LAND & WATER
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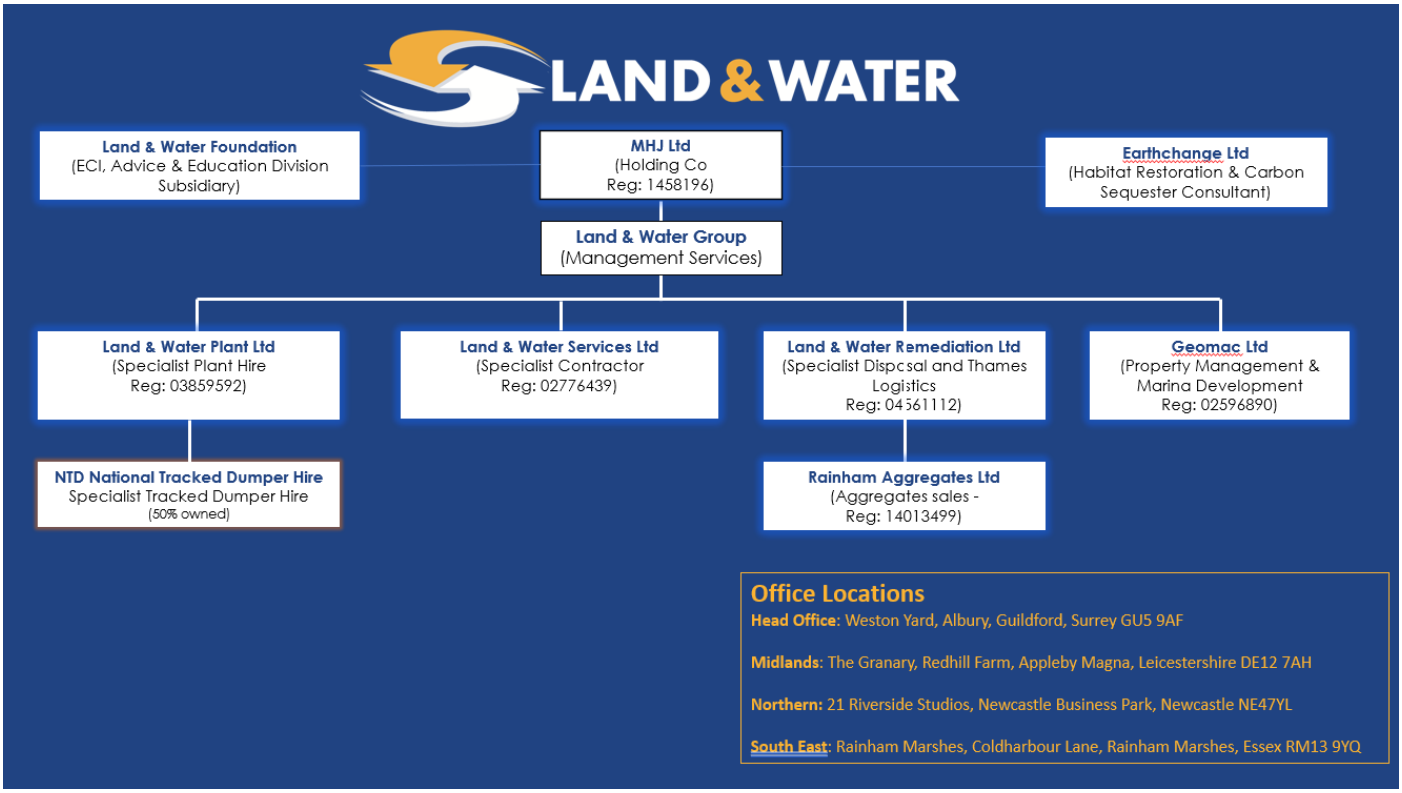
Nutfield Green Park

SUSTRANS 21; NUTFIELD LINK RESTORATION APPRAISAL

REFERENCE NO. 24-0342 NUT

LAND & WATER SERVICES – WHY USE US

Group structure



INTRODUCTION

The Land & Water Group is made up of individual yet complimentary companies. From Contract Services to plant hire, waste remediation and soft engineering material supplies we provide innovative solutions to improve the environments in which we work; "Helping Nature to Help Herself".

Land & Water Services Ltd is an award-winning inland waterway and coastal civil and environmental engineering company and an SME. Throughout our 35-year history, our name has become synonymous with finding creative and effective solutions to complex challenges in the specialist environment where land and water meet. Often working in sensitive habitats, our work is completed with sympathy for the local surroundings, people, and the environment.
Our specialism is working in areas of difficult access and ecologically sensitive areas requiring long reach, amphibious, low ground pressure and floating equipment to help manage risk profiles that others may reject.

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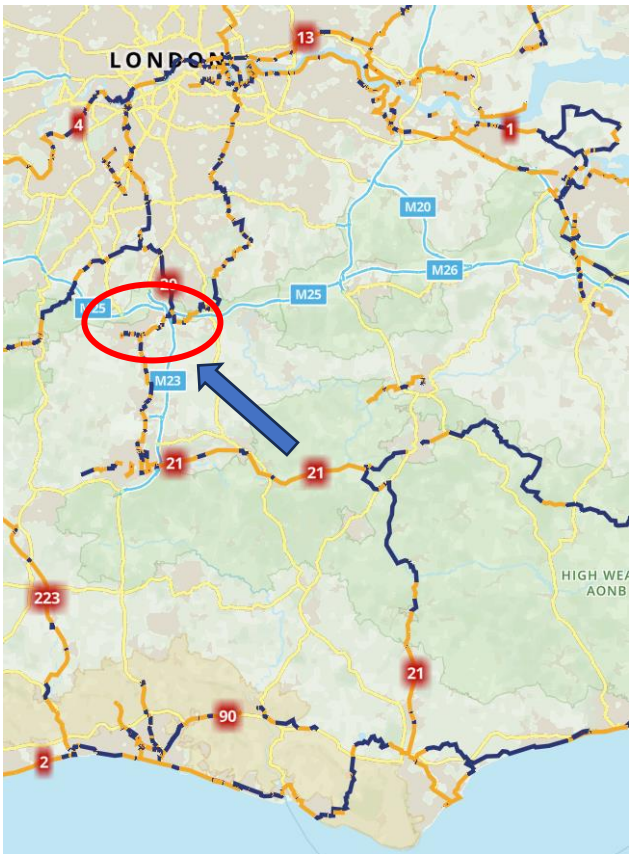
PROJECT BRIEF

Nutfield Park Developments Ltd is considering a wider strategy for the connectivity of its site on the northern edge of the village settlement of Nutfield, these plans will contribute to improving the sustainability of the sites' location and make a positive contribution to connectivity for the residents of Nutfield with the nearby town of Redhill. Currently, the only tangible option for residents to access Redhill on foot or bicycle from Nutfeld is along the pavement of the busy A25. The A25 carries traffic into and out of the settlement of Redhill and its traffic is augmented by the frequent passage of HGV's which service the Biffa landfill site at Cormongers Lane (which between Nutfield and Redhill). There is no designated cycle link between Nutfield and Redhill and the highway pedestrian path between the two settlements is inconsistent and requires the user to cross the trunk road to maintain a route to and from the town.

Nutfield Green Park (NGP) is located on the former Fullers Earthworks site (quarry and industrial site) to the immediate north of the village settlement and can offer a number of points of connectivity to the village centre and A25 to the south and the SUSTRANS 21 route to the immediate north of the site. The land in question is in single ownership, and subject to a planning application for a small area to be developed (approx.12 % being 7ha of the 58.9ha site) and the balance of the site is to be enhanced with nature conservation and public access in mind.

Figure 1; Sustrans 21 National Cycleway



Sustrans 21 is part of the designated national cycleway network and connects Central London to Eastbourne on the south coast, passing through Redhill and along the northern boundary of Nutfield Green Park. Locally the route provides direct connectivity to Redhill with bridges over the London/Brighton mainline railway to Redhill Station and Redhill town centre.

The section of Sustrans 21 between The Inn on the Pond Public House at Nutfield Marsh and the railway bridge at Cavendish Rd, Redhill is approximately 2507 lin m in length.

Generally, the eastern section from the public house to Cormongers Lane is on a tarmacadam road (Chilmead Lane) which services a small number of dwellings and has very low traffic demands. This section is 755 lin m in length and requires little maintenance or upgrade.

The western section of Sustrans 21 from Cormongers Lane to Cavendish Rd rail bridge is 1752 lin m in length and largely runs between the northern boundary of Biffa landfill at Cormongers Lane and the southern boundary of The Moors Nature Reserve and SSSI which is managed by Surrey Wildlife Trust (SWT).

The western section of the Sustrans route is in significant state of disrepair and requires sympathetic renovation to restore its suitability as part of the national cycleway network with careful consideration for the adjacent SSSI.

Figure2; Sustrans 21 Local Route Plan – Nutfield Marsh to Redhill Section

Orange Line denotes original Sustrans 21 route on a gravel path
Blue Line denotes original Sustrans 21 route on tarmacadom roadways
Red Line denotes approx. boundary to Nutfield Green Park

Land and Water Services Ltd (LAWS) have been asked to consider the feasibility, deliverability and cost implications of the restoration of the transport route and how to build nature into the easement as a regenerative contribution to the concept.

The brief extends to the costs and feasibility of improving some of the existing network of statutory and permissive only footpaths within Nutfield Green Park to a similar standard to that of the restored Sustrans 21 such that the residents of NGP and the residents of the wider Nutfield Settlement can travel through NGP and access the Sustrans from a number of separate access points along the NGP site boundary. Complimenting the sustainability of the location and assisting in a strategy of non-car transport to and from Redhill in a safe environment.

Figure 4; Cycle and Pedestrian Route Masterplan

Blue; Sustrans 21
Yellow; Internal Connecting Cycleway/ Footpaths (NGP)
Red; NGP Site Boundary

General Situation

LAWS undertook site walkovers and detailed assessments on 04.03.23 (in heavy rainfall) and 19.3.24 (dry conditions). The assessment of the route was after the wettest February on record.

In general, the easement of the cycleway is fully intact, however it is suffering from substantive lack of maintenance to the track surface, to the linear vegetation, to the bridges, signage and furniture. Notably the drainage infrastructure within the easement and the track is impacted by localised flooding from a lack of drainage maintenance from third parties alongside the route (most notably at The Moors SSSI).

With little or no impact, the route could be fully restored to a 2m wide, fine graded, stone surface suitable for cycles, push chairs, pedestrians, wheel chairs and power-assisted single person vehicles (scooters etc) without any changes to engineering, without the need to fell trees or move any significant infrastructure.

The ultimate objective being the restoration of easement and the delivery of a fully functional trail to link Nutfield to Redhill. Akin to the Camel Trail in Cornwall or similar (see image below)

Figure 5 Example access trail; Bodmin to Padstow – The Camel Trail

Recommended Works;

Eastern section (Public House to Cormongers Lane)

CH0- CH178. From the Public House Car Park to Chilmead Lane there is a 178lin m section of track which requires some surface vegetation cutting back, the potholes require filling with MOT type 1 stone and a top dressing of 8mm to dust limestone pathway gravel should be added. Signage at the pub car park and the cricket ground cottages should be improved.

CH178-755. From the Cricket Pitch to Cormongers Lane the surface is metalled and suitably wide for a cycleway, no further enhancements are proposed.

CH755-780. The exit from Chimead Lane and crossing at Cormongers Lane requires improved signage for road users and trail users. There is existing signage but it is insufficient/obscured by vegetation which requires cutting back to improve sight lines.

CH 780-850. From the Cormongers Lane crossing there is a 74m section of path which requires scraping clean, MOT type 1 stone pothole repairs and a 60mm topping of 8mm to dust limestone pathway gravel. The vegetation requires cutting back.

CH850-900. The Sustrans runs along the Cormongers Lane carriageway for approx. 45m and will require the removal of surface debris topping with 60mm of 8mm-dust pathway gravel and the vegetation cutting back. Improved signage and cosmetic improvements to the entrance "style" are recommended.

CH900-CH1100. The path requires some Type 1 stone dressing after the debris is removed and a topping of 8mmm to dust pathway gravel, a local ditch needs to be re-cut to drain ponded surface waters to the Redhill Brook (to the north).(*see arrow)

CH1100-CH1105. The bridge crossing the Redhill Brook appears structurally sound (bearers appear in good condition). Recommend to treat and paint the steel bearers and renew handrails and surface boarding – replace with hardwood equivalent

CH1105 – CH1545 There is good evidence of a stoned surface beneath the surface debris, scrape off the debris, address potholes as required, address local drainage to the adjacent Redhill Brook and top dress with 8mm to dust limestone pathway gravel and remove woody debris/dredge the Redhill Brook to prevent water spilling back onto the pathway.

Woody drebris to be removed and the Redhill Brook dredged to prevent the pathway flooding above the blockages (4no blockages observed) (*arrow denotes back-flooding)

CH1545-CH1565 The bridge at CH1545 is unsafe and requires a new hardwood surface deck and handrails, the steel beam bearers appear in condition but require surface treatment and painting.

HOWEVER; The bridge beams are partially submerged due to the Redhill Brook water levels being raised/backed up by choked vegetation downstream on "The Moors". The backing up of river water will accelerate decay of the steel bridge structure. It is recommended that the brook is dredged immediately downstream of the bridge to relieve water levels.

High water levels under the bridge cause the water to back up and flood the Redhill Brook above the bridge & onto the adjacent Sustrans and farmland.

Meadow flooding on The Moors as a result of waster spilling from the choked Redhill Brook.

CH1565-CH1645 localised flooding of the Sustrans downstream of the bridge is caused by waters backing up from the choked Redhill Brook alongside, dredging and debris clearance from the Redhill Brook is recommended to relive the flood risk.

Then remove surface silt and debris, pothole repair with MOT Type 1 and surface dress with 8mm to dust limestone pathway gravel.

CH1645-CH1953 localised surface flooding (can be addressed with Redhill Brook dredging and clearance), then remove surface debris and mud, place MOT Type 1 raise by 150mm, and top with 8mm to dust pathway gravel.

CH1953-2355 Generally the path is well defined and in good condition, general cut back of vegetation and side debris to 2m, pothole repairs with MOT Type 1, local drainage improvements and dress with 8mm to dust limestone pathway gravel.

CH2340-2355 A blocked culvert under the Sustrans is causing surface flooding and needs to be reinstated and the ditch to the north recut for 30m to relieve the flow (currently filled with leaves and debris)

CH2355-CH 2507 scrape back surface debris, MOT Type 1 pothole repairs and topping with 60mm of 8mm to dust limestone pathway gravel.

CH2507 Exit to Cavendish Rd Rail Bridge; Improve signage, demarcation. Remove weeds and debris and local patch repairs to the tarmac surface.

Works within Nutfield Green Park

All of the proposed new cycle path routes within Nutfield Green Park have been assessed, the five access points that will serve to link Sustrans 21 to Nutfield Village and the A25 total a length of 2696Lin m.

Figure 6 Shows the Network of New Access Routes Proposed Through Nutfield Green Park

All of the routes proposed align with existing public footpaths or existing permissive footpaths and can be installed without the need for land clearance and tree removal.

The current walking surfaces within NGP are not suitable for a national cycle-way standard path and will require a new formation/construction. The recommended construction detail would be a 2m wide track (minimum width) comprising a basal geotextile separator with 150mm of type 1 limestone base (or recycled equivalent) topped with 60mm of 8mm to dust limestone pathway gravel (a porous product).

Lighting Recommendation

To optimise the use of the new cycleway infrastructure we would recommend it is lit during the twilight and dark hours.

To minimise the impact of any access lighting we do not recommend the use of conventional streetlighting, but instead low level, solar powered bollards (1.2m high).

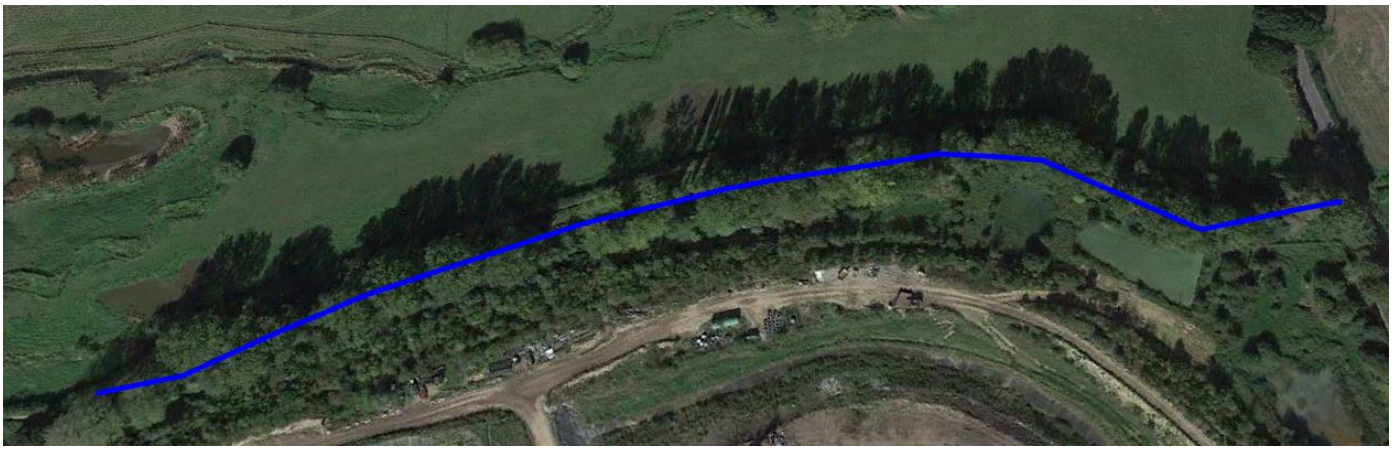
The bollards can be equipped with one direction only downward lighting and so can be positioned to illuminate the Sustrans/Cycleway surface but turned away from sensitive ecology and habitats. The bollards are equipped with a waist height PIR which turns on the two units on either side for 30 seconds only to allow the passage of a human on foot or pedal cycle, but above the levels of most ground/wildlife (preventing unnecessary illumination).

Bollard spacing should be at 20m centres.

River Restoration Works; Redhill Brook

For a distance of approx. 487m The Redhill Brook runs immediately alongside the route of Sustrans 21. The river is in a poor state of neglect. In multiple places it has been dammed or blocked by timber and debris to form makeshift crossing points for the public. Fallen timber Kriss-crosses the watercourse and the river has been contaminated with urban debris including traffic cones, shopping baskets, litter and an old bicycle. In addition, the lower branches of the adjacent Poplar plantation that abounds the adjacent landfill have not been managed and they now droop into and towards the watercourse, denying sunlight and stifling aquatic growth. The high proportions of debris in the watercourse are causing the water to "back up" and back-flood over the Sustrans, and in areas where the water has been slowed by the debris there is increased siltation and high levels of sediment deposition masking the true bed of the brook.

Section of Redhill Brook for Restoration (487 linm)



Examples and river blockages and in-channel (non-natural) debris;

To restore the river health and increase fluvial capacity we would recommend the following actions;

- Cut back (trim) adjacent overhanging vegetation (limbing only, no felling is required)
- Remove and dispose of timber debris and blockages
- Dredge the channel centre (retaining emergent edge aquatic vegetation) and remove the sediment from the watercourse entirely
- Remove man-made debris and obstructions
- Install localised gravels berms (8 no) and meanders to encourage self-cleansing flows and diversity of the restored riverbed suitable for macrophytes and indigenous rover species.

The actions proposed above will be subject to an Environment Agency FRAP consent which has a minimum determination period of 8 weeks.

The river restoration proposals are included within the Sustrans budget proposals as there are notable efficiencies to be gained by undertaking the bio-diverse enhancements of the river simultaneously to the cycle path works.

Budgets

A detailed topographical survey and some ground investigation works will be required to finalise a fixed cost for the restoration of Sustrans 21 and the new network of link-cycleways within. However the table presented below is our best estimate of the likely costs for the works including a 5-year maintenance plan.

	Sustrans 21 Restoration Master Budget					
1	Mobilise to site, Contractors plant , machinery and compound			sum		8,500.00
2	Establish Contractors Compound			sum		6,500.00
3	Contractors prelimonaries and Security	7,000.50	per week	24	weeks	168,012.00
4	Permanent and Temporary Works design inc investigations			sum		15,000.00
5	Restoration works CH 0-178	119.60	per lin m	178	Lin m	21,288.03
6	Signage Improvements CH 0-755			sum		8,500.00
7	Cormongers Lane Crossing Improvements and Signage			sum		45,450.00
8	Restoration works CH780-1100 and drainage works	145.77		320	lin m	46,646.08
9	Bridge repairs CH 1100			sum		16,400.00
10	Restoration works CH1105 -1545 and drainge works	145.77		440	lin m	64,138.36
11	Bridge repairs CH 1545			sum		24,240.00
12	Redhill Brook Dredging and Clearance SWT land			sum		18,974.00
13	Restoration and drainage works CH 1565-1953	145.77		398	lin m	58,016.06
14	Restoration works CH 1953-2355	119.60		402	lin m	48,077.46
15	Drainage works and ditching CH 2340			sum		11,435.00
16	Restoration works CH 2340-2507	119.60		167	lin m	19,972.48
17	Street Works and signage ch 2507			sum		6,352.00
18	General vegetation trimming and cutting back			sum		16,845.00
19	Signage improvements			sum		18,500.00
20	Low level lighting option	465.00	ea	265	no	123,225.00
21	New cycleways NGP	195.45	per lin m	2681	Lin m	524,001.45
22	River Restoration Works as proposed			sum		64,364.00
23	Demobilisation			sum		8,500.00
				Total		**1,342,936.92**

Further Recommendations

It will be necessary to open dialogue with Surrey Wildlife Trust regarding maintenance works to the Redhill Brook, we would recommend consideration being given to the installation of some further wetlands alongside the Sustrans on SWT's land which will provide additional flood storage capacity, provide further bio-diversity gains and improve the environment. The spoils from this activity could be incorporated into the cycleway improvements and provide further flood resilience to climate change. In this respect we have identified an ideal location for this improvement as highlighted below (flooded already by the poor drainage and choking of the Redhill Brook).

Figure 7. Potential Permanent Wetland (currently flood waters from the choked Redhill Brook)

Note;

The proposed restoration works to Sustrans 21 do not require any new engineering or significant infrastructure works, change to alignment or new structures, and largely represent the back-logged maintenance of an existing landscape feature, as such consideration should be given as to the need or otherwise for planning permission (save for the low-level lighting option).

The new cycleways within NGP will require planning permission and consideration should be given to this forming part of the main planning application for the site.

Conclusion

By liaison with Sustrans and Surrey Wildlife Trust the restoration of the Sustrans 21 to link Nutfield Village and Nutfield Green Park directly to Redhill is feasible, deliverable and sustainable. The works can be delivered with the minimum of impact and will use the existing infrastructure.

The restored link and new network of feeder cycleways will provide a sustainable, safe, vibrant and healthy link between Nutfield and Redhill and break the need to travel between the two along the busy A25.