

Feasibility Study

Client: Knowsley Council

Project: New Hutte Neighbourhood Centre

Location: Halewood, Liverpool

Report date: 28/07/2025

Consultant: Joe Woodcock

Revision: 0

CONTENTS

ISSUE INFORMATION	3
REVISION RECORD.....	3
1.0 INTRODUCTION	4
2.0 DESK-BASED STUDY.....	5
3.0 ON-SITE APPRAISAL.....	9
4.0 DISCUSSION.....	12
5.0 RECOMMENDATIONS	14
6.0 OUTLINE MAINTENANCE OPERATIONS	16
7.0 INDICATIVE COSTS	17
8.0 HEALTH AND SAFETY	18
9.0 RECORD OF SITE CONDITIONS.....	19
APPENDIX 1 – PROPOSED SITE LAYOUT	24
APPENDIX 2 – SOIL ANALYSIS RESULTS	25

ISSUE INFORMATION

This feasibility study report has been produced in good faith for exclusive use by Knowsley Council and other stakeholders in relation to the potential improvement works of the New Hutte Neighbourhood Centre Playing Fields, Halewood. 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:	Knowsley Council
Project:	Neighbourhood Centre Playing Fields
Location:	Halewood, Liverpool
STRI Ref:	J007674
Doc Title:	Feasibility Study
Date of Inspection	25/06/2025

REVISION RECORD

Revision record (Revision '0' being the original)

Revision Record			
Revision Number	Date of Issue	Reason for Revision and Comments	
0	28/07/2025	Original issue	
Author	Joe Woodcock	Checked By	Greg Whately
Date	24/07/2025	Date	25/07/2025

Signed

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1.0 INTRODUCTION

1.1 Appointment information

STRI have been appointed by Knowsley Council to carry out a feasibility study at the Neighbourhood Centre Playing Fields in Halewood, Liverpool.

1.2 Context to site appraisal report

STRI previously worked with Knowsley Council to undertake a site appraisal report in October 2024, concerning the proposed redevelopment of Grace Park, situated adjacent to the New Hutte Neighbourhood Centre. As part of the redevelopment, a retail unit is proposed on a section of the existing natural turf areas at Grace Park. Therefore, the New Hutte Neighbourhood Centre playing field area has been identified as a suitable site to mitigate the partial loss of natural turf playing fields at Grace Park.

1.3 Proposed improvement works

The New Hutte Neighbourhood Centre playing fields have been reportedly poorly draining during the winter months therefore this playing field area has been identified to be improved so the site can accommodate more winter sports usage during the winter months and improve the all-round usability.

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 any proposed development works.
- To determine any practical constraints to any proposed development works.
- 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 Site Location

Site address:	New Hutte Neighbourhood Centre
Site postcode:	L26 1TT
Site grid reference:	SJ 44467 84806
Local authority area:	Knowlsey Council



Figure 1 Aerial photo of site

2.2 General

Hereafter, the area within the scope of this report as illustrated in Figure 1 shall be referred to as 'the site'.

The site demarcated within the red line above was directly bound to the north and east by vegetation that was overgrown along with some mature trees particularly within the east of the site. Directly beyond these areas was residential housing.

Located directly south and west of the site was the New Hutte Neighbourhood Centre building along with some car parking. This car parking area was the only location in which the playing field could be accessed via car or foot traffic. The nearest road to access the site was located to the west (Lichfield Road).

2.3 Site information

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

Existing land use:	Playing field area	
Existing sports facilities :	No winter sports pitches were marked out at the time of the visit however an informal Cricket pitch was marked out at the time of the visit. No formally constructed square or artificial surface was observed.	
Historic land use:	Playing field area	
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

2.4 Site access

The playing field area can be accessed via the car park located to the south of the site. This car park is subsequently accessed via the main site entrance located off Lichfield Road to the west.

2.5 Climate

The following information has been obtained from the Met office website using data from Keele, the nearest official Met Office climate station, approx. 4 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
69	57	53	50	52	64	65	72	76	90	82	92	824
England average												870

2.6 Flood risk

The following information has been obtained from Environment Agency Flood Risk Maps (see Figure 2). The site is located within Flood zone 1 therefore there is a low probability of flooding.

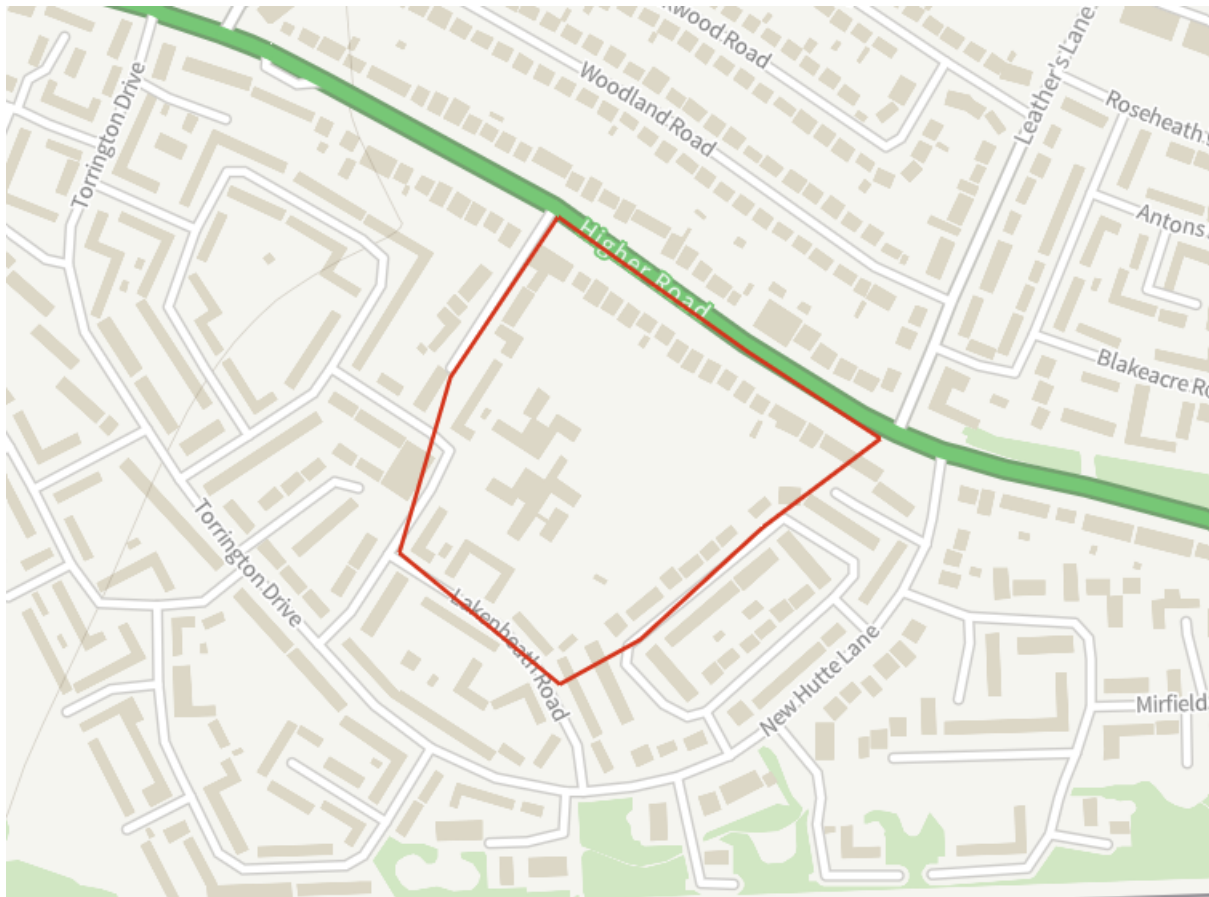


Figure 2 – Flood risk for planning maps

2.7 Previous ground investigations

No previous ground investigations have been made available to STRI.

2.8 Geology

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

The LandIS Soils Vues Viewer indicates that the native topsoil on-site likely falls under Soilscape 18. This is classified as: "Slowly permeable, seasonally wet, slightly acid loamy and clayey soils".

2.8.1 Made Ground

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

2.8.2 Superficial deposits

The BGS mapping indicates that Till, Devensian deposits are present.

2.8.3 Bedrock

The BGS mapping indicates that Wilmslow Sandstone Formation is located across the entire site.

2.9 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:	A pond has been identified with the BGS map viewer located to the east of the playing field area. No pond was observed at the time of the site visit due to restrictive access.
Water bodies within site boundary :	No watercourses were observed within the site boundary.
Distance to coastline:	N/A

2.10 Topography

The existing site levels and gradients were assessed by reviewing topographic survey data carried out by STRI.

The overall gradient of the playing field area was falling in a west-east direction and averaged between 1:100-1:200. The gradient was falling from west-east however consistency was lacking towards the eastern boundary of the site with one area falling north and another area falling south.

Sport England guidelines states that 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.

2.11 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.

2.12 Proposed usage levels

The exact usage levels of the site are unknown at this point. It is known however that the playing field area will look to accommodate junior football matches during the winter months.

3.0 ON-SITE APPRAISAL

3.1 Surface Levels

3.1.1 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 across the entirety of the playing field area.

3.1.2 Surface evenness

Surface levels were good in all areas of the playing field area with no major deviations noted in any areas that could impact health and safety.

3.2 Existing vegetation

General:	Existing vegetation was noted to be mown playing field area with a variety of broadleaf weeds observed such as clover (<i>Trifolium</i>), Daisy (<i>Bellis perennis</i>) and Yorkshire fog (<i>Holcus lanatus</i>). Grass height was recorded to be approximately 40 mm and appears that the playing field area is regularly mown with no excess grass clippings observed.
Agronomic condition:	The agronomic condition of the playing field area was moderate with a high number of broad leaf weeds dominating the surface therefore indicating that little to no key maintenance practices are carried out such as aeration, sand topdressing, fertilising, scarifying and selective herbicide applications. This is to be expected though as the playing field area is only currently used on a recreational basis.
Invasive species:	There were no invasive species identified within the site at the time of the visit.

3.3 Trees

Some mature trees were located along the northern and eastern boundaries however was primarily overgrown vegetation along this boundary. A higher number of mature trees were located along the eastern boundary.

No trees were located within the area where the proposed improvement works were identified to take place.

3.4 Ground conditions

Ground conditions were very dry at the time however is important to state that the visit was carried out during the summer month of June where rainfall is naturally lower than other times of the year. It has been reported by the client that the ground conditions are soft during the winter months particularly within the eastern area of the playing field area.

3.5 Site soil conditions

3.5.1 Soil profiles

3.5.1.1 Visual assessment

A series of trial pits were excavated by hand at various locations (see Figure 3 below) to confirm the nature of the underlying soil profile. In summary, there was a consistent dark brown sandy loam topsoil across all three test pits excavated. The depth of topsoil was measured to be on average 200 mm and grass rooting extended to a maximum of 90 mm.

The dark brown sandy loam topsoil was overlaying an orange clay subgrade with a clear distinction apparent between the topsoil layer and subsoil layer. No waterlogging was noted in any of the test pits excavated and no contaminants were noted in the form of pottery or glass.



Figure 3 – Trial pit locations

3.5.1.2 Laboratory soil analysis

One representative sample of topsoil was collected from the trial pits 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 2.

Sample location:	Representative Soil Analysis
Laboratory reference number:	A21232/1
Soil texture:	Sandy Loam
Sand (%)	57 (21% fine sand)
Silt (%)	28
Clay (%)	15

3.6 Drainage

3.6.1 Existing drainage features

Observations made through google time lapse showed that there are no indications of any existing drainage across the playing field area in the form of droughted turf lines. No observations were also made when attending the site that showed any drainage networks across the playing field area.

A 'French drain' was observed within the south of the playing field area located in the corner and measured approximately 10 – 15 metres running adjacent to the eastern boundary. This drain appeared to be backfilled with a large MOT aggregate material however it is unknown if any pipe work is underneath the aggregate material.

3.6.2 Potential drainage outfalls

As discussed within the table in Section 2.9, a pond was identified when looking at the BGS map viewer within the east of the site. This pond was not identified on site due to restrictions on access through fencing and overgrown vegetation. This area would need to be cleared to observe the depth of the pond and to understand its capacity for holding any water from any proposed pitch drainage system.

A 'French drain' was also located in the southern corner of the playing field area however it would need to be understood if any pipe work is located underneath the MOT aggregate material.

Manholes were discovered however not opened at the time of the site visit and are thought to be connected/related to the building within the south/west of the site. This wider scheme could also be used as a connection point however the relevant permissions would have to be sought before any connection can be made.

3.7 Existing structures

No existing structures were located within the site boundary however a main building was located to the south/west of the site.

3.8 Utilities

A full utilities search was not included as part of this feasibility study report.

4.0 DISCUSSION

The following points should be considered as part of any potential improvement works of the existing playing field area:

- The existing playing field area at New Hutte can accommodate a junior 9v9, 5v5 and 7v7 football pitches with the proposed layout seen within Appendix 1 of this report. However in order to accommodate the pitches the 7v7 junior pitch would have to be played within the 9v9 pitch as there is not sufficient space for 3 independent pitches within the playing field area. The proposed layout also avoids a potential clash with a proposed play park that could be located within the south of the playing field area.
- The site assessment has concluded that if the area is to be brought back into use for winter sports, it would be recommended that a network of primary drainage would be required to provide a drained playing field area. The LandIS Soilscales Viewer indicates that the existing soils are “Slowly permeable seasonally wet” which further increases the need for a primary drainage system to be implemented across the playing field area. A primary drainage system would mean that the playing field area will be able to sustain a high number of hours in relation to usage.
- The existing topsoil was tested by STRI and shows that a sandy loam material is present across the playing field area with a high number of fine particles present such as silt (21)%. The high number of fine particles shown in results show that drainage potential is limited particularly if winter sports are going to be played along with increasing the usage levels therefore further highlighting the need for a primary drainage system to support any increased usage of the playing field area. An orange clay subgrade was observed underlying the existing topsoil material further decreasing drainage potential.
- The topography of the playing field area was judged to be within Sport England gradient guidelines with no isolated areas noted to be steep or shallow in relation to topography. Surface evenness was good in all areas of the playing field area as well. This would mean that no major earthworks are required to bring any of the playing area within Sport England gradient guidelines. The majority of the playing field area did slope from west-east however there were some minor falls in different directions once closer to the eastern boundary of the site. Minor re-grading works may be required to create more of a consistent fall in a single direction if any primary pipe drainage is to be installed as part of any future works. The requirement for minor re-grading would be picked up at the detailed design stage.
- If a primary drainage system is to be implemented across the playing field area, a relevant connection point would need to be confirmed prior to any works commencing. As discussed within this report, the existing pond could potentially be used to the east of the site however this was overgrown at the time of the visit so further investigations would be required to understand if this pond is deep enough and has the capacity to hold any pitch drainage. A ‘French drain’ was also discovered in the south of the playing field area however further investigation would be required to understand if a pipe drain is located underneath the MOT aggregate material or the stone is simply there to act as a soakaway. Another potential option is to connect into the wider scheme connected to the building located within the south/west of the site with manholes discovered at the time of the visit however these were not opened.
- Before any works are to be carried out, the extent of the existing drainage infrastructure and potential outfall options would need to be determined.. It would be recommended that a primary drainage system is to be installed in particular the area demarcated by the red line in Figure 4 below. . This is because this is where the pitches will be marked out and is also historically the wettest part of the playing field area. A play park is also to be potentially developed within the area marked blue of the proposed layout seen within Appendix 1 of this report. The area of playing field area located directly adjacent to the south of the car park could be extended.

- A secondary drainage system may have to be implemented further down the line dependent on any increased usage levels however this can be done outside of any original scope of works.
- Any works access can be gained via Lichfield Road however it would need to be agreed with the council and the neighbourhood centre that the car park located to the back of the building would not be used by the public and closed for plant equipment and materials storage.
- It would be anticipated that the works would take approximately 1-2 weeks to complete dependent on suitable ground and weather conditions with the playing field recommended to be unused for approximately 8-10 weeks prior to completion of the works to allow appropriate seed establishment along the drain line areas.



Figure 4 – Priority area to be drained

5.0 RECOMMENDATIONS

5.1 Improvement works for the playing field area

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. Minor re-grading may be required as part of the works and would be determined as part of any detailed design works.

5.1.1 Initial site works

The surface vegetation should be treated with a selective-based herbicide in line with current legislation and COSHH guidelines. This will treat any broadleaf weeds within the playing field area.

5.1.2 Pipe drainage installation

It is recommended that a primary pipe drainage system be installed comprising of a series of lateral drains running across each area. These would then connect into main carrier drains.

The lateral drains should be installed at specified intervals across the pitch areas to collect and discharge surface water.

Drain trenches would be formed using a chain trencher or tractor mounted wheel type trencher.

Lateral drains should connect into a network of main carrier drains to transport surface water to a suitable outfall location. All pipes should be connected using purpose made junctions.

Once the pipes have been laid and connected the trenches should be backfilled with a clean drainage aggregate.

The proposed drainage design should include the provision of silt chambers and inspection chambers at strategic locations along the line of the main carrier drains.

A sealed outlet drain would be installed, this extending from the final chamber to connect to the wider drainage scheme.

5.1.7 Seeding

Once a suitable level has been reached for drainage system, seed should be sown with a seed mixture containing hard wearing cultivars of Perennial ryegrass (*Lolium perenne*) along the drain line areas.

5.2 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.

Topographic survey	No	Topographic survey carried out by STRI.
Flood Risk Assessment (FRA)	No	
Geotechnical investigation	No	
Infiltration testing	Yes	Yes if a soakaway is required.
Arborocultural survey	No	
Ball strike risk assessment	Yes	If any sports like Cricket are to be introduced to the site.
Utility plans	Yes	Required as the design develops.

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.
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5.3 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	Unused playing field area.			
2	Historic land use	Playing field area.			
3	Land designation	No land designation known.			
4	Site access	Access is currently gained to the west of the site.		Access off Norwich Road.	
5	Climate	Below 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	Earthworks required in the south east corner of the site for the additional U13/14 youth pitch.			

10	Ground conditions	Ground conditions were saturated at the time of the visit.		Sports pitch drainage will be required.
11	Contaminated land	No contaminated land.		
12	Proposed usage	Proposed usage levels unknown.		
13	Existing vegetation	Existing vegetation is very poor with few fine species present.		Good level of maintenance should be carried out in the future.
14	Trees	Trees located along the eastern boundary.		Root protection areas required limiting the extent of earthworks.
15	Site soil conditions	Sandy Loam.		Orange clay subgrade limiting drainage potential.
17	Existing structures	No existing structures within the site boundary.		
18	Utilities	Presence of utilities unknown.		Utilities survey to be identified.
19	Drainage discharge locations	Drainage outfall unknown at this point.		

6.0 OUTLINE MAINTENANCE OPERATIONS

The following maintenance operations should be considered as part of an ongoing maintenance regime for the site. 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 soil 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 and secondary drainage systems continue 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. High wear areas should be overseeded with the same seed mix during the playing season if required.

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 INDICATIVE COSTS

It is assumed that the works would be undertaken by a specialist sports ground contractor who would have the necessary plant and experienced personnel to undertake the work. The indicative cost estimates for the works are based on the current rates for similar works carried out by specialist contractors. The following are indicative only and are intended to provide a rough estimate of project costs. Contractors' actual rates may vary and will fluctuate depending on material and labour costs at the time of pricing. Exact costs shall be determined by the scope of works and the finalised design, which has yet to be developed.

Based on costs received for similar projects, our indicative cost estimates for the various improvement works are set out below for the indicatively marked out working area within Figure 4 of this report.

Item	Indicative cost estimates
Pitch development works (Selective herbicide application, primary drainage installation, seeding of the drain line areas)	£38,000.00
Sub -Total	£38,000.00

It should be noted that the above costs would be exclusive of VAT.

If any onsite soakaway testing is undertaken by a specialist company, then this would typically be approximately £2-3k to complete with a follow up report.

The above costs do not include the installation of any attenuation measures which would be subject to infiltration testing confirmation on connection into a suitable outfall.

When tendering for such works, it is normal practice to allow for a 10% contingency sum to cover any unforeseen costs which may arise during the course of the works.

The above costs do not include for detailed design and formulation of specification of works and drawings

8.0 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

9.0 RECORD OF SITE CONDITIONS



Photo 1: View looking west



Photo 2: French drain



Photo 3: View looking north



Photo 4: Broadleaf weed cover



Photo 5: Drainage manhole



Photo 6: Overgrown vegetation at the lowest part of the site



Photo 7: Mown out Cricket wicket



Photo 8: Excavated test pit



Photo 9: Excavated topsoil



Photo 10: Northern boundary

APPENDIX 1 - PROPOSED SITE LAYOUT





STRI Ltd, St Ives Estate, Bingley, West Yorkshire, BD16 1AU

SOIL PARTICLE SIZE ANALYSIS

CLIENT:	KNOWSLEY COUNCIL, NEW HUTTE PLAYING FIELDS	DATE :	10/07/25
		RESULTS TO :	JW
DESCRIPTION:	TOPSOIL	SAMPLE NO :	A21232/1

CATEGORY	DIAMETER mm	%
Stones	>8	0
Coarse gravel	8-4	1
Fine gravel	4-2	T

Particle size distribution of mineral matter smaller than 2mm

Very coarse sand	2-1	T
Coarse sand	1.0-0.5	3
Medium sand	0.50-0.25	16
Fine sand	0.250-0.125	21
Very fine sand	0.125-0.050	17
Silt	0.050-0.002	28
Clay	<0.002	15
Loss on ignition (% of oven-dry fine earth)		5.2
Calcium carbonate	%	NIL
SOIL TEXTURE		SANDY LOAM

T = TRACE

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

