

Narberth to Canaston Bridge Engineering Feasibility Report

November 2018



About Sustrans

Sustrans is the charity making it easier for people to walk and cycle.

We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute. Join us on our journey. www.sustrans.org.uk

Sustrans yw'r elusen sy'n ei gwneud yn haws i bobl gerdded a beicio.

Rydym yn cysylltu pobl a llefydd, yn creu cymunedau byw, yn trawsnewid y daith i'r ysgol ac yn hwyluso taith hapusach ac iachach i'r gwaith. Ymunwch â ni ar ein siwrne. www.sustrans.org.uk

National Office:
Sustrans
123 Bute Street
Cardiff
CF10 5AE

Head Office:
Sustrans
2 Cathedral Square
College Green
Bristol
BS1 5DD

© Sustrans 17
Registered Charity No. 326550 (England and Wales) SC039263 (Scotland)
VAT Registration No. 416740656



1. Project Overview

Sustrans has been awarded RDP funding from the Welsh Government in order to deliver the "Linking Up - Development of the walking and cycling network in rural Wales project". The project supports local authorities and local communities in filling in gaps in the National Cycle Network (NCN), to improve links between rural communities, local services and tourism destinations. The Narberth to Canaston Bridge project is one of eight identified gaps.

The Narberth to Canaston Bridge scheme has been identified and prioritised through feasibility and gaps analysis. The local authorities, tourism providers and community groups have been brought together to form a Stakeholder Group. Supported by BRO Partnership, Sustrans is working closely with this group to work through a detailed delivery plan taking the scheme forward to construction.

2. Scheme Overview

As part of the delivery plan Sustrans has carried out an engineering feasibility study to develop a new multi-user route



The proposed alignment follows existing routes for the most part following narrow country roads, bridleways and Public Rights of Way (PRoW). Overall, the existing paths are presently more suitable for MTB users although signposting is good. The path is currently used by cyclists, pedestrians (leisure walkers and dog walkers) and horse riders.

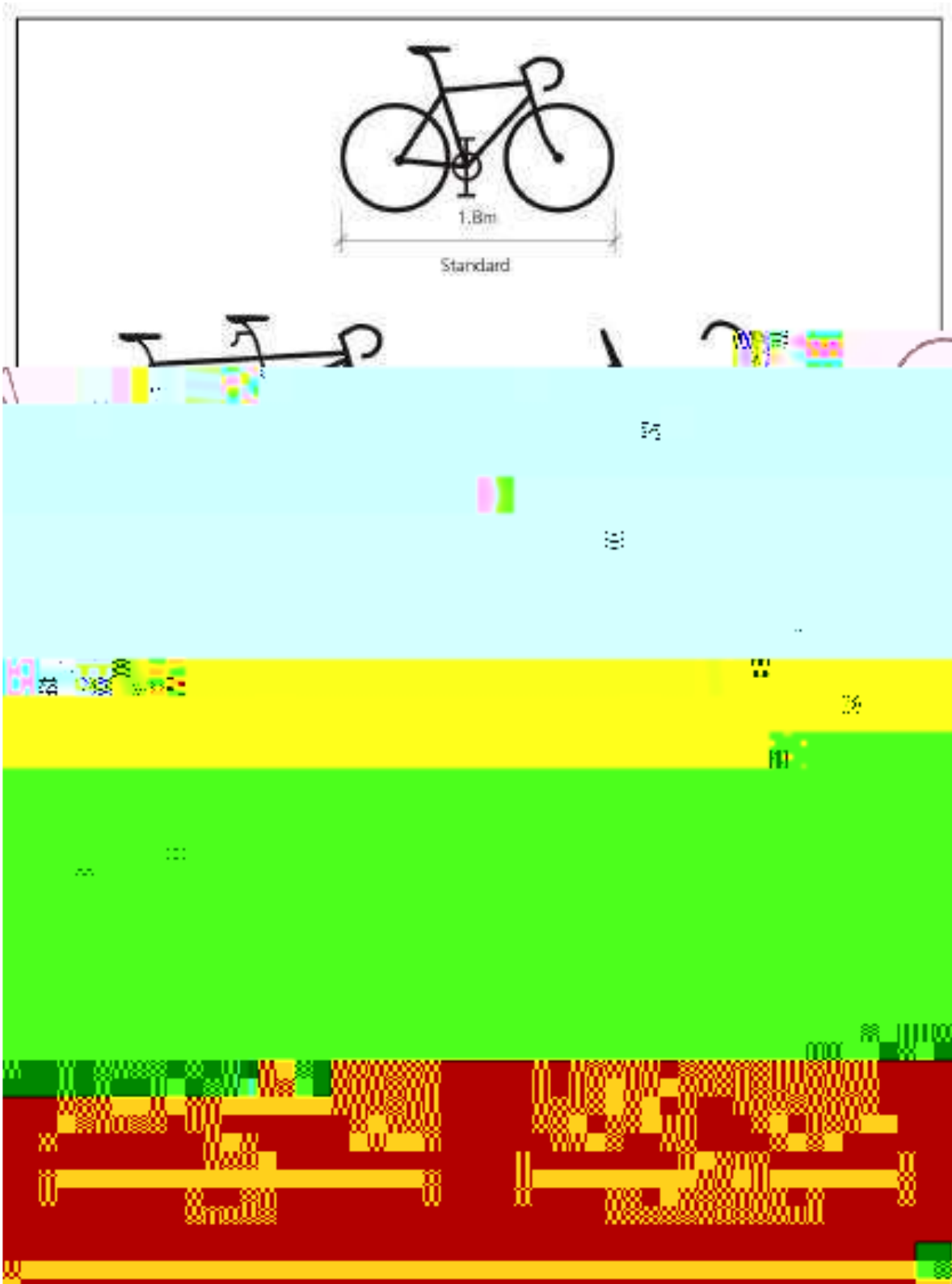
The report has been set out in sections divided according to type of path surface, specific engineering challenges or features (e.g. Road crossings).

Indicative costs

The majority of indicative costs are from a Sustrans' database of unit costs derived from schemes Sustrans has built. Design costs (15%), a contingency (20%) and a contractor's management (10%) have been added. Traffic management, land purchase costs and VAT are not included. Costs for the recycled



Figure 1.1 Highways England IAN 195 Bicycle dimensions



3. Alignment

3.1 Narberth (Car Park) to Valley Road (1450metres)

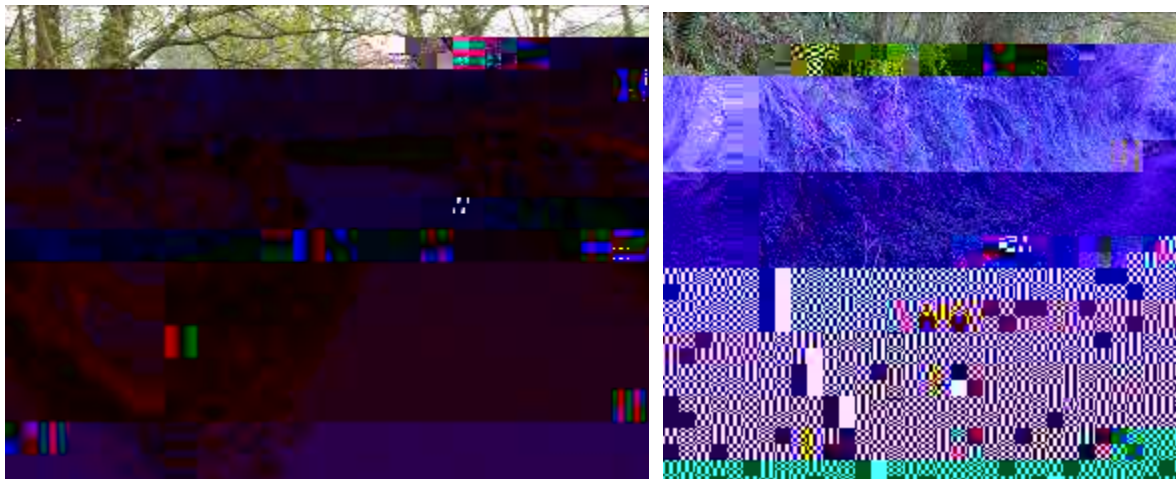
Figure 3.1 indicates th



Photo's 3.1 and 3.2 – Path beginning at Narberth.



Photo's 3.3 and 3.4 – Path over the bridge / culvert and the path beyond.



After the bridge the path passes through woodland and narrows with a steep bank to one side a slope down on the other. The existing drainage requires improvement with a stream forming along the path after heavy rain. The topography leaves little scope for path widening from an existing width of approximately two metres.

The restricted width makes the provision of a parallel horse route impossible therefore, a surface suitable for all users is required. The surface types under consideration are noted below and include a re-cycled resin-bound rubber crumb. This surface type must be hand laid and it is therefore not easy to ensure a smooth finish. However, the narrow, and space restricted nature of the path may make the use of machinery problematic and therefore a hand laid surface by an experienced installer becomes a viable option.

The bank side of the path where a stream forms has been treated by digging out the edge and installing stone filled gabions to carry away run off. Widening where possible allows provision of a 2.5m wide path for most of this route section. A mature oak is located along the southern edge of the path. This tree has an exposed rootball and is situated on top of a bank but is considered to be of low to

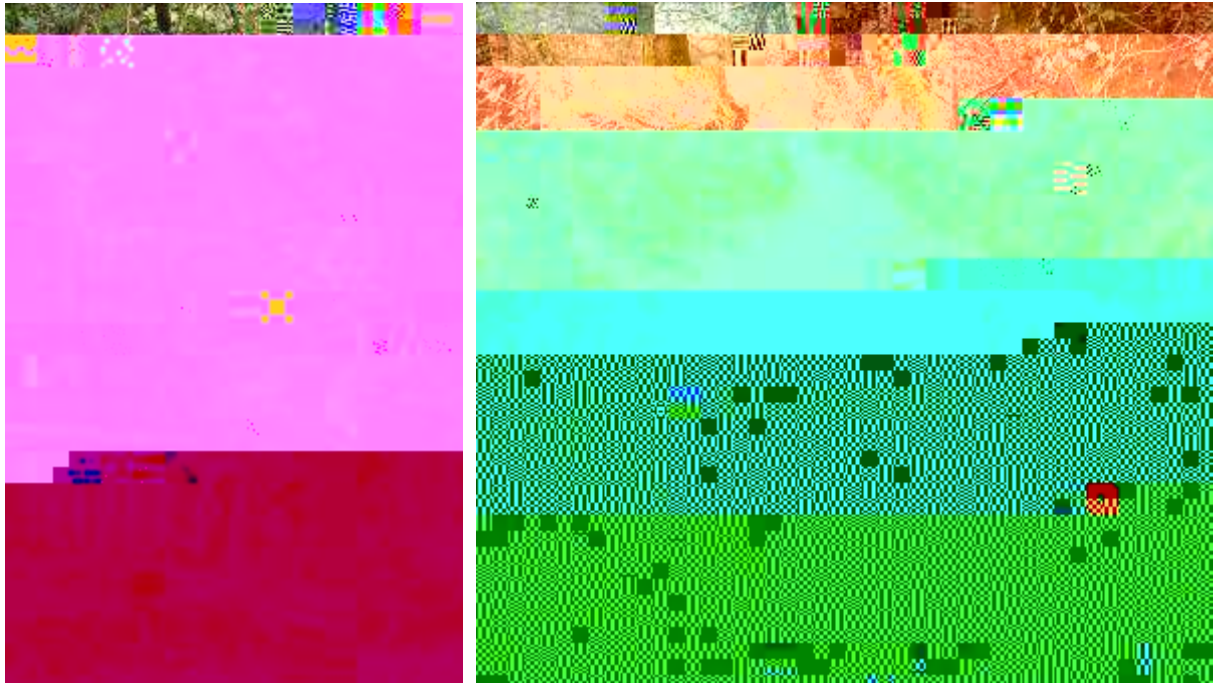


moderate bat roosting potential. Before this tree can be felled it must be subject to an aerial assessment to ensure there is no evidence of bat roosting.

Direct impacts on existing path banks are to be avoided as the



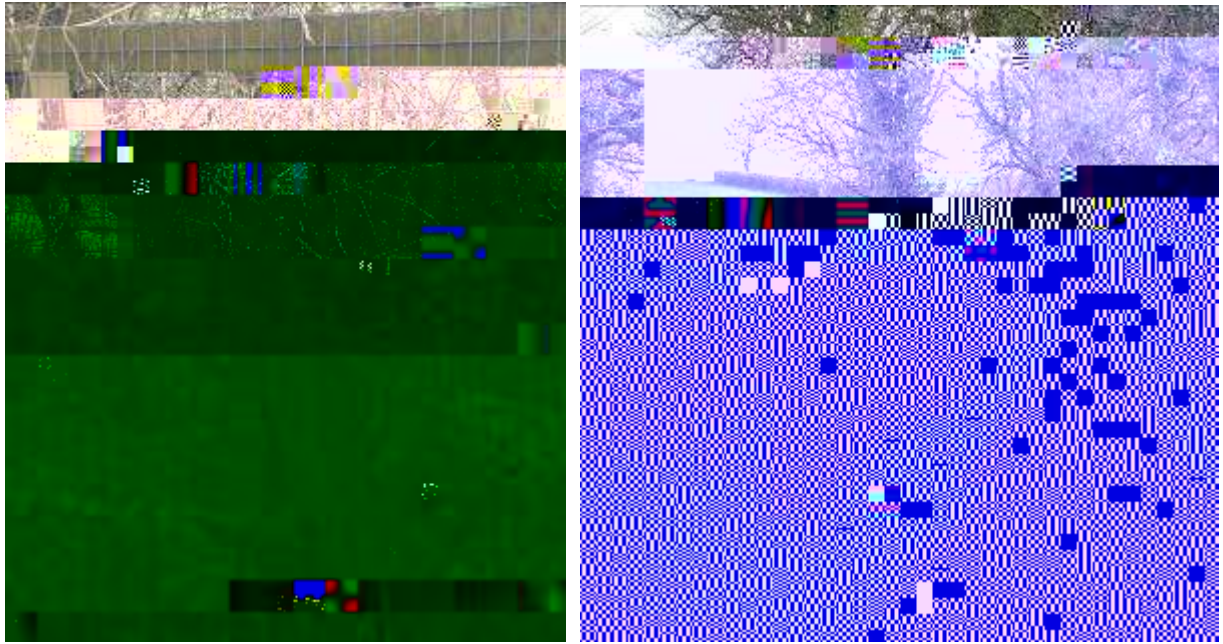
Photo's 3.5 and 3.6 – Existing drainage and overflow.



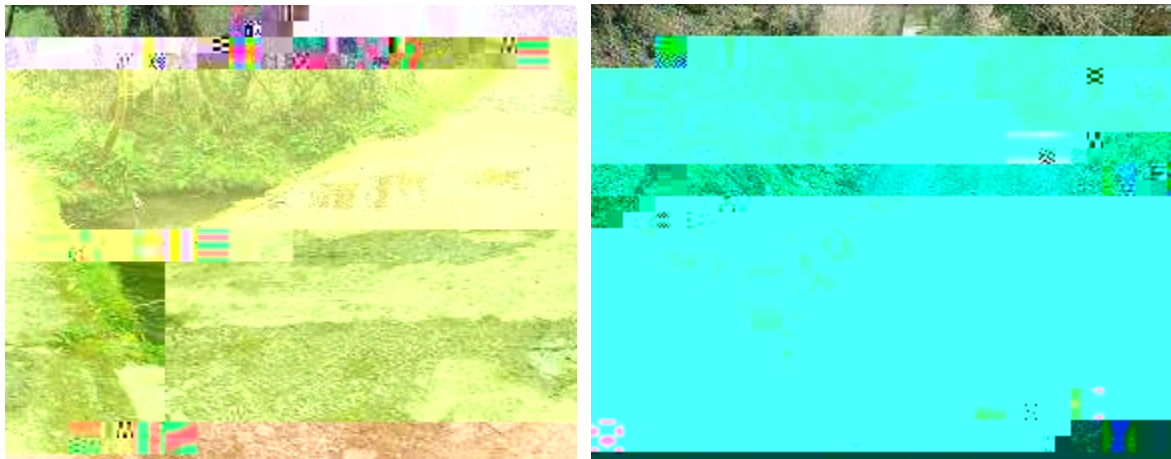
Further along the path more drainage issues are clear as water bypasses existing drainage channels to form a stream along one side of the path. The route at this point is cut into the hillside, restricting the available width which is restricted further at 'pinch points' in places where trees are present.

As the path follows field boundaries it turns sharply at a field corner to drop down a slope with restricted visibility. This route section is used by a local land owner to access fields with a vehicle and

Photo's 3.7 and 3.8 - Existing drainage and path



Photo's 3.9 and 3.10 - Concrete Bridge and final section to Valley Road



Towards the end of this route section there is a concrete bridge (three metres wide) over a stream without parapets and with evidence of ponding



were identified with bat roosting potential and should also be left untouched, with best practice followed when working in close proximity to these trees.

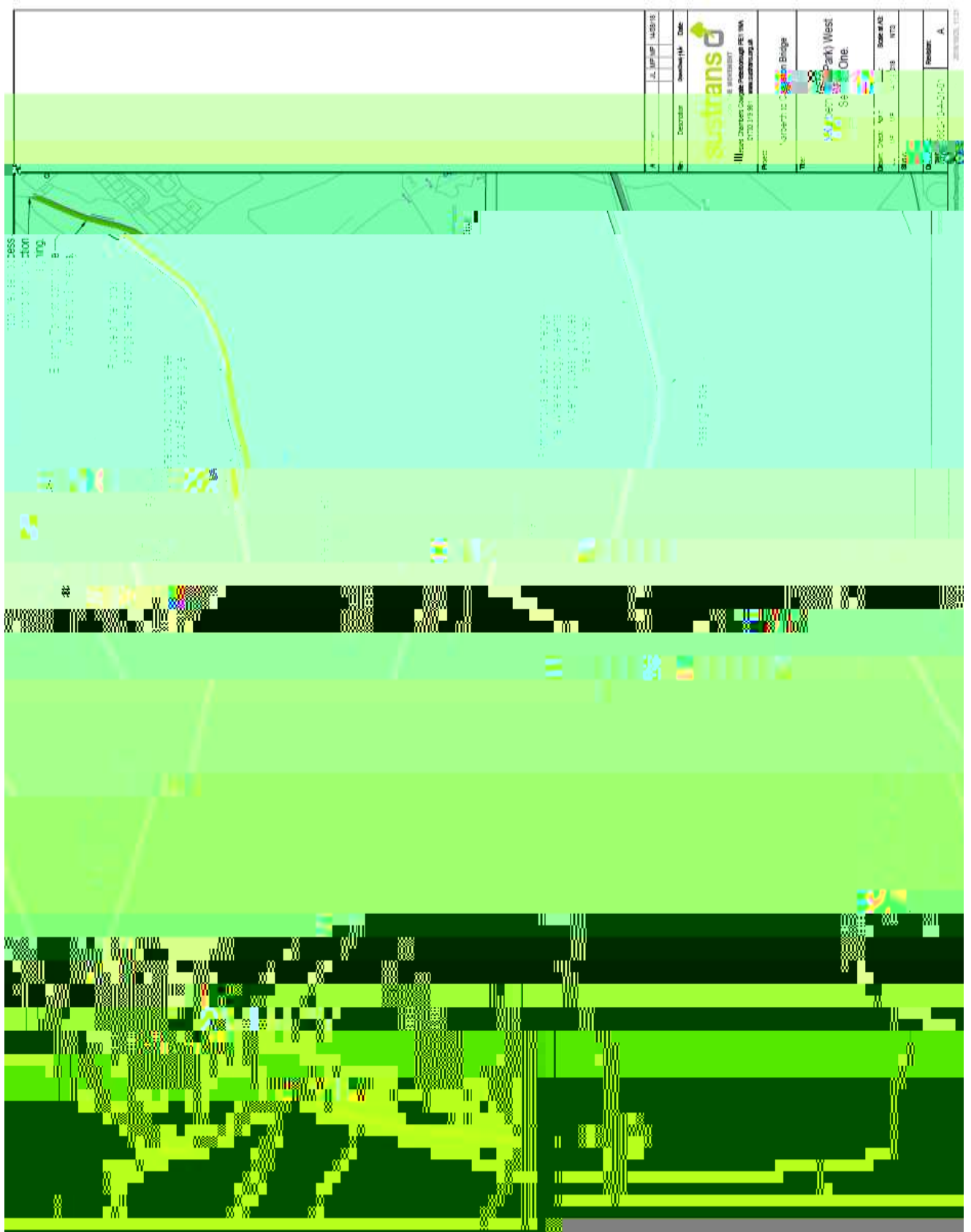
Cost Estimate

Location	Description		Estimate
Across route section	New 3m wide path where possible.	A. Tarmac	£250,000
Across route section	New 3m wide path where possible.	B. Tar and Chip	£439,100
Across route section	New 3m wide path where possible.	C. Rolled Stone	£184,600
Across route section (unless otherwise specified)	New 3m wide path where possible.	D. Flexipave*	£282,500
Narberth car park / Valley Road	Drainage - Gabions, passing places, access controls, direction signing and vegetation clearance		£111,600
Total		A. Tarmac	£361,600
		B. Tar and Chip	£550,700
		C. Rolled Stone	£296,200
		D. Flexipave	£394,100

*This figure is based on a unit cost provided by KBI UK (Installers of Flexipave) for comparison purposes. A site survey is required to obtain a firm costing.



Drawing 3.1 - West from Narberth Car Park.

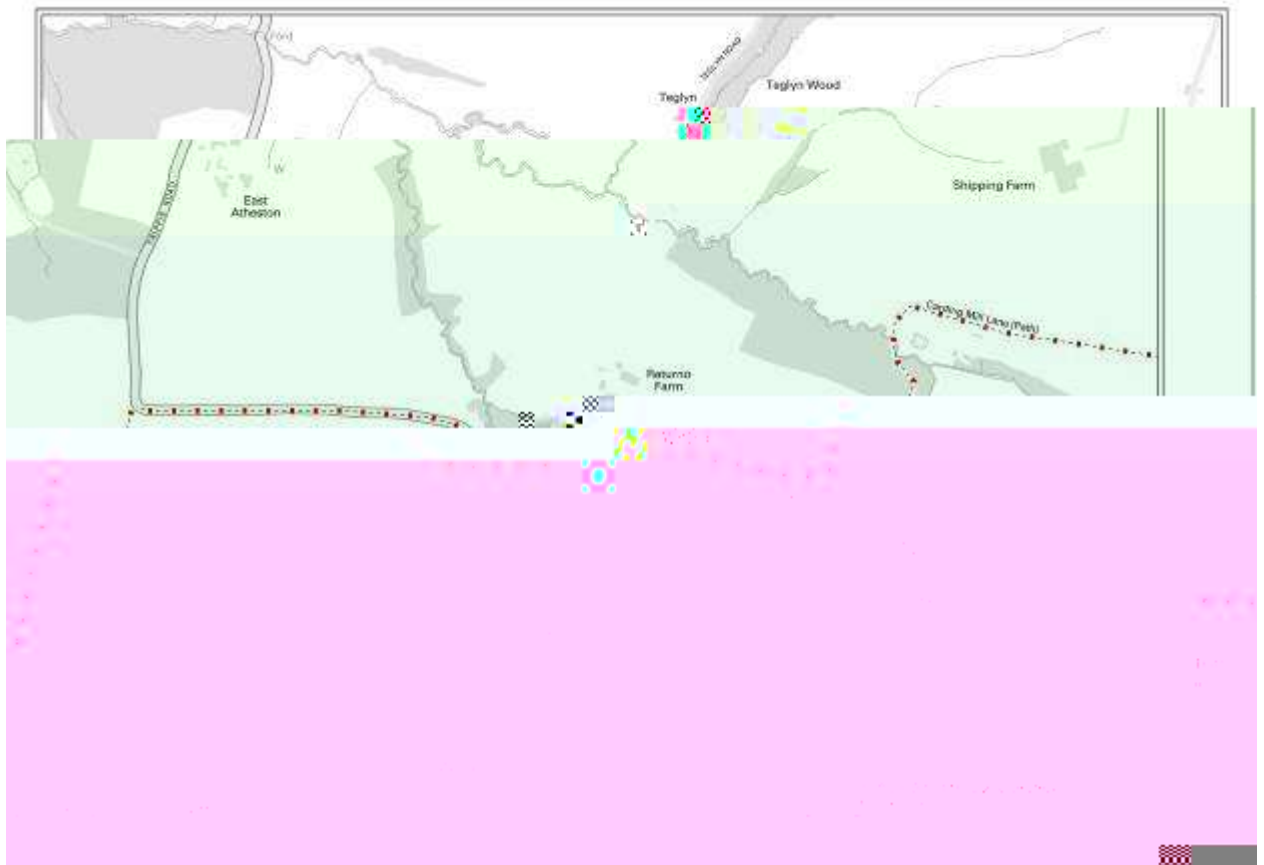


3.2 Valley Road to Trippis Road (1300metres)

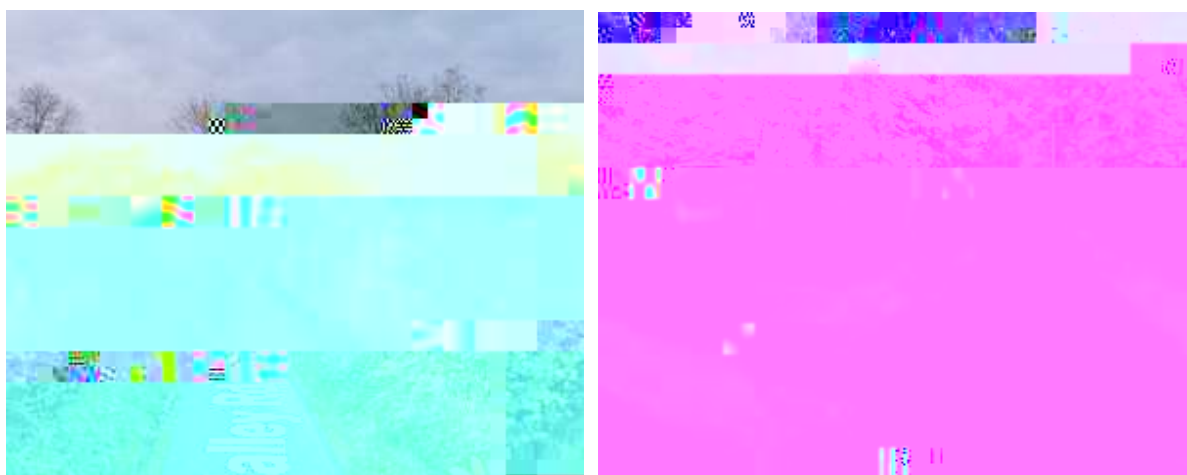


Valley Road is narrow lightly trafficked country lane subject to a height restriction. The lane is signed as a route for horses, cyclists and pedestrians. No engineering measures are required along this route section although with the greater use of a developed overall route, warning signing and further direction signing would be required (NC10662-10-A-01-02). A quiet lane signing approach could also be considered.

Figure 3.2: Valley Road to Trippis Road



Photo's 3.11 and 3.12 – Valley Road Public Highway

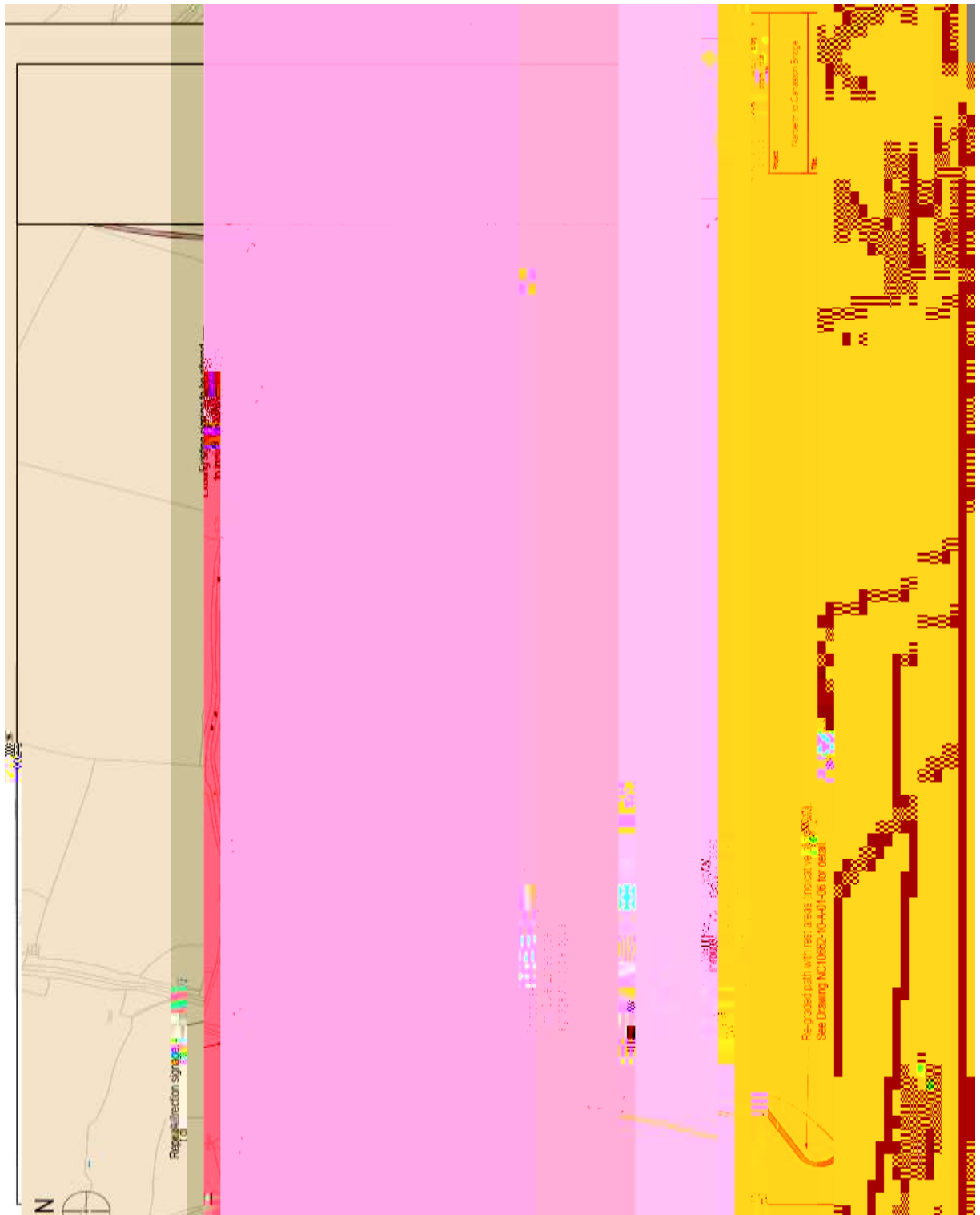


Cost Estimate

Location	Description	Estimate
Valley Road	Direction signing	£1,500
Valley Road	Warning signing	£1,500
Total		£3,000



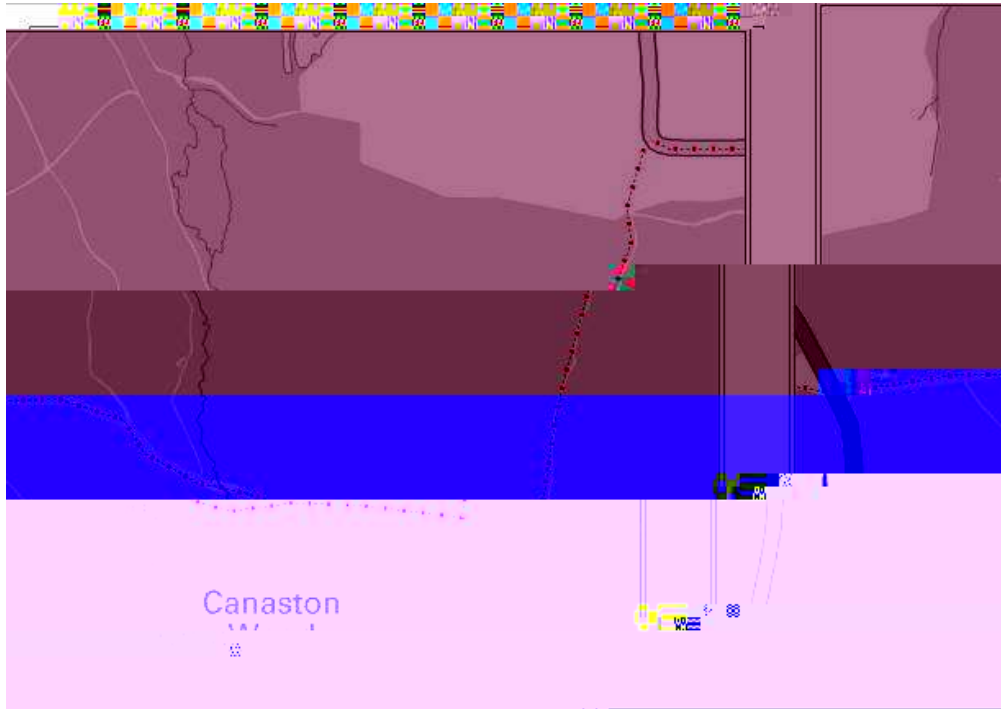
Drawing 3.2 - Valley Road.



3.3 PRoW/Forestry Road to A4075 (1200metres)

The proposed route leaves Valley Road to head south along a narrow uphill PRoW in a rock lined cutting to Canaston Wood. After 80 metres the land opens up and the path widens although the gradients remain steep. A significant present feature of the wood at this point is line of cleared trees cutting across the PRoW indicating a high pressure gas main. A topographical survey has been carried out for this area in order that a path alignment with a reduced gradient can be determined. The long and cross sections for the path in this area are shown in drawing NC10662-10-A-01-06.

Figure 3.3: PRoW/Forestry Road to A4075



The gradient reduces as the PRoW re-enters the wooded area with more space to the sides of the path for widening. After approximately 250 metres the path joins a well constructed rolled stone forestry road (designated County road) heading gradually down towards the A4075. Part way down the forestry road a path follows a separate cutting down to the A4075. The surface on this alignment is poor and users are required to cross a ford at the lowest point. Improving this alignment would be expensive and is unnecessary given the presence of a good quality parallel route. The forest road path has a T-junction onto the A4075 with a separate uncontrolled crossing point for pedestrians and cyclists linking into a new path in the verge on the opposite side of the A4075 (Figure 3.3 indicates the alignment).

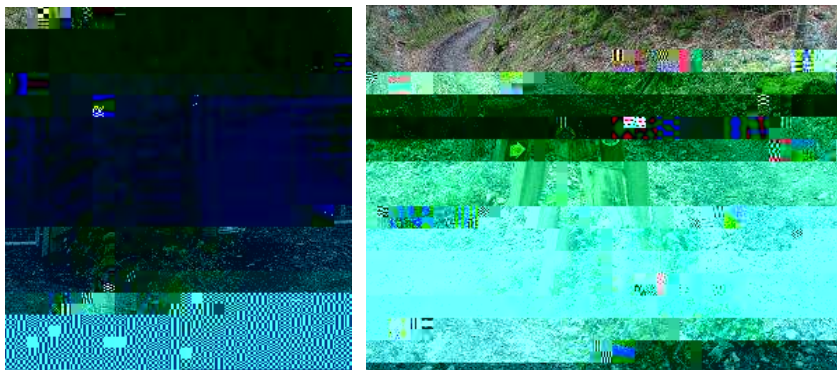
The initial route section from Valley Road can be re-resurfaced but only widened where the rock walls of the cutting allow. The cutting also severely limits any opportunity to alter the path gradient along this initial 80 metre section. Drawings NC10662-10-A-01-03A and NC10662-10-A-01-03B indicates the revised path alignment through the following section where the more open land has allowed a reduction in the gradient from 1:8 to 1:11 (with rest areas) and the provision of a 3 metre wide path. The cross sections indicate the extent of the earthworks required to provide a path with a reduced gradient. They also show a path level above that of the high pressure gas main. The restrictions on working in the vicinity of high pressure gas mains and the fill required at this point mean that the path will have to bridge the gas main. This could be achieved by constructing a simple structure made up of Gabion baskets supporting a short steel or concrete deck over which the path could be built. The presence of mature trees and their root systems at the northern end of the re-graded path introduces an ecological constraint for which further measures would be required to prevent damage (no dig build for example).

Once into the wood, sufficient space continues to allow the path to be to 3 metres for pedestrians, cycles and horses. The forestry road requires no improvement.

The A4075 crossing would benefit from cycle activated signs to warn approaching vehicles of cycles crossing and markings or surfacing to highlight the crossing point itself. Installation of Anti-skid surfacing on the crossing point approaches would also help to highlight the crossing location whilst also reducing stopping distances.

At the time of the site visit (Summer 2018) the Eagles lodge car park was under construction. Completion of the car park will not only increase the number of turning manoeuvres taking place in the vicinity of the crossing point but will also increase use of the crossing point itself. This increase activity and usage helps to justify spending on crossing improvements.

Photo's 3.13 and 3.14 – PRow from Valley Road through Canaston Wood.



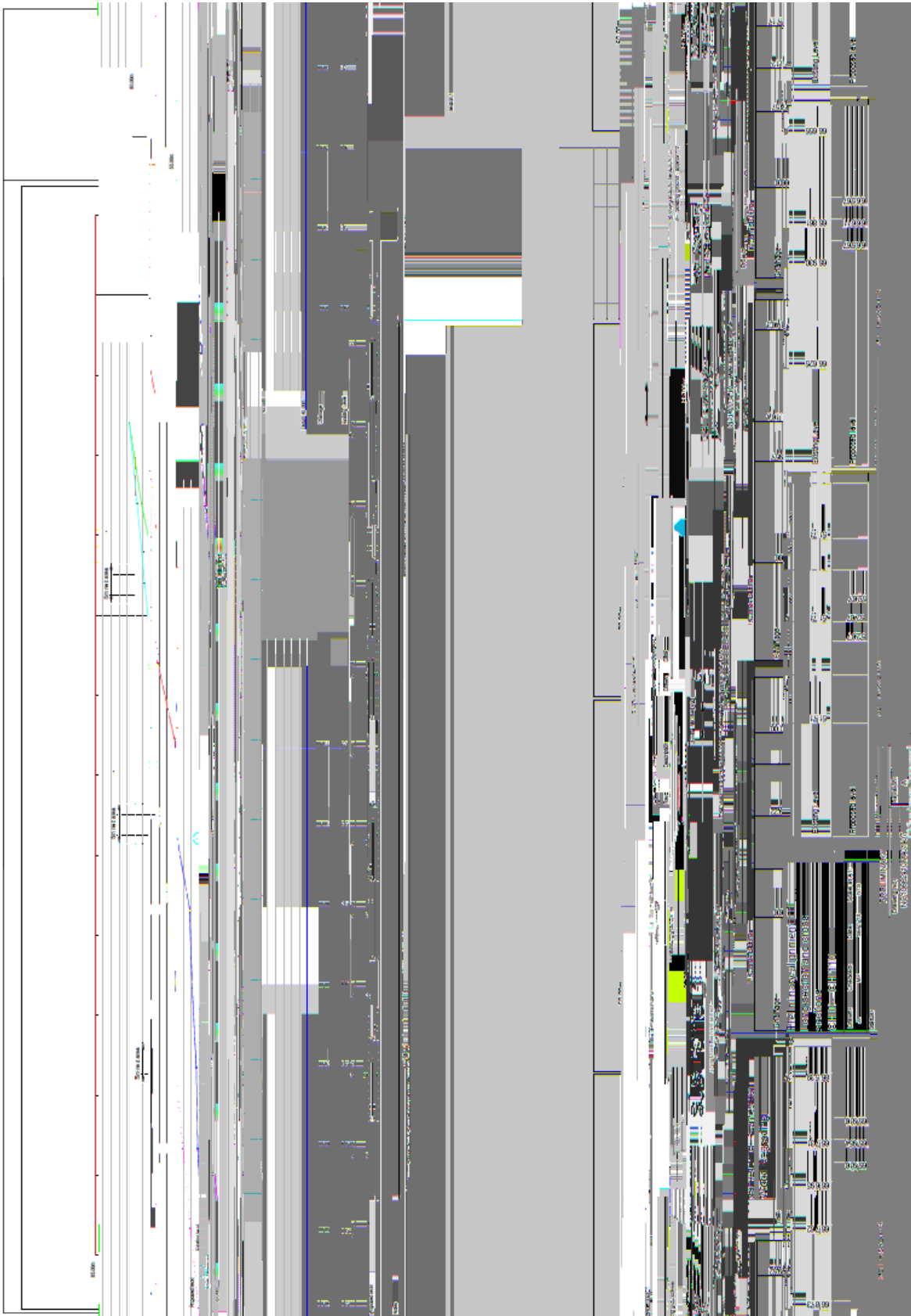
Photo's 3.15 and 3.16 – High pressure gas main and Canaston Wood path.



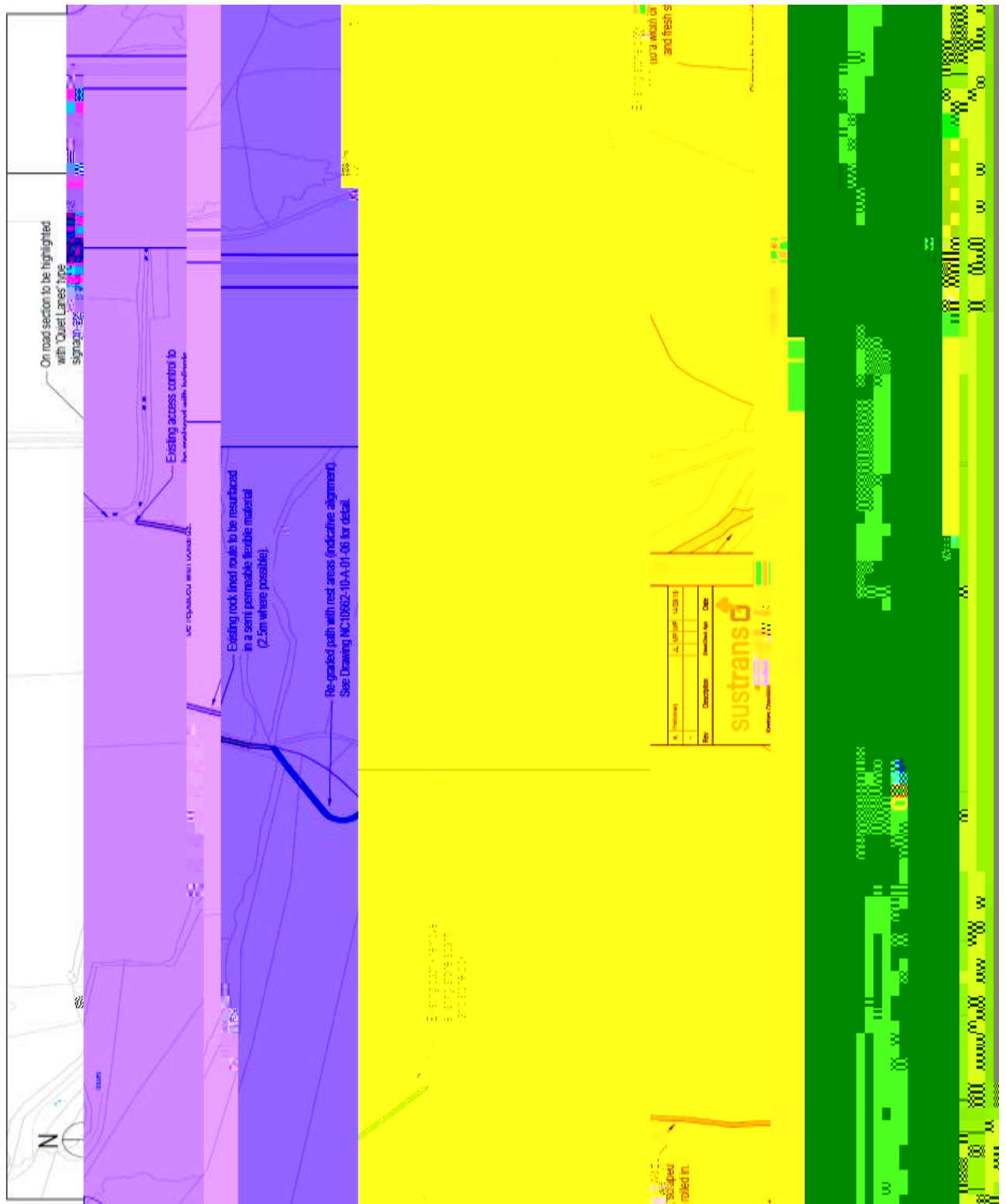
Photo's 3.17 and 3.18 – Forestry Road and ford on official route alignment.



Drawing 3.3 - Long and Cross Sections - Reduced Gradient through Canaston Wood.

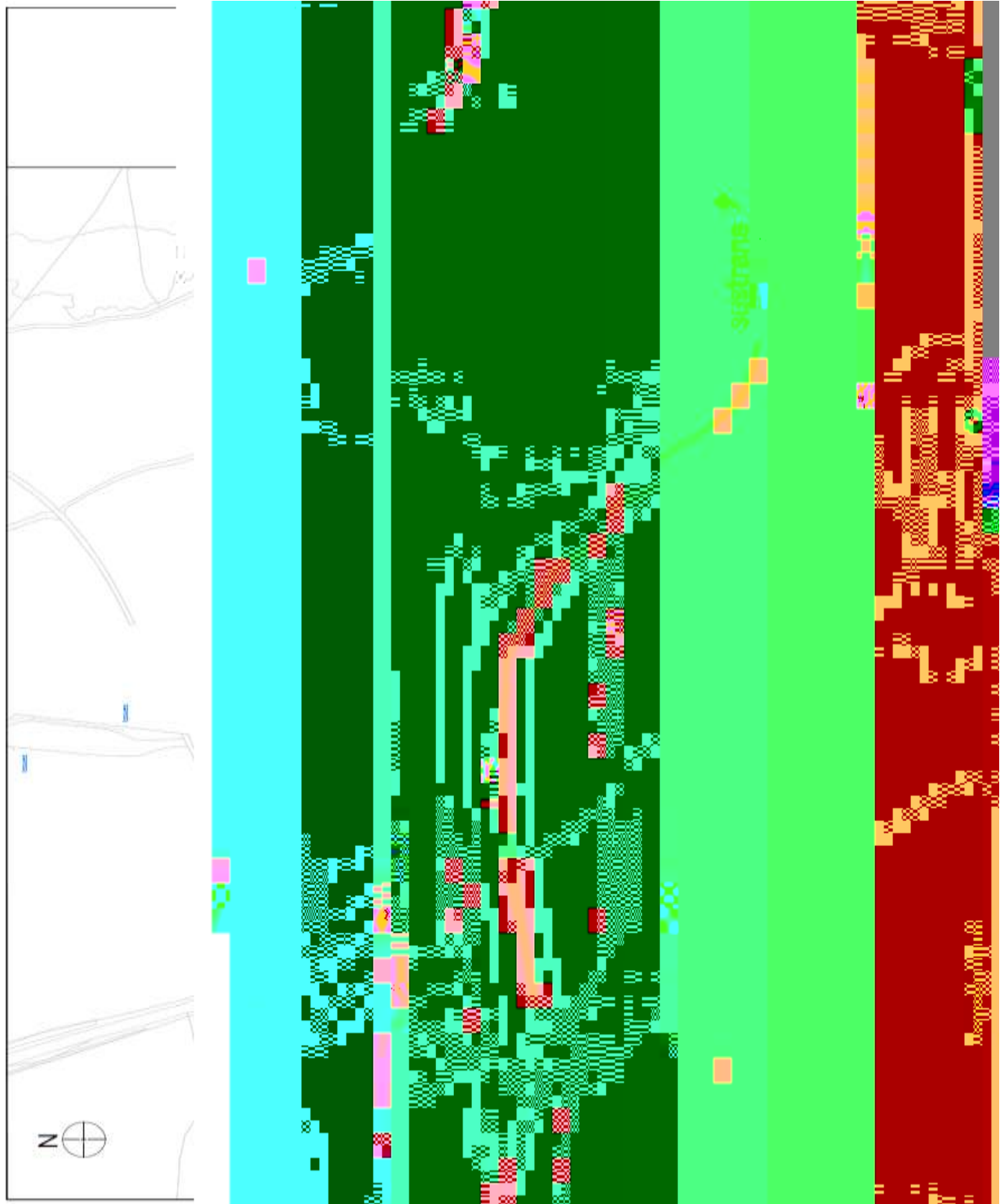


Drawing 3.4 - Path through Canaston Wood (A).



Drawing 3.5 – Path through Canaston Wood (B).





Cost Estimate



Location	Description	Estimate
Valley Road to forest road	New surfacing	£167,900

Across route section

Cut back vegetation



On the approach to Blackpool Mill the path joins a narrow lane giving access to a small car park and Blackpool Mill itself. Where the path joins the road a gate and Kent carriage crossing are provided. Parking occurs at this location, often blocking the route for cycles.

It is only 100 metres along the lane to the Blackpool Mill gated entrance drive. The drive is at least three metres wide with a rolled stone surface. The Mill is presently closed and therefore there is no traffic using the drive and very little traffic on the lane.

The Mill bridge is a listed structure with low parapets (1 metre). There is sufficient width to guide cycle through the middle of the bridge (5.5metres between parapets).

Drawing number NC10662-10-A-01-04 shows the route section between A4075 and Blackpool Mill Bridge. Minor improvements are suggested to the path surface with a grass verge to keep cycles away from the parapets at the first bridge and carefully positioned bollards to prevent vehicles from blocking the carriage access. Warning signing and Cycle Logo's are suggested for the lane to Blackpool Mill with a wider access at the existing gate. Small scale improvements to the existing surface are again required for the Blackpool Mill drive.

Photo's 3.19 and 3.20 – A4075 crossing point / 'Knight's Way to Blackpool Mill.

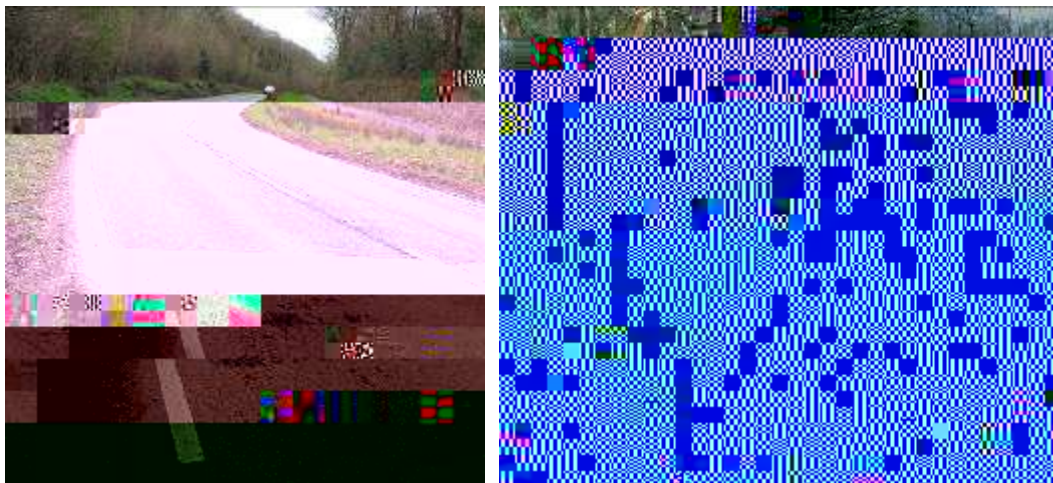


Photo 3.21- Re-furbished bridge parapets on route to Blackpool Mill.



Photo 3.22- 'Knight's Way' entrance with Kent carriage access.

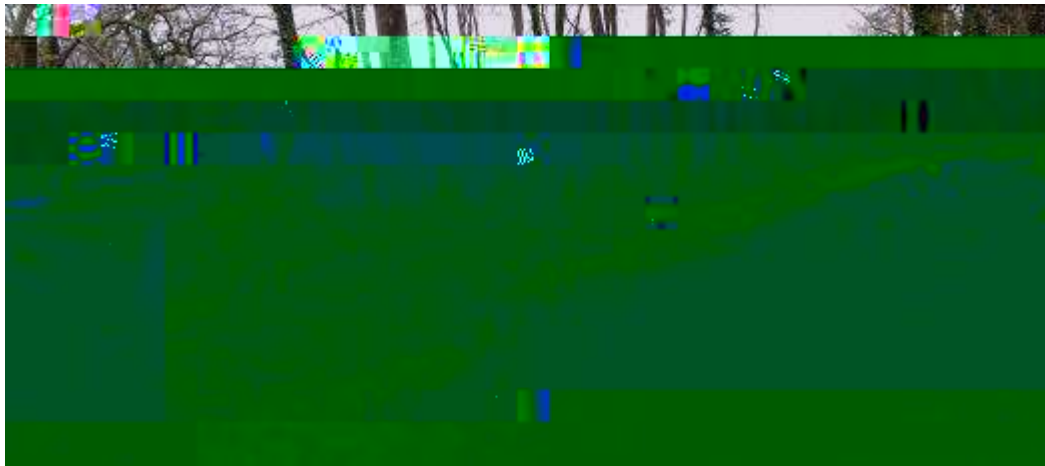
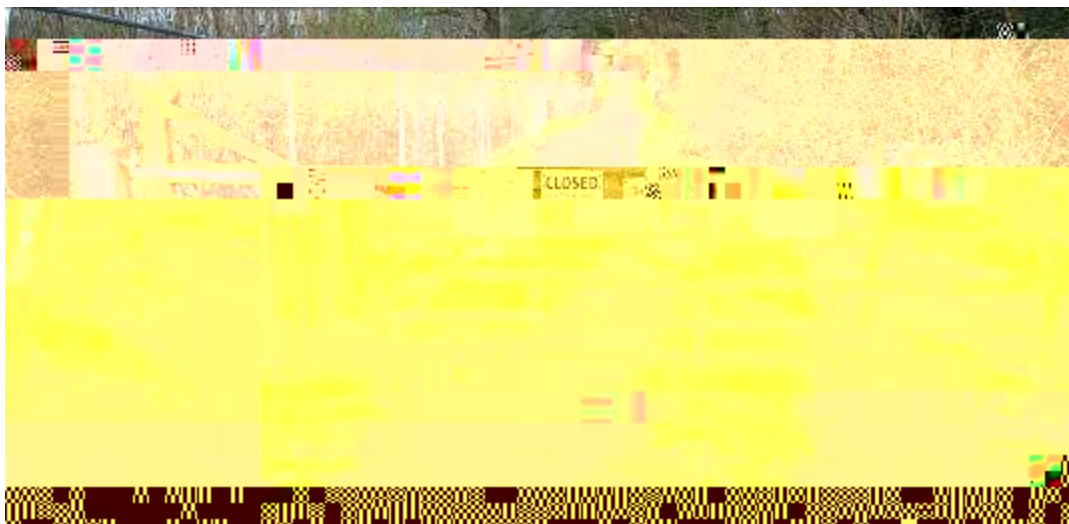


Photo 3.23- Access to Blackpool Mill and Bridge.

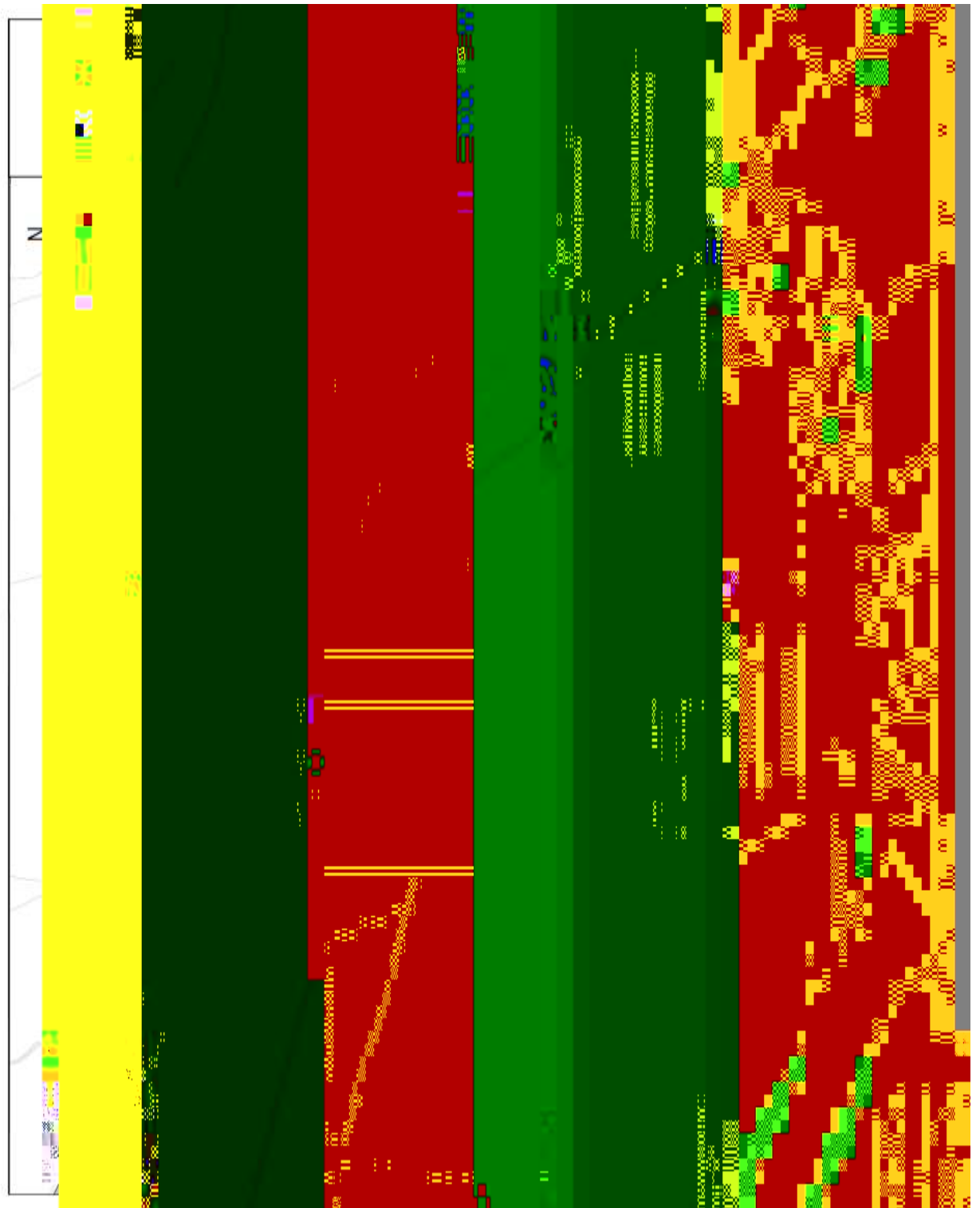


Cost Estimate

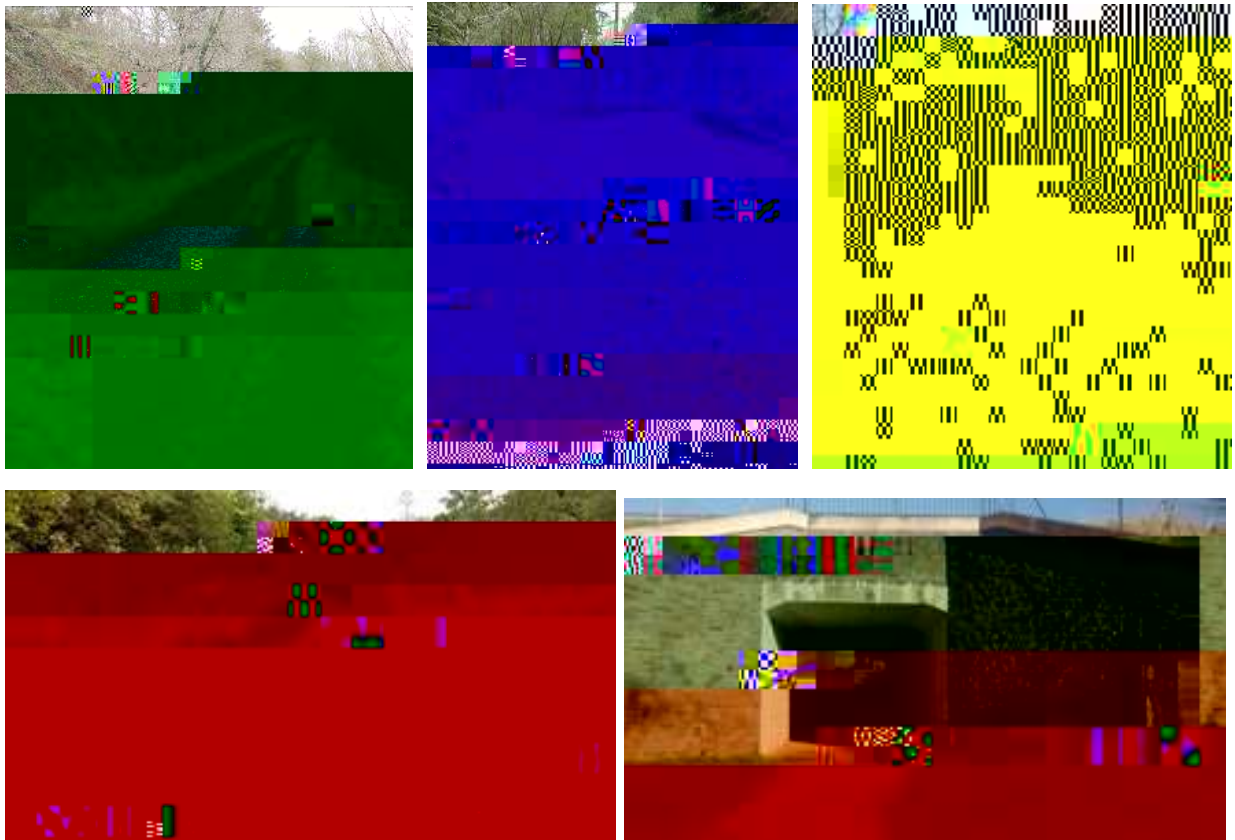
Location	Description	Estimate
Across route section	Path surface improvements	£158,300
Path exit to quiet lane / Blackpool Mill access drive	Re-configure access / parking. Direction and regulatory signing	£7,300
Total		£165,600



Drawing 3.6 – Canaston Wood TO Blackpool Mill.



Photo's 3.28 and 3.29 – Forestry path on route to Canaston Bridge, route parallel to the A40 and Subway.

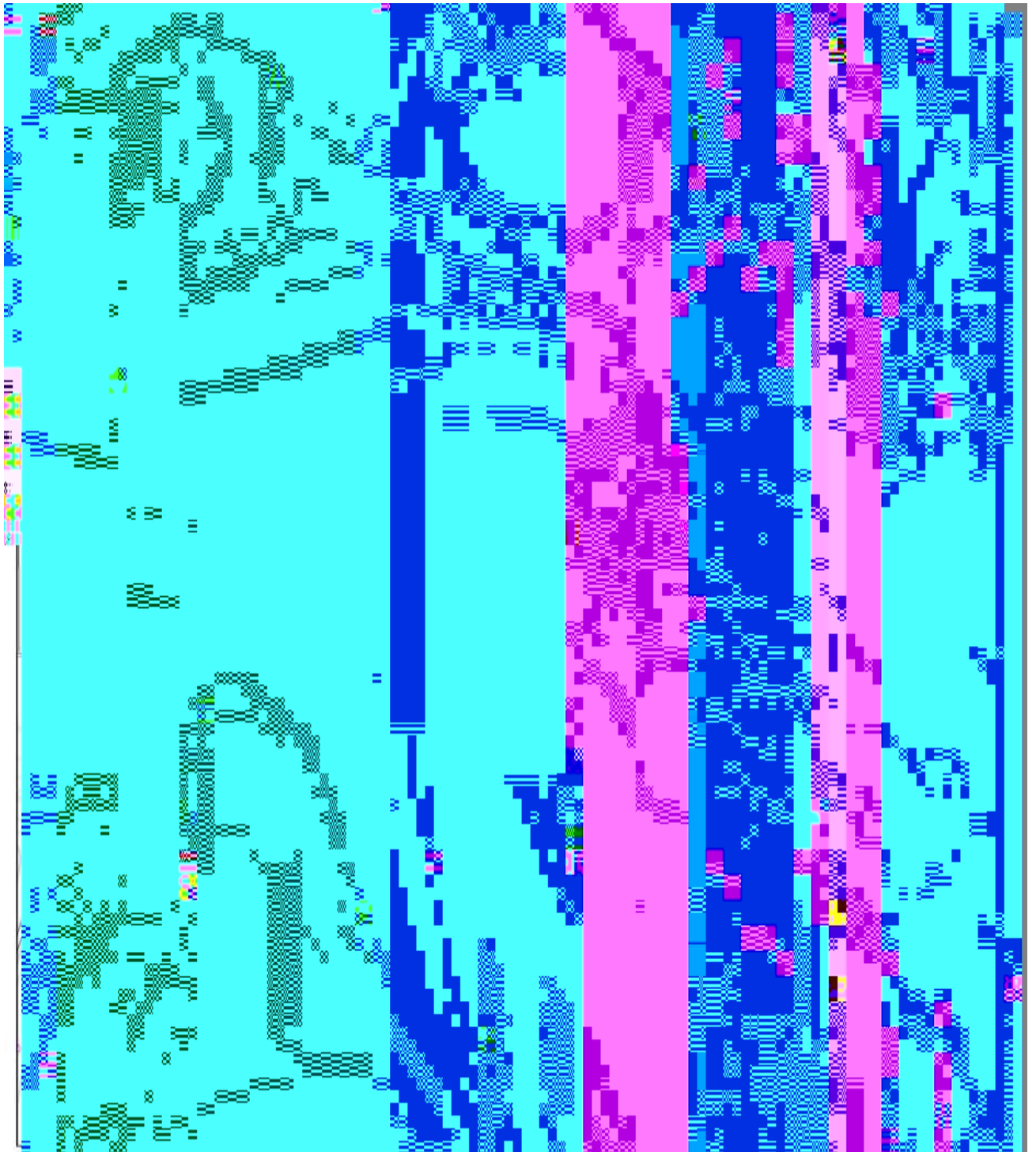


Cost Estimate

Location	Description	Estimate
Across route section	Path surface improvements	£158,300
Two bridges and across the route	Extensions to bridge parapets and direction signing	£8,000
Total		£166,300



Drawing 3.7 - Blackpool Mill to A40 Underpass.





Overall Total	A.	£894,300
	B.	£1,083,400
	C.	£828,900
	D.	£926,800



