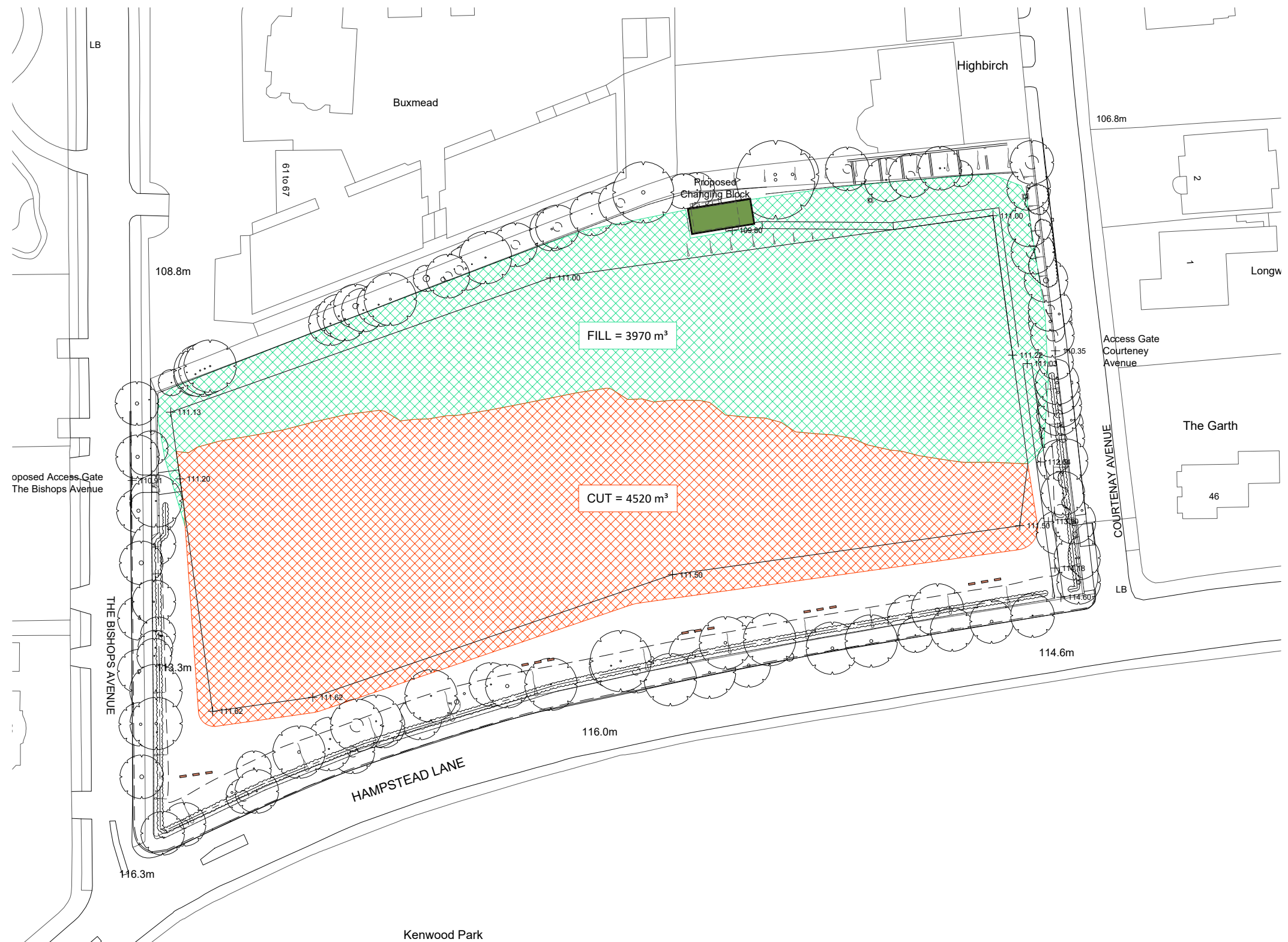


3.1.5. Improving Ecology & Bio-diversity

As a regularly and fully maintained grass sports field the Far Field site has naturally a very low flora and fauna value at present, despite being adjacent to the Hampstead Heath Woods SSSI; the presence of Hampstead Lane forming a distinct barrier. The proposed STP has been designed carefully not to compromise any existing mature trees, avoiding tree root zones as demarcated by the Arboricultural Consultant.

Fig. 38: Proposed site plan showing existing & proposed landscaping features



An appraisal by the School's Ecological Consultant outlines measures that can be taken to improve the value of the site to wildlife and encourage biodiversity. The grassed areas around the new pitch will be retained as wild flora seeded meadow grass rather than the maximum-wear sports-turf grass. The areas of existing banking are intended to be planted with a new hedgerow to provide an improved wildlife corridor link between the Heath and Highgate Golf Course. And, to add nesting and feeding opportunities with indigenous wildflowers and understorey species, to develop an integrated invertebrate hibernacula or refuge. The northern bank in particular will be fenced-off completely, and only entered by the School's expert in-house horticulturist for maintenance purposes.

3.1.5.1. Hedging

In conjunction with the School's Head Gardener, proposals for maximising the ecological value and biodiversity of the Far Field site have been refined. The proposals now include the planting of a hedge around the perimeter of the field, consisting of high ecological value species such as:

- ▶ Hawthorn
- ▶ Blackthorn
- ▶ Buckthorn
- ▶ Field Maple
- ▶ Hazel
- ▶ Beech
- ▶ Holly
- ▶ Spindle

The planting will include a variety of plants along the hedge bottom, for example: Dog's Violet, Garlic Mustard, Dead Nettles and Hedge Woundwort.

3.1.5.2. Planting

The north and south embankments are to be planted with specimen bushes as above, with two trees that are reaching the end of their life-span (Birch) to be under-planted with new staked standard trees. A tree condition report has been completed for Far Field. Major points are the ongoing maintenance of existing trees, problems with Sessile Oak moth infection and Ganoderma infection on Birch.

A heavy-shade wild flora mix is being considered for the northern, fenced embankment, together with seeding of Poppy and other selected flowering plants for the other grassed margins

3.1.5.3. Educational Value

The School has several eco-councils and gardening clubs, and is considering forming one for Far Field. Pupils will be encouraged to help plant the site, and could make & install bird, owl, bat boxes, log piles for slugs/insects to encourage hedgehogs.

3.1.6. Light Pollution

Low intensity lighting positioned at low-level and having not more than approx. 1 lux illuminance, to be controlled by sensors, will be sensitively located along pathways for safety and security reasons. There is therefore no relevant issue to be addressed in respect of light pollution.

3.1.7. Traffic & Parking

The School's use of the STP will not give rise to any additional parking or traffic issues. The increase in levels of use is intended to be through an annual total increase in hours available to pupils, who will access the site by foot from the main school. During the occasional sports fixtures visiting teams from other schools will continue to drop pupils in the vicinity as they do currently albeit for different sports fixtures such as hockey or netball.

3.1.8. Improving Perimeter Boundary

The existing boundary fencing to Far Field has already been replaced along the boundary to the north, and to Courtenay Avenue in 2018 and more recently in summer 2022 as part of a previous separate approval. The proposed scheme includes for improving the existing perimeter boundary generally along Hampstead Lane and The Bishops Avenue, with further inclusion of a boundary hedge kept below eye-level.



Fig. 39: Existing replacement railings to the Eastern boundary of Far Field, along Courtenay Avenue.

3.1.9. Ground Conditions

A series of technical assessments have been carried out by Hemstock Design Ltd to provide data on soil type and depth, soakaway tests, etc, for Far Field. Summary findings are given below.

3.1.9.1. Earthworks

The upgrading proposals include for re-levelling of the playing field area to give optimal gradients, tying-in with the existing cut-fill embankments imperceptibly. The proposed cut-and-fill operation is to reduce the slope diagonally across the playing surface from the current 1.5% to approximately 0.3%, bringing the surface within the recommendations of Sport England for a playing surface.

A series of computer-generated images (CGI's) have been produced based on the topographic survey, to realistically represent how the new STP will look when installed. These images have been shared with the wider community by the School as well as during consultations with the Haringey SUDS officers. The Arboricultural Consultant has provided a red and a blue rooting extent line on the accompanying drawings, demarcating a maximum root spread (blue) and a potential lesser root spread (red), around which the earthworks have been designed. Further root extent investigation by hand-digging and ground radar means is intended in the pre-construction stages.



Fig. 40: Existing photo beside proposed visual showing new STP surface achieved by proposed earthworks.



Fig. 41: Existing site drained area.

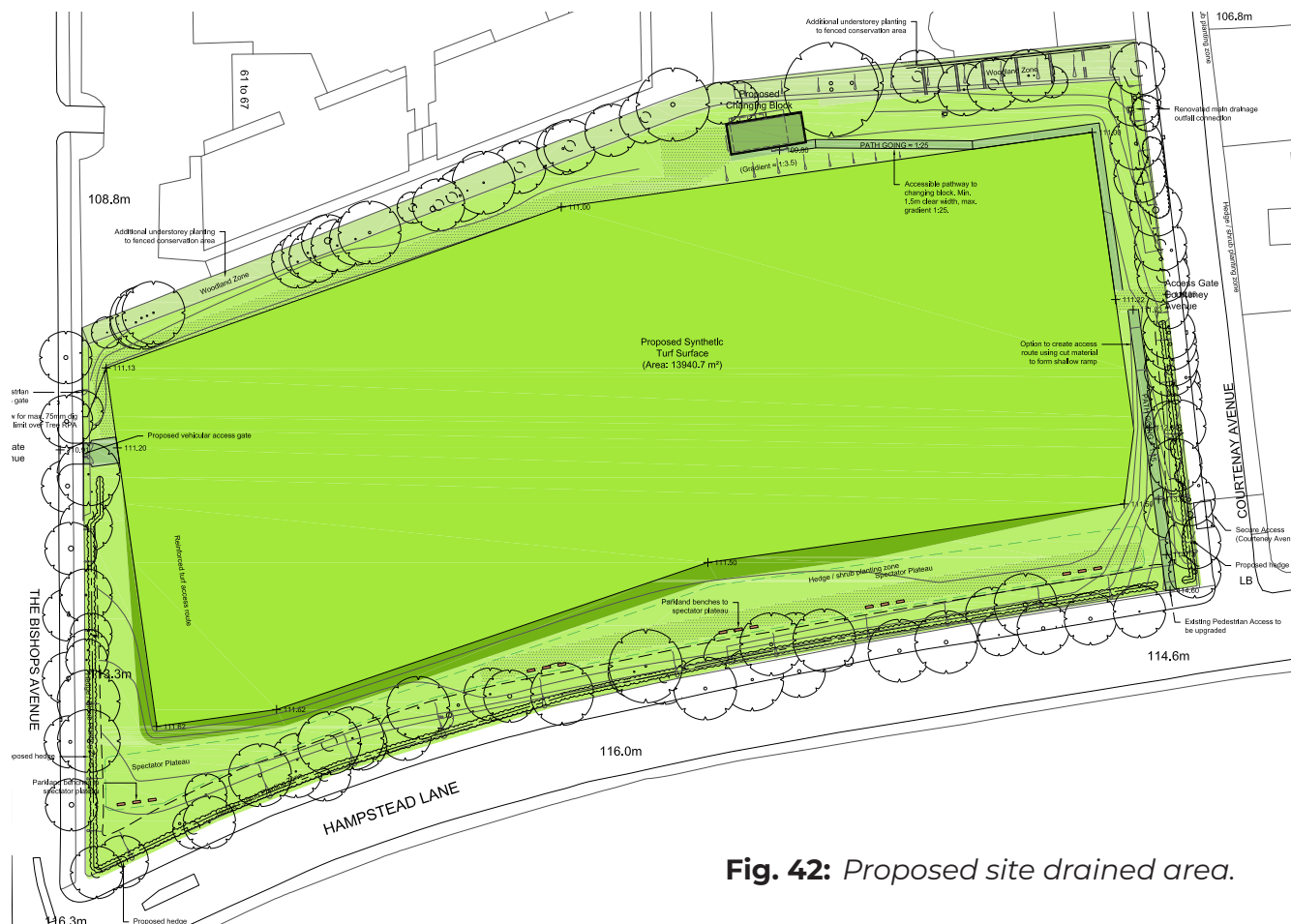


Fig. 42: Proposed site drained area.

3.1.9.2. Drainage & Hydrology

1. The proposed STP will include an effective 5-metre spaced lateral drainage system that will allow the surface to remain in use during periods of adverse weather. The provision of adequate drainage will ensure the quality and visual appearance of the synthetic surface is maintained over the long-term. The existing sports field drainage system has an established connection to the Thames Water surface water sewer at the lowest point of the field in the north-eastern corner. Peak flow attenuation is included in the design of the proposed system, which is to outfall into the existing 150mm outfall pipe running into the Courtenay Avenue surface water system.

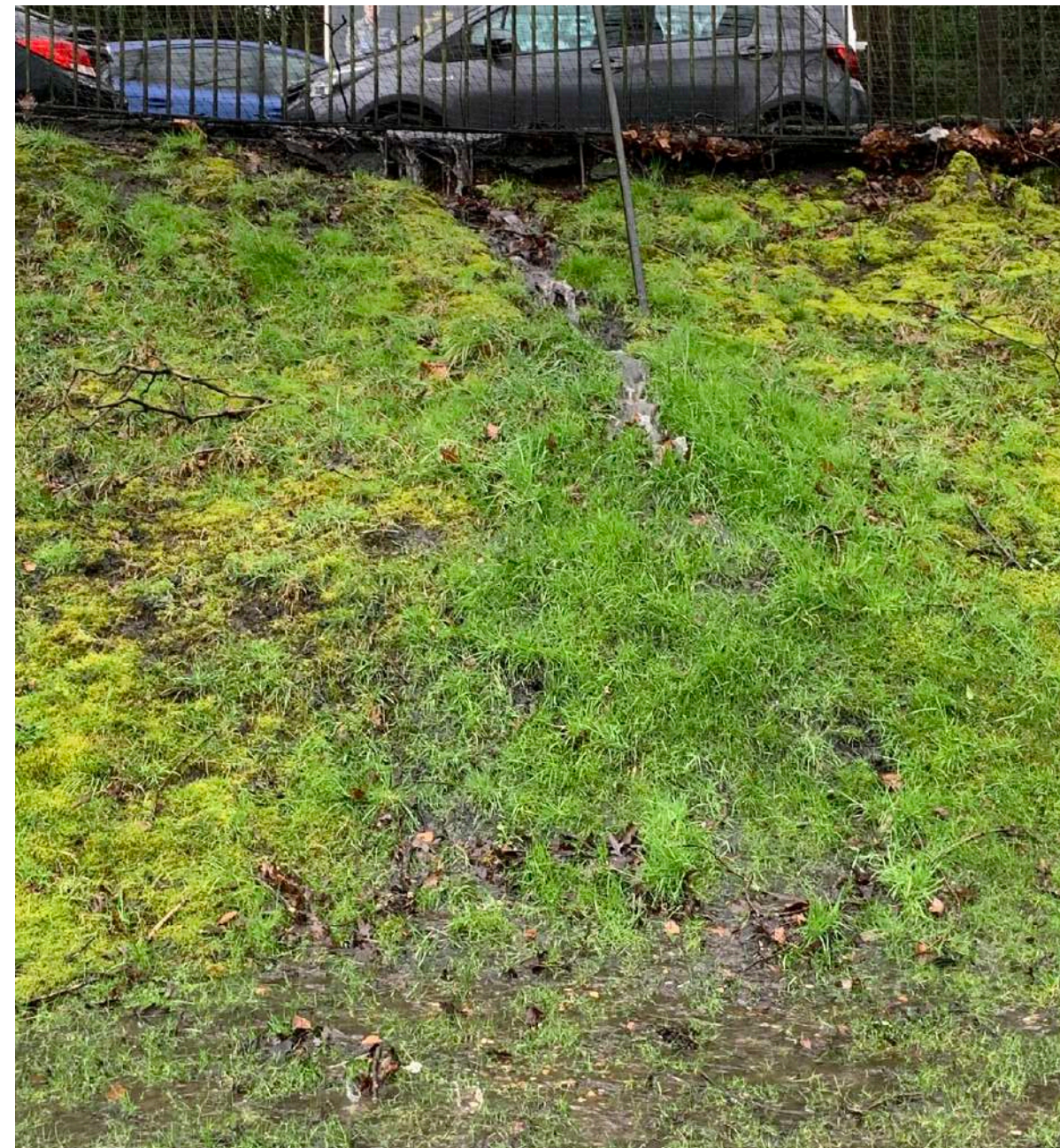
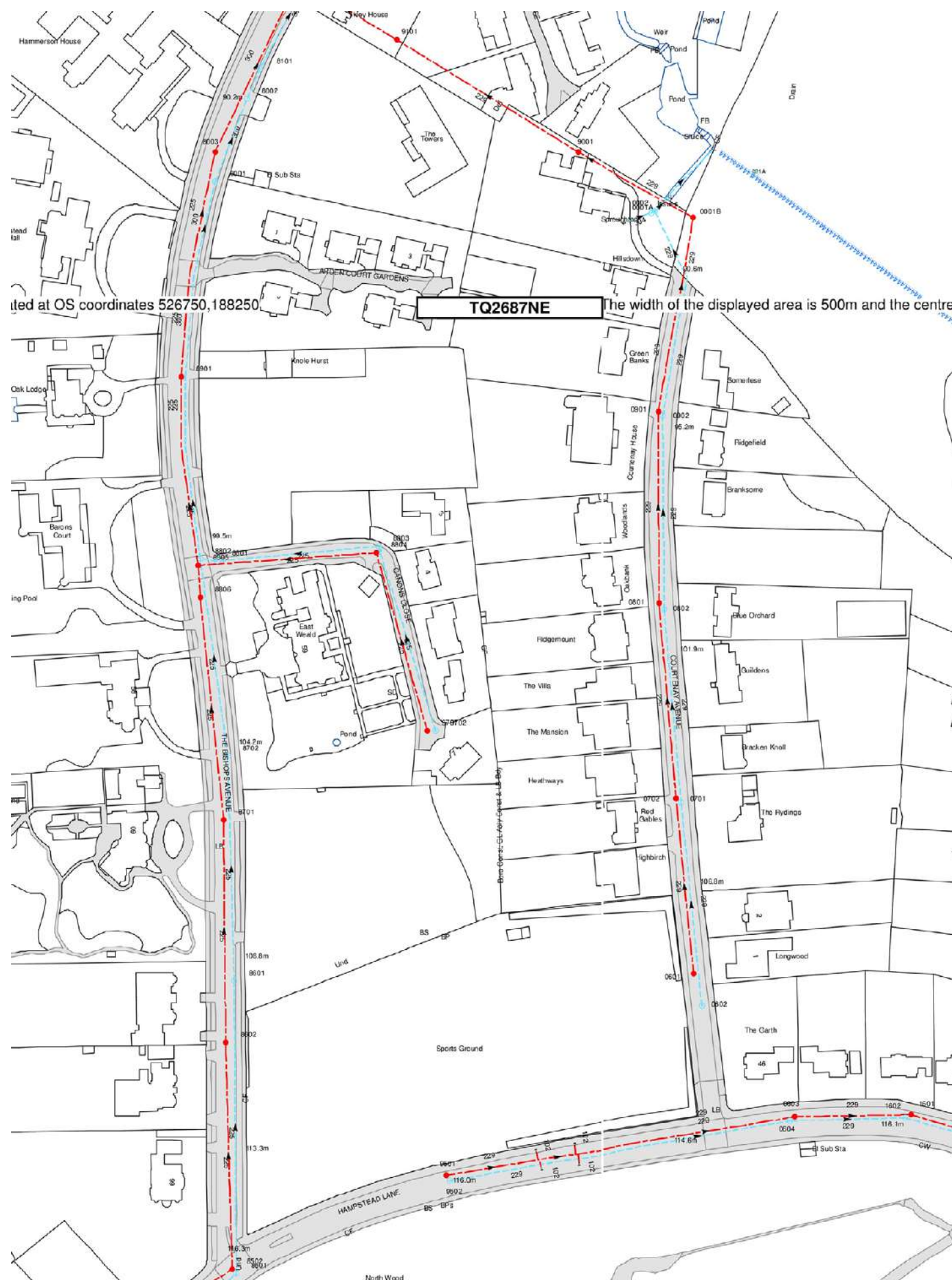


Fig. 43: Run-off onto Far Field from Hampstead Lane



2. A Flood Risk Assessment has been carried out by the Consultant Hydrologist. [refer to the Appendices]. Soakaway tests were carried out on Far field, indicating a very low infiltration potential into the subsoil, typical of a clay soil profile. Adequate attenuation has therefore been included in the hydraulic design, through surcharging capacity within the drainage layer base of the synthetic pitch and the permeable fill over the pipe system. The FRA calculations have been based on a minimum new synthetic pitch area of 7,000 sq.m. (FRA Section 4.4) That the synthetic pitch area is to be almost twice this also increases the subsurface attenuation capacity, pro-rata. The total site area remains the same, before and after development, at approximately 2.11 ha (FRA Section 1.2).

The peak flow from the existing site outflow point into the Courtenay Avenue surface water system will remain as the current peak capacity of the 150mm outfall pipe to transmit water. The calculations used are based on a factor in the Microdrainage calculation software equivalent to a 'porous car-park'. A table of peak flows is given in the FRA report. Allowing for a 20% climate change factor, the detailed drainage plan suggests that a drainage network and an underground storage layer will provide sustainable measure to manage surface water runoff. This FRA demonstrates that the proposed drainage strategy will not increase the risk of flooding from surface water runoff on the development site or to the surrounding area. This is in accordance with the London Plan 2016, the Sustainable Design and Construction Supplementary Planning Guidance (SPG), NPPF, NPPG and Defra Non-Statutory Technical Standards. The proposed drainage system will meet the LLFA's requirements

3. During a January 2020 site inspection in heavy rainfall conditions, the surface water flow onto and out of Far Field was observed. With the now ineffective existing drainage system, and the compacted topsoil layer that this leads to, uncontrolled and un-attenuated run-off was occurring in both the north-west corner directly onto The Bishop's Avenue, and the north-east corner directly onto Courtenay Avenue. In addition to this problem, significant run-off was observed flowing onto the south-east corner of the site from Hampstead Lane, this then adding to the run-off onto Courtenay Avenue. It is intended to liaise further with Haringey Council SuDs Department on the control of this run-off from the highway.

Fig. 44: Sewer asset location drawing (compiled from ALS/ ALS Standard/2014_2832379 - TQ2687NE, TQ2688SE, TQ2787SE, TQ2788SW).

Note blue dashed line along Courtenay Avenue referring to existing surface water drain utilised by existing Far Field drainage system.

3.1.10. The Synthetic Turf Pitch

Research into the current STP options is ongoing during the project development stages, however, the favoured solution for the proposed pitch construction is for durable and high-quality products from leading manufacturers.

The profile of the pitch construction will be as shown in the cross-section below, carpet and shock-pad laid over a macadam base for maximum longevity. The depth of the permeable fill or drainage layer is calculated to provide for the required peak flow water storage.

Fig. 45: Typical synthetic pitch carpet (no permanent white-lining for Far Field)



Fig. 46: 3D Cross-section of 3rd Generation Synthetic Turf Pitch; construction and drainage.

4. Proposal Merits & Conclusions

Fig. 47: Far Field 'before and after' visuals; topographical survey based images of the existing pitches (left) and the proposed re-graded view (right).



The driving force behind this proposal is the need to accommodate dedicated hockey facilities and the flexibility to play a wider range of sports in view of changing requirements in school sports and to provide such sports and outdoor activities in all ground and weather conditions. The new STP surface on Far Field will allow better programming of a range of outdoor activities:

- ▶ Full-sized hockey pitches and an adequate number of tennis or netball courts which will widen the sports available and free-up indoor areas and the existing sports fields on the Bishopswood Road sites STP for other sports; removing the need to transport pupils by coach to other sites at short notice when the grass pitches are unplayable due to wet conditions.
- ▶ Children within the community will have access to a wider range of activities on a year round basis.
- ▶ Sports can be programmed with substantially reduced risk of cancellations due to the need to accommodate external sports due to ground conditions.
- ▶ The development of Far Field is needed, since the playing field has an existing failed drainage system, is based on the wear-limiting London Clay type of topsoil, and fails Sport England basic parameters for playing surface quality.
- ▶ Additional benefits arising from the proposed scheme are that there will be an ecological benefit from the planting proposals, run-off onto and out of the site will be controlled, and current pedestrian traffic through the security gates on Courtenay Avenue can be avoided altogether.

The STP will address existing, identified deficiencies in provision on a site that is already in educational/recreational use. The proposal will provide an opportunity to improve the value of the existing facilities, not just for school pupils but also for local children. Multiple use of facilities, including those belonging to schools, is supported by the social inclusion policies set out in sections 3 and 4 of the London Plan.

Shared use of facilities is strongly encouraged by the development plan. The STP will make more efficient use of an existing facility in an urban situation, potentially avoiding the need for land take elsewhere.

The site does not lie within the setting of listed buildings and has been designed to conserve and enhance the character and appearance of the Conservation Area.

The existing site already accommodates three playing pitches, an all-weather cricket wicket, and provisions for track and field sports. Modern expectations in respect of hockey, tennis and netball can no longer be met on grass-based surfaces, particularly due to changing weather patterns. Change has to be accommodated and it is considered that in this case the STP is compatible with the MOL and Conservation Area status of the area.

Please refer to the Planning Statement for more detail (page 10).

Fig. 48: Photograph of existing Far Field taken from pavement level on Hampstead Lane, by the South East corner of the site (Spring 2022 - prior to the recent railings replacement as part of planning consent HGY/2018/1310)



Fig. 49: Visualisation of replacement boundary railing, reinstated pedestrian access with gate, low-level hedgerow, and proposed works to pitch area.



5. Supporting Information

5.1. Hydrology

5.1.1. Haringey Council SUDS Requirement

Several meetings have been held with the Haringey SUDS department, who have been very supportive of the aims of the School in improving the Far Field site, and in helping to determine the drainage status of the site, the outfall options and potential for SUDS drainage.

5.1.2. Detailed Investigation into Site Outfall

See report in addendum, document reference:

- ▶ Hemstock Design Ltd
Highgate School Site Assessment Of The Far Field Outfall. Date: 17/12/2019

5.2. Arboriculture Report & Drawings

5.2.1. Arboricultural Impact Assessment Report

See report in addendum, document reference:

- ▶ SJ Stephens Associates
Arboricultural Impact Assessment. Date: 03/04/2020

5.2.2. Tree Root Protection Areas

Earthworks for synthetic turf pitch construction carefully designed to avoid impact upon root protection areas of existing trees.

Refer to Fig. 38 on page 33.

5.3. Ecological Reports

See report in addendum, document reference:

- ▶ Applied Ecology Ltd
AEL1616_FarFieldPEA_v6.0 - Far Field, Highgate School, London: Preliminary Ecological Appraisal. Date: November 2022.

- ▶ Applied Ecology Ltd
AEL1616_FarFieldBNG_v1.0 - Far Field, Highgate School, London: Biodiversity Net Gain Assessment Report. Date: November 2022.

5.4. Lifecycle Assessment

See report in addendum, document reference:

- ▶ Eight Versa Ltd
Lifecycle Assessment Scenario Comparison - Far Field, Highgate School. Date: 13/12/2022

5.5. Archaeological Report

See report in addendum, document reference:

- ▶ Compass Archaeology
Highgate School - Far Field Sports Pitches, London Borough Of Haringey: An Archaeological Desk-Based Assessment. Date: March 2019

5.6. Flood Risk Assessment

The Far Field site FRA has been carried out by Hydrologist Alan Corner of Corner Water Consulting:

Far Field Playing Field Renovation, Highgate School, North Road, Highgate, London N6. Flood Risk, Surface Water and Foul Drainage Strategy

Reference CWC089 28/6/2022

5.7. Transport Statement of August 2021

See report in addendum, document reference:

- ▶ Transport Planning Associates Ltd
Far Field, Highgate School, London: Transport Statement

5.8. Earthworks & Construction Methodology

The proposed re-levelling, drainage and STP installation work methodology is as follows. Construction Management Plan summary by Transport Planning Associates included in their Outline Construction Logistics Plan of August 2021.

5.8.1. Stage 1 - Access and Drainage

- ▶ Services location & marking. Resident notification, set-up of temporary access & storage, etc.
- ▶ Renovation of the outfall pipe from Far Field to Courtenay Avenue.
- ▶ Stabilisation of the embankment around the outfall chamber by re-grading.
- ▶ Preparation for the possible trenching work into Courtenay Avenue as part of the outfall pipe replacement, if required.
- ▶ Installation of a new main drain along the northern side of Far Field to aid basic drainage during the works. Install temporary sump if required.
- ▶ Removal of fencing and preparation of a temporary access off of The Bishop's Avenue. Installation of a Trackway temporary surface to the access points for construction traffic

5.8.2. Stage 2 - Earthworks

- ▶ Install wheel-wash tank plus pressure washer, new access point. Water supply needed. Sump to hold silt in the north-west corner.
- ▶ Road sweeper x 2 - depending on ground conditions/rain, regular operation to keep the roadways clean.
- ▶ D8 Dozer for topsoil strip and mounding, followed by in-situ cut-fill work.
- ▶ 20 tonne 360-degree tracked excavator to load topsoil into trucks. Estimated 2,400 tonnes of topsoil to export from site, or 4,320 tonnes.
- ▶ Topsoil removal - estimated 216 truck-loads.
- ▶ Subsoil re-levelling to overlap with topsoil excess removal
- ▶ Formation of the sub-grade of the pitch area, access ramp from Hampstead Lane pedestrian gate, and spectator platform.
- ▶ Estimated 1 to 2 months work on topsoil handling and cut-fill - up to 8 trucks removing soil in rotation, depends on weather, distance to travel with soil, etc.
- ▶ Potential requirement for lime soil stabilisation operation.
- ▶ Central no-cut/no-fill point to be used to drop-off stone, back-loading trucks with soil for most efficiency.
- ▶ Arboricultural assessment of tree root extent and protection through progress of the works

5.8.3. Stage 3 - Drainage and STP Installation

- ▶ Installation of lateral and cut-off land drainage pipes and permeable fill.
- ▶ Back-loading of trucks delivering clean crushed stone for drainage with topsoil if feasible. Estimated 300 truck-loads of drainage material.
- ▶ Installation of the macadam layer and levelling. Estimated 100 - 130 truck-loads.
- ▶ Installation of the shockpad and synthetic carpet, infilling.
- ▶ Re-seeding of margin areas with grass/flora mix, including fibre-reinforced rootzone for trafficked natural grass zones.
- ▶ Removal of temporary works items; fencing, tracks, etc. & renovation.

5.8.4. Stage 4 - Supplementary works

- ▶ Renovation of the Pavilion building
- ▶ Planting to the embankment areas
- ▶ Implementing biodiversity strategy along the embankment i.e. bat and bird boxes, deadwood and log piles as habitats for wildlife and bugs
- ▶ Upgrading of fencing and access gates
- ▶ Removal of residual temporary works items; fencing, tracks, etc.

5.8.5. Stage 4 - Maintenance Aspects

1. STP. The synthetic turf pitch is intended to be maintained to a very high level, to maximise the life-span and the day-to-day quality of play when under intensive use.

Keeping the surface clean will maintain the infiltration rate of the STP; therefore, preserving the attenuation versus run-off characteristics, as well as supporting the above aims. Preventing the build-up of fines in the carpet will reduce the likelihood of infiltration problems. Compromised infiltration can also give rise to mould and moss problems that are often controlled chemically, which the School wishes to avoid completely.
2. Drainage. Importance of maintaining attenuation over run-off is the primary aim of a regular drainage maintenance programme, including cleaning-out of silt chambers and maintenance of the outfall ditch to the northern boundary, keeping this free of leaf-mould build-up, and periodically jetting-out the main pipe(s) as required.
3. Vegetation. The wild flora zones of the site will be cut on a minimal basis, to allow flowering and seeding of the plants. In the initial few years, the re-planted embankments will be subject to an annual all-natural de-weeding and maintenance programme, as advised by the Arboricultural and Ecological Consultants.

Appendix A

- Biodiversity Enhancements -

artist-generated views with impressions of the proposed
wild flora seeded areas and pavilion living roof



Artist's impression – view looking east from the south-west corner





Artist's impression – view looking west from the changing pavilion living roof