



Site Appraisal

Client: Tilbury Douglas

Project: Sandilands Primary School

Location: Wythenshawe, Manchester

Report date: 10/06/2024

Consultant: Joe Woodcock

Revision: 0

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ISSUE INFORMATION

This site appraisal report has been produced in good faith for exclusive use by Tilbury Douglas and other stakeholders in relation to the development works at Sandilands Primary School, Wythenshawe. STRI accept no liability or responsibility whatsoever in respect of any use of this report beyond the scope of its application by any third party. The report is the property of STRI and may not be copied nor reproduced without prior written approval of STRI except for the purposes of dealing specifically with the management and implementation of this project.

Client:	Tilbury Douglas
Project:	Sandilands Primary School
Location:	Wythenshawe, Manchester
STRI Ref:	J007057
Doc Title:	Site Appraisal

REVISION RECORD

Revision record (Revision '0' being the original)

Revision Record			
Revision Number	Date of Issue	Reason for Revision and Comments	
0		Original issue	
Author	Joe Woodcock	Checked By	Greg Whately
Date	02/05/2024	Date	02/05/2024

Signed

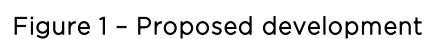


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STRI have been appointed by Tilbury Douglas to carry out a site appraisal at Sandilands Primary School, Wythenshawe in relation to the development of a replacement playing field at the site.

Iceni Projects, acting on behalf of its client (Tilbury Douglas Ltd), is working to discharge planning conditions relating to the redevelopment of the school and provision of a replacement playing field at the site.

The proposed development would include a new playing field (43 m x 33 m) located within the south east corner of the site and directly south of the new school building. The existing playing field to the north would be impacted by the development works at the school due to plant machinery being located in the playing field area to complete the school development works. The proposed development can be seen below in Figure 1.



1.4 Aims and objectives

The site appraisal shall combine a series of desk-based and on-site appraisals aimed at assessing the technical and practical issues associated with the proposed development, and to provide recommendations for the scope of the works required.

The objectives of the site appraisal were as follows.

- To determine any technical constraints to the proposed development.
- To determine any practical constraints to the proposed development.
- To provide recommendations for further investigation.
- To provide recommendations for the works required.
- To provide guidance on the timescales associated with the recommended works.

2.0 DESK-BASED STUDY

2.1 Location

Site address:	Sandilands Primary School
Site postcode:	M23 9JX
Site grid reference:	SJ 79591 89657
Local authority area:	Manchester City Council



Figure 2 Aerial photo of site

Hereafter, the area within the scope of this report as illustrated in Figure 2, shall be referred to as 'the site'.

The site demarcated within the yellow line above was bound to the north by a mature woodland area with mature trees also observed along the eastern boundary of the site. Residential housing was located to the south of the site and along the western boundary of the site.

Located in the middle of the site was the existing school building with the existing playing field area located directly north of this. The site could be accessed directly off Wendover Road to the south in which the main

school entrance was located. Alternatively, a construction access gate was located in the south east corner of the site.

It is important to state that at the time of the visit, construction works had started to the north of the existing school building which would be called Phase 1 of the project. Phase 2 involved the demolition of some of the existing school building which would involve the development of a replacement playing field.

2.2 Site information

The following information has been obtained from publicly available sources including aerial photography, historical mapping, and Defra MAGICMap.

Existing land use:	School Playing Field Area	
Existing sports facilities :	2 junior football pitches are currently located to the west of the existing playing field.	
Historic land use:	School playing field	
Land based designations:	Area of outstanding natural beauty	No
	Local nature reserve	No
	National nature reserve	No
	Moorland line	No
	National park	No
	RAMSAR site	No
	Proposed RAMSAR site	No
	SSSI	No
	Special area of conservation	No
	Special protection area	No
	Biosphere reserve	No
	Nitrate vulnerable zone (NVZ)	No
	World heritage site	No
	Registered battlefield	No
	Registered parks and gardens	No

2.3 Site access

The site can be accessed directly off Wendover Road to the south of the site.

2.4 Climate

The following information has been obtained from the Met office website using data from Blackpool Squires Gate, the nearest official Met Office climate station, approx. 11 miles from the site, covering the period from 1991 – 2020.

2.4.1 Annual rainfall (mm)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
77	60	53	56	56	65	80	80	76	92	77	97	868
England average												870

2.5 Flood risk

The following information has been obtained from Environment Agency Flood Risk Maps (see Figure 3). The site is located within Flood zone one therefore there is a low probability of flooding.

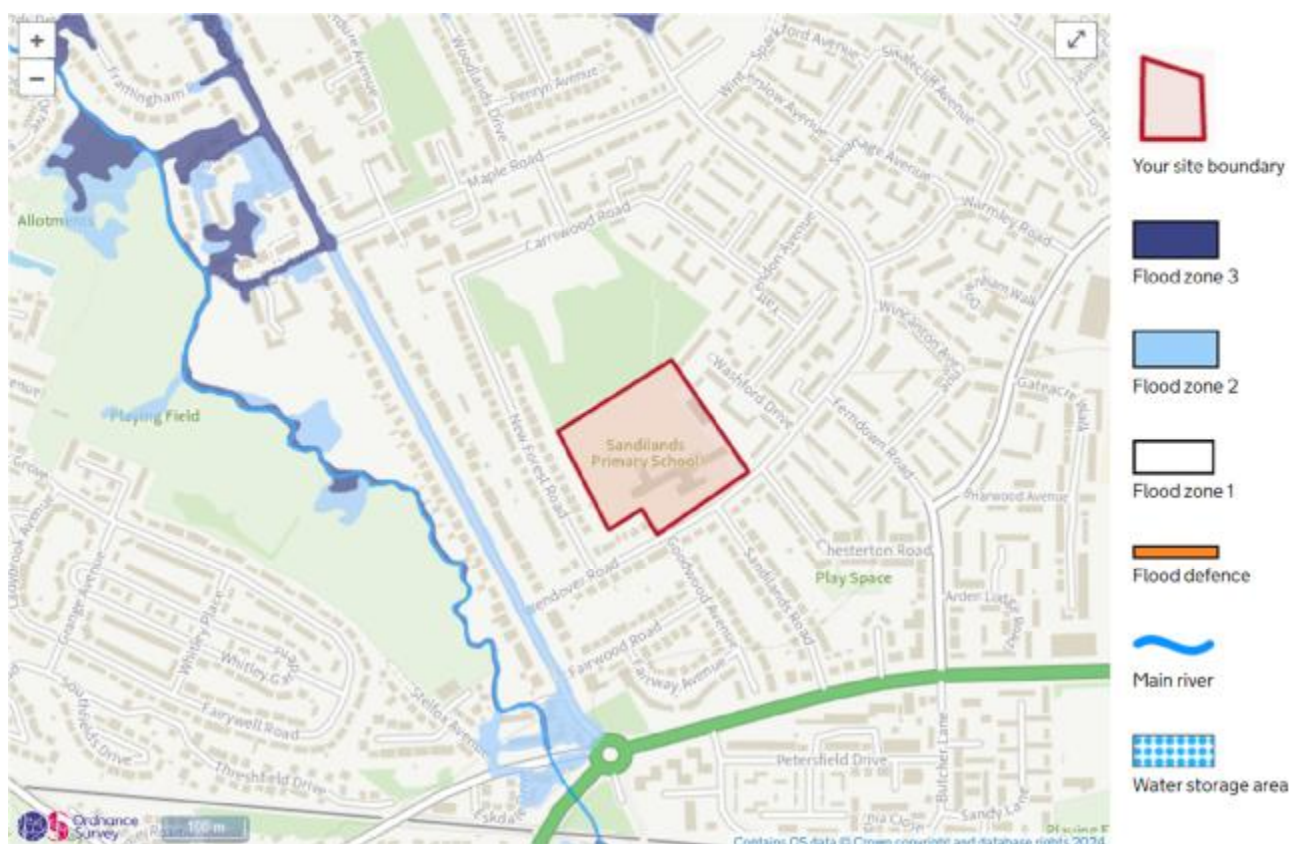


Figure 3 – Flood risk for planning maps

2.6 Previous ground investigations

A ground investigation report was made available to STRI to examine all aspects of topsoil around the school building.

2.7 Geology

The following information has been obtained from the British Geological Survey (BGS) online Geology Viewer.

2.7.1 Made Ground

The BGS mapping does not indicate any Made Ground on site.

2.7.2 Superficial deposits

The BGS mapping indicates that Glaciofluvial Sheet deposits are present.

2.7.3 Bedrock

The BGS mapping indicates that Bollin Mudstone is located to the east of the site with Tarporley Siltstone Formation located to the west of the site.

2.8 Hydrology

The following information has been obtained from publicly available sources including aerial photography, the WWF Rivers Map, and the Environment Agency Statutory Main River Map.

Main rivers:	No main rivers are located within or close to the site boundary.
Water bodies near site:	No water bodies are located close to the site.
Water bodies within site boundary :	No water courses were observed when attending the site.
Distance to coastline:	N/A

2.9 Topography

The existing site levels and gradients were assessed by reviewing topographic survey data made available to STRI.

The spot levels were consistent and very flat across the northern playing field area and were circa 28 m in most areas. No consistent gradient is present across the playing field area in one particular direction.

The topographical survey was also reviewed for the area where the proposed replacement playing field will be located in the south east corner of the site. Spot levels were also recorded to be circa 28 m with a flat gradient observed. No consistent gradient falling in one particular direction was observed in this area.

2.10 Contaminated land appraisal

STRI understand that the site is greenfield land, i.e., a piece of land which has not previously been built on. As such land contamination issues would not be anticipated.

2.11 Proposed usage levels

The proposed usage of the proposed replacement playing field is unknown at this current stage.

3.0 ON-SITE APPRAISAL

3.1 Surface Levels

3.1.1 Topography and surface gradients

In addition to the desk-based appraisal of the topographic survey information provided, general surface levels were assessed visually during the on-site appraisal for the existing playing fields to the north. The area to the south where the proposed junior football pitch was not assessed due to existing building structures.

3.1.2 Surface evenness

A visual assessment of the existing playing field to the north found that undulations were present and is thought to be caused by some form of plant equipment. This would inhibit surface water movement due to low areas and compaction. Surface water ponding may occur in these areas.

3.2 Existing vegetation for the northern playing field

General:	Existing vegetation at the time of the visit would be considered poor for a playing field and contained a mix of Perennial Ryegrass (<i>Lolium perenne</i>) and Yorkshire fog (<i>Holcus lanatus</i>). Moss ingress was also observed across the northern playing field area.
Agronomic condition:	Mowing appears to be the only maintenance practice carried out across the northern playing field area with a significant percentage of undesirable grass species present.
Invasive species:	There were no invasive species identified within the site at the time of the visit.

3.3 Trees

A mature woodland was located to the north of the site with mature trees also located along the eastern and western boundary of the site.

3.4 Ground conditions

Ground conditions were relatively dry across the northern playing field area with no standing water observed.

3.5 Site soil conditions

3.5.1 Soil profiles

3.5.1.1 Visual assessment

Following on from a review of the ground investigation report made available to STRI with regards to topsoil depth, it was apparent that topsoil depth ranged from 400 mm to 600 mm. Upon physical review of the existing topsoil at the school, it was evident that a free draining sandy loam topsoil was present which would be considered suitable for sports pitch construction. A closer inspection also noted that limited fine materials were present in the form of clay or silt.

The topsoil appeared to be overlying a brown sub grade material.

3.5.1.2 Laboratory soil analysis

One representative sample of topsoil was collected from the site for particle size analysis to determine the mineral and organic matter composition of the indigenous topsoil. Full particle size analysis reports are included in Appendix 1.

Sample location:	Representative Soil Analysis
Laboratory reference number:	A20683/1
Soil texture:	Sandy Loam
Sand (%)	75
Silt (%)	13
Clay (%)	12

3.6 Drainage

3.6.1 Existing drainage features

No drainage features were found on site within the northern playing field. A desktop study also showed no sign of any drainage system in the form of droughted turf lines.

3.6.2 Potential drainage outfalls

No watercourses or obvious drainage outlets were discovered on site at the time of the visit. This would need to be considered for any primary drainage installation.

3.7 Existing structures

The only existing structure is the school building to the south of the site.

3.8 Utilities

A full utilities search was not included as part of this site appraisal report.

4.0 DISCUSSION

The following points should be considered as part of the site assessment report as carried out by STRI:

- Following the development of the new school building at Sandilands Primary School, a new natural grass playing field will be developed to the south east of the proposed new school building and developed on the area where the existing school building is currently.
- Along with the new development of the natural grass playing field, an area of the existing playing field to the north of the school building will be impacted due to heavy plant equipment and topsoil storage for the new school building to the north. This will mean that part of the northern playing field will be unplayable until re-establishment of the impacted areas has taken place.
- The objective of this site appraisal is to assess the current condition of the area where the proposed natural grass playing surface in the south east corner will be and to provide recommendations for the works likely to be required when constructing a new playing field area in the south east corner. The secondary objective of this report is to understand the timings and works required to reinstate part of the northern playing field to its original state and provide timings in which the school can commence playing on the surface and the timings involved for the construction of the new playing field in the south east corner.
- The site topsoil was within the sandy loam topsoil textural classification which is considered suitable for sports pitch construction. With the site topsoil in mind, the recommended construction of the new playing field area in the south east corner would be a Sport England type 2 construction in which a primary drainage system would be recommended to drain the pitch and provide more usage hours than a type 1 Sport England construction which would have no pitch drainage.
- With the above point in mind, a primary drainage system would require a positive outlet on site however following on from external discussions, it was outlined that no positive outlets are available within the Sandilands School site for any sports pitch drainage system. A soakaway would not be feasible due to a shallow water table having been identified within one of the ground investigation reports having been made available to STRI in which the document quotes 'The Environment Agency recommends that at least 1m of unsaturated soils are required beneath the base of any soakaway'. The alternative of connecting into the wider drainage scheme would also be deemed unfeasible due to a complex system required for any sports pitch drainage system.
- The existing levels and gradients were analysed from a topographical survey provided to STRI and centred around observing the current falls in the south east corner of the site where the newly proposed playing area will be situated. The current levels were circa 28 m with no consistent gradient observed however this is to be expected as a building structure is currently erected where the proposed replacement playing field area will be located. The new playing field area should be constructed within Sport England gradient guidelines which are the playing surfaces should be no steeper than 1:80 – 1:100 along the line of play and 1:40 – 1:50 across the line of play. The topographical survey was also reviewed for the area that will be impacted within the northern playing field. A level platform was apparent however no consistent gradient was present which would mean that the surface water ponding could be more likely within the existing playing field area due to the lack of fall. The proposed replacement playing field would be constructed to within the Sport England gradient guidelines therefore would be an improvement on what is currently existing at Sandilands School.
- The impacted area within the northern playing field will have to be reinstated to its previous condition and also to its previous levels. The area will be damaged due to plant machinery therefore once the topsoil has been replaced, the affected area should be cultivated and seeded with a minimum 12 months grow in required.

- A typical timeline for the establishment of the northern playing field would be 12 months in total if the process is to be carried out by seeding. The process would be reduced to circa 4 months if turfing is to be carried out.
- A typical timeline for the construction of the new playing field within the south east corner of the site would be 10-12 weeks for all relevant earthworks operations to be carried out along with seeding and then a further 12 months for the grow in period of the playing field by seed.
- All sports surface construction projects should be carried out in the drier months during the summer with seeding ideally taking place in the spring or autumn months when temperatures are still relatively good however increased rainfall is present which will compensate for the absence of an irrigation system to grow the playing field in.
- For both areas, a suitable level of ongoing maintenance should be carried out to ensure that performance quality is to a reasonable standard and player safety is not compromised in any way. Good maintenance practices will also ensure the longevity of the surface. Any maintenance programme should evolve over time depending on the level of use and the agronomic condition and performance of the playing surface. With a higher level of use, additional maintenance inputs would be required. The turf quality would be improved within the proposed replacement playing field area as seeding with desirable grass species would be recommended to take place. The current turf quality was poor within the existing playing field with a lack of desirable grass species present. Algal growth was the overriding weed that dominated the existing turf within the existing playing field area.

5.0 RECOMMENDATIONS

5.1 Recommended methodology for the reinstatement of the northern playing field

5.1.2 Formation

Prior to spreading topsoil the sub-base/formation layer should be properly de-compacted, graded and consolidated.

5.1.3 Topsoil resspreading

Topsoil should be resspread to create a level playing surface on the impacted area to the north. Topsoil should be spread to a consistent depth.

The topsoil should be smoothly married into the surrounding undisturbed ground levels.

The topsoil would then be cultivated and lightly graded throughout the whole of the working area to produce the desired levels.

5.1.4 Seeding

Once a suitable seed bed has been prepared, this would then be sown out with a seed mixture containing hard wearing cultivars of Perennial ryegrass (*Lolium perenne*).

5.1.6 Initial maintenance

Thereafter, regardless of the final scope of works and construction methodology, it is recommended that the initial maintenance during the establishment period (12 months) for seeding or (4 months) for turfing is carried out by a specialist sports pitch contractor. During the initial 12 month/4 month maintenance period it is recommended that the following maintenance operations are included in the maintenance programme. These initial maintenance practices should be carried out if the turfing option is to be exercised.

- Mowing.
- Fertiliser application.
- Overseeding (provisional).
- Aeration (only once turf has sufficiently rooted and is strong enough to take aeration without causing excessive damage).
- Selective herbicide application (provisional).

5.2 Recommended methodology for the construction of the newly proposed playing field in the south east corner of the site

The following recommendations have been based on Sport England guidance for the development of natural turf sports pitches.

The following recommendations are provided based on the information gathered during the site visit and provided by the Client. These recommendations do not form a specification of works and should not be used as such. The dimensions and depths of materials may be altered once the detailed design and specification of works is formulated.

5.2.1 Level Adjustments

Cut and fill earthworks operations will be required to achieve the desired formation surfaces for the proposed pitches in line with Sport England requirements.

The entire formation surface should be consolidated and lightly graded using laser-controlled equipment to smooth out irregularities and achieve a smooth formation surface free of dips and hollows, marrying in with the adjacent land.

Following the bulk cut/fill earthworks operations, the formation surface would be consolidated and trimmed to provide an even surface prior to topsoil spreading.

5.2.2 Topsoil respreading

Topsoil should be respread to create a level playing surface.

The topsoil should marry smoothly into the surrounding undisturbed ground levels.

The topsoil would then be cultivated and lightly graded throughout the whole of the working area to produce the desired levels.

5.2.4 Seed bed preparation

It is recommended that the topsoil is lightly cultivated again to relieve any compaction from the drainage installation process. At this stage it would be of benefit to apply a layer of sand (sand amelioration) in two applications, the first to be very lightly worked into the surface with a rotary stone rake or similar. The second a capping layer of 25 - 30 mm should then be spread over the prepared surface.

Following sand application and cultivations, a smooth, fine and evenly consolidated seed bed tilth would then be prepared by a combination of rolling and raking. This should be proceeded with the application of a pre-seed fertiliser with a N-P-K composition of 8-12-8 or similar.

5.2.5 Seeding

Once a suitable seed bed has been prepared, this would then be sown out with a seed mixture containing hard wearing cultivars of Perennial ryegrass (*Lolium perenne*).

5.2.7 initial maintenance

Thereafter, regardless of the final scope of works and construction methodology, it is recommended that the initial maintenance during the establishment period (12 months) is carried out by a specialist sports pitch contractor. During the initial 12 month maintenance period it is recommended that the following maintenance operations are included in the maintenance programme.

- Stone removal.
- Mowing.
- Fertiliser application.
- Overseeding (provisional).
- Aeration.
- Sand topdressing.
- Selective herbicide application (provisional).

5.3 Additional investigations and surveys

The following table summarises any further investigations required to fully assess the feasibility of the proposed development and to inform the next phases of the project.

Further investigations	No	
Topographic survey	No	Topographic survey carried out by STRI.
Flood Risk Assessment (FRA)	No	
Geotechnical investigation	No	
Infiltration testing	No	Soakaway not feasible.
Arboricultural survey	Yes	Required if level adjustments are to be carried out.
Ball strike risk assessment	Yes	If balls are to interfere with any housing.
Utility plans	No	

5.4 Next steps

Will the proposed development require further design work?	Yes	A detailed design should be developed as part of the next stages of the works regardless of the finalised scope for the new playing field to the south east corner of the site.
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5.5 Summary project risk register

The following information provides a summary of the project risks. The following does not constitute a designer risk register; instead it is intended for information purposes only to highlight potential risks and significant constraints to the project which should be considered at this early feasibility stage.

Low risk		Medium risk	High risk		
Risk No.	Risk Description	Detail	RAG	Notes	
1	Existing land use	School use.			
2	Historic land use	School use.			
3	Land designation	No land designation known.			
4	Site access	Acesss is currently gained to the west of the site.			
5	Climate	Above the England average rainfall.		Works should be carried out in dry periods.	
6	Flood risk	The proposed areas of development are located in Flood zone 1.			
8	Hydrology	No waterbodies located within the site.			
9	Topography				
10	Ground conditions	Ground condtions were wet at the time of visit.			
11	Contaminated land	No contaminated land.			
12	Proposed usage	Proposed usage levels unknown.			
13	Existing vegetation	Area will be seeded.			
14	Trees	Trees located along the northern, eastern and western boundary of the site.		Root protection areas required limiting the extent of earthworks.	
15	Site soil conditions	Sandy loam.		Ideal for sports pitch construction.	
17	Existing structures	Part of the existing school will be demolished as part of the developemnt works			
18	Utilities				
19	Drainage discharge locations	No drainage outlet location identified.			

6.0 OUTLINE MAINTENANCE OPERATIONS

The following maintenance operations should be considered as part of an ongoing maintenance regime for both the new playing field area in the south east corner and the northern playing field. The timing of the maintenance operations is critical for the successful maintenance of natural turf pitches. Working in poor weather conditions can reduce the effectiveness of all treatments but particularly for soil aeration work which can result in an increase in soil compaction rather than alleviating the problem.

6.1 Mowing

Cut the grass frequently, maintain the height of cut within a reasonable height range. Avoid scalping the grass and allow the grass clippings to fly. This would typically require mowing once per week during the growing season. Do not allow the grass to grow too long and clippings should not be allowed to smother the grass. The grass should be cut with a well sharpened mower, correctly adjusted to achieve a uniform cut. No more than one third of the leaf blade should be removed in any one mowing operation.

6.2 Fertiliser

Maintain nutrient levels in the soils by the application of fertiliser suitable for the time of year using higher nitrogen products in the summer months and lower nitrogen in the autumn as the temperatures drop.

A minimum of 1 - 2 fertiliser applications is desirable during the spring and summer months. A single winter feed should also be applied. If the playing fields are used more frequently some additional fertiliser may be required to sustain the turf in good condition.

Fertilisers should generally be applied according to the manufacturers recommended rates, although this can be adjusted according to the nutrient status of the soil, preferably confirmed by soil analysis as well as the prevailing condition of the turf. The analysis of the fertilisers applied, and the rate of application can be adjusted according to the conditions at any given time.

It is essential that the fertiliser is applied evenly over the whole of the surface with an appropriate spreader, preferably during showery weather to break down and wash the fertiliser into the soil.

6.3 Soil Aeration

Soil aeration work will help to alleviate soil compaction and also maintain good infiltration.

Verti-Draining should be carried out when the soil is just moist enough to allow the tines to penetrate and to achieve the optimum soil shattering or loosening.

A number of treatments may be required to deal with excessive soil compaction. The depth of the aeration work can be varied, starting with shallower treatments and gradually increasing the depth to reduce compaction and to improve water movement through the full depth of topsoil. A minimum of 2 - 3 Verti-Drain treatments per year is recommended, concentrating on the late spring and late autumn months.

6.4 Sand Topdressing

It is important to apply medium fine top-dressing sand evenly over the whole playing surface to ensure good porosity in the upper layer of the topsoil. Over time this topdressing will build up and create a drier surface which will improve overall performance of the pitch. Regular sand top dressing is also critical in ensuring the primary drainage system continues to perform as designed and prevent them from capping over.

6.5 Overseeding

Overseeding should take place at the end of the season in May using a disc or dimple type seeder using 100% *Lolium perenne* grass seed mix. Additional localised overseedings may be required in any weaker areas.

6.6 Weed Control

Apply a selective herbicide to control any broad-leaved weeds as required during the growing season. This should be applied in accordance with current legislation and COSHH regulations.

7.0 HEALTH AND SAFETY

The following potential hazards are typical of sports development and maintenance works and have been identified during the site appraisal and in the preparation of this report.

- The presence of any underground and/or overhead services should be confirmed before commencing any pitch development works.
- Delivery and haulage of bulk materials on site.
- Movement of construction plant and maintenance machinery.
- Confined spaces.
- Dust.
- Excavations.

These hazards are common to most sports pitch development work, but this does not constitute a complete list and any additional issues should be identified before commencing work. It is recommended that a Designer Risk Assessment is carried out as part of the next stage of the project.

APPENDIX 1

Laboratory soil analysis report



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SOIL PARTICLE SIZE ANALYSIS

CLIENT:	TILBURY DOUGLAS - SANDILANDS SCHOOL	DATE :	01/05/24
		RESULTS TO :	JW
DESCRIPTION:	TOPSOIL	SAMPLE NO :	A20683/1

CATEGORY	DIAMETER mm	%
Stones	>8	2
Coarse gravel	8-4	1
Fine gravel	4-2	2

Particle size distribution of mineral matter smaller than 2mm

Very coarse sand	2-1	3
Coarse sand	1.0-0.5	9
Medium sand	0.50-0.25	33
Fine sand	0.250-0.125	24
Very fine sand	0.125-0.050	6
Silt	0.050-0.002	13
Clay	<0.002	12
Loss on ignition (% of oven-dry fine earth)		5.9
Calcium carbonate	%	T
SOIL TEXTURE		SANDY LOAM

T = TRACE

THESE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED

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