



CLIENT:

REDROW HOMES SOUTH WALES

PROPOSED NEW PITCHES, ALLOTMENTS & PUBLIC OPEN SPACE

Great Milton Sports Park

Llanwern

DESIGN & CONSTRUCTION STANDARDS

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Great Milton Sports Park

DESIGN & CONSTRUCTION STANDARDS



Location of the playing field & public open space area

1.0 EXECUTIVE SUMMARY

- 1) This document reviews the design and construction standards applying to a large public open space (POS) within the major new housing development at the Redrow Homes South Wales (RHSW) 'Great Milton Park' site in Llanwern. The POS is located to the north of the site, accommodating:
 - *Two full-sized football pitches, also potentially marked-out as 4 x junior pitches and for rugby.*
 - *A changing pavilion with parking for 20 cars.*
 - *Allotment area with 19 large and one smaller plots, these being capable of subdivision into up to 60 plots as required. Parking along a central access track.*
- 2) The sports pitches are to be formed over selected fill material to the required standard gradients, with approved topsoil, a modern sports field drainage system and sports field-type grass seed. Line marking will allow optional junior/senior layout options for either two or four pitches.

The layout of the pitches includes the recommended playing surface area and run-off margins in accordance with the FAW.

- 3) The proposed changing facilities building is to conform to the overall size stipulated in the S106 agreement of 75 sq.m. Parking for 20 cars is provided adjacent to the building, with two additional disabled spaces added.
- 4) The allotment area is to be accessed via a hoggin-surfaced porous stone track with access paths between each full-sized allotment plot. Each of these large plots can be sub-divided according to the user requirements. Parking for allotment users is to be on the central access track.

2.0 PROJECT OVERVIEW

2.1 Client Brief

- **Playing fields** - To produce a refined layout drawing to Football Association of Wales (FAW) standards with Design & Construction Standards technical note addressing the planning/S106 requirements.
- **Changing Rooms** - planning stage drawings with outline design features.
- **Allotments** - To include in the POS masterplan and allotment layout with access arrangement and parking.
- **S106** clauses on the pitches and pavilion are:

Changing facility consisting of 4 x 20 person changing rooms which shall be no more than 75 sq.m in area with associated car park for 20 cars to be provided in accordance with a specification to be agreed.

Two football/rugby pitches to be provided as part of the Development to be topsoil and seeded in accordance with drawing 2070/50/25 annexed hereto(each of which shall incorporate run-off areas of at least 2.5m either side and shall be served by an appropriate pitch drainage system within the Open Space Areas pursuant to reserved matters) and the approximate location of which are shown for identification purposes only marked "Sports Pitches" on the Plan.

2.2 Background Information

- 1) The site address is not fixed at present, with access to be through the Hollies 5/6 residential zone when constructed. Location details for the Redrow Homes office at the site are:

Hen Chwarel Dr, Cot Hill, Llanwern, Newport NP18 2DP

Grid Ref: ST 36385 88615

- 2) The POS site is currently a fallow agricultural field.

3.0 DESIGN & CONSTRUCTION STANDARDS

3.1 General Layout

3.1.1 Area Schedule

The full POS site is approximately **75,400 sq.m.** to the 'red line' boundary forwarded by RHSW and is subdivided into the following primary zones:

- Sports Pitches:
 - Football Pitch 1 = 100 x 54m plus 3m margins; 6,363 sq.m.
 - Football Pitch 2 = 100 x 54m plus 3m margins; 6,363 sq.m.
 - (with sub-layout of 4nr, 55 x 37m plus 3m margin U11 pitches)

Sub-total: 12,726 sq.m

- Changing Pavilion + access and parking approximately:

Sub-total: 1,100 sq.m

- Allotments:
 - North side = 2,620 sq.m
 - South side = 3,040 sq.m
 - Access/parking/storage = 850 sq.m

Sub-total: 6,510 sq.m

- POS: remainder including existing woodland, proposed landscaping on general open space, paths, attenuation basin, orchard of 3,200 sq.m, etc:

Sub-total: 55,000 sq.m

3.1.2 Pitch Layout & Orientation

- 1) The slope across the existing site is from north-west down to south-east, of around 20m fall. Considerable relevening is required for the sports pitches, with the orientation governed by the feasibility of fitting-in the required sizes within a site that is quite restricted in width, north to south. Furthermore, the visual impact of such proposals needs to be considered given the visual sensitivities of the site.

The senior pitches are therefore orientated broadly east-west along the line of play to reduce the reprofiling of the site. The junior cross-pitch layout option does conform to the desirable north-south general orientation.

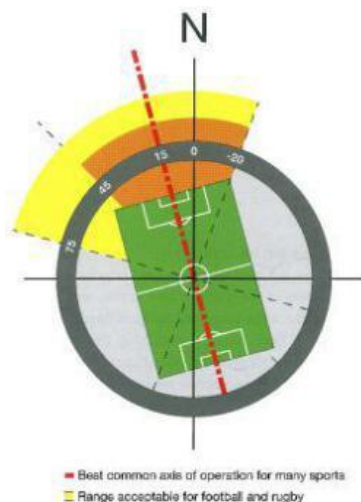


Fig. 1 – The preferred orientation of sports pitches.

Age	Format	Ball Size	Pitch Size (yards)	Pitch Size (metres)
U7	5 v 5	3	30x20 to 40x30	27.43x18.29 to 36.58x27.43
U8	5 v 5	3	30x20 to 40x30	27.43x18.29 to 36.58x27.43
U9	7 v 7	3	50x30 to 60x40	45.72x27.43 to 54.86x36.58
U10	7 v 7	4	50x30 to 60x40	45.72x27.43 to 54.86x36.58
U11	7 v 7 (Primary Sch.)	4	50x30 to 60x40	45.72x27.43 to 54.86x36.58
U11	9 v 9	4	70x40 to 80x50	64x36.58 to 73.15x45.72
U12	9 v 9	4	70x40 to 80x50	64x36.58 to 73.15x45.72
U13	9 v 9 or 11 v 11	4	90x50 to 100x60	82.3x45.72 to 91.44x54.86
U14	9 v 9 or 11 v 11	4	90x50 to 100x60	82.3x45.72 to 91.44x54.86
U15	9 v 9 or 11 v 11	5	90x50 to 110x70	82.3x45.72 to 91.44x64
U16	9 v 9 or 11 v 11	5	90x50 to 110x70	82.3x45.72 to 91.44x64
U17	11 v 11	5	90x50 to 110x70	82.3x45.72 to 91.44x64
U18	11 v 11	5	90x50 to 110x70	82.3x45.72 to 91.44x64
Sen	11 v 11			90x45.5 to 120x90

Fig. 2 – Current recommended pitch sizes, The FA 2014

- 2) The senior and U11 junior layouts for the two pitch areas both conform to the recommended pitch size range for football, with the U12 to U18 pitch layout options also accommodated as required. The line-marking will be the responsibility of the future management organisation in accordance with the age groups playing on the pitches at various times.

3.1.3 Allotment Layout

- 1) The allotment plot size is based on a traditional measurement dating back to Anglo-Saxon times, when plots were measured in rods (perches or poles). 10 poles is the accepted size of an allotment, the equivalent of 250 square metres.

- 2) This size of plot has with time been established as the 'maximum' easily managed area for the amateur gardener. Indeed, this size is often too much in reality for allotment gardeners, with smaller sized plots being more feasibly managed and maintained free of weeds.

The intention is to form the 200 to 250 sq.m plots formally demarcated with a crushed stone access path, but with sub-division possible simply by constructing a small path or grass path access.

Plot type	Approx. plot size	Details:
Full plot	250 square metres	Full plots become available less often. They're a big commitment because they take a lot of time to cultivate.
Half plot	125 square metres	Common plot size, more manageable if you have limited time
Quarter plot	60-70 sq.m	Aimed at new plot holders that might want to up-size in the future, or existing plot holders that want to downsize. (Holders may need to reach a suitable level of cultivation after a year to move to a larger plot).
Micro plot	25 square metres	Aimed at new plot holders that might want to up-size in the future, or existing plot holders that want to downsize. You can stay on these plots for as long as you want, but you must reach a suitable level of cultivation after a year to move to a larger plot. Micro plots are located on larger shared plots
Easy access plot	60-125 sq.m	To allow easy access for people with limited mobility.
Limited Mobility plot	10 square metres	Plots with raised beds surrounded by paving, ideal for people with restricted mobility or wheelchair users.

Fig. 3 – Typical allotment plot sizes

3.1.4 Earthworks

- 1) The playing pitches zone is proposed to be filled with selected inert material. The platform area formed for the two pitches is to have a cross-fall of 1 in 100 or 1%, a fall along the pitches of almost zero.

This conforms to the generally recommended gradients for sports pitches (Sport England, Sport Wales, FAW/The English FA) of:

- *Direction of play* < 1.25% = less than 1:80
- *Across play* < 2% = less than 1:50

- 2) Embankments to the south of the pitch platform are to be formed with a 1-in-5 slope, mowable with standard machinery. The northern bank to Pitch 1 is to have a 1-in 2 slope, to develop into a wild flora/shrub cover.
- 3) Allotments – the allotment area is to be laid out over the existing slope, which is south-facing (south/south east), the ideal orientation for cultivated plants. No regrading intended other than the construction of the central track.

- 4) Topsoil & Subsoil – The intention is to use a good quality topsoil for the sports pitches (selected on fines content to minimise drainage and compatibility effects) and allotments (selected on organic matter and suitability for cultivation purposes).

- *Sports pitches – minimum 175mm settled depth*
- *Allotments – 250mm minimum settled depth (spade or 'spit' depth)*

More critical on the allotments than on the sports pitches, the subsoil material is to be analysed and assessed during the design detailing stage.

3.2 Drainage & Construction

3.2.1 Main Drainage

A system of 160mm diameter main drains is proposed linking the pitches and allotments to the attenuation pond and then to the main off-site drainage system. Primary features of the proposed system are:

- *A 160mm main drainage system of sealed or perforated, single or twin-wall pipes, with or without permeable fill in the trenches, depending on function.*
- *Cut-off or sub-mains of 110mm diameter, as above.*
- *Lateral collector drains of 80mm diameter with permeable fill to the surface on the pitches and between allotment plots.*

3.2.2 Sports Pitch Specification

- 1) **Construction & Drainage** - The detailed specification of the pitch primary and secondary drainage system, turf establishment and management principles is to follow the following industry publications:
 - *SAPCA 'The SAPCA Code of Practice for the Design, Construction and Improvement of Natural Sports Turf'.*
 - *Sport England - 'Natural Turf for Sport' Design Guidance Note'. NB: This document is used by all major sports organisations in the UK for base-line guidance on grass pitch construction, originally based on the UK Sports Turf Research Institute R&D.*
- 2) **Turf Surface** – The pitches are to be sown with a certified and approved sports field Perennial Ryegrass mix, a hard wearing and hardy standard for winter sports.
- 3) **Management of Use** - It is of course important to monitor the condition of the pitches regularly and carefully, and act before a problem becomes too serious. Good management will restrict use on pitches where a problem will arise if this is not controlled, and act quickly to a developing problem.

An example is given below of how the use levels can be checked and managed. Logging the hours of use for each pitch, the age of the players, and the level of use the pitch is expected to be capable of taking, allows a check to be made on if a pitch or pitches are being over-played or not:

NB: Wear and damage caused by the younger age groups is considerably less than that for seniors. Juniors can be allotted a nominal reduced wear factor:

- 14 to 16 Year-old - 100% equivalent wear rate
- 11 to 13 Year-old - 50% equivalent wear rate
- Under 11 - 25% of the senior rate

For example, with a pipe drained, sand-slit and sand top-dressed pitch, up to 6 hours use on average per week may be feasible. This equates to 6 hours / 0.75 for age group 14 to 16 years old, or 8 hours per week potential formal use, remembering to also add-in informal use to this for a true figure.

group	hours per week	user hours	No's of users	% rate	Ages
Class use					
KS 3	9	135	30	0.5	11 to 14
KS 4	9	203	30	0.75	14 to 16
KS 5	4	120	30	1	16 to 18
Matches RUGBY					
KS 3	2	30	30	0.5	11 to 14
KS 4	2	45	30	0.75	14 to 16
KS 5	2	60	30	1	16 to 18
Matches FOOTBALL					
KS 3	2	22	22	0.5	11 to 14
KS 4	2	33	22	0.75	14 to 16
KS 5	2	44	22	1	16 to 18
TOTAL		692			
(user hours for 30 weeks of the year)					
PER PITCH		346			
(total divided by two pitches)					

Fig. 6 - Monitoring use using pro-rata wear rates for age groups

3.3 Maintenance

- 1) The management organisation will be supported in setting-up the maintenance regime for the sports pitches, through an O&M Manual and agronomy advice during the early stages of operation.
- 2) The Great Milton Park POS management organisation will also be supported in making contact with relevant organisations, including the Grounds Management Association (GMA) Wales branch under Len Smith, who operate the Grounds Management Framework.

3.4 Changing Facilities

Basic Features:

- The new pavilion has a gross internal floor area (GIFA) of 75m², which is in line with the Section 106 agreement.
- The new pavilion design and layout is based on a Sport England design example, with some modifications, and the Welsh FA/Sport England general guidance where possible, working within the 75m² gross internal floor area.
- The new pavilion is simple and functional in construction incorporating a pitched roof and minimal openings in the fenestration.
- The new pavilion roof cover will be of concrete tiles, the walls will be of an approved brick and the doors and windows uPVC framed to match the proposed adjacent new housing development.
- The pavilion provides 2nr 20 person changing rooms each served with 4 showers, 2 of which have privacy screens for safeguarding, and 2 toilets. The pavilion also incorporates 2 plant/storage rooms.
- The building will be constructed to the prevailing building standards.

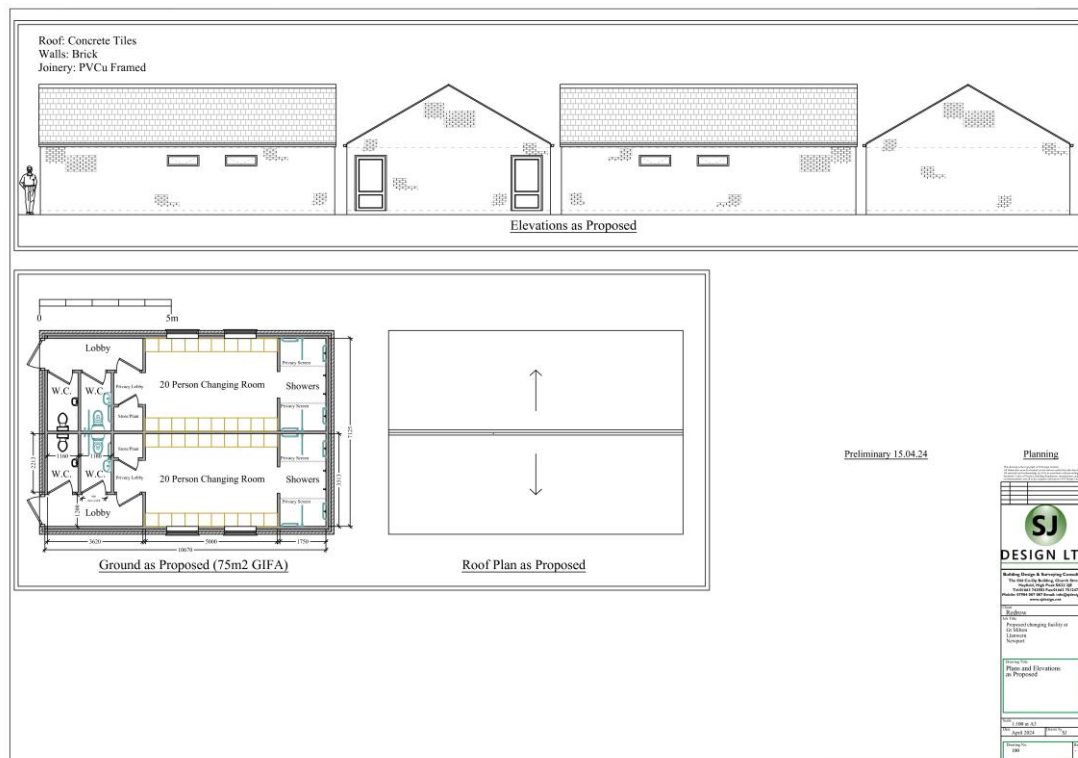


Fig. 8 – The Changing Facility Building design proposals

3.5 Parking

- 1) Parking on site for the changing room building will be accommodated on the changing pavilion parking areas, totalling 20 spaces.
- 2) Additional parking for the allotment users will be accommodated along the access track through the allotment area, with each plot having a parking space along one side of this track
- 3) Access for larger vehicles for refuse removal, deliveries will be along this central track to the storage area.

ABOUT:

- **David Hemstock** is a qualified Agronomist and Soil & Water Engineer, a member of the Register of Independent & Professional Turf Agronomists, the Sports & Play Construction Association, EIGCA and the Institution of Agricultural Engineers, with over 30 years experience in sports project design and consultancy.
- **Dr Ollie Hemstock** is a co-Director of Hemstock Design Ltd with 15 years' experience of sports project work in the UK and overseas, primarily on strategic design and buildings-related projects.
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Pitches, allotments & POS Master Plan



