

City of York Council

Safer Routes to School, Feasibility Study

Sheriff Hutton Road / The Village, Strensall

Author: Ben Potter

Date: March 2016

Sheriff Hutton Road / The Village, Strensall – Safer Routes to School Feasibility Study.

Background

On 5 November 2014 an accident occurred at the junction of Sheriff Hutton Road and The Village in Strensall in which an accompanied child on their journey school received a minor injury. Subsequently on 19 February 2015 a petition was considered by the Cabinet Member for Transport, Planning and Economic Development, which stated;

“We the undersigned, as residents of Strensall, call upon City of York Council (CYC) to put measures in place to protect children crossing the junction of ‘Sheriff Hutton Road’ and ‘The Village’ before a further accident occurs.”

The Cabinet Members decision instructed officers to undertake an update of the feasibility study carried out in 2011. This original feasibility study considered road safety improvements in the area and is available as background papers to the February 2015 report. Following the feasibility study work to improve the existing dropped crossing point at the junction was undertaken.

Between 2011 and 2015 significant changes have taken place in the area with the construction of the new development north of the river on the old Tannery site and so this update to the feasibility study also considers the impact of the development on the surrounding highway.

Site information

(A basic site plan is shown overleaf with a detailed site plan provided in **Appendix A**)

The junction of Sheriff Hutton Rd and The Village is a t-junction on the northern edge of Strensall village. The immediate surrounding area is made up of residential and business properties with a chemist and a public house situated on the two radii. There is also a church and a convenience store nearby.

Sheriff Hutton Road runs north to south with a humpback bridge approximately 85m north of the junction. A recent residential development (Fossview Close) north of the bridge has also provided a pedestrian / cycle bridge.

There is an existing river side footpath which runs along the southern side of the River Foss terminating at Sheriff Hutton Road, this is not a CYC maintained public right of way, but is looked after by the Parish Council. Vehicle access to the path is currently controlled by a series of removable timber bollards, the only key holders are the Parish Council and Foss Internal Drainage Board. A kissing gate is provided for pedestrians but is not utilised as it is easier to pass between the bollards. A gated arrangement is planned for the access with a larger kissing gate to accommodate pushchairs and bicycles (plan shown in **Appendix B**).



Sheriff Hutton Road is subject to a 30mph speed limit on its approach to the junction with a gateway comprising 30mph speed limit signing, red surfacing with a 30mph roundel road marking preceded by a series of dragons teeth.

Warning signs are also provided on the southbound approach including a bend warning sign accompanied by a no footway warning. Approximately half way between the speed limit gateway and the bridge is a warning sign of the hump bridge.

Due to the rural surroundings the road is frequently used by agricultural vehicles.

Data

Data has been gathered to enable analysis of vehicle behaviour at the site, a summary is provided below.

Accident Record

In the 10 year period, 01/01/2005 – 31/12/2014, there have been no injury accidents at this location other than the accident on 5 November 2014, classed as a 'slight'.

Pedestrian Survey data

A Pedestrian crossing survey was carried out as part of the 2011 study. Crossing movements for the 50m section of Sheriff Hutton Road adjoining The Village junction between 7am and 7pm are presented below.

| <i>Location</i> | <i>Total peds crossing in 12 hours</i> | <i>Total children crossing 8am-9am</i> | <i>Total children crossing 3pm-4pm</i> |
|---|--|--|--|
| Sheriff Hutton Rd 50m section adjoining The Village junction | 267 | 30 | 21 |

Vehicle Speeds

Speed data was taken in two locations.

Site1: At the start of the 30mph limit to establish if drivers were slowing to a suitable speed before they entered the lower limit. Site 2: The south side of the bridge to establish vehicle speeds as they entered the area where pedestrians are most likely to be crossing.

Site 1**Site 2**

| Direction | South | North | Direction | South | North |
|-------------------------|--------------|--------------|-------------------------|--------------|--------------|
| Mean | 33 | 35 | Mean | 19 | 20 |
| 85th Percentile* | 39 | 40 | 85th Percentile* | 22 | 24 |

*85th percentile is the speed not exceeded by 85% of the vehicles recorded.

Traffic Flow

Average traffic flow on Sheriff Hutton Rd, 7am – 7pm

Northbound: 1506 *Southbound:* 1750

Approximately 2 vehicles a minute.

Analysis of the issues

The main problem in this area is the lack of intervisibility between pedestrians and traffic especially for vehicles travelling southbound and having to negotiate the bridge. The main crossing locations are south of the bridge at the access to the river side path and at the existing crossing point provided on the mouth of the junction. The recent housing development has provided a footway on the western side of the road which encourages pedestrians to cross close to the bridge without considering the lack of forward visibility for drivers which reduces the chance of a vehicle stopping in time. The new pedestrian bridge is also for use by cyclists but no suitable facility has been provided on the adjacent path to for cyclists to return safely to the carriageway.

Vehicle speeds at the entry to the 30mph limit are reasonable for the surrounding environment. The data at site two shows that most drivers are aware of the lack of visibility and are slowing considerably as they pass over the bridge, with mean speeds well below the posted limit.

There is also access to a riverside path on the northern side of the bridge via a very small gate and a set of timber steps. As part of the new development a link path has been established which encourages pedestrians to use this route, even though visibility is very poor particularly to the south as any traffic is masked by the bridge.

Options

Options for improving safety have been split into two categories which aim to solve the problem in different ways.

1. Improve the crossing facilities

1a. Guardrail

Guardrail assists in guiding pedestrians to a suitable crossing point and can help to focus driver's attention to that point. However, it is not extensively used at village locations and can lead to pedestrians and cyclists becoming trapped between it and a vehicle. Guardrail must also be set a minimum of 450mm from the kerb edge to ensure it is not struck by passing traffic. The eastern footway is not wide enough to accept this and allow pedestrians to easily pass, especially with pushchairs or wheelchairs. To work well the guardrail would need to lead pedestrians to the crossing point without allowing opportunities for them to cross elsewhere. This would not be possible at this location because there are three vehicle crossings between the bridge and the junction (including the river side path access) which would need to be accessible by the owners of the properties.

1b. Controlled crossing

A controlled crossing works by giving pedestrians priority over the vehicular traffic. This could be a Zebra crossing or signal controlled Puffin crossing. Both require good visibility. Zebra crossings need the intervisibility between pedestrians and drivers and a Puffin needs good forward visibility of the signal heads. The site is not suitable for the introduction of a controlled crossing for the following reasons;

- i) The close proximity to the junction. If a crossing were installed between the junction and the bridge drivers would need to be able to turn into Sheriff Hutton Road, judge the situation and stop, this would push the crossing closer to the bridge, reducing visibility for southbound traffic.
- ii) Forward visibility to the crossing point based on the recorded speeds should be 50m, this is not achievable due to the hump back bridge.
- iii) Footway widths are not adequate to allow pedestrians to pass anyone waiting to cross.

Provision of a controlled crossing also relies on pedestrians crossing in a single location. Additionally controlled crossings can also increase accident rates as pedestrians feel safer so may cross without adequately checking for oncoming traffic.

Signalisation of the junction was not considered as part of this study but would have an impact on parking in the area and is not in keeping with the village environment.

1c. Pedestrian Refuge

At sites where controlled crossings are not suitable a pedestrian refuge island can help pedestrians cross more easily as they only need to judge one direction of traffic at a time. As there is already a crossing point at the junction an option to provide a refuge island as part of this established crossing was investigated.

The design shown in **Appendix C** includes a 2.0m wide island to allow pedestrians to wait in the centre of the carriageway. However, the existing road width isn't adequate to provide this feature and still accommodate turning vehicles, especially larger agricultural type vehicles and coaches. To be able to accommodate this feature the road would require widening and to ensure the western footway could be retained, a land take would be required from the owners of The Ship Inn public house. As a worst case scenario this would require a compulsory purchase, however it is possible that they would dedicate the land significantly reducing the costs.

Road widening of this nature can also require the diversion of statutory utilities equipment (pipes / cables / ducts). To help estimate the cost of the scheme the utilities companies with equipment in the area have been contacted and estimates provided where possible. A breakdown of the potential cost of the scheme is shown below:

| | | |
|-------------------------------|-----------------|----------------|
| Compulsory purchase of land - | | £10,000 |
| Stats diversions – | NPG (Elec) | £17,500 |
| | Yorkshire Water | £10,420 |
| | NGN | £10,900 |
| Construction | | £12,000 |
| TOTAL | | £60,820 |

Again this option only provides a crossing point in one location and relies on pedestrians joining Sheriff Hutton Road walking down to the junction.

2. *Warning southbound drivers of pedestrians crossing on the south side of the bridge.*

2a. Rumble strips

Rumble strips provide a physical and audible warning to drivers that they are approaching a hazard or significant change to the highway. They are usually provided in the form of a countdown with the number of strips increasing as you approach the feature. They could be used in conjunction with a pedestrian warning sign to highlight to drivers that they may encounter pedestrians in the road. However, national guidance on rumble strips suggests they should not be used close to residential properties as they generate noise and potentially vibration, this is likely to be exacerbated by the number of larger vehicles using the route. The strips also wear easily and can become a maintenance problem.

2b. Vehicle Activated Sign

A vehicle activated sign (VAS) could be introduced before the bridge (see **Appendix D**). The proposed design would display a caution warning sign along with a 'Pedestrians crossing' supplementary plate (Fig1). The VAS portion of the sign would be a second plate with a 'SLOW DOWN' message on a rectangular black face which flashes using a series of LEDs. The LEDs are positioned such that they are easily visible to drivers but have little impact on surrounding properties. The sign could be set to trigger when vehicles are travelling over a certain speed to target drivers

approaching the bridge at a higher than desirable speed. The estimated cost to provide and install the sign is £5,000.



Fig1. Diag No. 562 with supplementary plate No.563. Vehicle activated panel with 'SLOW DOWN' text.

Other identified issues

Two other issues were identified when investigating the site;

1. Cyclists rejoining the carriageway south of the bridge.
2. The link path encouraging crossing movements on the northern side of the bridge.

These issues should have been dealt with by the developers of the new residential site through the road safety audit process and officers are seeking copies of the completed road safety audits for examination.

The most appropriate solution for the cycle issue would be to extend the existing kerb side barrier on the western footway further south. This would prevent pedestrians crossing so close to the bridge and allow the off-road cycle facility to be extended creating a more suitable location for cyclists to rejoin.

Recommendations

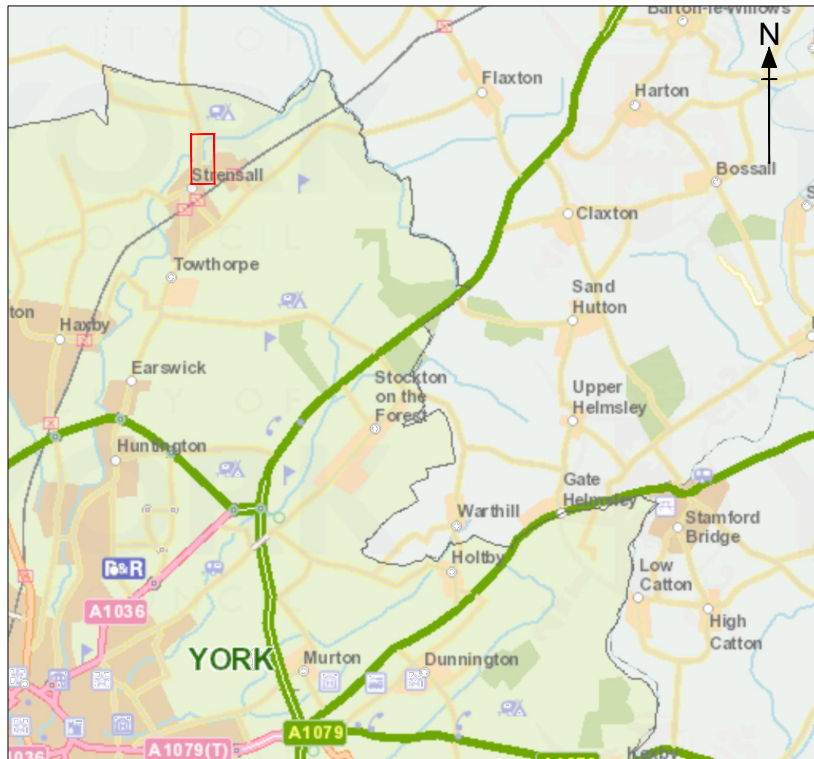
Having reviewed the site and identified the main problems it is clear that many of the standard solutions would not work at this location, due to the reduced visibility caused by the existing bridge arrangement and the lack of available highway space.

To address the problems identified two elements are recommended for implementation:

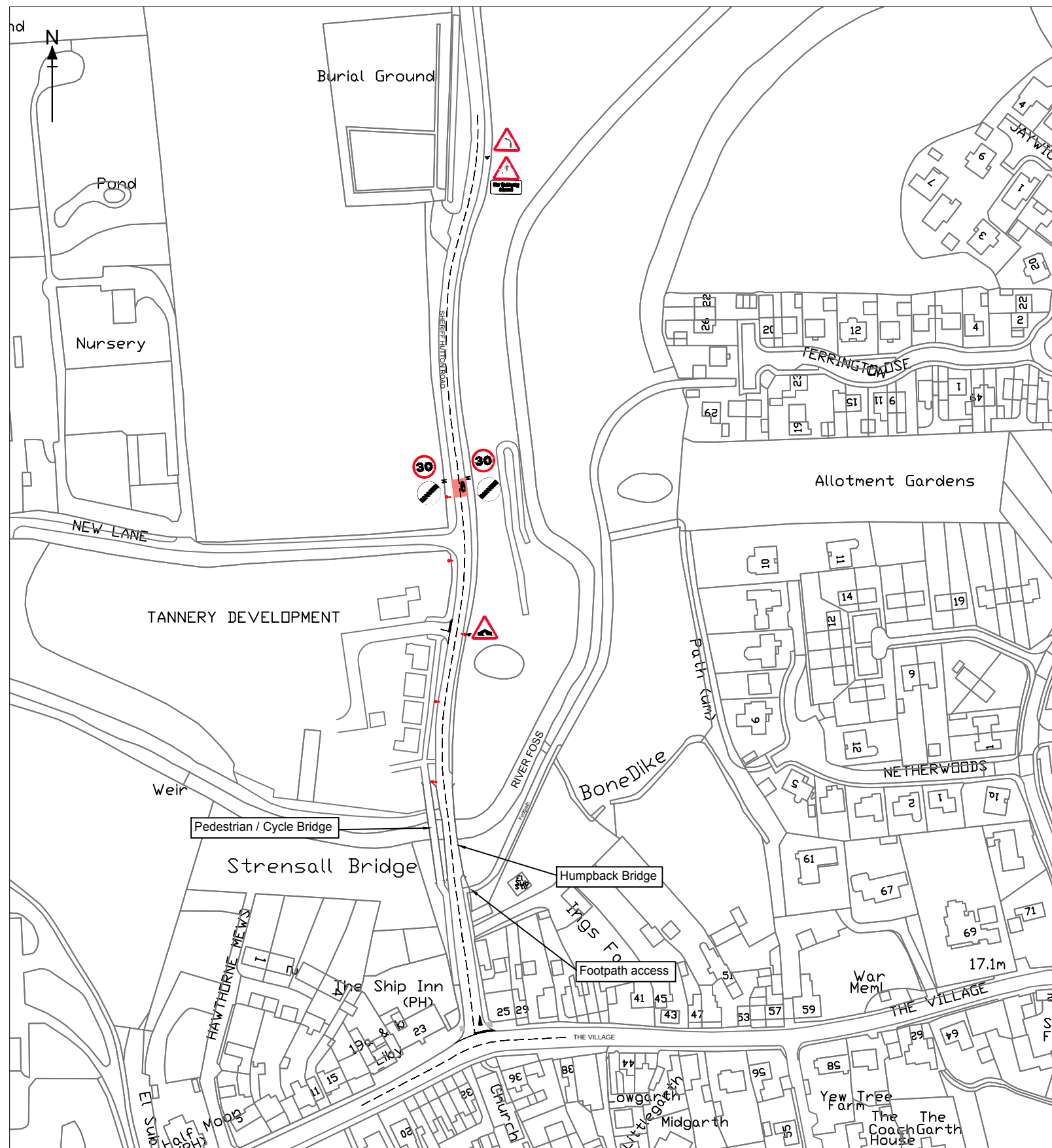
Improve the crossing arrangement through the introduction of a pedestrian refuge (**Appendix C**) to improve the crossing at the junction. Unfortunately the required utilities diversions and potential land take make this solution very expensive and unaffordable from current budgets unless other sources of funding can be found.

The second solution is to warn drivers of the potential for pedestrians crossing the road before they cross the bridge. A vehicle activated sign (**Appendix D**) should be installed on the approach to the bridge to warn southbound drivers they may encounter pedestrians in the road. This warning is not specific to any one crossing point so addresses all potential crossing locations.

Additionally, signing close to the burial ground which warns of pedestrians in the carriageway due to the lack of footway is no longer relevant as a footway has been provided by the developer. It is therefore recommended that the sign be removed to ensure drivers are not given incorrect, confusing information and will help to focus drivers on the other signing in the area (**Appendix D**).



Location Plan



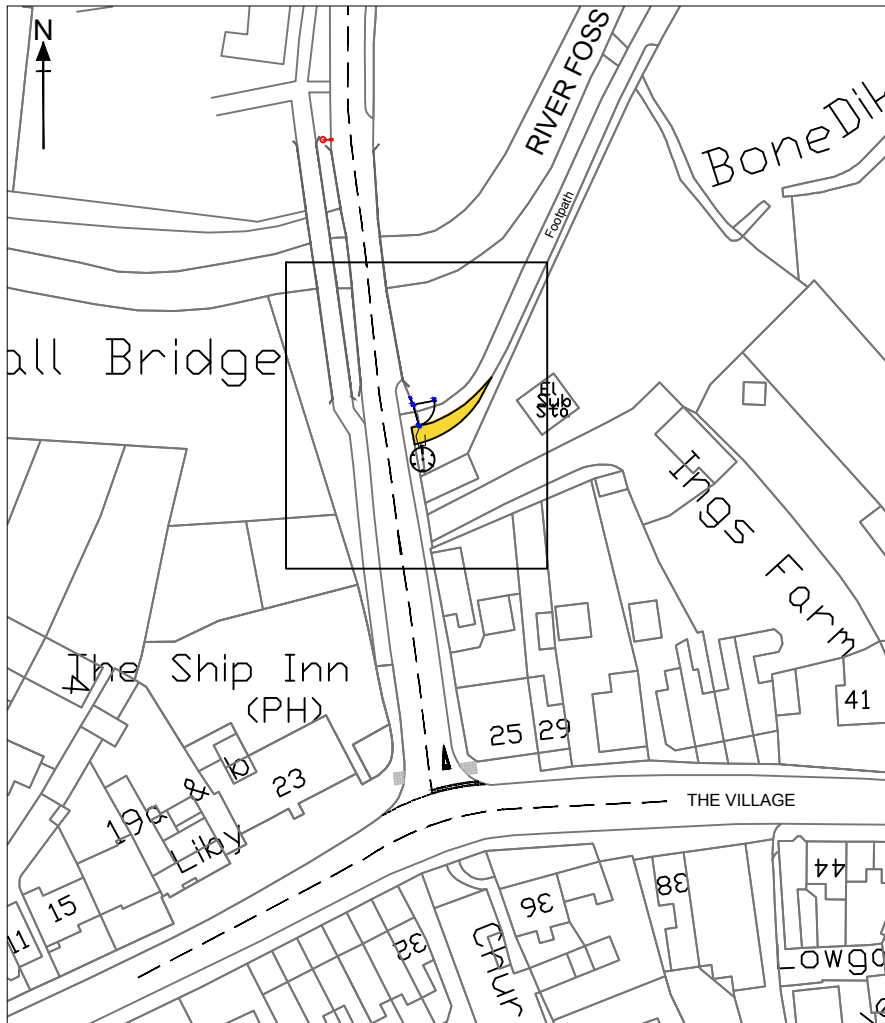
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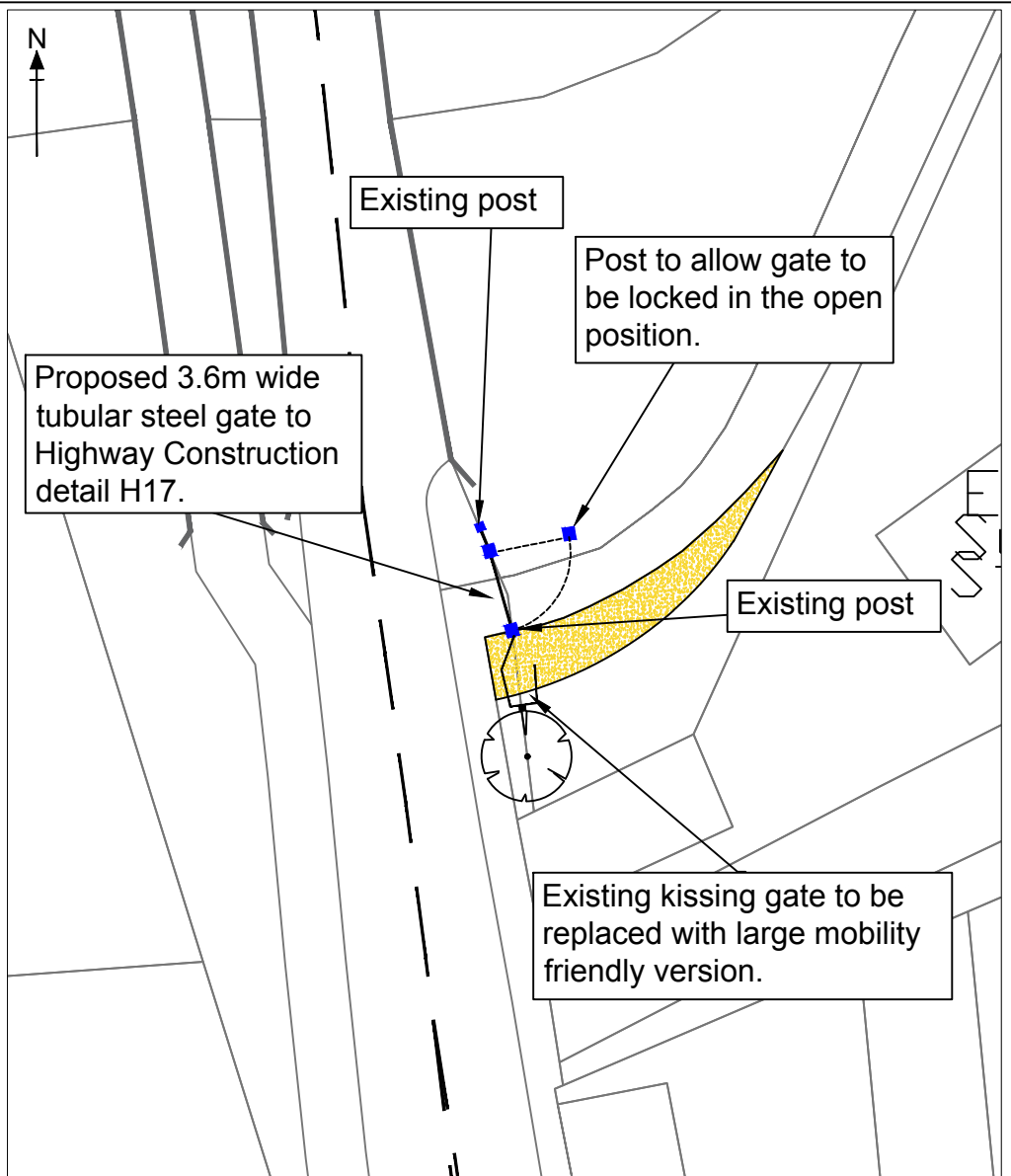
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SHERIFF HUTTON ROAD / THE VILLAGE
SAFETY IMPROVEMENTS FEASIBILITY STUDY
SITE DRAWING

TP/150008/APPENDIX A



KEY:
 Extents of new path widening



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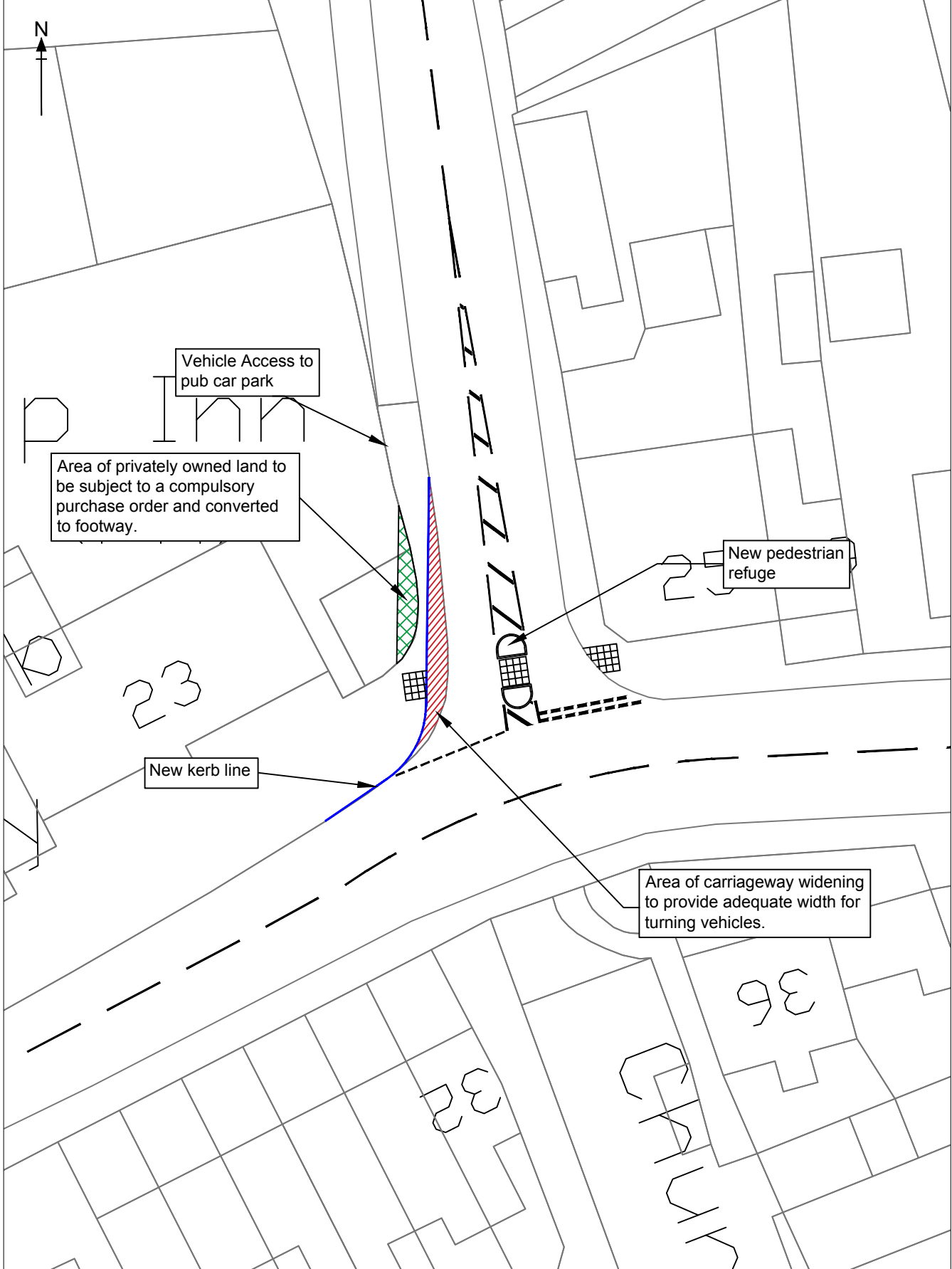


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SHERIFF HUTTON RD / THE VILLAGE
 SAFETY IMPROVEMENTS FEASIBILITY STUDY
 GATE IMPROVEMENT PLAN

TP/150008/APPENDIX B

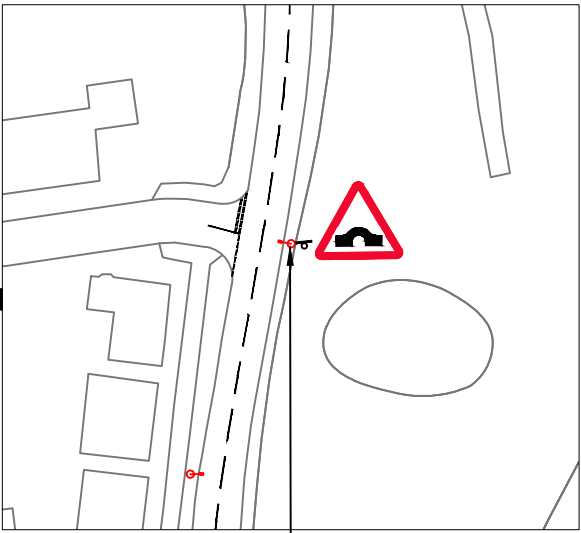
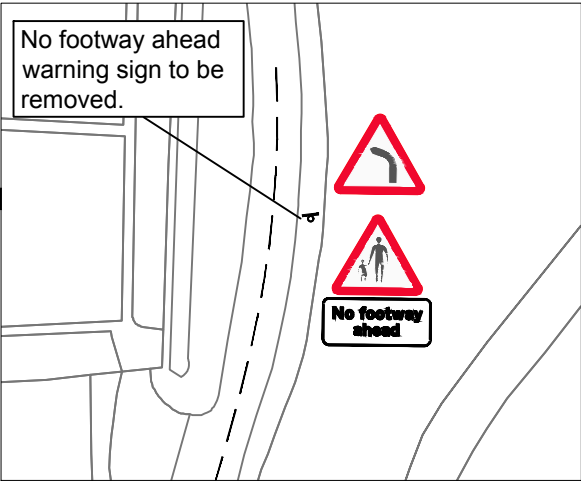
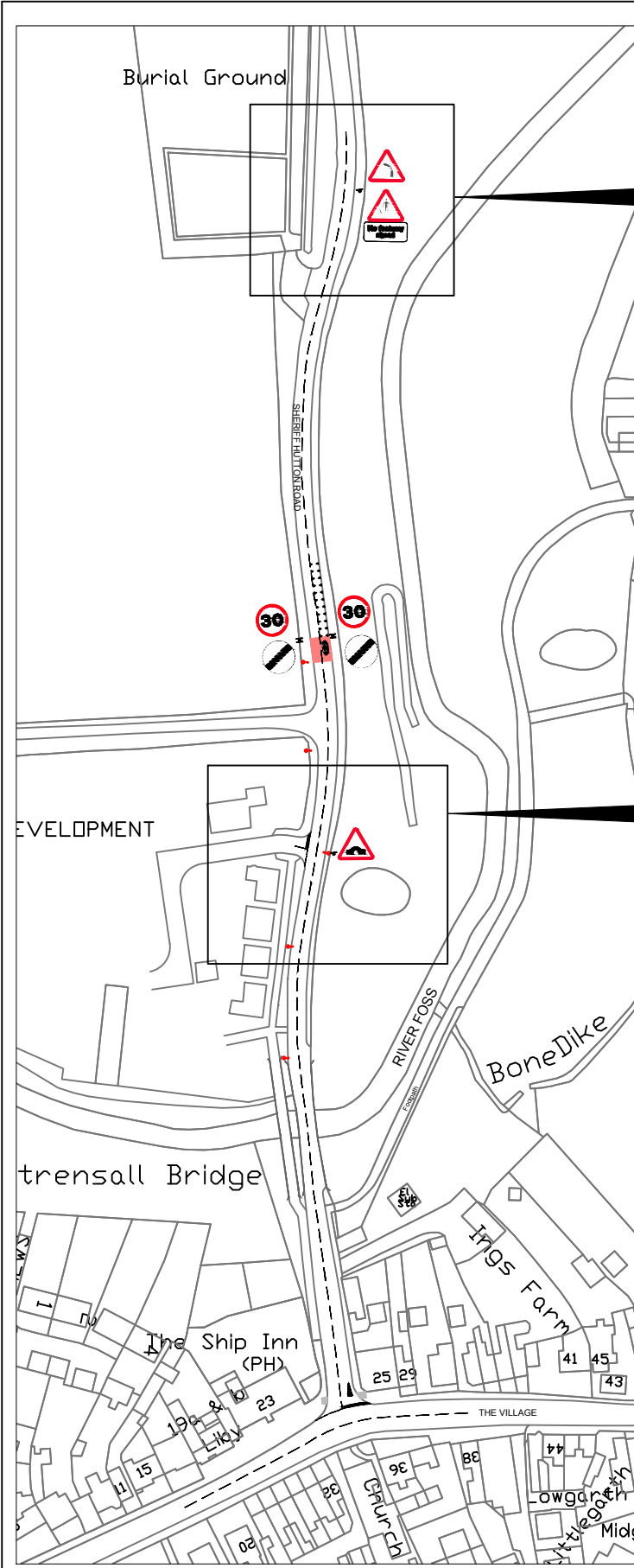
APPENDIX B



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SHERIFF HUTTON ROAD / THE VILLAGE
 SAFETY IMPROVEMENTS – FEASIBILITY STUDY
 PEDESTRIAN REFUGE, OUTLINE DESIGN

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Introduce a warning sign with vehicle activated 'SLOW DOWN' LED text plate. Mounted on existing lighting column.

Standard retroreflective warning sign with supplementary plate and grey backing board.

Flashing LED panel activated based on approaching vehicle speed.



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SHERIFF HUTTON ROAD / THE VILLAGE SAFETY IMPROVEMENTS – FEASIBILITY STUDY VEHICLE ACTIVATED SIGN

| REV | AMENDMENTS | DATE | TP/150008/APNDX D | SCALE | NTS |
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CALCULATION OF FIRST YEAR RATE OF RETURN FOR SCHEME OPTIONS

$$\text{First Year Rate of Return} = \frac{(\text{forecast casualty reduction} \times \text{average cost per casualty}) \times 100}{\text{estimated scheme cost}}$$

Result is given as a percentage

Notes.

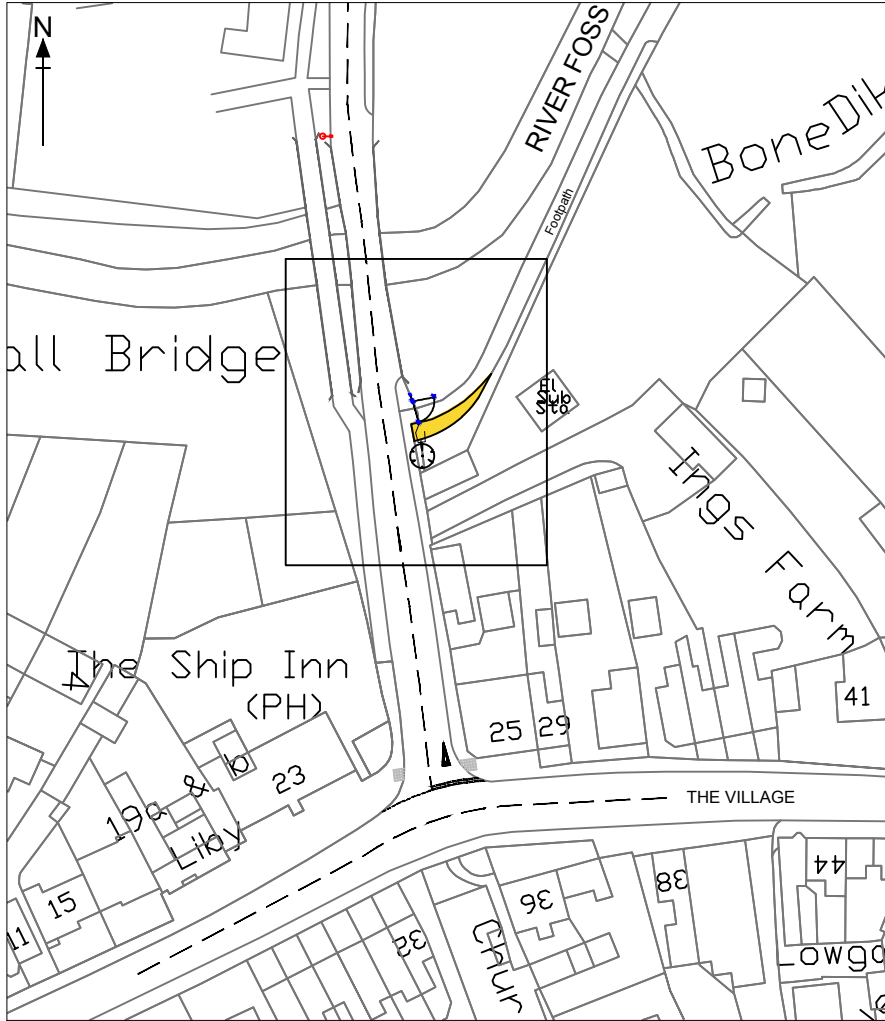
1. The average cost per casualty accident, in a built up area, is £91,112 and is taken from the Transport Analysis Guidance October 2013.
2. The number of casualties at the site is 1 in the last 3 years.


Pedestrian refuge option.

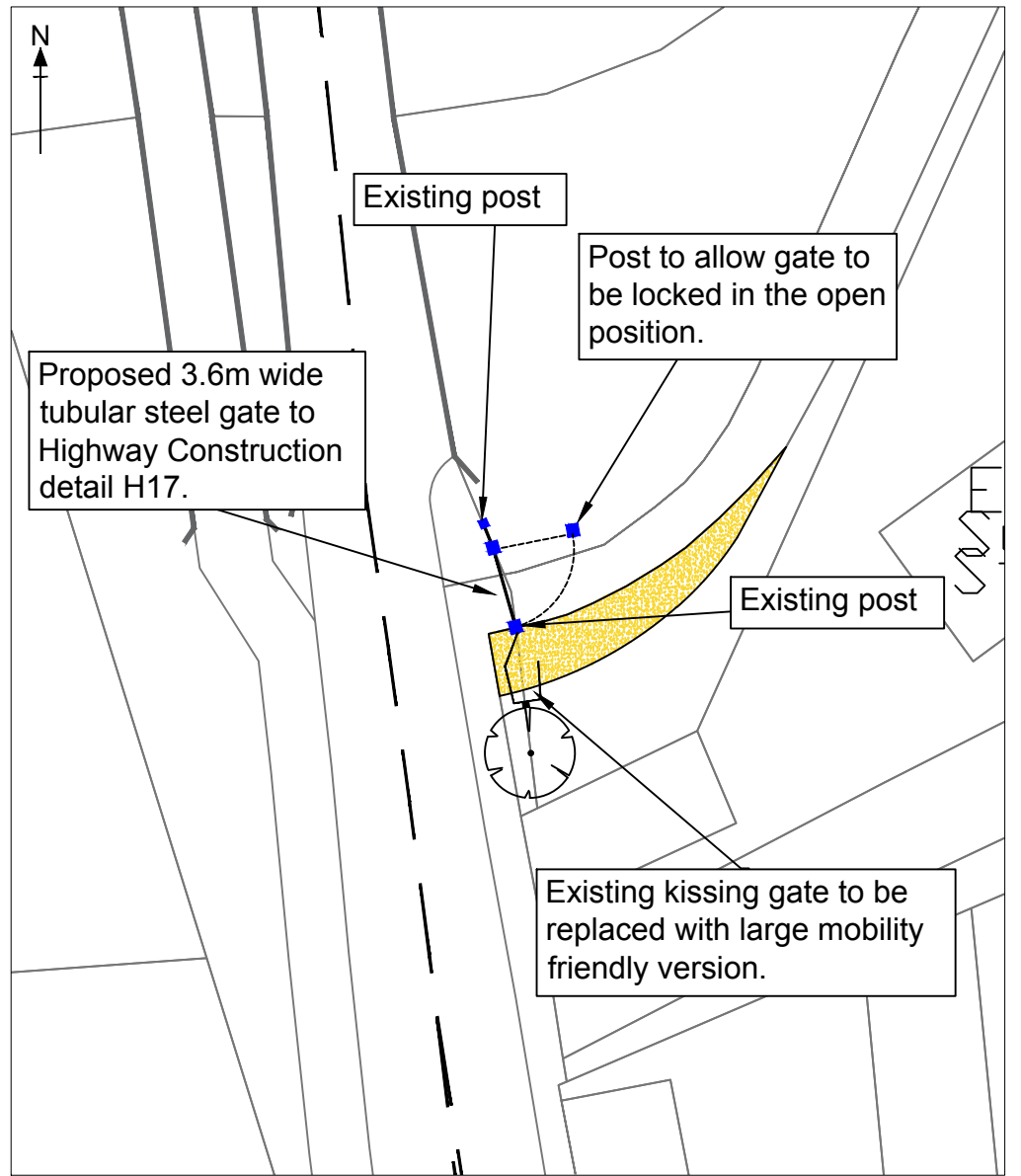
| | |
|--------------------------|--|
| Estimated cost of option | £60,820 |
| No of casualties saved | 0.33 casualties per year (1 over 3 years) |
| FYRR | $= \frac{(0.33 \times £91,112) \times 100}{£60,820}$ |
| | = 49% |

Signing option.

| | |
|--------------------------|---|
| Estimated cost of option | £5,000 |
| No of casualties saved | 0.16 casualties per year (0.5 over 3 years) |
| FYRR | $= \frac{(0.16 \times £91,112) \times 100}{£5,000}$ |
| | = 292% |



KEY:
 Extents of new path widening



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| DATE | 15/03/16 | | | |

SHERIFF HUTTON RD / THE VILLAGE
 SAFETY IMPROVEMENTS FEASIBILITY STUDY
 GATE IMPROVEMENT PLAN

TP/150008/ANNEXC

ANNEX C



City & Environmental Services

Hazel Court Eco Depot
James Street
York
YO10 3DS

Contact: Ben Potter
Tel: 01904 553496
Email: ben.potter@york.gov.uk

26th May 2016

Dear Resident,

Consultation, Vehicle Activated Sign – Sheriff Hutton Bridge approach

Following the receipt of a petition from local residents calling for measures to protect children crossing the junction of Sheriff Hutton Road and The Village in Strensall, a feasibility study has been completed to evaluate potential measures.

The proposed scheme recommended in the feasibility report is to provide a sign on the approach to the bridge warning drivers of the potential for pedestrians crossing. A controlled crossing such as a zebra or signalised crossing was considered for the area but could not be recommended due to the hump back bridge reducing visibility on approach.

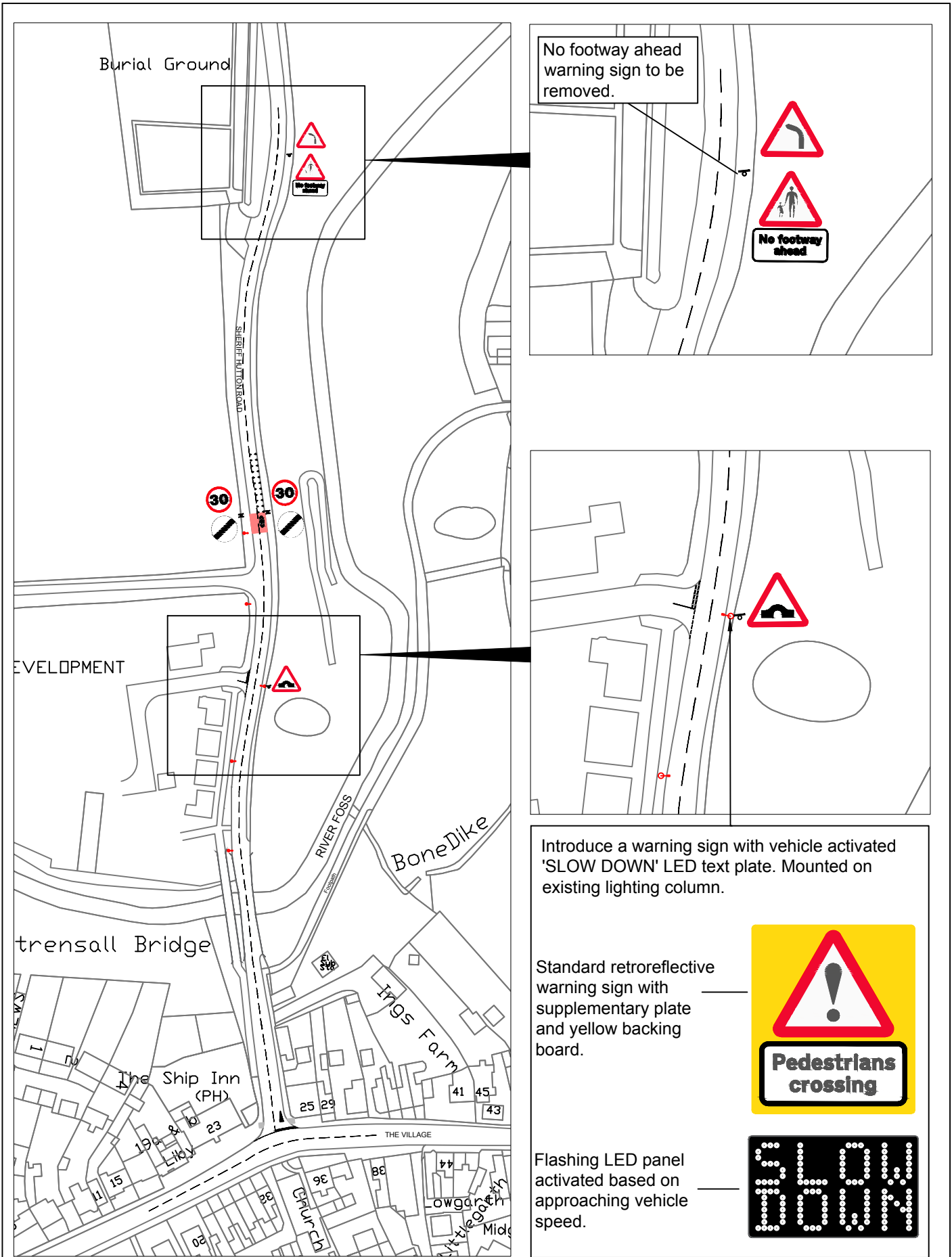
The proposed sign consists of two elements, a standard exclamation mark warning sign with a supplementary plate including the text 'Pedestrians crossing' and to provide a further message a vehicle activated LED sign plate which flashes the text 'SLOW DOWN' mounted underneath. The LED text would be activated based on vehicle approach speed. Additional minor alterations to other signing in the area is also planned and is shown on the drawing on the back of this letter.

If you would like to make any comments regarding these proposals, please submit them to me at the above address no later than **Thursday 16th June 2016**, either in writing or by email.

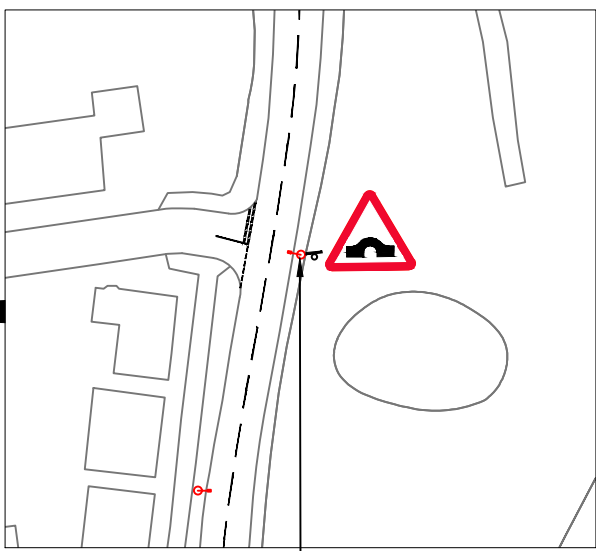
The feasibility report will be presented to the Executive Member for Transport and Planning at a Decision Session meeting on 11th August 2016 for consideration alongside any comments received.

Yours faithfully

Ben Potter
Engineer – Transport Projects



No footway ahead warning sign to be removed.

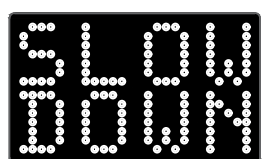


Introduce a warning sign with vehicle activated 'SLOW DOWN' LED text plate. Mounted on existing lighting column.

Standard retroreflective warning sign with supplementary plate and yellow backing board.



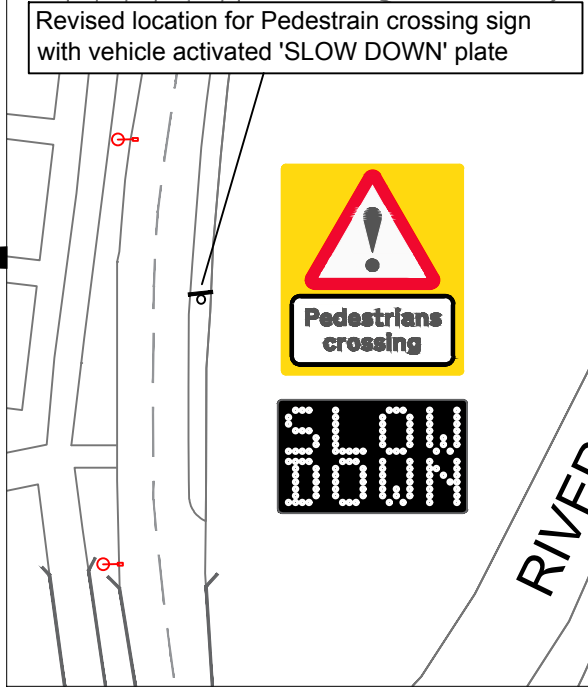
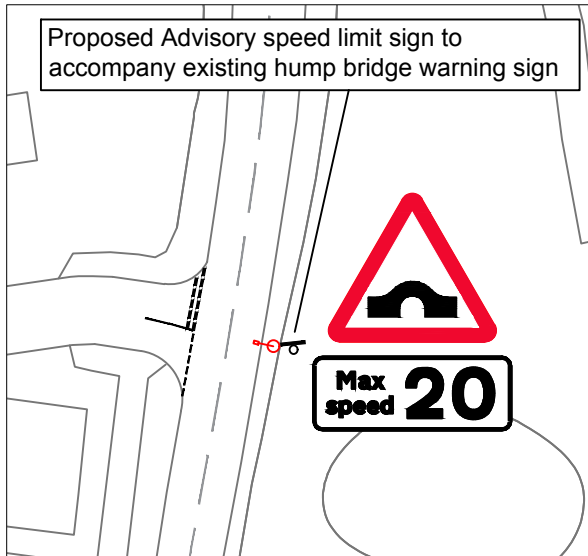
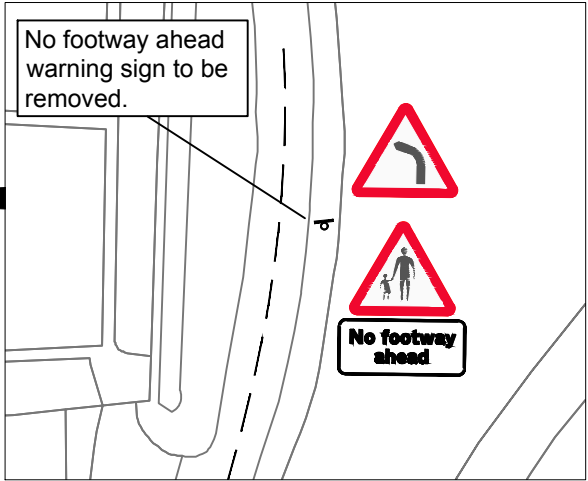
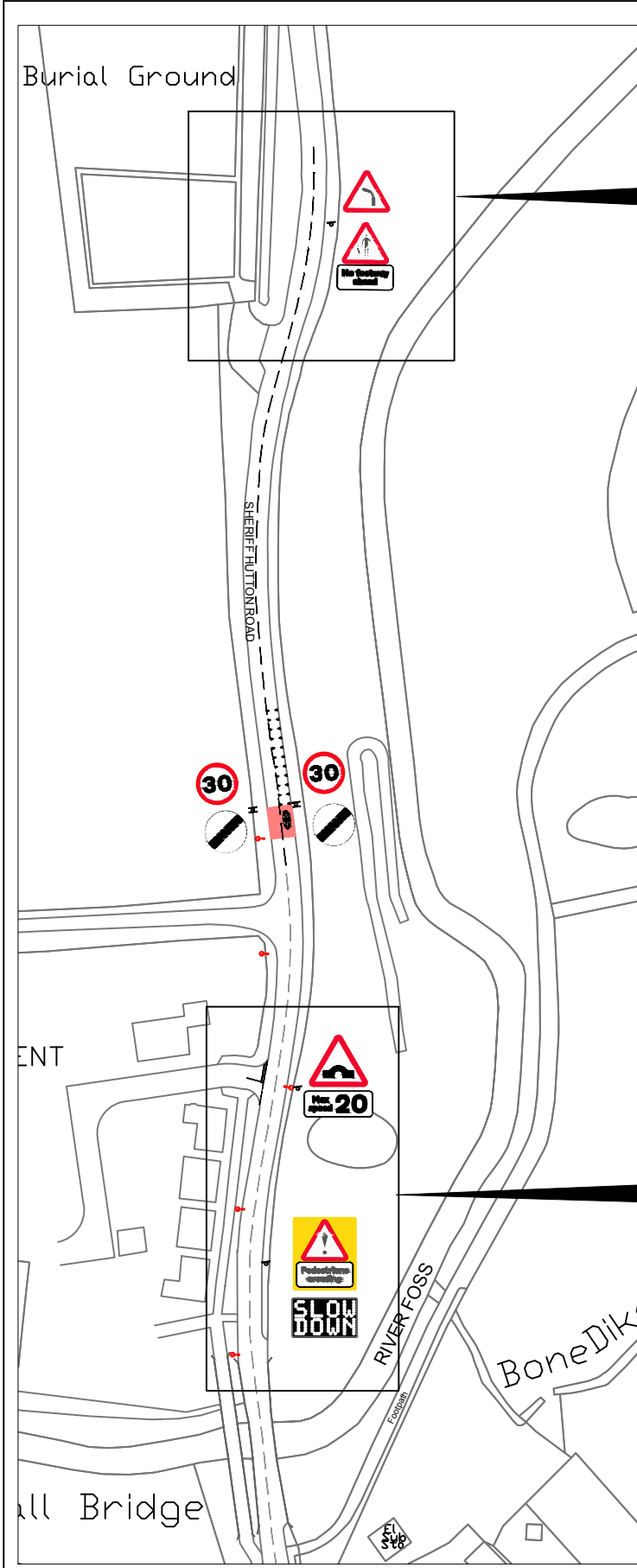
Flashing LED panel activated based on approaching vehicle speed.



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SHERIFF HUTTON ROAD / THE VILLAGE
FEASIBILITY STUDY
PROPOSED VEHICLE ACTIVATED SIGN

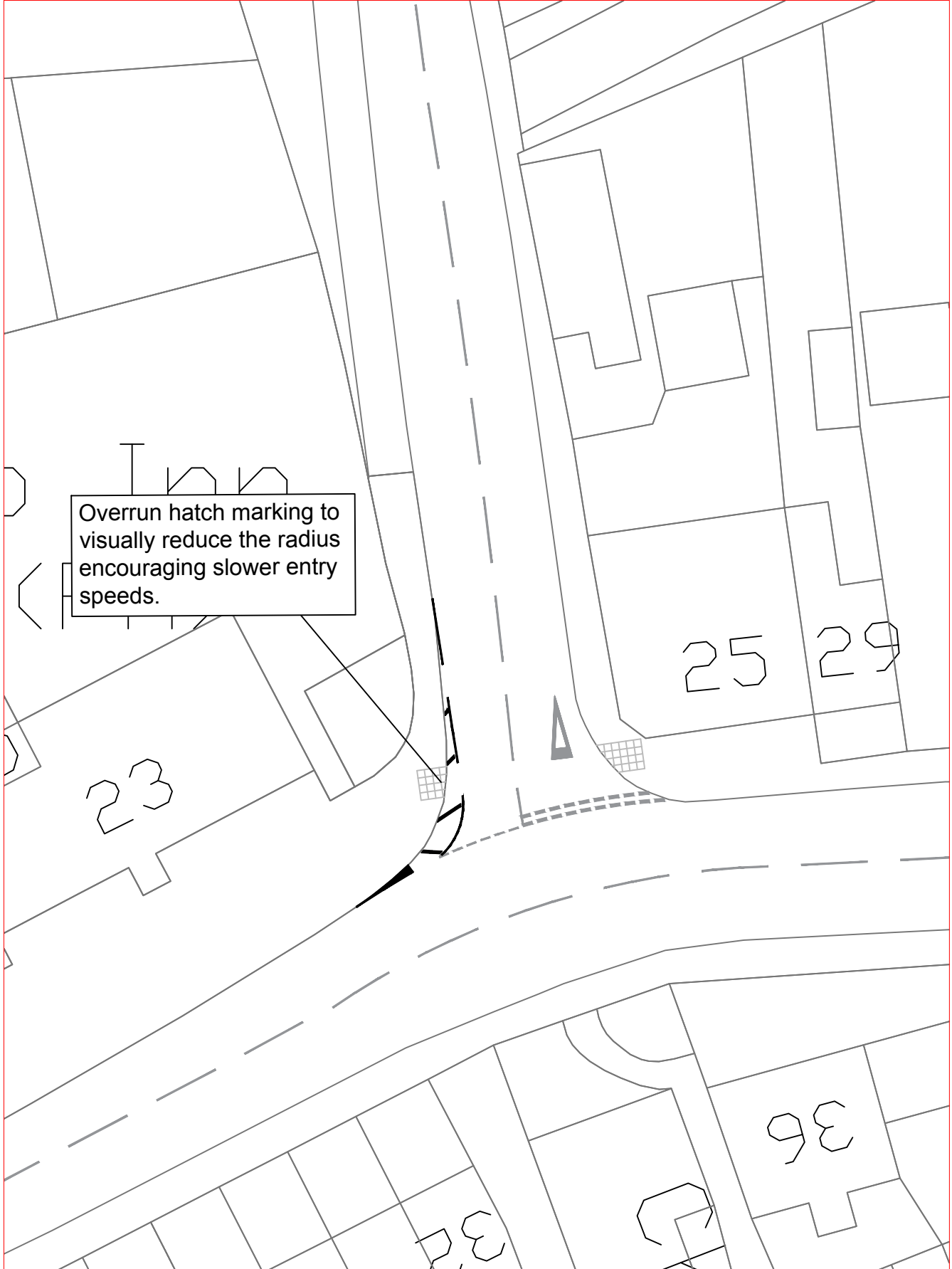
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SHERIFF HUTTON ROAD / THE VILLAGE
 SAFETY SCHEME
 AMENDED SIGN PROPOSALS

| REV | AMENDMENTS | DATE | TP/150008/ANX E | SCALE | NTS |
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| | | | B.POTTER | DATE | 01/07/16 |



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SRTS – Sheriff Hutton Rd / The Village, Strensall
 Additional proposal
 Radius hatch marking

| REV | AMENDMENTS | DATE | TP/150008/ANNEXF | SCALE | NTS |
|-----|------------|------|------------------|-------|------------|
| | | | B Potter | DATE | 21/06/2016 |

Drawn: B Potter
 Checked: A N OTHER