

# Tolney Lane Flood Alleviation Scheme

784-B039140



## Options Appraisal Report



NEWARK &  
SHERWOOD  
DISTRICT COUNCIL

## Final issue

**Newark and Sherwood District Council**

**Date of issue 24/11/22**

**Document prepared on behalf of Tetra Tech Limited. Registered in England number:  
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# DOCUMENT CONTROL

|                        |   |
|------------------------|---|
| <b>Document:</b>       | Options Appraisal Report  |
| <b>Project:</b>        | Tolney Lane Flood Alleviation Scheme  |
| <b>Client:</b>         | Newark and Sherwood District Council  |
| <b>Project Number:</b> | 784-B039140   |
| <b>File Origin:</b>    | \\lds-dc-vm-101\Data\Projects\784-B039140 Tolney Lane FAS\60 Project Output\61 Work in Progress\Options\Tolney_Lane_Options_P02_S3.docx |

|                                 |                        |                     |     |
|---------------------------------|------------------------|---------------------|-----|
| <b>Revision:</b>                | P01                    | <b>Prepared by:</b> | AO  |
| <b>Date:</b>                    | 24/11/22               | <b>Checked by:</b>  | LV  |
| <b>Status:</b>                  | S0 – Work in progress  | <b>Approved By:</b> | RBC |
| <b>Description of Revision:</b> | First draft for review |                     |     |

|                                 |                         |                     |     |
|---------------------------------|-------------------------|---------------------|-----|
| <b>Revision:</b>                | P02                     | <b>Prepared by:</b> | AO  |
| <b>Date:</b>                    | 28/11/22                | <b>Checked by:</b>  | LV  |
| <b>Status:</b>                  | S3 – Draft issue        | <b>Approved By:</b> | RBC |
| <b>Description of Revision:</b> | Second issue for review |                     |     |

|                                 |  |                     |  |
|---------------------------------|--|---------------------|--|
| <b>Revision:</b>                |  | <b>Prepared by:</b> |  |
| <b>Date:</b>                    |  | <b>Checked by:</b>  |  |
| <b>Status:</b>                  |  | <b>Approved By:</b> |  |
| <b>Description of Revision:</b> |  |                     |  |

|                                 |  |                     |  |
|---------------------------------|--|---------------------|--|
| <b>Revision:</b>                |  | <b>Prepared by:</b> |  |
| <b>Date:</b>                    |  | <b>Checked by:</b>  |  |
| <b>Status:</b>                  |  | <b>Approved By:</b> |  |
| <b>Description of Revision:</b> |  |                     |  |

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## ACRONYMS/ABBREVIATIONS

| Acronyms/Abbreviations | Definition  |
|------------------------|---|
| AEP                    | Annual Exceedance Probability   |
| BNG                    | Biodiversity Net Gain   |
| CC                     | Climate Change  |
| DTM                    | Digital Terrain Model   |
| EA                     | Environment Agency  |
| FAS                    | Flood Alleviation Scheme  |
| FCERM                  | Flood and Coastal Erosion Risk Management                             |
| FDGiA                  | Flood Defence Grant in Aid  |
| N&SDC                  | Newark and Sherwood District Council                                  |
| NPPF                   | National Planning Policy Framework                                    |
| NPPG-FRCC              | National Planning Policy Guidelines for Flood risk and Coastal Change |
| OA                     | Options Appraisal   |
| OM                     | Outcome Measure   |
| PV                     | Present Value   |
| RP                     | Return Period   |
| SoP                    | Standard of Protection  |
| TLGTCS                 | Tolney Lane Gypsy and Traveller Community Site                        |

## 1.0 INTRODUCTION

### 1.1 PURPOSE OF REPORT

---

- 1.1.1 Tetra Tech (TT) have been commissioned by Newark and Sherwood District Council (N&SDC) to undertake an options appraisal to reduce flooding to the Tolney Lane Gypsy and Traveller Community Site (TLGTCS) in Newark-on-Trent. The site is at substantial risk from fluvial flooding from the River Trent along with access/egress being cut off during flooding events.
- 1.1.2 As of February 2019, there were 317 pitches located across 18 plots, comprised of a mixture of caravans, static caravans and dwellings. Under the National Planning Policy Framework (NPPF) Annex 3 for Flood Risk Vulnerability, this type of development is classed as 'Highly Vulnerable'. The site is at a high risk of flooding, with being in Flood Zone 3a and with the heightened effect of Climate Change, will only be exacerbated.
- 1.1.3 The purpose of this appraisal is to develop a full understanding of the flood risk of the TLGTCS and develop a preferred solution for a Flood Alleviation Scheme (FAS) that will reduce flood risk to an acceptable standard.

### 1.2 SCOPE OF REPORT

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- 1.2.1 An initial Options Appraisal (OA) was carried out by WYG in 2019 in which five options were assessed. From that report a 'Do something' option was chosen and will be assessed against a 'Do minimum' option to understand the benefits of the scheme for the site and potentially adjacent areas.

### 1.3 LIMITATIONS

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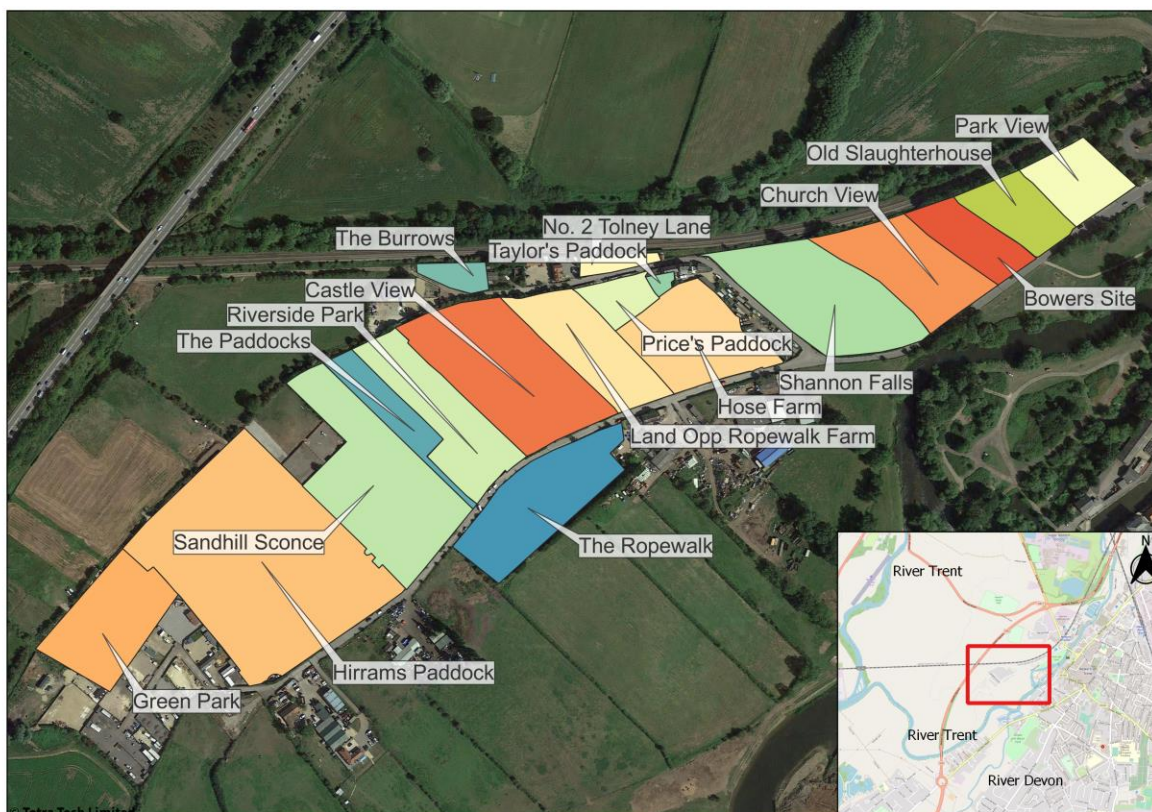
- 1.3.1 This report has been prepared by TT on behalf of the client in connection with the scope of the report as described in Section 1.1 above and taking into account the particular instructions and requirements set out in TT's fee proposal and the Client's acceptance. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.
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## 2.0 SITE DESCRIPTION

### 2.1 LOCATION

- 2.1.1 The TLGTCS is located on the northern floodplain of the River Trent (SK 78950 53888). The site comprises of a total of 18 plots (see Figure 2-1), however this appraisal focuses only on the five to the east. The whole TLGTCS is approximately 14ha, although development has extended beyond boundaries first set out in the proposal dated in 2018 (see Figure 2-1 for areas outside of the highlighted development zones). Given the degree of flood risk to the area, consideration was given as part of the 2016 update to the Strategic Flood Risk Assessment as to whether the existing sites at Tolney Lane could be relocated. This was however concluded to not be feasible.
- 2.1.2 The site is bounded by a railway embankment (Nottingham to Lincoln line) to the north, the Riverside car park to the east, the rest of the TLGTCS to the west and the River Trent to the south, which at its closest point is 12m away from the site. Tolney Lane, adjoins only to Great North Road (B6326) 250m away, leaving it as the only access and egress to vehicles. There are further footpaths that can cross the Trent at Newark Town Lock and Newark Trent Waterfall to Mill Lane.
- 2.1.3 The River Trent flows towards the northwest before being becoming tidally influenced at Cromwell Weir, around 8.5km downstream. The River Devon confluences with the Trent opposite the site. Both rivers are classed as 'Main Rivers', and therefore under the jurisdiction of the Environment Agency (EA).

Figure 2-1- TLGTCS location map.



2.1.4 The site slopes west to east with a lower area towards the eastern boundary (lighter green area in Figure 2-2).

Figure 2-2 Topography of the site



## 2.2 FLOODING

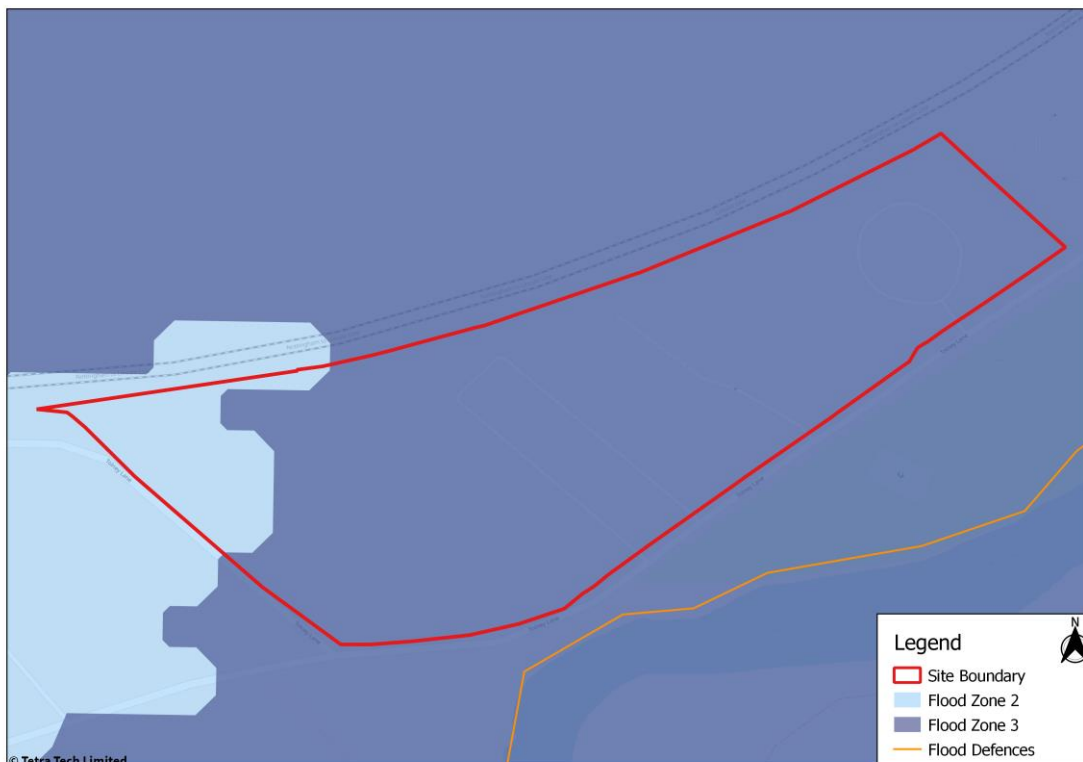
### Fluvial

The River Trent is designated as a main river and is at risk of overtopping its defences in events below the 1% Annual Exceedance Probability (AEP) event and Flood Zone 2 a 0.1% AEP year event. As demonstrated in



- 2.2.1 Figure 2-3, the majority of the site is within Flood Zone 3 apart from the north-western corner of the site. According to the National Planning Policy Guidelines for Flood Risk and Coastal Change (NPPG-FRCC) the development should not be permitted since it is a high vulnerability.
- 2.2.2 With development already established onsite, the Options Appraisal (OA) therefore needs to be used to assess the action taken to protect these sites and to help reduce the Flood Zone, especially in the eastern extent, while not accruing flood risk elsewhere.

Figure 2-3 Flood Map for Planning



2.2.3 The modelled 1% AEP event confirms that the site is at risk (see Figure 2-4). With flood depths over 1.2m towards the eastern boundary, the hazard rating is greater than 2, meaning there is a risk to even to the emergency services accessing the area (see Figure 2-5).

Figure 2-4- 'Do minimum 1% AEP modelled flood depth

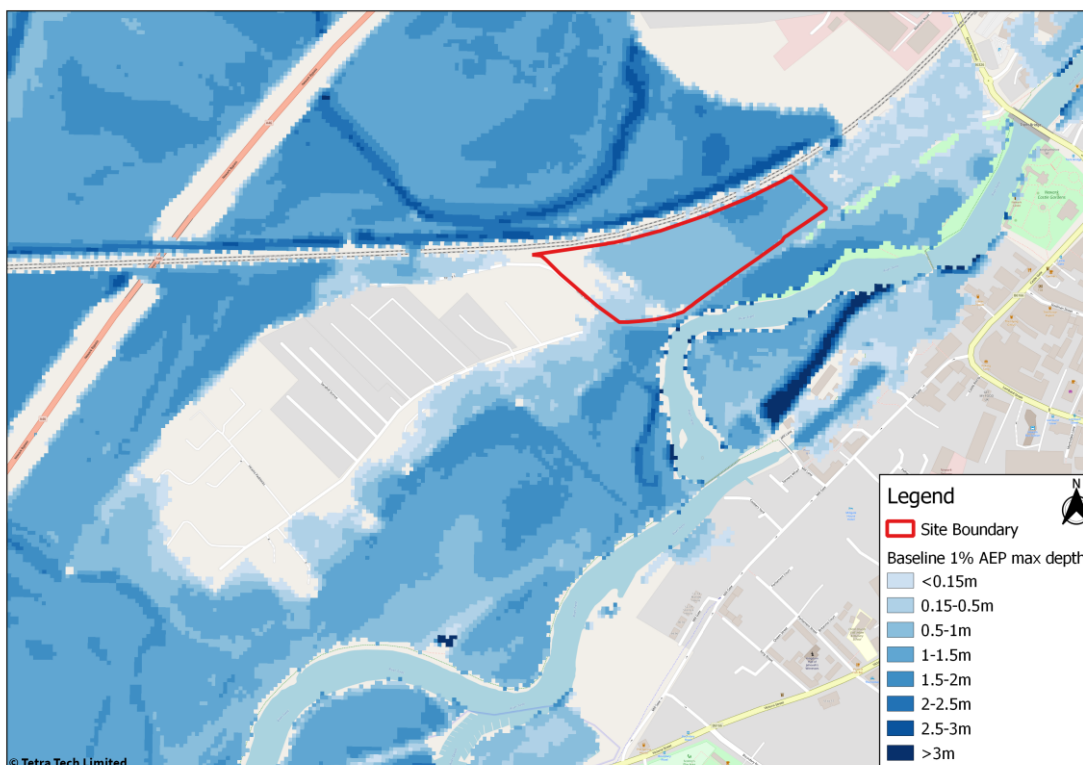
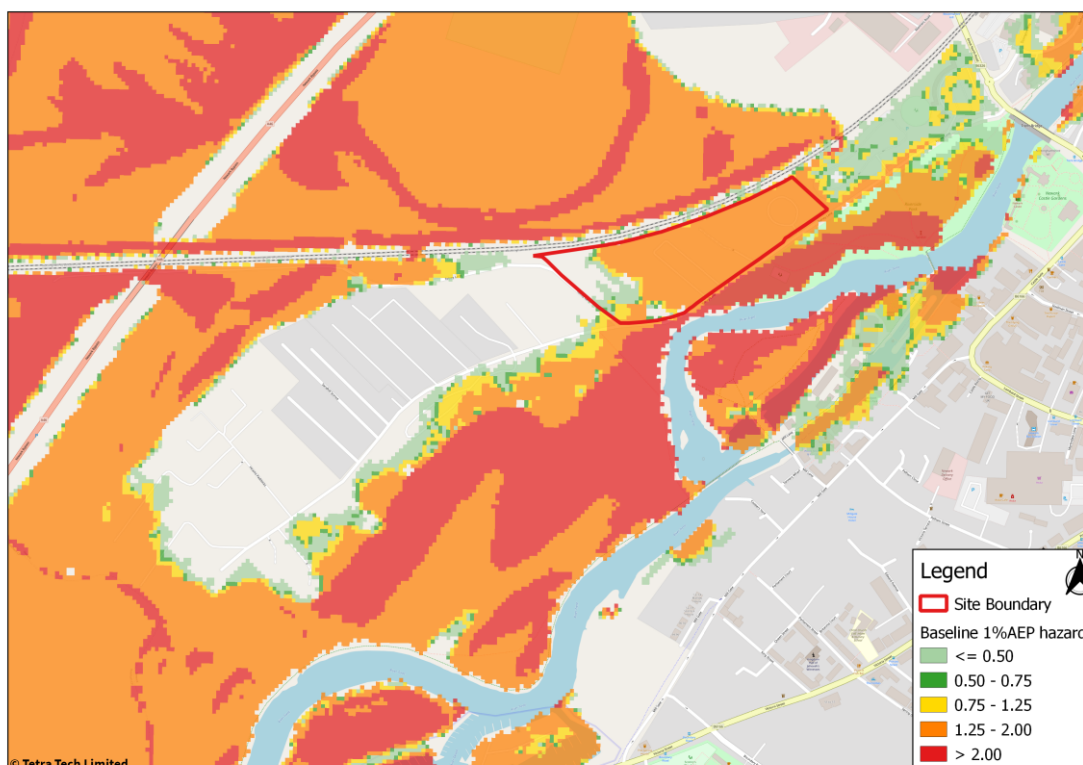


Figure 2-5- 'Do minimum 1% AEP modelled hazard.

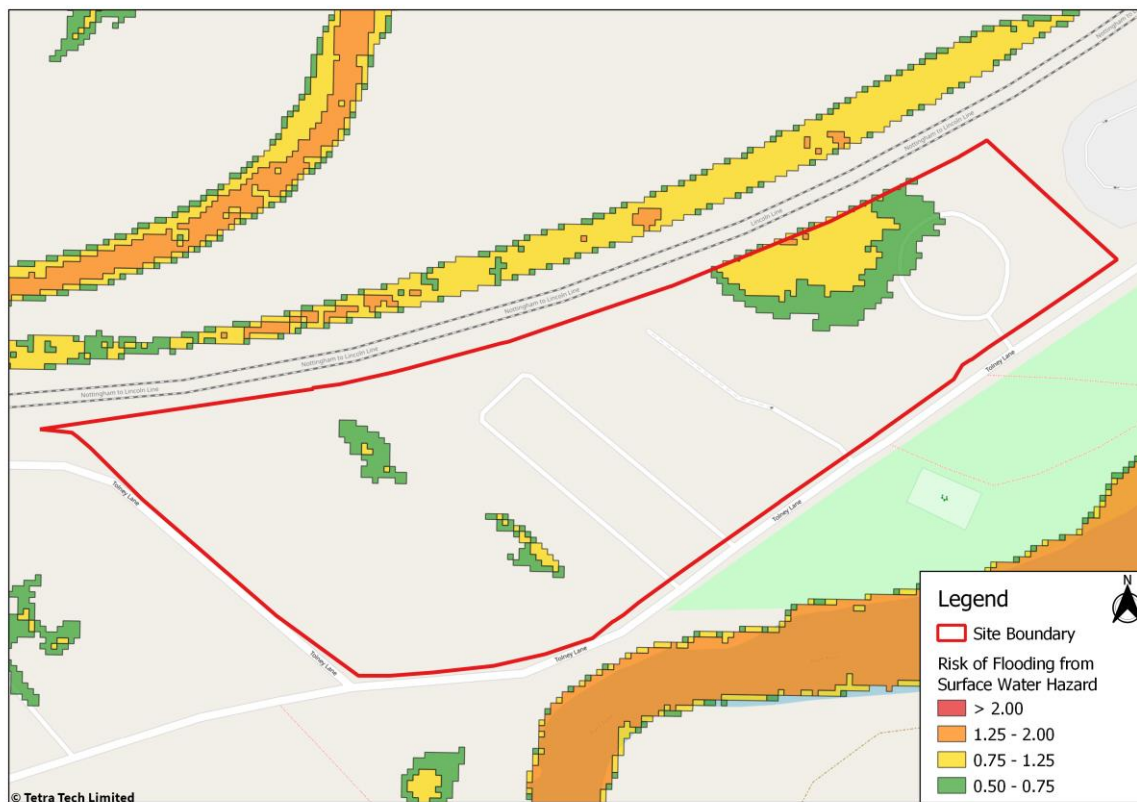


2.2.4 The OA will determine if the preferred option achieves the objective of reducing flood risk to the site, and prove that the flood risk is not passed elsewhere. This will be done through modelling the preferred option and comparing to the 'do minimum' scenario.

## Surface Water

2.2.5 The Risk of Flooding from Surface Water (RoFSW) for the site shows areas that are hazardous (see Figure 2-6). Using the 0.1% AEP RoFSW as a proxy for a 1% AEP + CC event, the highest hazard ranking for the site is 0.75 – 1.25, with a very small section of 1.25- 2.00 in the Old Slaughter House site.

Figure 2-6- RoFSW Hazard map. Data from Environment Agency.



## 2.3 SITE CONSTRAINTS

2.3.1 The TLGTCS is within a complex area for development, with certain site constraints limiting what can be achieved. The main constraints are identified below:

- The northern edge of the site is directly in contact with the Nottingham to Lincoln Line raised embankment (approximately 1.1m). There are two culverts through the embankment that allow water to travel under the railway, linking the Newark Branched River Trent and the Old Trent Dyke.
- The southern boundary is the River Trent with a buffer ranging 12 – 20m.
- The eastern boundary is the Riverside Car Park.
- Wider site considerations:
  - Stone footbridge (Longstone Bridge) crossing near Newark Trent Waterfalls which is of historic interest.
  - Private fishery at Cope
  - Steel footbridge at Riverside Park

## 3.0 OPTION APPRAISAL

### 3.1 PREVIOUS OPTIONEERING

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In the [2019 OA report](#) five initial options were identified and assessed to deal with the flood risk in Tolney Lane. These five options were considered in the context of the site and the flood risk knowledge by N&SDC Officers. This allowed the selection of three the options to be taken forward to the next stage of assessment.

The two options discounted included:

- the use of Bailey Bridges to exit the site to Great North Road due to the existing topography of the site as well as insufficient reactive lead time; and
- the use of flood resilience measures due to the difficulty of implementing them in the type of properties existing on site

The three options taken forward were formed by a combination of elements in the preliminary five options, and they were as follow:

- Option 1: Raising Tolney Lane and defending plots. This option includes the raising Tolney Lane to a level just above the 1% AEP flood level. This would provide a dry access/egress from site to the Great North Road on all events up to the 1% AEP event. This option will have to include a flood wall from Tolney Lane to the railway embankment along the eastern side of the site. Furthermore, this option will require mitigation to minimise adverse impacts elsewhere, including providing flood compensation by lowering parts of the flood plain and improvements to flood plain connectivity by including a channel and culvert under the raised Tolney Lane linking to the existing culvert under the railway.
- Option 2: Emergency access egress route to A46. This option analysed the possibility of including a perpendicular approach to the A46 from the Green Park plot and a route alongside the base of the A46 embankment. This option will require including defence to plots as per option 1, as well as new culverts at all points where flood plain conveyance routes are crossed by the road extension. Concerns were expressed on this option regarding introducing an emergency exit onto the strategic road network, which is also proposed to be dualled as part of the A46 improvements.
- Option 3: Defence to the site plus emergency access route to A46 and mitigations as Option 2

These three options were modelled using the existing River Trent model and their basic elements were costed.

### 3.2 PROPOSED OPTION

---

3.2.1 The chosen 'Do something' option seeks to achieve the objective to reduce flood risk to the TLGTCS and to not pass that risk elsewhere. The following elements comprise the proposed option:

- Raising of Tolney Lane and access routes in order to preserve access and egress to the site in accordance with NPPF Paragraph 167E.

- Providing dry access/egress to the site to a 1% AEP level of protection due to the connecting road itself becoming inundated when a larger event is used.
- The installation of a new flood wall on the eastern edge of the site.
- Installation of bypass channel, including a culvert under the raised Tolney Lane, leading to the northern side of the railway embankment, preserving floodplain connectivity.
- The installation of a surface water pumping station to manage direct surface water flooding onsite when gravity drainage is not possible.
- Creation of a flood storage area downstream of the site.
  - Area to be lowered to account for the lost floodplain; and
  - If suitable, the area can be managed into a freshwater wetland space.
- Creation of a temporary access road during construction of the flood defence scheme. This temporary road will be on the wet side of the existing Tolney Lane. Traffic coming from the western edge of the site will have to access the temporary road via Church View rather than directly from Tolney Lane.

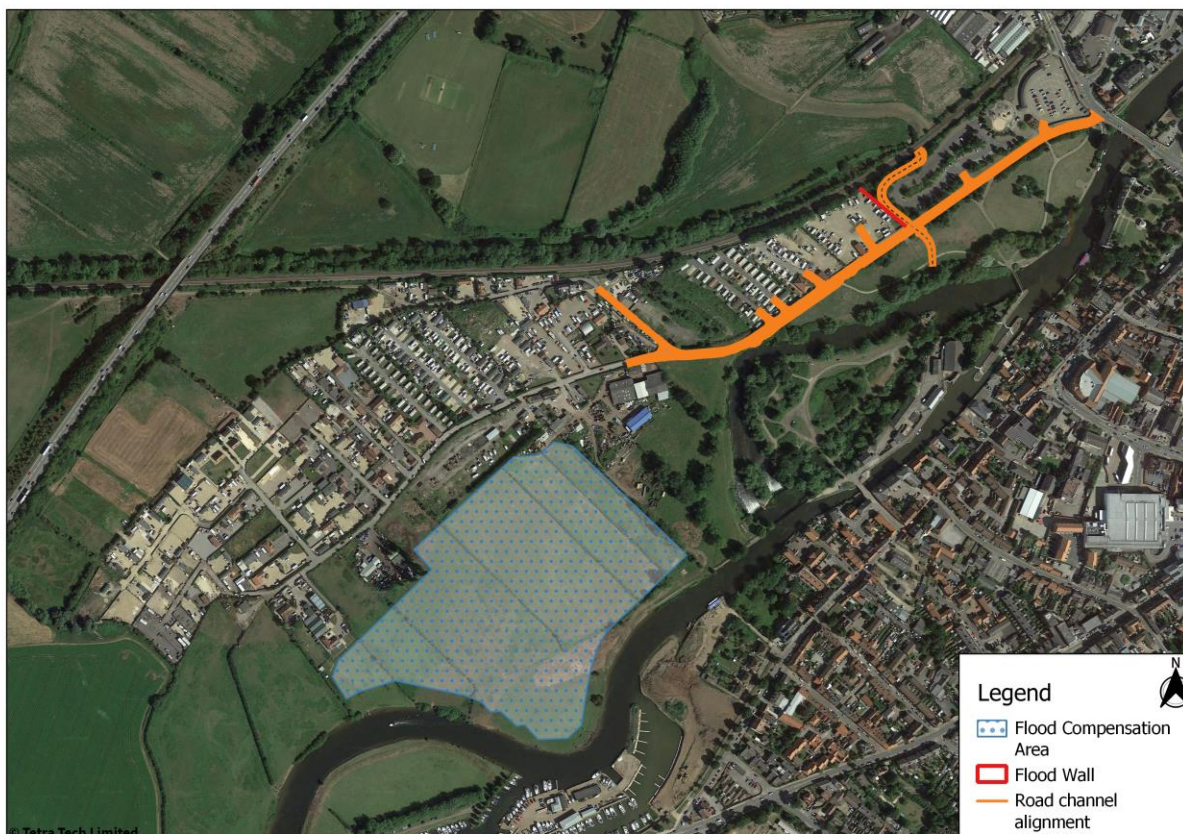
3.2.2 A breakdown of the proposed measures is given below in Table 3-1

Table 3-1- Proposed option measure breakdown

| Proposed measures                             | Technical Details  |
|---|--|
| New Road                                      | 6C design for Residential Access Road serving 150-400 dwellings with a CBR of 2%.  |
| Seepage cut off under road                    | 440 m long and 6 m deep  |
| Flood Wall                                    | 70m long reinforced concrete wall (1.46m average height) with 6m deep sheet piling for seepage   |
| Accesses                                      | 6 new accesses from the new Tolney Lane level to the site and the car park   |
| Flood Gates                                   | 5 x 1 m (manual)   |
| Flood retaining walls (to allow road raising) | 220 m retaining wall eastern boundary of the site to the tie in at Great North Road and approximately 90 m on the western end to act as retaining wall for the road raising. Average height 1 m. |
| Temporary road                                | 40 mm surface course, 100 mm base with 200 mm subbase and 400 mm capping. No kerbing or drainage allowed for.  |
| Utilities diversion                           | Possible utilities in the area that will require diversion or to be incorporated in the design.  |
| Flood relief channel                          | Approximately 180 m long channel with 1 in 1 side slopes   |
| Culvert under Tolney Lane                     | 5 x 1.5 m  |
| Surface water pumping station                 | 50 litres per second   |

3.2.3 An indicative plan for the proposed options is given in Figure 3-1.

Figure 3-1 Proposed option indicative plan



### 3.3 MODELLED PERFORMANCE OF THE SCHEME

- 3.3.1 The 2018 River Trent hydraulic model was provided by the Environment Agency. The Digital Terrain Model (DTM) used by the model was updated for the most up to date available one and the model boundary was trimmed to reduce the run time.
- 3.3.2 Following several iterative runs to establish a baseline (the 'Do minimum') scenario for several Return Periods (RP), the proposed measures have been built into the model. The 1% AEP flood extent map is shown in Figure 3-2.
- 3.3.3 The comparison between the 1% AEP event, without the FAS and with it is shown in Figure 3-3. It shows that there is a reduction in the extent and depth of flood waters around the TLGTCS.

Figure 3-2-Do Something 1% AEP modelled flood depth

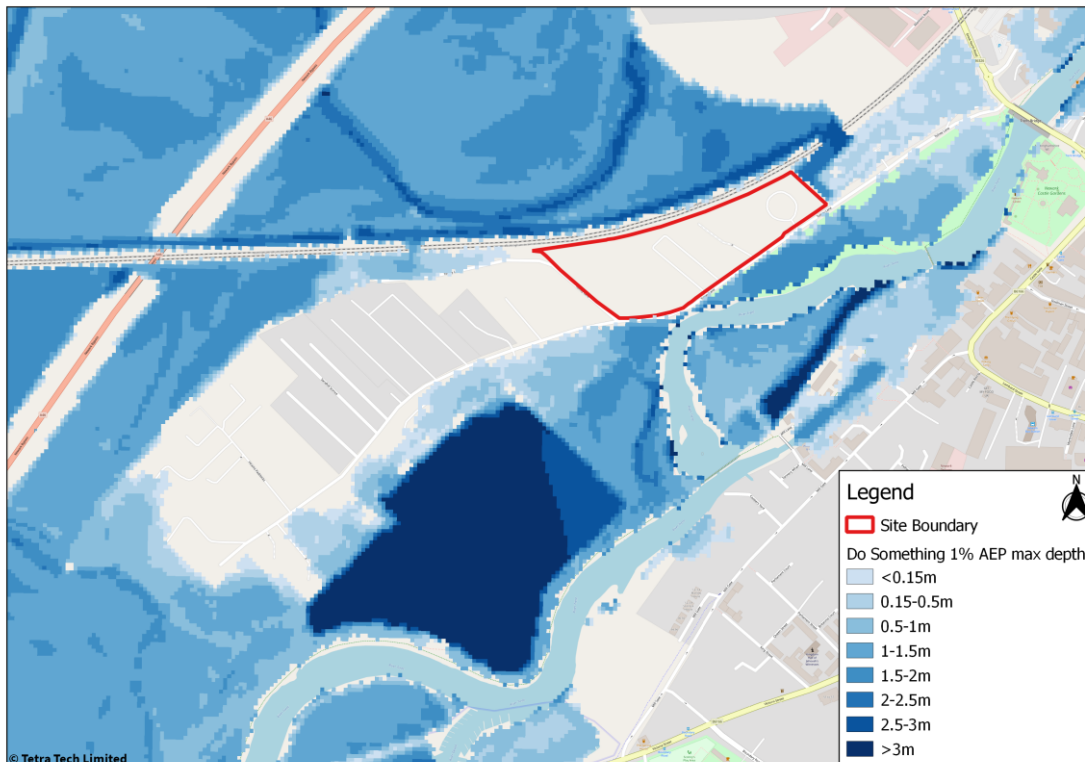
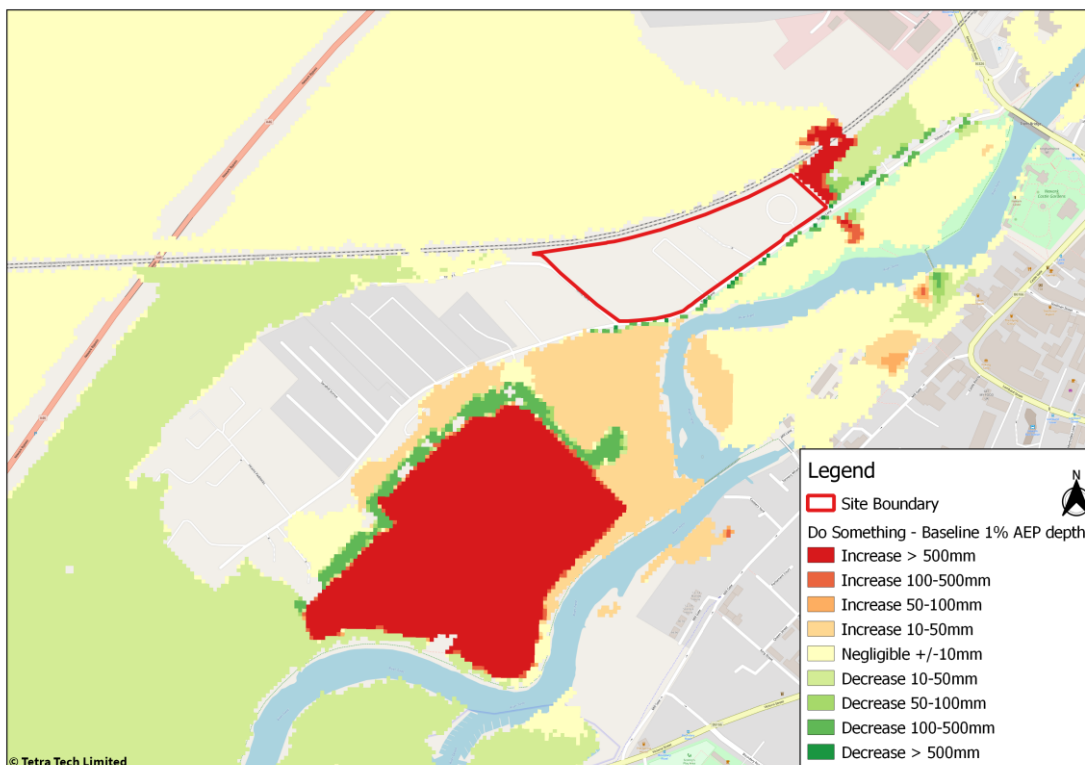


Figure 3-3 Comparison between 1% AEP with and without FAS

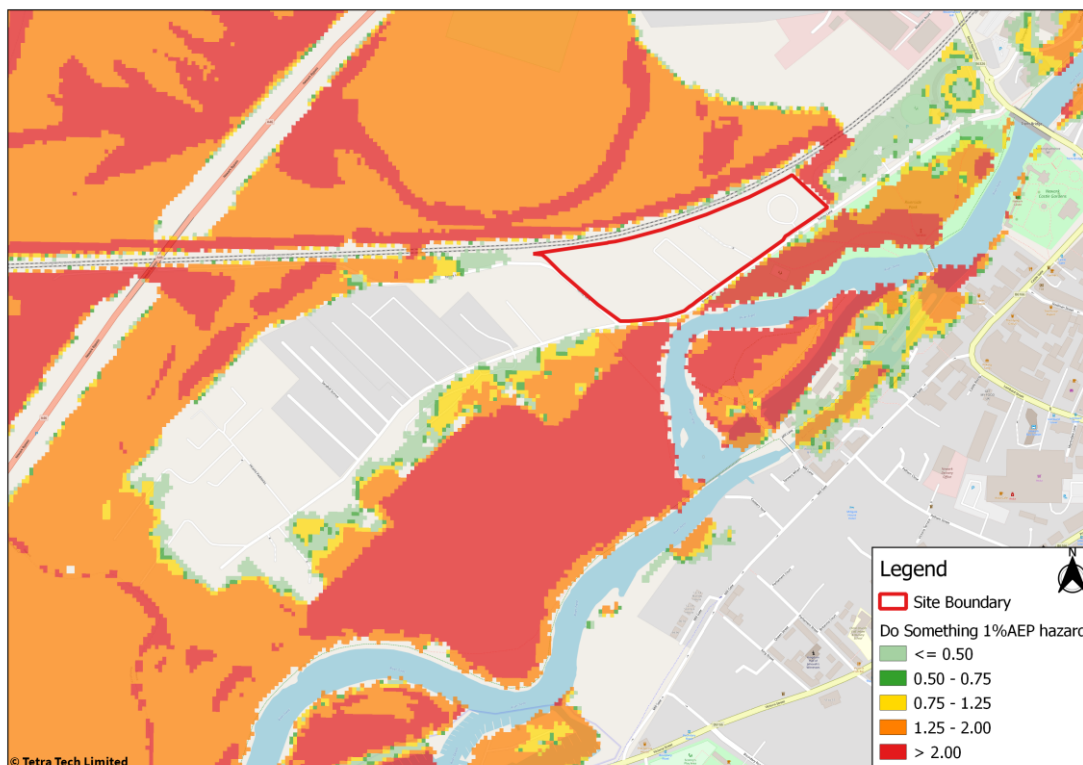


3.3.4 The potential hazard to the site is reduced (see Figure 3-4). A reduction in hazard is important for the FAS as it allows a condition of the NPPF to be achieved to allow safe access and egress from the site. Furthermore, the FAS does not pass flood risk to anywhere else within the immediate



vicinity of the study area with the exception of the surrounding fields. However it is noted that the hydraulic model used to make the assessment will require a number of refinements should the scheme proceed to the next stage. It was identified during modelling that a lot of assumptions have been made around the bypass channel and local structures therefore further assessment will be needed to ensure these elements are correctly represented.

Figure 3-4- Hazard for 1% AEP event with FAS.



### 3.4 PROPOSED OPTION APPRAISAL

3.4.1 The proposed option has been appraised using the following criteria:

- Flood Risk
  - Does the option meet the overall objective of reducing flood risk?
  - Would the delivery of the option result in increased flood risk elsewhere?
- Technical
  - Is it technically achievable and constructable?
  - Is the option robust and reliable?
  - What would the consequences of a failure be?
- Health and Safety
  - Could the option be delivered safely?
  - Could any risks be managed safely throughout the whole life cycle of the project?
  - Would there be any residual risks that cannot be safely managed?
- Environmental
  - Would the option have a positive or negative impact on the natural environment and habitat?
  - Does the option align with any strategic environmental goals?

- Is the option appropriate for any specific land-use designations?
- Economic/Financial
  - Would the benefits exceed the costs?
  - Is the cost of the option within the available budget?
  - Would there be intangible or other non-financial benefits?
- Social
  - Would the community benefit or suffer from the implementation of the option?
  - Does the option align with any established local planning strategies?
  - Does the option promote social cohesion?

## Flood Risk

- 3.4.2 The proposed option reaches the objective of reducing the flood risk of the TLGTCS to less than a 1% AEP event, meaning the site has moved from Flood Zone 3 to Flood Zone 2. The highest hazard rating in the area has been reduced as well.
- 3.4.3 The reduction in floodplain by the new flood defences requires that volume to be offset elsewhere so the risk is not passed elsewhere. Proposed flood storage area will deal with this.

## Technical Implementation

- 3.4.4 Based on the modelled data the site will be protected to a 1% AEP flood event. Protecting the site above this standard requires a significantly larger compensatory storage footprint which is not technically feasible.
- 3.4.5 The raising of Tolney Lane to above the 1% AEP event will provide a dry access/egress between the site and Great North Road. Further raising would be of limited benefit, as the Great North Road itself becomes inundated on the 1% AEP + CC event. The road will be raised by an average of 1m from Great North Road to Hose Farm, with a finished level at a minimum of 12.27mAOD, and it will have a 6m deep sheet piling seepage cut-off.
- 3.4.6 To preserve the flow path to the north of the railway embankment, a flood relief channel, including a box culvert under the raised Tolney Lane, will be included.
- 3.4.7 A flood wall will be required from Tolney Lane to the railway embankment along the eastern side of the Park View site. The wall will have an average height of 1.46m above existing ground level and sheet piling to a depth of 6m below ground level to stop any seepage from entering the site. This defence will prevent flood water from flowing back into the site from Riverside Car Park. This wall will tie-in to the existing railway embankment. Early engagement with Network Rail is recommended to ensure no issues arise at a later stage
- 3.4.8 Six new accesses from the new Tolney Lane level to the site and the car park will be required. Five flood gates will be included, with local access tied into the new finished level, to allow access to the site.
- 3.4.9 Due to the encapsulation of the eastern site within a flood wall, and with no gravity drainage available, a 50 litres per second surface water pumping station would be required to prevent any increase in surface water flooding risk on the dry side.

- 3.4.10 A flood storage area will be created downstream of the site by lowering the existing ground level, creating an inflow on the meander bend and a low flow channel, that will connect to the existing channel and outfall downstream of the weir. This will allow the creation of a managed freshwater wetland space and the storage of water in high intensity events.
- 3.4.11 To preserve access and evacuation from the site during the construction works, the creation of a temporary access road has been included in the design. This temporary road will be on the wet side of the existing Tolney Lane. Traffic coming from the western edge of the site will have to access the temporary road via Church View and onto the temporary road rather than directly from Tolney Lane.

## Maintenance

- 3.4.12 The new structures will require a strict inspection and maintenance regime, in particular the flood storage area. A regime of periodic and responsive inspections, in particular after flood events, is required to be undertaken to ensure the storage area inlet is clear of obstruction. Erosion risk may also render sections of the storage area unstable, and therefore through inspections can be identified and remedied.
- 3.4.13 The raised section of Tolney Lane and the flood wall will need to be inspected to ensure that it is providing the level of protection as intended.
- 3.4.14 Both the new culvert under Tolney Lane and the existing through the railway embankment will have to be inspected to ensure they are clear, and they allow flows through.
- 3.4.15 Flood gates will need to be checked to ensure there is no obstruction to operation and that they fully function.

## Health and Safety

- 3.4.16 No unusual risks are expected to occur during construction, however with it being a live development site there will need to be safeguards in place to reduce potential risks.
- 3.4.17 With it being a site located on a floodplain, works will need to be conscious of the inherent flood risk that will be prevalent during construction, and how it might affect not only the works, but the TLGTCS. An incomplete FAS might pass risk onto other areas, or with works underway give an illusion of protection. It should therefore be communicated that flood risk still exists until the works are completed.
- 3.4.18 Prior to excavation works start, any utilities will have to be located, either by GPR survey or trial pits. Special care will have to be taken during the excavation and installation works in proximity of utilities, with the guidance from the utility companies sought.
- 3.4.19 Large amounts of material are to be excavated for the construction of the storage area; however shallower surrounding ground will allow avoiding deep excavation. The creation of storage areas always introduces new risks to the public, such as trips and falls. They will hold water during high peak rainfall events and remain wet during low times. It is recommended that a public safety risk assessment is completed to confirm if this will be required. A safety sign will also be erected to the area to advise of deep water and fall risks.

- 3.4.20 With the only access to the site being Tolney Lane, during the works to raise it, a temporary road will have to be built to keep access. With heightened site traffic being expected, it is recommended that a plan is thought-out to reduce the risk to the inhabitants and allow for safe operation. There are public parked areas on the route for site traffic and the junction on to Great North Road. A plan will need to be in place for where site traffic is to enter and leave to minimise disruption to the area, with the southern route being highly urbanised.
- 3.4.21 As mentioned in the Good Practice Guide, “residents should be consulted at the outset to ascertain the level of community cohesion already prevalent in the area, and to establish the degree to which those who are to live on the site are comfortable with this approach and if it meets the degree of privacy and security which is acceptable.”. Community engagement is therefore sought-after to improve health and safety onsite.

## Constructability Assessment

- 3.4.22 The overall assessment of this option is that it is buildable in this location.
- 3.4.23 Ground investigation is recommended before detailed design of the options, to investigate the full ground profile and to have a better understanding of the groundwater in the area. The superficial geology in the area is riverine based, with a mixture of gravels, silt and clays, however the location of highly cohesive materials or bedrock at shallow depths could allow the removal of the seepage cut-off included in the outline design. Historic local borehole records do not indicate groundwater encounters; however it would be necessary to determine groundwater as it might infill the storage area and render it less effective.
- 3.4.24 Being on the floodplain there is a risk of flood events to occur during construction, refer to H&S section. The site may become unusable for a period, with waterlogged ground making excavation works non-proceedable.
- 3.4.25 Existing ground levels will need to be known to allow for detailed design to be undertaken, therefore a topographic survey will be required, in particular along the proposed flood wall alignment and its tie-in point with the railway embankment.

## Environmental

- 3.4.26 The TLGTCS is located within a now built-up area, surrounded by marsh and grassland. There are no statutory designations within the site area. Around 12km downstream of the site there is there is Beesthorpe SSSI, which is beyond Cromwell Weir and in the tidally influenced area of the Trent. Therefore, it is not expected to be affected by any changes.
- 3.4.27 Opposite the site there is Devon Park Pastures as a local nature reserve, which is primarily grassland, marginal riparian vegetation and deciduous woodland. It is not expected that changes to the site will influence the River Devon within the area.
- 3.4.28 There is a scheduled monument in the proximity of the site, with a Civil War sconce (c. 1650). It is not expected that any works will impact this site, and the reduction in flood risk will benefit the monument.
- 3.4.29 The OA identifies the following environmental benefits that should be considered:

- The creation of a flood storage area will provide a new habitat by creating a wetland environment. There is currently an overflow point of the River Trent into the designated area. By increasing the size of the basin and better linking it to the Trent it is expected that the wetland will be made semi-permanent, increasing the Biodiversity Net Gain (BNG) in the area altering the current pastureland to a biodiversity richer wetland. This will be in keeping with the 10% BNG gain set out in the 2021 Environment Act<sup>1</sup>.
- By reducing flood risk in the area it lowers the risk of contamination from areas that are being used as a scrap yard.
- Since the River Trent is designated ‘main river’, prior to any works commencing on its proximity, a Water Framework Directive (WFD) assessment would need to be undertaken to provide assurance that no negative impacts would be caused by the scheme. The storage area has the potential to improve the ‘Trent from Soar to The Beck Water Body’ current status.

## Social

- 3.4.30 Local policy identifies the need to find suitable pitches for the Gypsy and Traveller community. It is the councils requirement to demonstrate that the pitches on Tolney Lane are suitable. With the site currently occupied, and being a highly vulnerable classification in Flood Zone 3a, the development would need to have a reduction in this to be safe for occupation.
- 3.4.31 With the implementation of the proposed option there would be considerable benefit to the Gypsy and Traveller community by reducing flood risk in the area and also keeping a route open for evacuation up and including in a 1% AEP event.
- 3.4.32 By creating a safer area for pitches, it is expected that it will reduce the number of unauthorised sites, which will promote social cohesion. As expressed in the ‘Planning Policy for traveller sites’<sup>2</sup> (2015) “do not locate sites in areas at high risk of flooding, including functional floodplains, given the particular vulnerability of caravans”. A study carried out in 2008 by ‘Designing Gypsy and Traveller Sites- A Good Practice Guide’<sup>3</sup> provided this insight, “We would make a strong plea for safeguards to be put in place to ensure that future site development is not located in polluted or hazardous locations, as many sites are. Not only does this have a negative impact on Gypsies and Travellers health and access to services but it has a profound impact on how they feel they are perceived and treated by the wider community, likewise such locations reinforce the prejudiced perceptions that many in the settled community have of Gypsies and Travellers, such locations are therefore a major impediment to the social inclusion of Gypsies and Travellers”.

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<sup>1</sup> <https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted>

<sup>2</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/457420/Final\\_planning\\_and\\_travellers\\_policy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/457420/Final_planning_and_travellers_policy.pdf)

<sup>3</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/11439/designinggypsiesites.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/11439/designinggypsiesites.pdf)

## 4.0 ECONOMIC ASSESSMENT

### 4.1 COST ESTIMATE

- 4.1.1 The estimated cost for works is calculated for the proposed option, including the Present Value (PV) capital cost and additional fees for extra surveys and allowances for further design, construction, contractor costs and Council costs (see Table 4-1).
- 4.1.2 Costs have been developed using a range of tools such as various Environment Agency costing guidance and SPONS 2022 Civil Engineering guide.
- 4.1.3 To the base construction cost a 15% has been added to account for inflation.
- 4.1.4 To the additional costs, a 20% risk budgeted has been added.

Table 4-1- Estimated costs

| Base Construction Cost (£) | Additional Cost and Fees (£) | Estimated PV Cost (£) |
|----------------------------|------------------------------|-----------------------|
| 3,527,169                  | 1,990,550                    | 5,517,719             |

### 4.2 SCHEME FUNDING

- 4.2.1 It is intended that funding towards the scheme will be met via external funding sources where these are available.
- 4.2.2 Should further funding be required, the Community Infrastructure Levy will also be investigated to as a route to fund the scheme.

## 5.0 CONCLUSION

### 5.1 NEXT STEPS

- 5.1.1 Further hydraulic modelling will be required to understand how the schemes standard of protection will change over time as a result of climate change given the full climate change protection cannot not be provided now. this may include further investigation for flood alleviation schemes which may occur upstream to slow the flow of flood waters in the future.
- 5.1.2 Through the initial hydraulic modelling exercise, a number of schematisation errors have been identified in the model. The model may require some adjustments through more detailed survey or site walkover prior to confirming the final scheme.
- 5.1.3 Once funding is confirmed the project, additional development towards the design should be completed to a RIBA 3 stage which includes further topographical, contamination and geotechnical investigation to enable a more robust design to be completed to verify cost estimates.
- 5.1.4 Environmental surveys including ecology, landscape and Arboricultural will be required to inform the future environmental impact assessment requirement for planning. This workstream would also include seeking an EIA Scoping opinion from the Local Planning Authority.
- 5.1.5 Should the scheme be developed further, a high level estimated timeline for future stages in outlined below;
- Intrusive investigation, planning and design – 9 months
  - Planning – 4 months determination period.
  - Construction tender and award – 4 months
  - Lead in and permits – 6 months
  - Construction – 12 months
- 5.1.6 A total time allowance estimated at 3 years to completion if tasks are carried out in sequence. This time could be reduced if some tasks are completed concurrently (such as construction tender).
- 5.1.7 It will also be important to continue to evaluate the design proposed for the flood alleviation scheme to ensure it is consistent and aligns with NPPF and the Newark & Sherwood Local Plan.