

Memorial path meeting – 22<sup>nd</sup> December 2021 – via Zoom

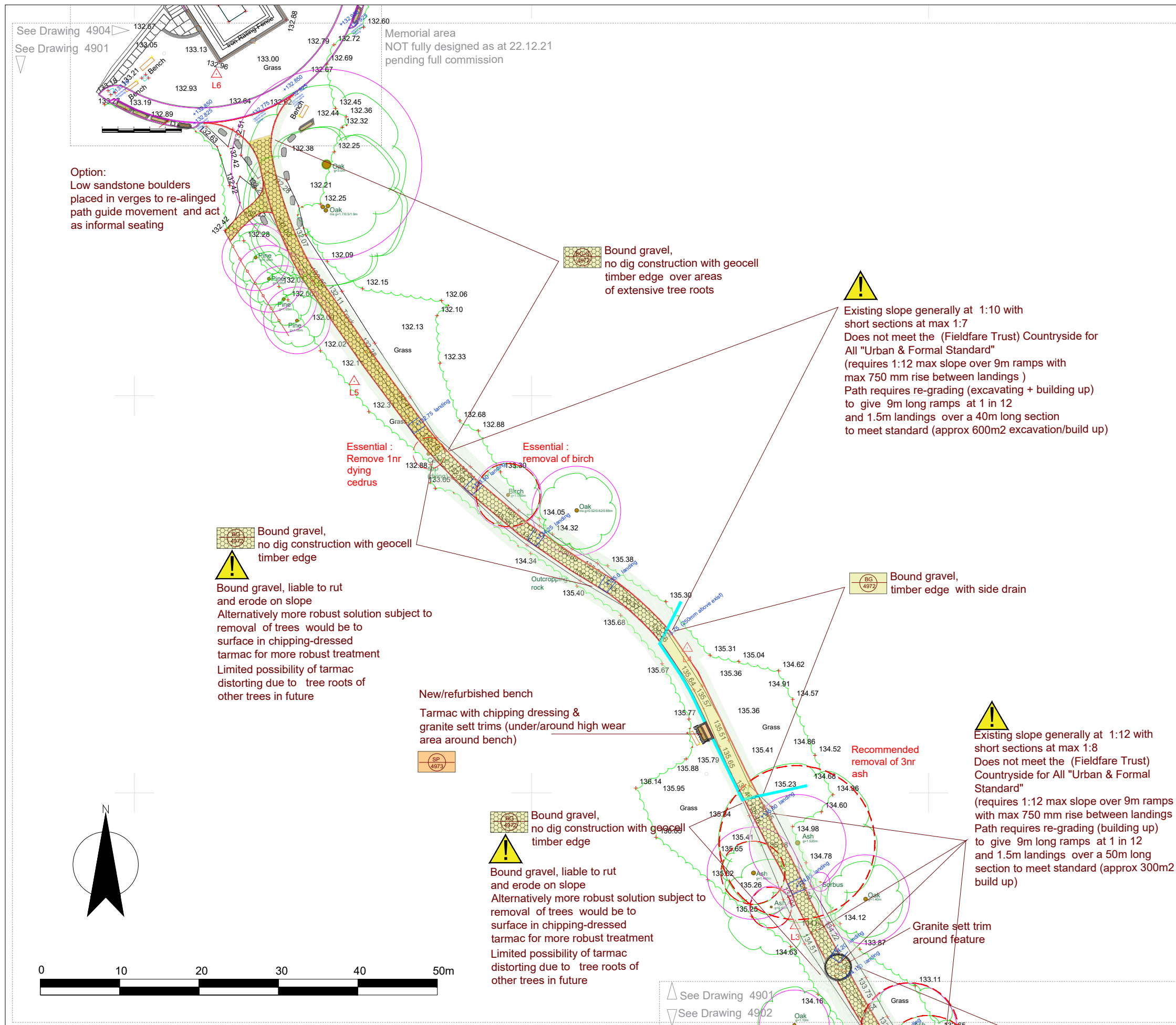
Attended by: H Hayes (FTC), B Wade (FTC), C Halestrap (HDD) & J O'Donoghue (Town Clerk)

Notes from the meeting:

- The path is shown at 1.5-1.8m wide, mostly at 1.8 wide and surfacing will go under the bench. There is a need to surface a slightly larger area to allow a wheelchair to pull alongside the bench. 2 wheelchairs can pass at the 1.8 width.
- The maximum gradient on the path we have shown is approx. 1:12 the drawings are now annotated with the gradients on. We have made some adjustments to the gradients since Bernie's comments to get them to 1:12. (Fieldfare Trust Standard).
- All paths now shown in Coxwell gravel, except at the entrance gate. There is a chance that the unbound surface could rut, with heavy rainfall/motorbikes. However, it may be sensible to lay paths and monitor and then come back and tarmac any sections that particularly suffer with tarmac and a tar spray and chip finish.
- Discussion also took place regarding the area immediately surrounding the memorial where several items have been added over the years culminating in an untidy arrangement of benches etc.
- A schematic view of how the area could look is attached.
- The original quote for this area was £1,100 however that quote did not include a planning application. It would be another £1100 to put a Planning/Listed Building Consent in for the work around the memorial. It would be more if this work were undertaken as part of a separate contract and not part of the path works.
- Planning and Listed Building Consent may take a little while to get approved

Next steps:

- To approve the plans and design
- To consider whether to include the area around the war memorial in the scheme



+92.71 Existing levels  
92.620+ Proposed levels

STx2 4975  
Sett trim x2 rows Silver-grey granite cropped 100x100x100mm as shown on ST1 founds to drawing 4975

TE-P 4975  
Timber edging 25x150mm treated board with road pins at 1.0m centres as drawing 4975

Form verges with suitable site-won soil. Import supplementary soil, grade and cultivate and seed verges with species rich seed mix, Maintain for 6 months All as drawings 4992 and 4993

SP 4973  
Concrete Asphalt (Tarmacadam) Standard Base as drawing 4973 Tar spray and chip finish

SP-G 4973  
Concrete Asphalt (Tarmacadam) Geocell Base as drawing 4973 Tar spray and chip finish

BG 4972  
Bound gravel (Coxwell gravel) path over standard Type 1 base as drawing 4972

BG-G 4972  
Bound gravel (Coxwell gravel) path over geocell & fines free sub-base as drawing 4972

Estate railings as drawing ##  
Estate railing 3.7m (12') field gate as drawing ###  
Estate railing side kissing gate with radar key as drawing ##  
Estate railings as drawing ##

All metalwork galvanised and finished in black as painted as drawing ##

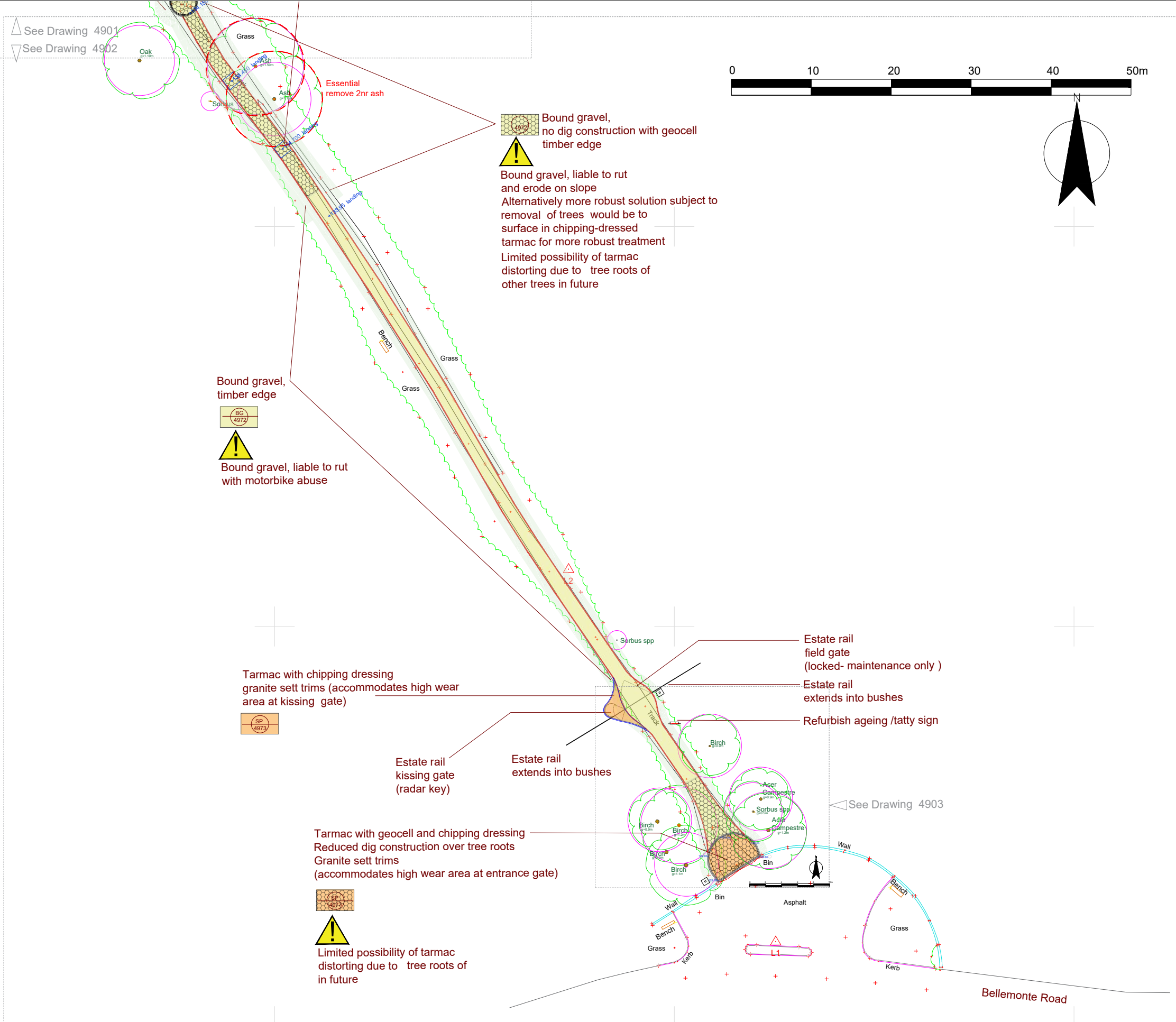
Bench type ### on tarmac with chippings base with sett trim surround as drawing ##  
Side drain drawing 4972

Trees to protect and retain  
Root Protection Area (avoid excavation/storage/traffic within these areas- loose spread soil verges)  
Trees to consider for removal

Canopy line of existing trees and bushes (as surveyed)

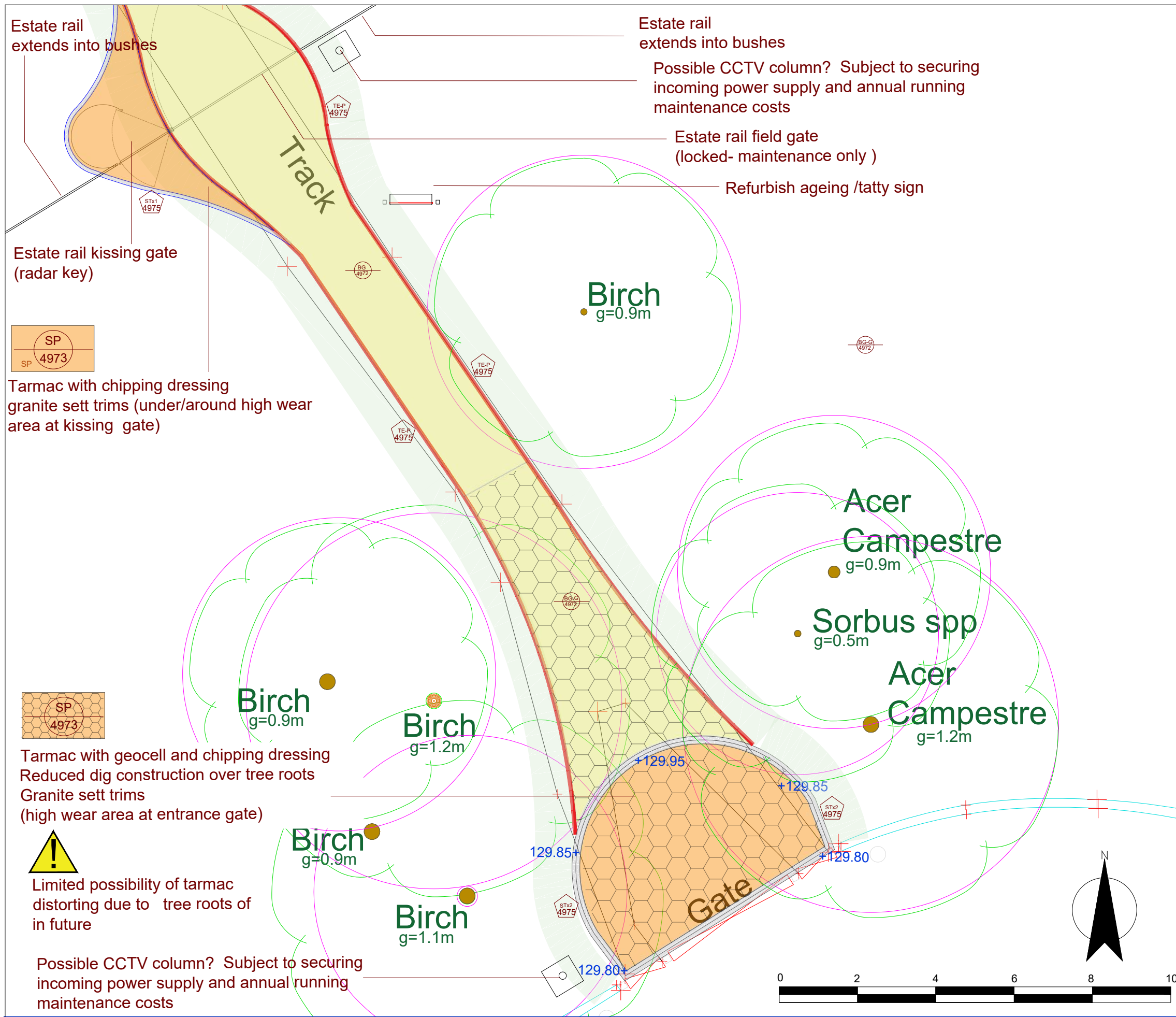
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former number	n/a		Description: -ConstructionLayout(north)	Scale: 1:500@A3
X ref reference	xx		Number: 142_10_HDD-00-ZZ-DR-L_4901	Status-DI Rev -P1
e. info@harrisondd.co.uk			Harrison design - development	
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Drawn: PH	Checked: CH	Original date: 22.11.21	Project: Frodsham Memorial Path	Client: Frodsham Town Council
former number	n/a		Description: -ConstructionLayout(South)	Scale: 1:500@A3
X ref reference	xx		Number: 142_10_HDD-00-ZZ-DR-L_4902	Status -DI Rev -P1
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Estate rail extends into bushes

Estate rail extends into bushes

Possible CCTV column? Subject to securing incoming power supply and annual running maintenance costs

Estate rail field gate (locked- maintenance only )

Refurbish ageing /tatty sign

Estate rail kissing gate (radar key)

Tarmac with chipping dressing granite sett trims (under/around high wear area at kissing gate)

Tarmac with geocell and chipping dressing Reduced dig construction over tree roots Granite sett trims (high wear area at entrance gate)



Limited possibility of tarmac distorting due to tree roots of in future

Possible CCTV column? Subject to securing incoming power supply and annual running maintenance costs

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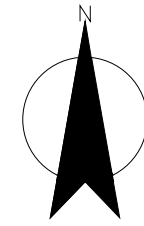
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Side drain drawing 4972

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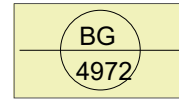
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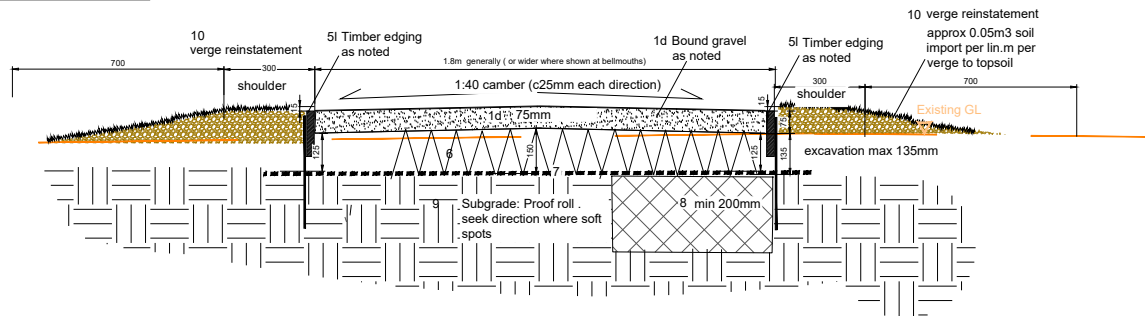


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former number	n/a		Description: -ConstructionLayout(Gate)	Scale: 1:100@A3
X ref reference	xx		Number: 142_10_HDD-00-ZZ-DR-L_4903	Status -DI Rev -P1
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## Bound Gravel Path (BG) Standard Construction , Firm subgrade



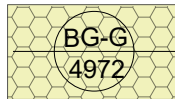
### Notes:

#### Bound Gravel Surfacing

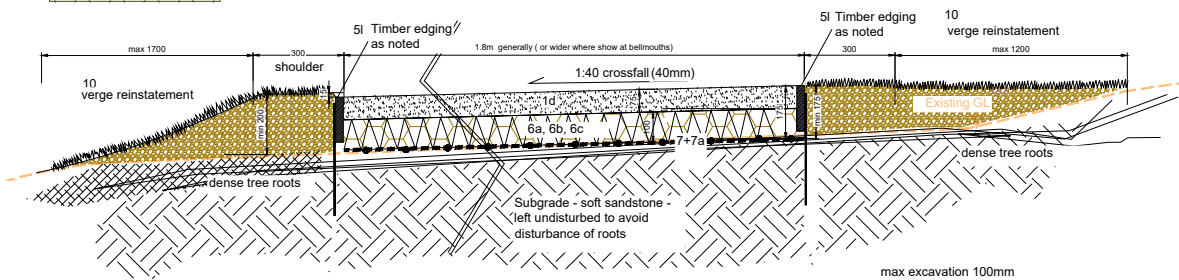
1d. Grundon Aggregates "Coxwell" gravel self binding path gravel Laid and compacted in 2 layers Firts layer 60mm thick, rake and compact. 2nd layer 15mm path dressing laid and compacted to 15mm depth All to manufacturers guidelines. Allow for wet rolling in dry conditions

#### Timber Edging Hard ground

5l 25mmx150mm sawn, treated edging boards to smooth line and level pegged at 1.0m centres T8 re-bar driven home and cut neatly and smoothly below top of board. Stapled securely with 2nr heavy guage galvanised stables



## Bound Gravel Path 'No Dig' Construction ( with Geocell and triaxial reinforced Sub-base )



### 6 Subbases and Formation

Reference to Highways Agency 'Specification for highway works' (SHW)

6. 1 Type 1 unbound mixture granular sub base material placed and compacted to SHW clauses 801 and 803 to +/-20 . Note: use 16 passes of max 700kg vibrating roller in layers not exceeding 110mm where close to structures.

6a. Geocellular confinement sytem , mattress thickness 150mm, as Presto Geoweb GW20 V Terram Geocell or TCS geotechnics (or similar and equivalent HDPE perforated load support system with minium 1420 N seam strength ) infilled and lightly consolidated , and then surcharged 25mm above with 4/20 course graded aggregate to BS EN 13242 or a reduced-fines DoT Type 1X sub-base. Sample / data sheet to be provided for Geocell and infill for comment prior to use.

6b Expand and secure geocell with 10-12mm galvanised steel reinforcing rods driven to 500mm depth with heads retaining and clipped into against upper face of cells as per manufacturer's recommendations. Fix at every 4th along or 1 per m<sup>2</sup>

6c 4-20 clean angular stone to BS EN 13242 or BS EN 12620 open graded sub-base attenuation below pervious pavements /Type C filter material for filter drains and soakaway backfill

7 Geotextile separation layer 180g/m<sup>2</sup>, 2100 N static puncture resistance, bonded continuous filament, non woven polypropylene as Polyfelt TS40 or Terram 1500

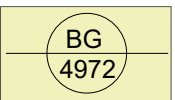
7a Tri-axial geogrid as Tensar TriAx TX160 or similar and equivalent laid at formation as shown Geogrid to extend beyond kerb unit / haunch.- where shown

Note: contractor may propose a combined Triaxial/separation in place of 7 and 7a where used together e.g TensarTriAx TX160-G. NB Always extend triaxial under and beyond kerb line

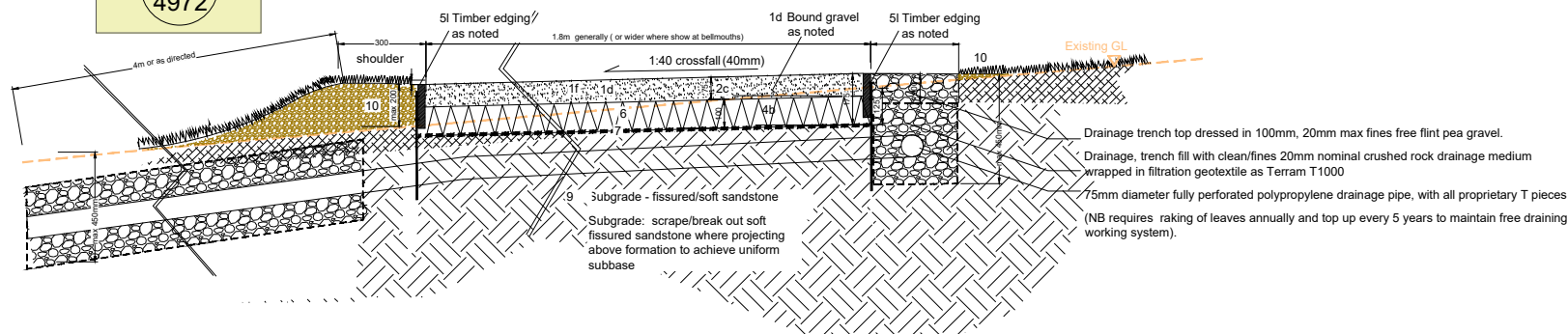
7c DPM separation layer 1200 guage visqueen membrane edges lapped 300 mm.

8. Capping: 6F1/6F2 /6F3 capping to SHW clause 612, 613. and Tables 6/1, 6/2. Prepare and compact sub formation /capping to lay and to SHW clauses 612, 613, Lay in 12- 16 passes layers not more than 150mm of a vibrating roller not exceeding 700kg ( Table 6/4 Method 4 ) Where adjacent to structures as SHW 610 with 16 passes of vibrating roller not exceeding 400kg (Method 3). Always extend capping under and beyond kerb line

9 Sub-formation: Prepare to SHW clause 612, 613. Excavate all topsoil and organic material to meet sand/clay subsoil. Give notice where depth below original exceeds 300mm\*. Test for CBR in accordance with BS 1377- 9 , at 1 test per type of construction. Give notice where CBR is less than 3% Compact as SHW Method 3 or 4 as above.



## Bound Gravel Path Standard Construction , with side drain



### Reinstatement, Topsoil and Verges

10. Selected Topsoil arisings from excavations/imported spread and lightly consolidated to path / road edge, and gently graded back over 0.5m to 1.0m to enable a neat tie in with surrounds. Where levels fall away ensure shoulder of 300mm where practicable to min depths as shown. Finished levels of turf min 15mm over path /kerb edge.

Bring verge to tilth to smooth flowing levels, infill hollows with sandy loam topsoil as required , stone pick, supply and lay and roll and water a rye-grass free turf as Lindum LT4 or similar. Alternatively relay existing turf to original standard, previously having been neat cut, set aside, protected, watered and maintained for that purpose. Maintain and water turf as required to ensure thriving up to and including 1st cut as specified on drawing 4991 and 4992 alternatives

Handover at first cut where sward is thriving, free of defects, ruts, gaps, bumps and is capable of being close mown to 35mm with a cylinder mower. See drawing 4991

Drawn: PH	Checked: CH	Original date: 26.11.21	rev: P1	rev description: Prelim Issue for Client	PH	PH	rev date: 20.12.21
former number	n/a		Project: Frodsham Memorial Path		Client: Frodsham Town Council		
X ref reference	xx		Description: Surfacing Details BoundGrave		Scale: 1:25@A3		
			project - origin - vol - loc - type - rate - Number	Number: 142 10 -HDD-00-ZZ-DR-L -4973	Status -DI	Rev -PI	
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Notes:

**Bituminous Surfacing**

**1a** Surface course: AC 10 Dense BIN 100 /150 L/S Asphalt Concrete . Compacted thickness: 30mm minimum . To MCHW 912 and BS EN 13108-1:2016, Laid to BS 594987  
**1b** Regulating surface Course , AC 10 Dense bin 100 /150 L/S Asphalt Concrete thickness 35mm to 75mm depth onto patched and planed existing DBM, thoroughly cleaned and with full tack coat .

**1c** Double application of surface bonded chippings, using cationic intermediate grade polymer modified bitumen emulsion to BS EN13808:2013 C69BP2/3. Complying with the requirements of Road Note 39, Design Guide Coverage to manufacturers recommendation. Sub-angular to sub-rounded 3-6mm flint aggregate in merc/buff/buff to grey. Provide sample 1 week in advance. Mask up all kerbs grids, covers and features prior to application. Must be laid only in suitable weather conditions (4 degrees and rising /dry and predicted dry for 2 days)

**2** Binder course: Dense Ashphalt Concrete (AC) 20 dense BIN 100./150 . . Compacted thickness: 60 mm, nominal . To MCHW 906 BS EN 13108-1 2016. Laid to BS 594987

**6 Subbases and Formation**

Reference to Highways Agency 'Specification for highway works' (SHW)

**6. 1** Type 1 unbound mixture granular sub base material placed and compacted to SHW clauses 801 and 803 to +/-20 . Note: use 16 passes of max 700kg vibrating roller in layers not exceeding 110mm where close to structures.

**6a.** Geocellular confinement system , mattress thickness 100mm, as Presto Geoweb GW20 V Terram Geocell or TCS geotechnics (or similar and equivalent HDPE perforated load support system with minium 1420 N seam strength ) infilled and lightly consolidated , and then surcharged 25mm above with 4/20 course graded aggregate to BS EN 13242 or a reduced-fines DoT Type 1X sub-base. Sample / data sheet to be provided for Geocell and infill for comment prior to use.

**6b** Expand and secure geocell with 10-12mm galvanised steel reinforcing rods driven to 500mm depth with heads retaining and clipped into against upper face of cells as per manufacturer's recommendations. Fix at every 4th along or 1 per m<sup>2</sup>

**6c** 4-20 clean angular stone to BS EN 13242 or BS EN 12620 open graded sub-base attenuation below pervious pavements /Type C filter material for filter drains and soakaway backfill

**7** Geotextile separation layer 180g/m2, 2100 N static puncture resistance, bonded continuous filament, non woven polypropylene as Polyfelt TS40 or Terram 1500

**7a** Tri-axial geogrid as Tensar TriAx TX160 or similar and equivalent laid at formation as shown Geogrid to extend beyond kerb unit / haunch.- where shown

Note: contractor may propose a combined Triaxial/separation in place of 7 and 7a where used together e.g TensarTriAx TX160-G. NB Always extend triaxial under and beyond kerb line  
**7c** DPM separation layer 1200 guage visqueen membrane edges lapped 300 mm.

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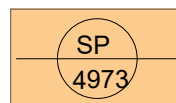
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**Reinstatement, Topsoil and Verges**

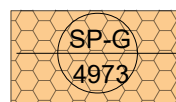
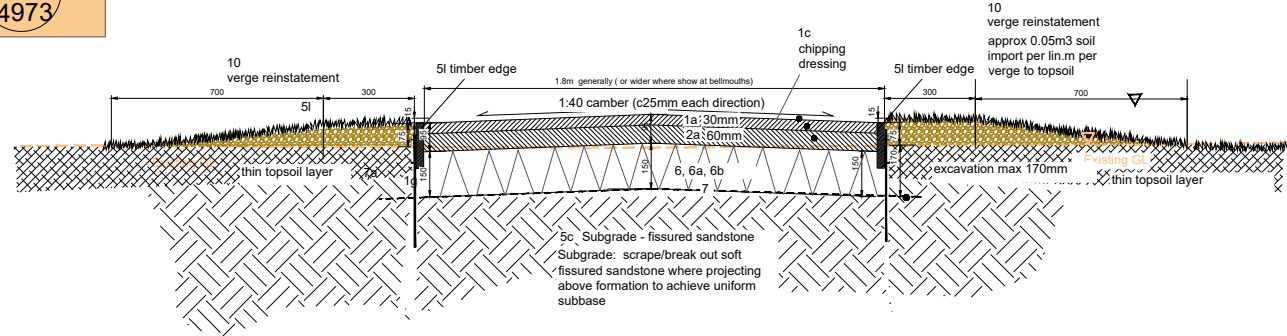
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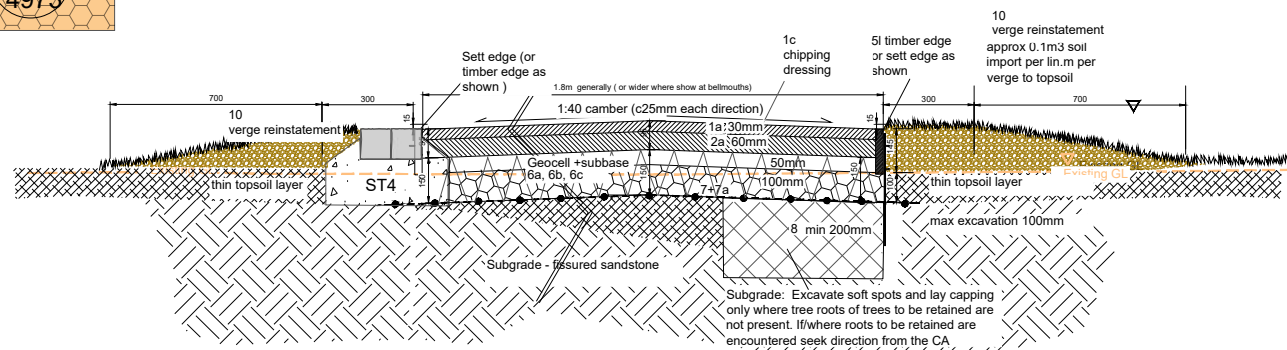
Handover at first cut where sward is thriving, free of defects, ruts, gaps, bumps and is capable of being close mown to 35mm with a cylinder mower. See drawing 4991



## Full Tarmac Construction (With Chipping dressing) On Firm/Hard Dig Subgrade



## Full Tarmac Construction (with Chipping dressing) with Geocell to achieve Reduced Dig



TYPE C - COXWELL GRAVEL CONSTRUCTION HARD DIG WITH SIDE-DRAIN

**BITUMINOUS SURFACING**

220 BITUMINOUS MATERIALS GENERALLY

- Suppliers names: Submit.
- Timing (minimum): Two weeks before starting work.
- Test certificates: At the time of delivery for each manufacturing batch submit certificate:
- Confirming compliance with this specification and the relevant standard.
- Stating full details of composition of mix.

230 SAMPLES

Submit: Representative samples of coated chippings.

240 ACCEPTANCE OF SURFACES

Surface: Sound, clean and suitably close textured.  
 Level tolerances: To BS 594987.  
 Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 ABUTMENTS

Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of Polymer modified bitumen emulsion bond coat.  
 Finishing: Tamp surface around projections.  
 - Level: Flush or not more than 3 mm above projections.

**LAYING**

310 LAYING GENERALLY

- Preparation: Remove all loose material, rubbish and standing water.
- Adjacent work: Form neat junctions. Do not damage.
- Channels, kerbs, inspection covers etc: Keep clean.
- New paving:
- Keep traffic free until it has cooled to prevailing atmospheric temperature.
- Do not allow rollers to stand at any time.
- Prevent damage.
- Lines and levels: With regular falls to prevent ponding.
- Overall texture: Smooth, even and free from dragging, tearing or segregation.
- State on completion: Clean.

All materials must be transported, laid and compacted fully in accord with the requirements of BS 594987 All joints within all layers should be cut back to a sound, vertical face and painted in accord with BS 594987 All surfaces (whether new or existing) shall be Bond coated in accord with the requirements of BS 594987. The underlying surface must be clean and not contaminated prior to the installation of any Bond Coat. The Bond Coat shall be tanker applied in accord with SHW Clause 920 - localised small areas may be hand sprayed. All Transverse Joints or Longitudinal Joints not tightly finished shall be overbanded with 40/60 or 70/100 pen hot applied bitumen at a width less than 40mm or as agreed with CA.

320 ADVERSE WEATHER

- Frozen materials: Do not use.
- Suspend laying:
- During freezing conditions
- If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
- Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 LEVELS FLATNESS/ SURFACE REGULARITY

Permissible deviation from the required levels, falls and cambers (maximum): In Accordance with BS 594987, clause 5.2.  
 Deviation : Where appropriate in relation to geometry of the surface, the variation in gap under a 3m straightedge placed anywhere on surface to be not more than:

- Base: Hand laid, 25 mm and Machine laid, 25 mm.
- Binder course: Hand laid, 13 mm and Machine laid, 13 mm.
- Surface course: Hand laid, 10 mm and Machine laid, 7 mm.
- Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

351 CONTRACTOR'S USE OF PAVEMENTS

- Protect all final surfacing during use.
- Preparation for final surfacing: Defer laying of surface course and surface applied dressings until as late as practicable. Immediately before laying final surfacing clean and make good the base/binder course.
- Allow to dry.
- Adhesion: Tack coat to BS 434-1 or BS EN 13808.
- Application rate: As manufacturer's recommendation.
- Accuracy: Uniform, without puddles.
- Finishing: Allow emulsion to break completely before applying surface.

**LAYING KERBS AND EDGINGS**

510 LAYING KERBS, EDGINGS AND CHANNELS

- Cutting: Neat, accurate and without spalling. Form neat junctions.
- Long units (450 mm and over) minimum length after cutting: 300 mm.
- Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
- Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
- Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 ADVERSE WEATHER

Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1° C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING

Standard: To BS 8500-2.  
 Designated mix: Not less than GEN0 or Standard mix ST1.  
 Workability: Very low.

540 CEMENT MORTAR BEDDING

General: To section Z21.  
 Mix (Portland cement:sand): 1:3.  
 - Portland cement: Class CEM I 42.5 to BS EN 197-1.  
 - Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).  
 Bed thickness: 12-40 mm.

547 BEDDING/BACKING OF UNITS ON FRESH CONCRETE RACES

Standard: To BS 7533-6.

Drawn: PH	Checked: CH	Original date: 26.06.20	rev: P1	rev description: Prelim Issue for Client	PH	PH	rev date: 20.05.21
Project: Frodsham Memorial Path			Client: Frodsham Town Council				
Description: - Surfacing Details Macadam			Scale: 1:25@A3				
Number: 142 10 -HDD-00-ZZ-DR-L-4973			Status: -DI		Rev: -PI		

In association with:

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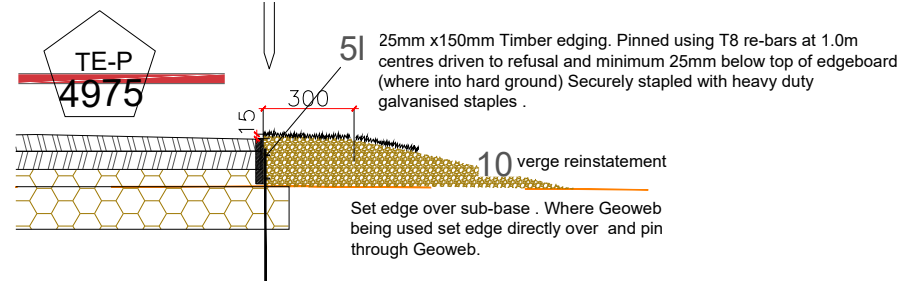
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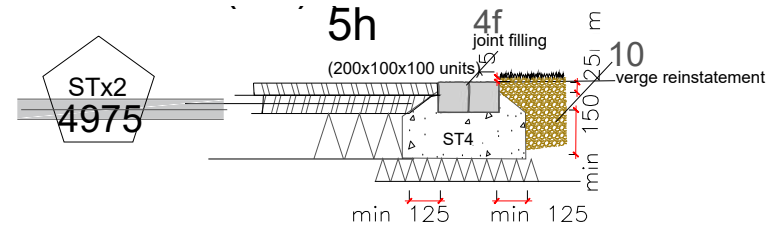
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NOTE: Not for construction unless authorised. Do not scale off this drawing for construction purposes

## Timber Edging (TE)



## Set Trims (ST) (STx1, STx2, STx3 etc)



### 4 Bedding and Jointing

All materials to meet requirements of BS5733.

For Rigid laying where proprietary bedding and jointing compounds proposed these are to meet minimum compressive strength, adhesive strength, modulus of elasticity and shrinkage limits set in BS 7533. Compounds to contractors proposals and CAs agreement. Provide data sheets confirming compliance. Complimentary/'same -family' proprietary systems of jointing and bedding and priming compounds to be used as appropriate. Use to manufacturer's

**4f** Proprietary polymer modified joint compound meeting Brush-in type for cropped setts.

### Kerbs and Edgings

**5h** Granite Set Edgings & Trim. 200x100x100 cropped or riven silver grey granite setts. Laid as x1 row/ x2 rows x3 rows. Lay to flowing/ neat line and level on min 150mm bed of ST4 concrete with min 125mm haunch feathered to 25mm below top face of sett. Stagger jointing for 2x and 3x rows. Tamp direct into concrete, with 8-12mm jointing. Jointing as (4f)

### Timber Edging Hard ground

**5i** 25mmx150mm sawn, treated edging boards to smooth line and level pegged at 1.0m centres T8 re-bar driven home and cut neatly and smoothly below top of board. Stapled securely with 2nr heavy gauge galvanised stables

### Reinstatement, Topsoil and Verges

**10**. Selected Topsoil arisings from excavations/imported spread and lightly consolidated to path / road edge, and gently graded back over 0.5m to 1.0m to enable a neat tie in with surrounds. Where levels fall away ensure shoulder of 300mm where practicable to min depths as shown. Finished levels of turf min 15mm over path /kerb edge.

Bring verge to tith to smooth flowing levels, infill hollows with sandy loam topsoil as required, stone pick, supply and lay and roll and water a rye-grass free turf as Lindum LT4 or similar. Alternatively relay existing turf to original standard, previously having been neat cut, set aside, protected, watered and maintained for that purpose. Maintain and water turf as required to ensure thriving up to and including 1st cut as specified on drawing 4991 and 4992 alternatives

Handover at first cut where sward is thriving, free of defects, ruts, gaps, bumps and is capable of being close mown to 35mm with a cylinder mower. See drawing 4991

In association with:

Drawn: PH	Checked: CH	Original date: 26.06.20	rev: P1	rev description: Prelim Issue for Tender	PH	PH	rev date: 20.05.21
Project: Frodsham Memorial Path			Client: Frodsham Town Council				
Description: Surfacing Details Kerbs Edgings			Scale: 1:25@A3				
Number: 142_10_HDD-00-ZZ-DR-L_4975			Status -DI Rev -PI				

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**Harrison**  
design - development

## Gates and Estate Railings Examples

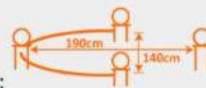


**3.68m (12ft) Opening Gate** 

50x12mm spines, 40x40x5mm T section top and bottom horizontals, 25x25x5mm angle iron middle horizontals and braces with 80x80x6mm box section posts capped with forged balls.

### ing Gates – Cross Braced

active way of restricting access. This pictures shows a circular kissing gate frame in cross-braced style. Circular kissing gates can be offset the fence line, or set within the fence line, as shown.



**Gate:**

40x12mm spines, 26.9mm tube top horizontal, 30x12mm flat bar bottom horizontal, 25x8mm flat bar middle horizontals and braces with 60x60x4 box section posts capped with forged balls.

**Frame:**

Solid 20mm top hoop & 4no 25x8mm flat hoops with 60x60x4 box section posts capped with forged balls

**Unpainted (including posts) £500 + Vat**



**Painted (including posts) £550.00 + Vat**









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## Options for Surfacing Footpaths, Driveways, Car Parks and Lightly Trafficked Vehicle Lanes

Surface	Approx cost ( m2)	Advantages	Disadvantage
<p><b>Breedon or Coxwell gravel (or similar)</b></p> <p>Compacted specialist aggregate with clay binder surface laid over Type 1 (crushed graded stone) sub base.</p> 	<p><b>Paths per m2</b></p> <p><b>£30-45</b></p> <p><b>Drives / Carparks</b></p> <p><b>£45-55</b></p>	<ul style="list-style-type: none"> <li>• Cost effective.</li> <li>• Appropriate in a rural location.</li> <li>• Wheelchair friendly when in good conditions and dry weather.</li> <li>• Easy to repair/top up/match in if necessary to dig up.</li> <li>• Moves and flexes with roots or ground heave (and can then be re-consolidated periodically).</li> </ul>	<ul style="list-style-type: none"> <li>• Prone to rutting when used by vehicles.</li> <li>• Can be rutted when misused by motorbikes</li> <li>• Prone to puddling and standing water.</li> <li>• Prone to wash out by surface water run off</li> <li>• Ongoing maintenance required-</li> <li>• Drainage system ideally required (or design carefully to discharge to verges) .</li> </ul>
<p><b>Crushed limestone with limestone topping</b></p> <p>Compacted limestone (5mm to dust) aggregate surface laid over Type 1 (crushed graded stone) sub-base .</p> 	<p><b>Paths per m2</b></p> <p><b>£20-25</b></p> <p><b>Drives / Carparks</b></p> <p><b>£40-50</b></p>	<ul style="list-style-type: none"> <li>• Cost effective solution for rural locations.</li> <li>• Wheelchair friendly when in good conditions and dry weather.</li> <li>• Easy to repair/top up/match in if necessary to dig up.</li> <li>• Moves and flexes with roots or ground heave (and can then be re-consolidated periodically).</li> </ul>	<ul style="list-style-type: none"> <li>• Prone to rutting when used by vehicles.</li> <li>• Can be rutted when misused by motorbikes</li> <li>• Prone to puddling and standing water.</li> <li>• Prone to wash out by surface water run off</li> <li>• Ongoing maintenance required-</li> <li>• Can become dusty when dry.</li> <li>• .Looks low budget</li> </ul>
<p><b>Bitumen macadam</b></p> <p>Bitumen macadam surface laid over Type 1 sub base. (aka Close graded bitmac/tarmac)</p> 	<p><b>Paths per m2</b></p> <p><b>£50-60</b></p> <p><b>Drives/ Carparks/ Carriageways</b></p> <p><b>£75-100</b></p>	<ul style="list-style-type: none"> <li>• Relatively cost effective.</li> <li>• Stable surface.</li> <li>• Robust material when used in highly trafficked areas.</li> <li>• Wheelchair friendly.</li> <li>• Low ongoing maintenance costs.</li> <li>• Easy to repair/match in if necessary</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Engineered appearance</li> <li>• Limited colour options.</li> <li>• Drainage system required.</li> <li>• Surfacing of paths can be disturbed by root movements and ground heave in proximity to trees</li> </ul>

<p><b>Resin Bonded Gravel</b></p> <p>Resin bonded gravel ‘scatter coat’ applied over bitmac base.</p> 	<p><b>Paths per m2</b> <b>£60-75</b></p> <p><b>Drives/ Carparks/ Carriageways</b> <b>£100-115</b></p>	<ul style="list-style-type: none"> <li>• Decorative surface finish.</li> <li>• Stable bonded gravel surface finish.</li> <li>• Wide range of aggregate colours and textures.</li> <li>• Wheelchair friendly.</li> <li>• Robust ( does not wear off) under pedestrian/light vehicle use</li> </ul>	<ul style="list-style-type: none"> <li>• Relatively high construction cost.</li> <li>• Requires bitmac base course.</li> <li>• Gravel finish can dislodge in highly trafficked areas.</li> <li>• Drainage system required.</li> <li>• Possible to make repairs, but expensive to repair, small areas, and repairs don’t always match well.</li> <li>• Paths can be affected by root heave</li> </ul>
<p><b>Resin Bound Gravel</b></p> <p>Resin bound ‘trowel applied’ gravel layer laid over bitmac base.</p> 	<p><b>Paths per m2</b> <b>£65-85</b></p> <p><b>Drives/ Carparks/</b> <b>£110-125</b></p>	<ul style="list-style-type: none"> <li>• Highly decorative surface finish.</li> <li>• Stable bound surface finish with no loose stones.</li> <li>• Wheelchair friendly.</li> <li>• Variety of suitable aggregates.</li> <li>• Can be used to create patterns with complementary coloured aggregates.</li> </ul>	<ul style="list-style-type: none"> <li>• High cost.</li> <li>• Requires bitmac base course.</li> <li>• Expensive to repair requiring specialist labour.</li> <li>• More expensive for small areas</li> <li>• Poor sustainability-uses: synthetic resins as binder</li> <li>• Paths can be affected by root heave</li> </ul>
<p><b>Tar spray and chip</b></p> <p>Decorative chippings applied and bonded with tar coat to bitmac base.</p> 	<p><b>Paths per m2</b> <b>£55-70</b></p> <p><b>Drives/ Carparks/ Carriageways</b> <b>£85-95</b></p>	<ul style="list-style-type: none"> <li>• Cost effective alternative to resin bonded gravel providing a similar surface finish.</li> <li>• Appropriate in rural setting.</li> <li>• Wheelchair friendly.</li> <li>• Possible to match repairs in, specialist labour not required.</li> <li>• Can be used to match different areas of tarmacs</li> </ul>	<ul style="list-style-type: none"> <li>• Requires close graded bitmac base course.</li> <li>• Gravel finish can dislodge in medium trafficked areas.</li> <li>• Gravel finish wears off over time but then can easily be re-applied</li> <li>• Loose gravel on surface</li> <li>• Because relies on tarmac subbase – lightweight paths can be affected by root heave</li> </ul>

<p><b>Fibredec</b></p> <p>Strong decorative aggregate surfacing, comprising bitumen emulsion laid with chopped glass fibres and an aggregate surface.</p> 	<p><b>Paths per m2</b> <b>£50-60</b> (No tarmac base)</p> <p><b>£85-95</b> <b>Drives/ parking bays</b> (with tarmac base)</p>	<ul style="list-style-type: none"> <li>• Can be used for footpaths and lightly trafficked drives directly onto Type 1 (graded crushed stone base) without a tarmac base .</li> <li>• Can be laid onto a tarmac base, adding additional strength to vulnerable areas enabling to be used in lightly trafficked areas.</li> <li>• Provides a decorative surface finish.</li> <li>• Wheelchair friendly.</li> </ul>	<ul style="list-style-type: none"> <li>• Fibredec can deform trafficked areas.- (Only suitable for regular vehicular use with a full tarmacadam base)</li> <li>• Specialist contractors required.</li> <li>• Expensive for small areas.</li> <li>• If laid without tarmac base can deform and puncture under heavy point load.</li> <li>• Paths can be affected by root heave</li> </ul>
<p><b>Hot Rolled Asphalt</b></p> <p>Hot rolled asphalt surfacing with coloured stone chippings, laid over Type 1 sub base.</p> 	<p><b>Paths per m2</b> <b>£70-80</b></p> <p><b>Drives/ Carparks/ Carriage ways</b> <b>£95-120</b></p>	<ul style="list-style-type: none"> <li>• Relatively cost effective.</li> <li>• Stable bound surface.</li> <li>• Highly robust material when used in highly trafficked areas.</li> <li>• Wheelchair friendly.</li> <li>• Low ongoing maintenance costs.</li> <li>• Feature 'rolled in' chippings.</li> <li>• Highly appropriate in urban settings</li> </ul>	<ul style="list-style-type: none"> <li>• Higher construction cost compared to Bitumen macadam.</li> <li>• Can be difficult to match if required.</li> <li>• Engineered urban finish.</li> </ul>
<p><b>Ecoblock</b></p> <p>Loose gravel surface with plastic honey comb reinforcing.</p> 	<p><b>Paths per m2</b> <b>£30-40</b></p> <p><b>Drives / Carparks</b> <b>£45-60</b></p>	<ul style="list-style-type: none"> <li>• Decorative gravel surface finish.</li> <li>• Wheel chair friendly using suitable aggregate.</li> <li>• Suitable for use for light road applications and emergency vehicles.</li> <li>• Free draining &amp; can be used a part of a SUDS system.</li> </ul>	<ul style="list-style-type: none"> <li>• Can look visually inappropriate in many settings.</li> <li>• Requires frequent raking &amp; topping up.</li> <li>• Vehicle use can require higher levels of ongoing maintenance</li> <li>• Not easy to repair/match in if necessary to dig up in the future.</li> <li>• Difficult to repair if damaged through rutting /abuse</li> <li>•</li> </ul>

**Notes:**

Approx cost per square metre based on a total area of 50-100m2 to enable surface option comparison. Cost is approximate only, based upon recent contractors rates for similar surfaces. Full construction (sub base and surface course) are included. Excavations and edging not included.



