils and geology

According to the Soil Survey of England and Wales (1:250,000) soil map (1983), the indigenous soil is likely to form part of the BRICKFIELD 2 Soil Association. The BRICKFIELD 2 Soil Association is composed of slowly permeable, seasonally waterlogged fine loamy soils. Associated with fine loamy soils with only slight waterlogging and some deep well drained fine loamy soils.

The bedrock geology is the South Wales Lower Coal Measures Formation - Sandstone. Sedimentary bedrock formed between 319 and 318 million years ago during the Carboniferous period.

6 Topography and pitch layout

An important aspect of site evaluation and remediation is appropriate utilisation of the natural grade (slope) of the site to optimise future earthworks and effect rapid removal of excess water. A topographical survey was provided by the council and used to estimate the gradient of the site. The fall in line with the pitches 0.35% and across the line of play is 0.89%; both within performance guidelines.



7. Pitch Condition

7.1 Soil Investigation

Identifying specific target point, sample holes were excavated on the area, and the arisings sent off for analysis.

Topsoil texture was classed as a *clay loam* made up of 41% sand, 31% silt and 28% clay; the subsoil was a *stone clay loam*.

Once clay contents exceed approximately 30%, they can significantly and adversely affect the rate at which water can percolate through the profile (i.e. characterised by low hydraulic conductivity). Given that the clay content of the subsoil is 32%, it is expected that drainage rates through this material may be affected.

Therefore, during the winter months when the rate of precipitation exceeds that rate at which water is removed through drainage or evapotranspiration, water will tend to accumulate within the topsoil. This can lead to saturated conditions at the surface which may prevail throughout the winter. In extreme circumstances, this is manifest by standing water at the surface, but more typically the soil becomes prone to excessive wear and tear and the grass sward suffers due to poor aeration status (i.e. the soil pores that are normally air-filled become filled with water leading to anaerobic conditions; for grass to thrive, at least 10% of the pores should be air-filled).

To correct this situation, consideration should be given to the installation of a surface by-pass drainage system. These systems work by intercepting rainwater at the surface before it has had an opportunity to soak into the soil profile, and then removing this water to a system of piped drains.

Tests across the site showed the depth of topsoil is 180 mm to 230 mm over a stony clay loam subsoil. There were no signs of layering within the profile. Water on the surface is caused by

the surface de-structuring reduced and slowing water movement, the surface of the profile has a 20 mm layer of thatch (organic matter) which will slightly affect water movement.



Figure 5 Soil profile –rugby pitch



Figure 6 Stony subsoil – rugby pitch



Figure 7 Soil profile –football pitch



Figure 8 Stony subsoil – football pitch

A topsoil soil analysis was taken, and the site has a pH level reading at 6.3 which is slightly acidic and is ideal for sports turf grasses such as Perennial Rye Grass which performs best at 6.5. Tests show that the soil is deficient in the nutrients Potassium and Phosphorous, which are vital to maintain grass plant growth.

7.2 Grass coverage

The pitches had an average vegetative coverage of 75% (less in high wear areas) which is due to play on the surface. The coverage is made up of the following grasses:

37%	PERENNIAL RYEGRASS	<i>Lolium perenne</i>
20%	SMOOTH STALKED MEADOW GRASS	<i>Poa pratensis</i>
8%	TIMOTHY	<i>Phleum pratense</i>

10% Weed grasses made up of: -

ANNUAL MEADOW GRASS

Poa Annua

Annual Meadow Grass is considered a weed grass within the sports turf industry but is present in many sports surfaces all over the UK. *Poa annua* has poor root growth in consolidated soils and as root growth is one of the main things which bind a pitch together, the amount of *Poa annua* should be kept to a minimum. *Poa annua* also has poor wear tolerance, poor colour in low nutrient level soils and is a host for turf diseases.

In drought conditions *Poa annua* is the first grass variety to die off. This creates areas where weeds can establish and invade the surface coverage. The other difficulty associated with this grass variety is the production of thatch i.e., dead leaves and roots.

The weeds present on the site were.

Daisy	<i>Bellis Perennis</i>
Clover	<i>Trifolium repens</i>
Speedwell	<i>Veronica filiformis</i>
Broadleaf plantain	<i>Plantago major</i>

The use of perennial ryegrass (*Lolium perenne*) for sports turf has increased in recent years. It is one of the most versatile of all turfgrass species.

For sports turf, perennial ryegrass is used, alone or in combination, with other grasses and recent improvements in turf cultivars include improved disease resistance, elevated temperature tolerance, and enhanced colour. European evaluation trials showed that the grass has an increased tolerance to close mowing and is appropriate for winter games surfaces as it is more wear tolerant.

Plant health was average, and root growth was to a depth of 160 mm.

8. Existing drainage infrastructure

Google earth historical imaging does not show any evidence of any drainage infrastructure; however, information from the site meeting indicates that there is a pipe drainage system which was damaged by heavy vehicle traffic when an event was held on the field. It is thought that the drainage system outfalls into an inspection chamber located in the northwestern corner of the field.

At the time of the visit, it was not possible to open any of the inspection chamber covers. Further investigation is recommended to measure use and depth of the four inspection chambers on site.

Sustainable Drainage

Considering the size of the site and the necessity for a bypass drainage system, any modifications to the pitches may necessitate approval from the Sustainable Drainage Systems Approval Body (SAB). Progress of any works would be contingent upon obtaining such approvals.

9. General information

- SAB permission may be required before construction.
- There is public access to the field.
- All spoil would need to be removed from site to a licenced facility.

10. Conclusions & Recommendations

The principal objective of this project is to assess the condition and drainage of the proposed site and put forward options to for the drainage of the sportsfield and installation of a non-turf cricket pitch. Information from the soil profile and on-site tests indicate that the fundamental issues contributing to the construction of the proposed playing surface are as follows.

- The topsoil and subsoil both have high clay and silt content.
- The existing bypass drainage infrastructure has limited functionality.
- Localised surface levels vary.
- Pitch gradients are within performance quality standards.
- There are possible outfalls for a drainage system on site.

10.1 Development solutions

The process of levelling and draining the sports pitches includes.

- Mow existing vegetation and treat with total herbicide.
- Cultivate and grade existing topsoil
- Installation of primary pipe drainage
- Surface renovation
- Sand amelioration as part of renovation.
- Installation of secondary drainage
- Installation of non-turf cricket pitch.
- Post construction maintenance.

On completion of the construction phase of the project, if there are extended dry periods of weather, there may need to be a requirement for irrigation.

11. Groundwork Costing

An estimate of the cost involved in the renovation and drainage of the sports pitches at Glynneath Welfare Park would break down as set out below. Costs based on the full field area (14,500 m²).

Operation	£
Mobilisation	██████
Prepare surface	██████
Surface renovation (inc sand)	██████
Primary pipe drainage	██████
Secondary drainage	██████
Non-turf artificial cricket pitch	██████
Maintenance (6 months)	██████
Total	██████

Notes:

- Costs are based on a general estimation of the works required. If conducted in isolation, the costs are like to increase and would need to be costed accordingly.
- Costs assume that the arisings associated with drainage installation will be disposed of on-site.
- Costs based on recent Contractors rates.
- The costs of material and labour are, at present volatile, with regular significant price rises.

The above figures do not include VAT or professional fees, and it would be normal practice to allow a figure of approximately 5-10% of the total for contingencies.

The above figures are approximate and do not include.

- VAT
- Professional fees
- SAB – application & approval
- Irrigation

This exercise will need a specialist sports contractor to undertake the work. It is NOT a job for a civil engineering contractor! The timing of earthworks is critical to ensure that no structural damage to the soil takes place and that a long enough window allows the seed to re-establish before play begins.

12. Contact Details

Service	Percentage of Respondents
Health care services	40%
Food bank	25%
Financial counseling	20%
Job training	15%
Other services	10%

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