Herefordshire Council

WORKS INFORMATION & SPECIFICATION

BB0224 Bullocks Mill Bridge

70085417-WSP-SBR-WI-RP-CB-00701
FEBRUARY 2022

CONFIDENTIAL

Herefordshire Council

WORKS INFORMATION & SPECIFICATION

BB0224 Bullocks Mill Bridge

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70085417

OUR REF. NO. 70085417-WSP-SBR-WI-RP-CB-00701

DATE: FEBRUARY 2022

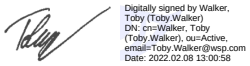
WSP

11 High Cross
Truro
Cornwall
TR1 2AJ

Phone: +44 1872 245860

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Client Review	CDM Review		
Date	Jan 22	Feb 22		
Prepared by	Vineeth Mylavarapu	Vineeth Mylavarapu		
Signature				
Checked by	Jade Mills	Jade Mills		
Signature				
Authorised by	Toby Walker	Toby Walker		
Signature		 Digitally signed by Walker, Toby (Toby.Walker) DN: cn=Walker, Toby (Toby.Walker), ou=Active, email=Toby.Walker@wsp.com Date: 2022.02.08 13:00:58		
Project number	70085416	70085416		
Report number	70085417-WSP-SBR-WI-RP-CB-00701	70085417-WSP-SBR-WI-RP-CB-00701		
File reference				

CONTENTS

APPENDICES

1 WORKS INFORMATION

1.1 WORKS DESCRIPTION

For details set out within the works description please refer to drawing numbers 70085417-WSP-SBR-SWI-DE-CB-00701, 00702, 00703 and 00704.

TEMPORARY / PRELIMINARY WORKS

Road Closure / Welfare Facilities:

The works will involve the establishment of a road closure with accompanying traffic management signs, in accordance with Chapter 8. Once the traffic management is in place, the welfare facilities and site cabins will be erected for the duration of the works.

Footbridge / Working Platform:

Preliminary works will be carried out prior to the saddle strengthening, which include installing a temporary pedestrian footbridge (if required). The temporary footbridge is to be confirmed by the Principal Contractor prior to commencing work. Any platforms erected are to be above the existing barrel intrados, to ensure the hydraulic capacity is maintained. The footbridge could be constructed within the current footprint of the bridge or outside, depending on landownership and access arrangements.

Arch Supports:

Temporary supporting (centering) of the barrel intrados, using vertical and horizontal props, will be required to provide stability to the arch and abutments. All props are to be hand tightened and not over loaded (extended) causing displacement and additional forces on the arch.

The spandrel walls will require propping to ensure the stability during excavation and concrete pour operations.

All temporary supports to be designed by the Contractor.

Environmental:

A sheet system is to be installed beneath the arch barrels or gaps sealed within the barrel, prior to concrete works, to catch debris or wet concrete. A temporary environmental pollution boom will be installed downstream of the structure and monitored during high flows.

The bridge is considered suitable to support roosting bats and therefore, an additional survey should be carried out by a Natural England licensed bat worker, in order to further determine the suitability of the features present to be used by bats and the requirements to undertake bat emergence and/or re-entry surveys in the summer months.

A pre-works check should be undertaken if temporary vertical props need to be installed in the watercourse channel upstream and downstream, or under the bridge.

Prior to any vegetation clearance, consultation with an ecologist should be sort to confirm requirements relating to nesting birds and hazel dormice. The bird nesting season is usually considered to extend from March to August, but is extended from February, due to the potential for dippers to be present. Therefore, vegetation clearance is recommended to be undertaken between September and January.

Himalayan balsam has been identified on the upstream northern bank, within 5m of the bridge. It is recommended that a Himalayan balsam management plan, including biosecurity measures should be established, in order to prevent spread of this species.

Services:

All services are to be positively identified, located, and marked out. Known services include British Telecommunication (BT) overhead service over the structure and Western Power Distribution (WPD) overhead service in the adjacent field, South-West of the structure.

Pointing:

Raking out any loose pointing and then repointing of the spandrel walls, parapet and arch barrel intrados, will be carried out prior to the main strengthening works.

MAIN WORKS (SADDLE STRENGTHENING)

Once the surfacing material has been removed, the fill material is to be excavated in a controlled, balanced sequence, either side of the arch barrels and central pier, down to the top of the abutments, with a 250mm maximum level difference either side, at any time **(Significant Risk Identified).**

All excavations are to be benched or battered back at a safe angle, to provide a safe working zone. Once complete, the exposed abutments, arch barrel and pier are to be inspected by the supervising engineer for suitability. Excavation may be required behind the existing abutments and within the pier, further than the proposed excavation shown on the sequence of excavation drawing, to provide better founding for the proposed concrete saddle. This will need to be carried out in 'hit and miss' bays, maximum 1m wide and backfilled with ST2 concrete, to ensure no movement of the abutments and therefore, prevent arch collapse **(Significant Risk Identified).**

Once the excavation works over the arch barrel are complete, the extrados of the arch barrel is to be reviewed, and mortar pointing undertaken where gaps are found. Large gaps will require stone and mortar. Ancon Staifix starter wall ties (or equally approved) are to be installed into the inside face of the exposed spandrel wall, at 250mm by 250mm horizontal/vertical spacing, using Fosroc E35 anchor grout (or equally approved).

The A393 mesh will then be bent and laid over the arch extrados and top of proposed saddle, with minimum cover (Cmin) 40mm, and nominal cover (Cnom) 50mm (Cnom = Cmin + $\triangle$c (10mm)). The cover may be increased due to the irregularities of the stone extrados. The in-situ concrete saddle will then be cast, using grade C32/40. This will follow a controlled balanced sequence of works, with maximum lifts of 250mm and a maximum difference in level either side of the arch of 250mm **(Significant Risk Identified).** 250mm level lines will be marked out on the inside face of the spandrel wall for concrete pour level guide.

25mm chamfers will be formed on all the horizontal saddle edges, with a top U4 surface finish. The minimum thickness of the saddle over the extrados, shall be 110mm.

Once the concrete has cured, the exposed concrete of the saddle will be prepped, and waterproofed with a spray applied BBA approved waterproofing system over the top and sides where possible, by a BBA approved contractor.

20mm thick bridge protection course is to be laid over the waterproofing and then a fluorescent orange indicator mesh (or equally approved) will be laid over the top.

The addition of a new steel ducts (NAL or equally approved), to accommodate future services, will be installed within the verge. HB3 kerbs, with an ST2 concrete backing, will then be installed at the edge of the existing carriageway, with new ST2 concrete cast in the verge, with a U2 concrete finish.

The environmental spill boom and sheet system will then be removed. The carriageway will then be resurfaced to the existing levels.

The road will then be reopened.

The possible suggested sequence of construction is: -

Temporary / Preliminary Works:

- Set up advanced notice signing (2 weeks prior to works);
- Set up of traffic management, road closure and accompanying signs;
- Ecological walkover prior to works;
- Set up site compound and offices;
- Erect temporary footbridge (if required);
- Erect temporary working platforms;
- Install temporary propping system – Spandrel Walls;
- Install temporary propping system – Arch Barrels;
- Install temporary propping system – Abutments and pier;
- Install sheeting system beneath the Arch Barrels;
- Review and abide by EA flood permit and RAMS within the Ecological Report;
- Install temporary environmental pollution boom;
- Positively identify, and mark out all services;
- Goal post to be erected to all overhead services;
- Rake out and repoint loose areas of mortar; and,
- Point areas of missing mortar.

Main Works (Saddle Strengthening):

- Excavate arch to expose arch barrels, excavation undertaken following a controlled balanced sequence of works;
- Point gaps within arch barrels;
- Drill and fix Ancon Staifix Starter Ties (or equally approved);
- Excavate behind abutment and in the pier (if required) in 1m wide ‘Hit and Miss’ bays;
- Install bent A393 mesh reinforcement;
- Cast C32/40 concrete in controlled sequence. Installed in lifts, max 250mm difference either side;
- Install 1No. steel ducting pipe (for future services);
- Apply waterproofing by BBA approved contractor;
- Apply fluorescent orange indicator mesh or similar approved over 20mm thick SMA;
- Install new HB3 kerbs with ST2 concrete backing;
- Cast new ST2 concrete verge;
- Re-lay carriageway surfacing;
- Remove temporary works;
- Remove environmental spill boom;
- Remove traffic management and site welfare; and,
- Open road to public.

The above possible suggested sequence of works is a potential sequence, and the overall final sequence of works is down to the Contractor and identified within their Construction Phase Plan.

2 SPECIFICATION

2.1 CONCRETE

Appendix 17/1: Concrete

Reference	
Location	Saddle
Nominal Cover to reinforcement	40+ ∆c (10mm)
Minimum Cement Content (kg/m^3)	300
Maximum Cement Content (kg/m^3)	550
Compressive Strength Class of Concrete	C32/40
Max. Agg. Size	20
Exposure Class	XC3/4
Chloride Content Class	Cl 0,40
Structural Performance	High
DC Class	DC-1
Maximum Water / Cement Ratio	0.55
Consistency class	S3
Required Group or Type and Class of Cement	All in table A.6 except IVB-V
Required Source/Special Type of Aggregate	All aggregates shall be non-reactive A, B or C
Required Admixture	No
Air Entrainment Required	No
Sampling and Testing	See Appendix 17/1 – 1.
Other Requirements –	

Appendix 17/1 - 1: Concrete – Sampling and Testing

1. All batches are to be slump tested by Contractor. The contractor is also required to take 8 cubes in total for testing. Two cubes to be tested at 3 days, 7 days and 4No. at 28 days or at other dates as approved by the Overseeing Organisation.
2. The concrete shall conform to BS8500-1-2015.

Appendix 17/03: Concrete – Surface Finishes

1. Surface finishes for concrete formed surfaces to be: Class F2 finish to sides of saddle. See drawing series 00703 and 007004 for details. A dense finish with no grout or mortar loss with the specified cover to embedded metal. The irregularities in the finish shall be no greater than those obtained from the use of wrought thickness square edge boards arranged in a uniform pattern. The finish is intended to be left as struck but imperfections such as fins and surface discolouration shall be made good.

2. Class U4 finish to top of saddle and U2 finish to top of verge.
    - Class U2 finish - The concrete shall be levelled and screeded to produce a uniform surface to the profile shown on the drawings. No further work shall be applied to the surface unless it is used as a first stage for another class of finish. After the concrete has hardened sufficiently, the Class U1 finish shall be floated by hand or machine sufficiently only to produce a uniform surface free from screed marks.

    - Class U4 finish - The concrete shall be levelled and screeded to produce a uniform surface. When the concrete has sufficiently hardened, and the bleed water evaporated the surface shall be trowelled to produce a hard-dense surface free from screed marks and exposed aggregate. Finally, the surface shall be lightly textured with a wooden float or equivalent. Alternatively, the concrete shall be levelled, screeded and floated to produce a uniform surface and immediately before the waterproofing operation this surface shall receive surface preparation by water jetting or grit blasting to provide a lightly textured finish. The finished surface shall not deviate from the required profile by more than 10 mm over a 3 m gauge length or have any abrupt irregularities more than 3 mm.

Concrete Finishes:

- Concrete edges to have horizontal 25mm chamfer.

Ancillary Concrete:

- Kerb backing – ST2 mix concrete with a consistency class of S1
- Concrete Verge – ST2 mix concrete with a consistency class of S3

2.2 REINFORCEMENT AND MASONRY TIES

Reinforcement:

- Reinforcement to conform to BS EN 10080:2005 and BS 4449: 2005 (Grade B500A, B500B or B500C) with characteristic yield strength of 500N/mm^2 – A393 mesh.

Masonry ties:

- Ancon Staifix Starter Tie (or equally approved) applied at 250x250 centres.
- Fixing with Fosroc E35 polyester resin anchor grout or equally approved.

2.3 STONEWORK, PARAPETS, MORTAR

Stonework shall be 'like for like' and sourced locally.

Mortar:

- Lime mortar shall consist of one part by volume of hydrated lime conforming to BS EN 459-1 to 2.5 parts by volume of sand, NHL5: Aggregate;
- Aggregate to match existing;
- Colour to match existing; and,
- Sample to be provided and final mix to be agreed prior to commencing masonry works.

2.4 WATERPROOFING

Waterproofing:

- BBA approved waterproofing system applied by BBA approved contractor, (GCP Eliminator system or equally approved) applied to saddles exposed vertical and horizontal sides, 500mm down back of the saddle and lapped with brush applied bitumen emulsion, FOSROC Mulseal DP (or equally approved).

Indicator layer:

- 20mm thick SMA 6 reg bridge protection layer, with fluorescent orange indicator mesh, or equally approved.

2.5 SURFACING, KERBING AND SERVICE DUCTS

Surfacing material:

- Work to be in accordance with BS EN 594987.
- Granular sub base type 1. – (if enough depth exists)
- 90mm thick AC32 dense base 40/60 (off saddle deck only). – (if enough depth exists)
- 60mm thick AC20 dense base 40/60.
- 40mm thick HRA 30/14 F surf 40/60, PSV 55, AAV 14.

Kerbs:

- HB3 (H 150mm, W 125mm, L 914mm). 38kg approx.

Service Ducts:

- Steel ducting within verge (NAL Ltd or equally approved), with a minimum bore capacity to that of 110mm traditional duct O/D.

3 QUANTITY ESTIMATE

The following quantity estimate is based on figures obtained from the drawings and the design and figures will vary on site, due to site constraints and construction techniques. Therefore, quantities shall be measured on site prior to ordering materials.

Bullock Mill Arch Bridge **In-situ Concrete Saddle**
Quantity Estimate

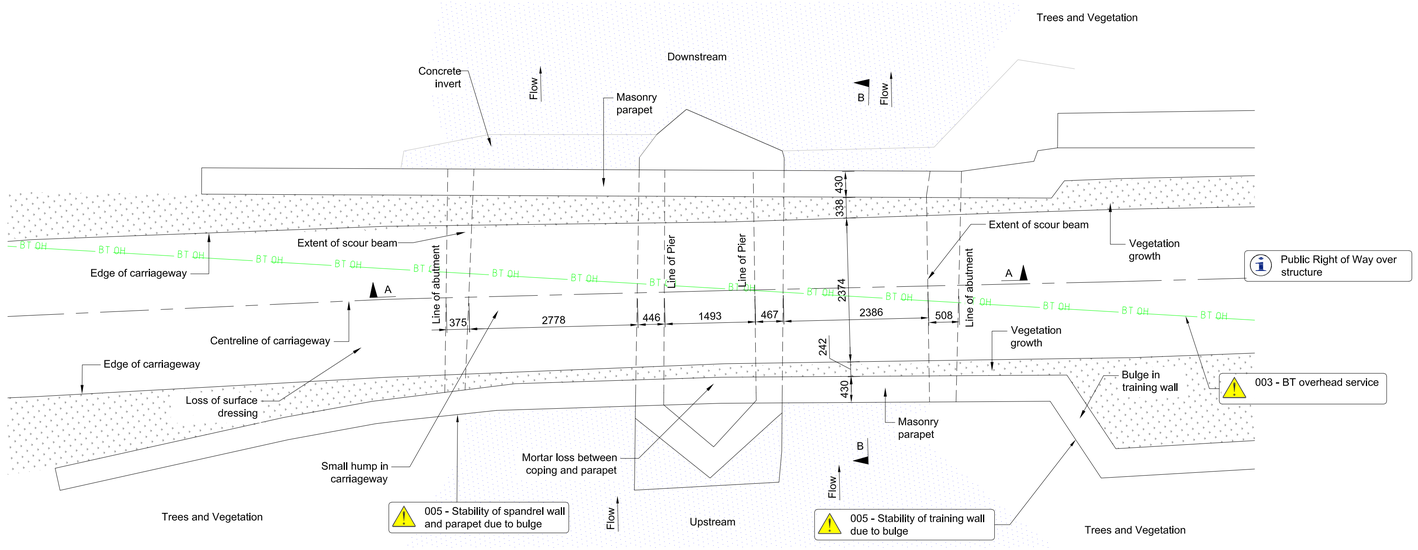
Based on 8 total weeks work duration

Please Note: This Quantitiy Estimate is based on estimates from the design and are not to be relied upon. Please review drawings and obtain own on site measurements prior to ordering materials.

Operation	Description	Quantity	Unit
	SERIES 100 - PRELIMINARIES		
	Temporary Accommodation		
	Erection of the offices and messes	1	Occ
	Servicing of offices and messes	40	op.day
	Dismantling of offices and messes	1	Occ
	Information Board Type 3A	2	no.
	Additional diversion advisory sign	10	no.
	Temporary closure, description, of road with provision of up to 8 no. diversion signs in accordance with Appendix 1/18	1	Occ
	Maintenance of temporary closure of road	40	op.day
	SERIES 500 - DRAINAGE AND SERVICE DUCTS		
	110mmØ Steel duct (NAL ltd or equally approved)	15	m
	SERIES 600 - EARTHWORKS		
	Excavation of acceptable material topsoil (class 5A) - grass verge	2	m^3
	Excavation of acceptable material excluding class 5A in any other excavation	56	m^3
	Extra over for excavation in hard material in structural foundations of any other exc.	6	m^3
	Breaking up of redundant flexible pavement or paved area up to 200mm deep	61	m^2
	Disposal of material acceptable/unacceptable material	70	m^3
	SERIES 700 - PAVEMENTS		
	AC 32 dense base 100/150 in all carriageway areas	5	m^3
	AC 20 dense bin 100/150 in all carriageway areas, 50-200m2 thickness - 60mm	61	m^2
	HRA 30/14 F surf 40/60, PSV 55, AAV 14	61	m^2
	Granular type 1 sub-base, area 50-200m2 in all carriageway areas	8	m^3
	Waterproof protection 20mm thick. SMA	33	m^2
	SERIES 1100 - KERBS, FOOTWAYS AND PAVED AREAS		
	HB3 Kerbs	30	No.
	Drop kerbs	4	No.
	SERIES 1700 - STRUCTURAL CONCRETE		
	ST2 kerb backing	1.5	m^3
	ST2 Concrete Verge	0.86	m^3
	In situ concrete mix C32/40	42	m^3
	Tensile steel type 2 bar reinforcement 16mm and under (A393 mesh)	0.48	t
	SERIES 2000 - WATERPROOFING FOR STRUCTURES		
	BBA/HE Bridge deck waterproofing system (top)	33	m^2
	SERIES 2400 - BRICKWORK, BLOCKWORK AND STONEWORK		
	Masonry (to match existing)	0.50	m^3
	Rake out mortar joints size 0-100mm (weak mortar in spandrel)	5	m^2
	Pointing of joints with lime mortar	5	m^2
	MISC		
	Masonry ties - Ancon starter cavity ties - staifix	416	No.
	Orange indicator mesh	33	m^2
	Heras Fencing (site security)	30	m
	Temporary pedestrian footbridge	18	m
	Environment pollution boom	1	No.
	Grout - Fosroc E35	0.8	m^3
	Tarpaulin 5m x 3m	2	No.
	Temporary propping supports where required	35	m^2
	Unscheduled		
	Contingencies	10%	
	Plant	sum	

Appendix A

DRAWINGS



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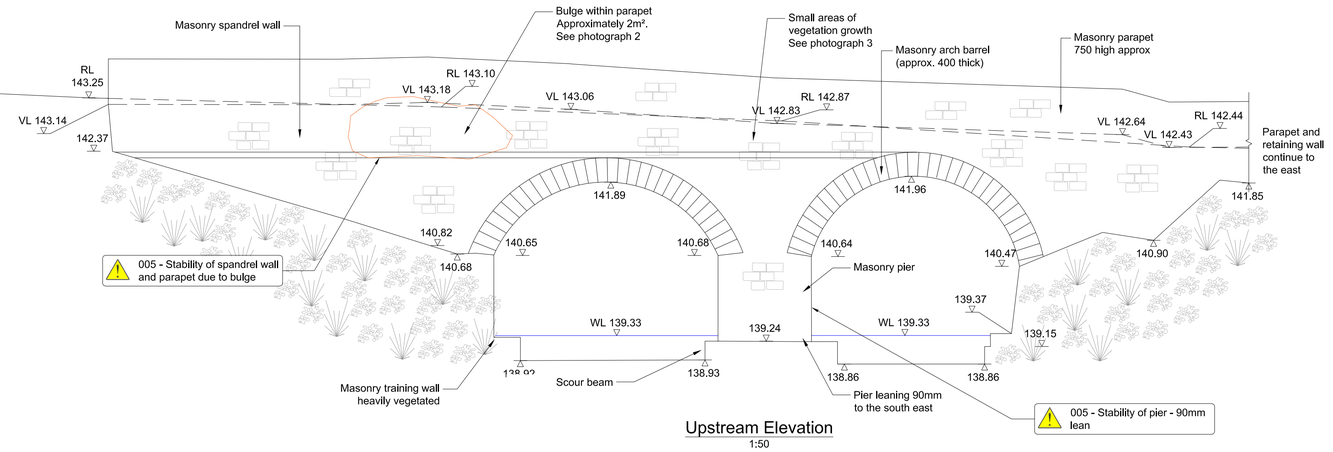

Upstream Elevation
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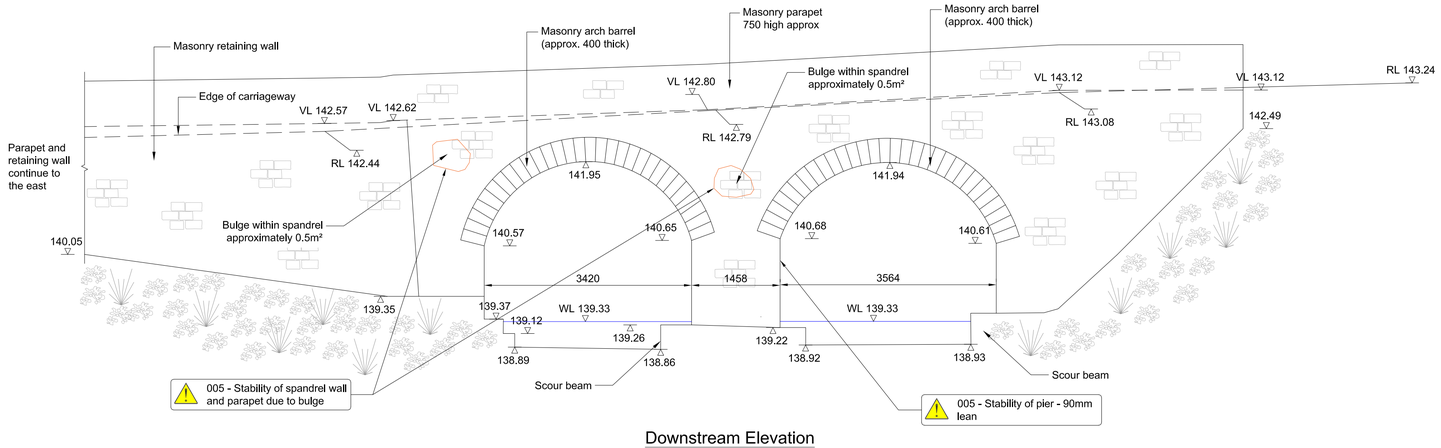


Downstream Elevation
1:50

KEY

Verge Level	VL
Water Level	WL
Road Level	RL
BT Overhead	BT OH

Photograph 1 - Small hump within carriageway and loss of surface dressing

Photograph 2 - Bulge in upstream parapet

Photograph 3 - Noticeable lean on the pier (90mm)

DO NOT SCALE

1. All dimensions are in millimeters unless otherwise stated.
2. Do not scale off this drawing.
3. Dimensions are based on reference Bullocks Mill topo 'BB4084-04 2D & BB4084-04-3D'.
4. Service locations based on C2 information.Exact location of services unknown. Approximate locations shown for informations only.
5. Bridge is located at approximate Grid Reference SO 3162 5725.
6. For section details see drawing 70085417-WSP-SBR-SWI-DE-CB-00702
7. Please refer to the Design Risk Management Schedule for details of the risks associated with the maintenance, operation, decommissioning and demolition phases

Indicates a residual risk as a warning	Select this symbol when the risk being identified is unusual and cannot be designed out
Indicates a residual risk requiring a compulsory action	Select this symbol when the risk being identified requires operatives to take a specific action or actions
Indicates a residual risk requiring a prohibitive action	Select this symbol when the risk being identified requires operatives to avoid a specific action or actions
Indicates a residual risk for information	Select this symbol when specific information needs to be conveyed

REV	DATE	BY	DESCRIPTION	CHK	APP
P02	08/02/2022	SV	FIRST ISSUE	JM	TW
P01	21/01/2022	SV	FIRST ISSUE	JM	TW

DRAWING STATUS:
S4 - FOR CONSTRUCTION APPROVAL

wsp
11 High Cross, Truro, TR1 2AJ, UK
T+ 44 (0) 187 224 5860
wsp.com

CLIENT:
Balfour Beatty
Living Places

ARCHITECT:

SITE/PROJECT:
Bullocks Mill Bridge

TITLE:
Existing General Arrangement
Sheet 1 of 2

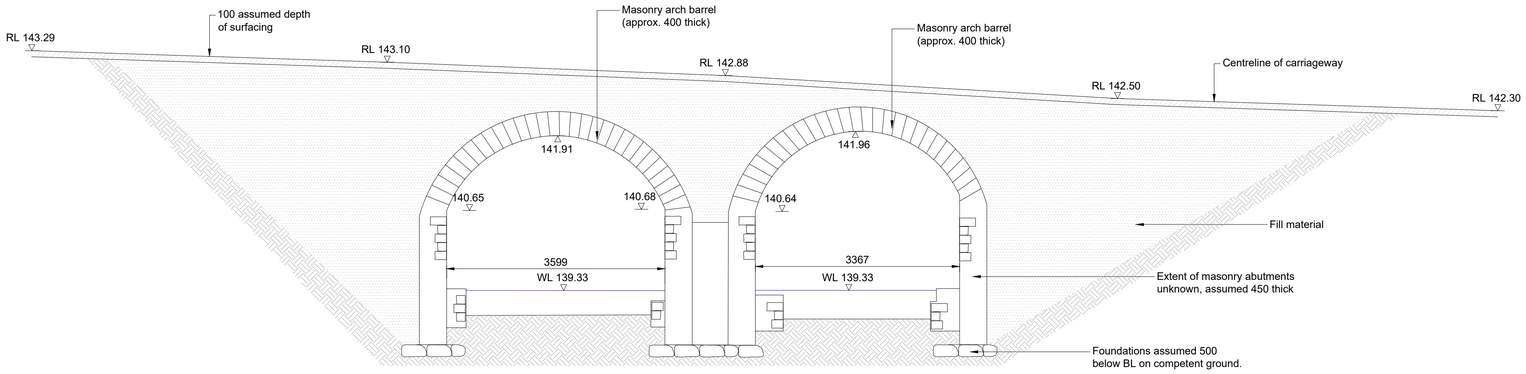
SCALE @ A1:	CHECKED:	APPROVED:
AS SHOWN	J. Mills	T. Walker

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70085417	T. Walker	S.Vignesh	Feb 2022

DRAWING No: 70085417-WSP-SBR-SWI-DE-CB-00701
REV: P02

KEY

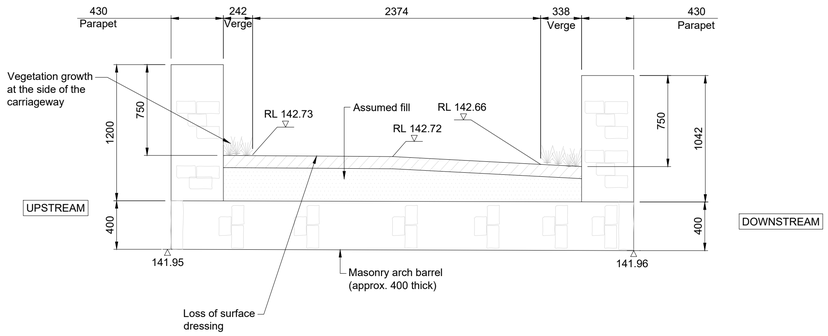
Water Level	WL
Road Level	RL
BT Overhead	BT OH



Section A-A

1:50

FOR SECTION LOCATION REFER TO DRAWING
70085417-WSP-SBR-SWI-DE-CB-00701



Section B-B

1:25

FOR SECTION LOCATION REFER TO DRAWING
70085417-WSP-SBR-SWI-DE-CB-00701

DO NOT SCALE

1. All dimensions are in millimeters unless otherwise stated.
2. Do not scale off this drawing.
3. Dimensions are based on reference Bullocks Mill topo 'BB4084-04 2D & BB4084-04-3D'.
4. Service locations based on C2 information.Exact location of services unknown. Approximate locations shown for information's only.
5. Bridge is located at approximate Grid Reference SO 3162 5725.
6. Please refer to the Design Risk Management Schedule for details of the risks associated with the maintenance, operation, decommissioning and demolition phases

⚠	**Indicates a residual risk as a warning** Select this symbol when the risk being identified is unusual and cannot be designed out
●	**Indicates a residual risk requiring a compulsory action** Select this symbol when the risk being identified requires operatives to take a specific action or actions
⊘	**Indicates a residual risk requiring a prohibitive action** Select this symbol when the risk being identified requires operatives to avoid a specific action or actions
ⓘ	**Indicates a residual risk for information** Select this symbol when specific information needs to be conveyed

REV	DATE	BY	DESCRIPTION	CHK	APP
P02	08/02/2022	SV	FIRST ISSUE	JM	TW
P01	21/01/2022	SV	FIRST ISSUE	JM	TW

DRAWING STATUS: S4 - FOR CONSTRUCTION APPROVAL

11 High Cross, Truro, TR1 2AJ, UK
T+ 44 (0) 187 224 5860
wsp.com

CLIENT: Balfour Beatty Living Places

ARCHITECT:

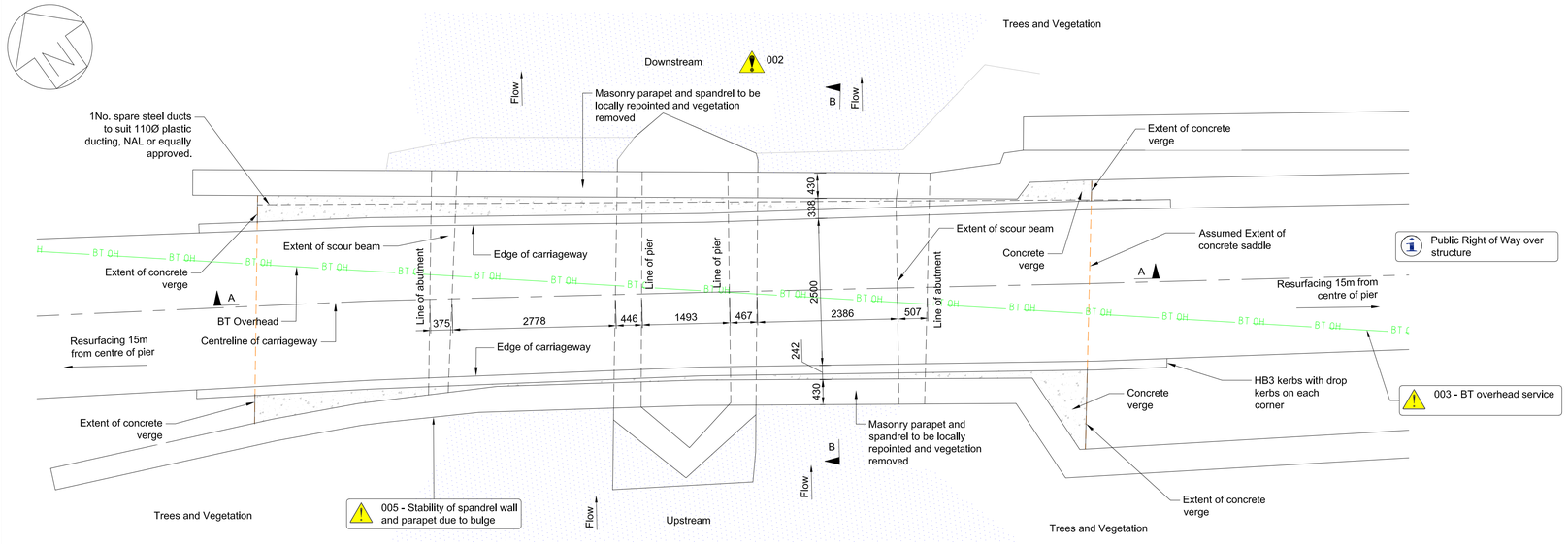
SITE/PROJECT: Bullocks Mill Bridge

TITLE: Existing General Arrangement Sheet 2 of 2

SCALE @ A1:	CHECKED:	APPROVED:
AS SHOWN	J. Mills	T. Walker

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70085417	T. Walker	S.Vignesh	Feb 2022

DRAWING No: 70085417-WSP-SBR-SWI-DE-CB-00702 REV: P02



Plan
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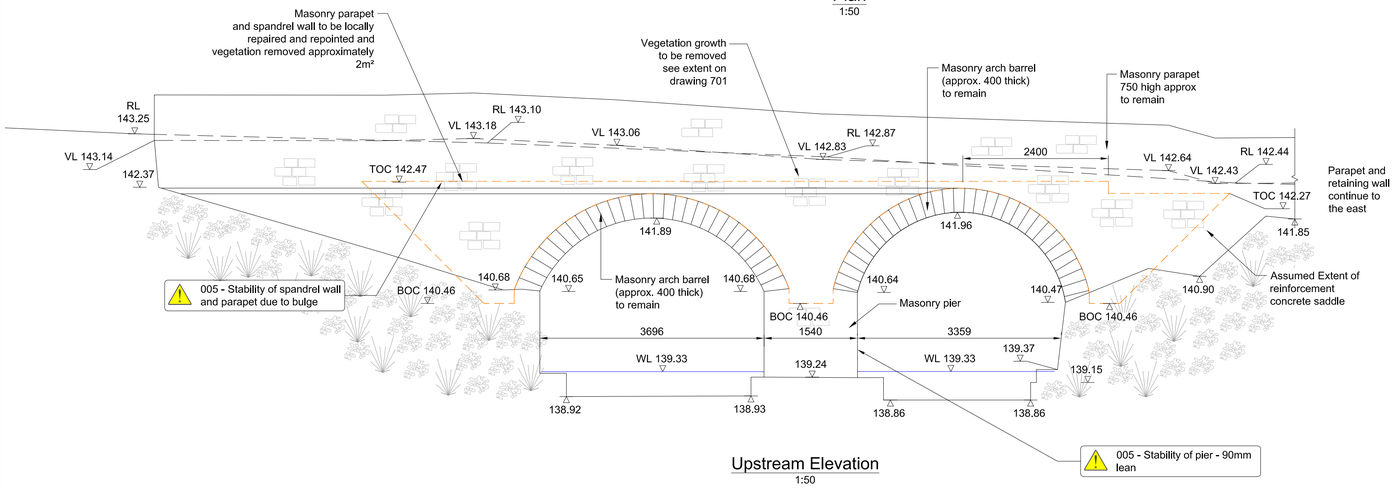
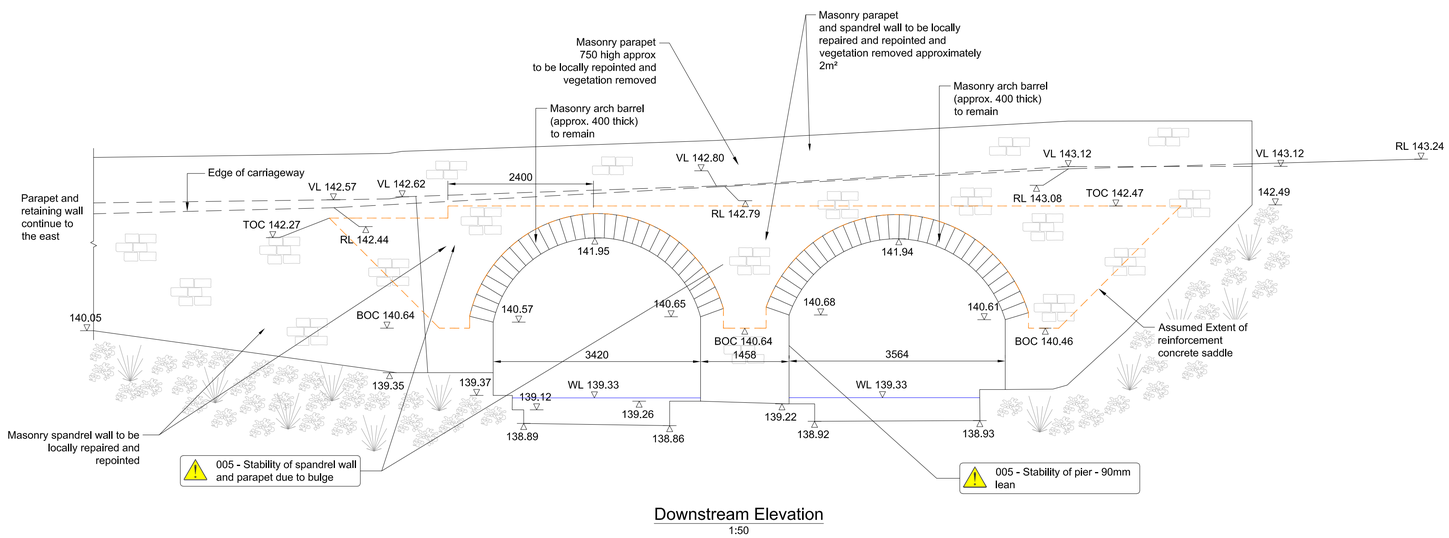


Upstream Elevation
1:50



Downstream Elevation
1:50

KEY

Verge Level	VL
Water Level	WL
Road Level	RL
BT Overhead	BT OH
Top of Concrete	TOC
Bottom of Concrete	BOC

DO NOT SCALE

NOTES:

1. All dimensions are shown in millimetres unless otherwise stated.
2. Do not scale off this drawing.
3. Dimensions are based on reference Bullocks Mill topo 'BB4084-04 2D & BB4084-04-3D'.
4. Service locations based on C2 information. Exact location of services unknown. Approximate locations shown for information only.
5. Additional consultation is required with BT to ascertain the exact location of the services and the requirements for diverting/marking out the affected services. No construction work is to be undertaken until the necessary works have been completed.
6. Excavation and concrete pour is to be undertaken in a balanced sequence and have a max level difference either side of 250mm.
7. Concrete and reinforcement specified in accordance with Eurocode execution.
8. All horizontal exposed arris have 25 x 25 chamfer, unless stated otherwise.
9. All reinforcement is grade B500B or B500C steel conforming to BS4449, bent and cut to BS8666.
10. All tie wire is 1.2mmØ stainless steel in accordance with Specification for Highway Works clause 1714.
11. Concrete Specification
    Exposure Class = XC3/4
    Cement/Combination = All in table A6 of BS8500-1 except IVB-V

    Concrete Saddle
    Strength Class = C32/40
    Max. w/c = 0.55
    Min. Cement = 300kg/m^3
    Cover, Cnom = 50mm for fixing tolerances (Δc=10mm)
    Cover, Cmin = 40mm
    Finishes = U4 to top of saddle, F2 to sides.

    Concrete Verge
    ST2 concrete
    Finishes U2
12. Please refer to the Design Risk Management Schedule for details of the risks associated with the maintenance, operation, decommissioning and demolition phases.

⚠	**Indicates a residual risk as a warning** Select this symbol when the risk being identified is unusual and cannot be designed out
●	**Indicates a residual risk requiring a compulsory action** Select this symbol when the risk being identified requires operatives to take a specific action or actions
⊘	**Indicates a residual risk requiring a prohibitive action** Select this symbol when the risk being identified requires operatives to avoid a specific action or actions
ⓘ	**Indicates a residual risk for information** Select this symbol when specific information needs to be conveyed

Contractor Design:
Formwork - Mass concrete saddle
Centering - Support of arch barrel during construction stage.
Footbridge - Access for pedestrians.
Services - Diverted/supported during works.
Ground - Ground support/stability check.

REV	DATE	BY	DESCRIPTION	CHK	APP
P02	08/02/2022	SV	FIRST ISSUE	JM	TW
P01	21/01/2022	SV	FIRST ISSUE	JM	TW

DRAWING STATUS: S4 - FOR CONSTRUCTION APPROVAL

11 High Cross, Truro, TR1 2AJ, UK
T+ 44 (0) 187 224 5860
wsp.com

CLIENT: Balfour Beatty Living Places

ARCHITECT:

SITE/PROJECT: Bullocks Mill Bridge

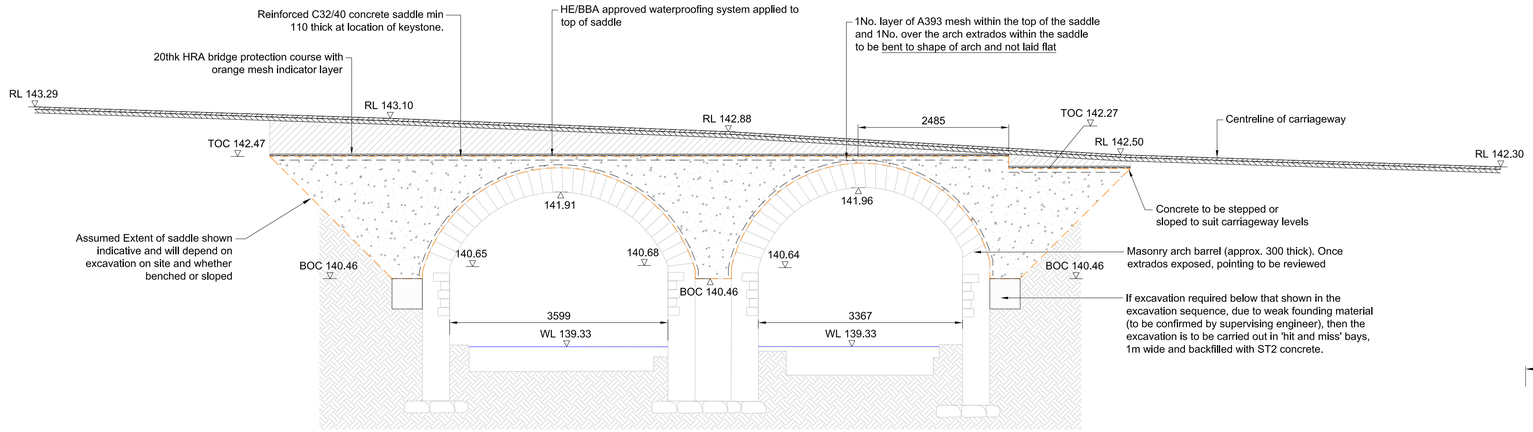
TITLE: Proposed General Arrangement Sheet 1 of 2

SCALE @ A1:	CHECKED:		APPROVED:
AS SHOWN	J. Mills		T. Walker
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70085417	T. Walker	S.Vignesh	Feb 2022

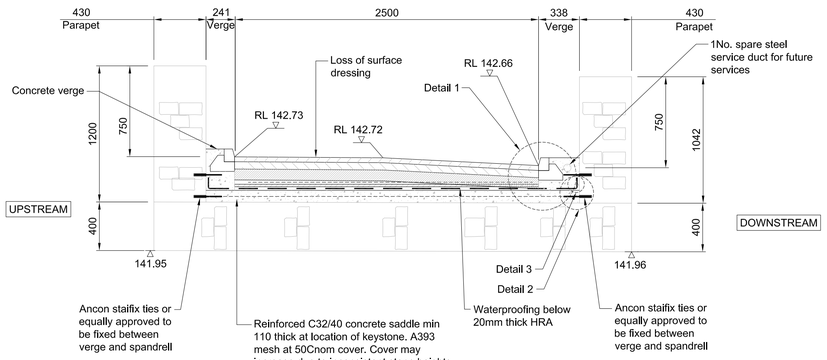
DRAWING No: 70085417-WSP-SBR-SWI-DE-CB-00703 REV: P02

KEY

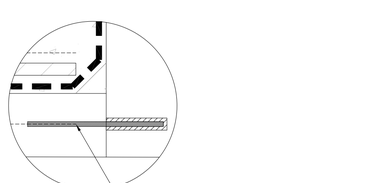
Verge Level	VL
Water Level	WL
Road Level	RL
BT Overhead	BT OH
Top of Concrete	TOC
Bottom of Concrete	BOC



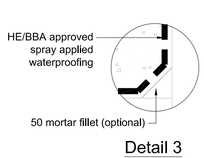
Section A-A
1:50
FOR SECTION LOCATION REFER TO DRAWING
70085417-WSP-SBR-SWI-DE-CB-00701



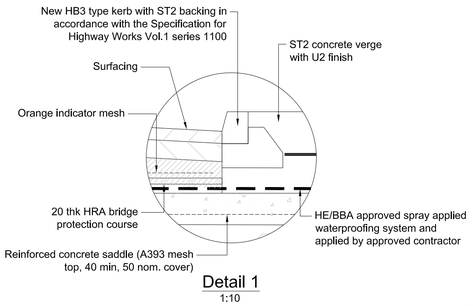
Section B-B
1:25
FOR SECTION LOCATION REFER TO DRAWING
70085417-WSP-SBR-SWI-DE-CB-00701



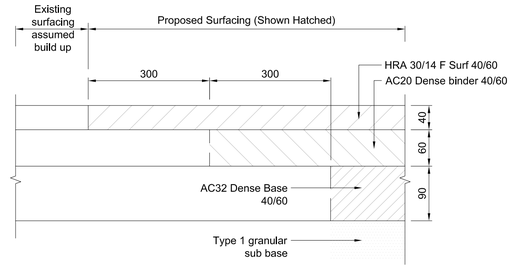
Detail 2
1:5



Detail 3
1:5

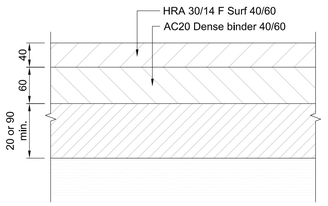


Detail 1
1:10



Surfacing Detail (interface with existing)
1:5

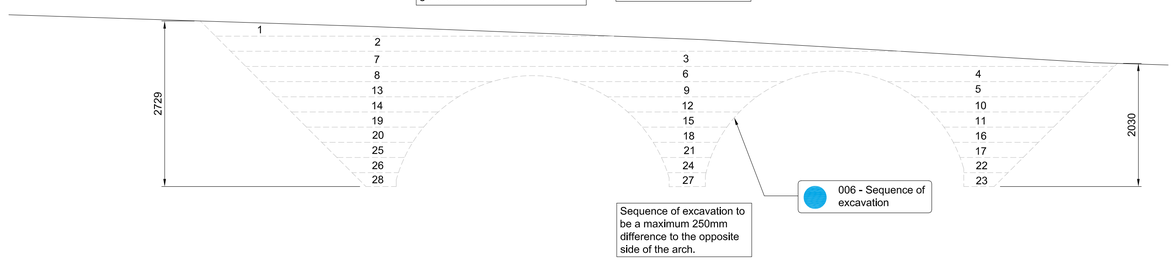
At concrete saddle: Surfacing laid directly over 20 thick HRA bridge protection course/indicator mesh.
Off concrete saddle: AC32 Dense Base 40/60 over concrete backfill and/or type 1 sub base.



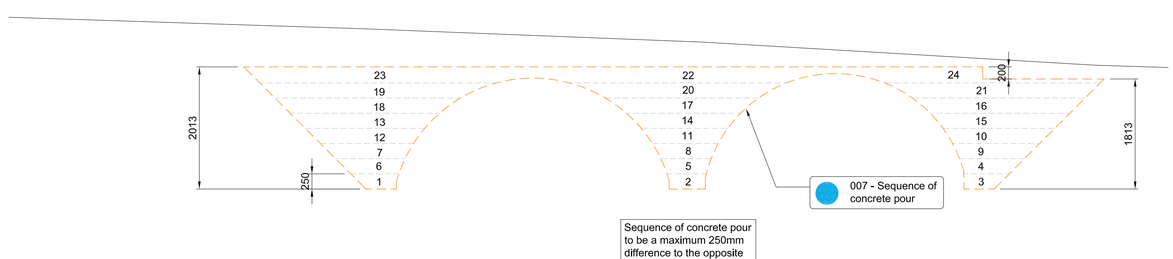
Surfacing Detail (over length of worksite)
1:5

No ground investigation has been undertaken and ground conditions are therefore assumed to be general fill material

Extent of excavation depth will vary on site depending on site conditions



Sequence of Excavation (Balanced Excavation)
1:50



Sequence of Concrete Pour (Balanced Pour)
1:50

DO NOT SCALE

NOTES:

1. All dimensions are shown in millimetres unless otherwise stated.
2. Do not scale off this drawing.
3. Dimensions are based on reference Bullocks Mill topo 'BB4084-04 2D & BB4084-04-3D'.
4. Service locations based on C2 information. Exact location of services unknown. Approximate locations shown for information only.
5. Additional consultation is required with BT to ascertain the exact location of the services and the requirements for diverting/marking out the affected services. No construction work is to be undertaken until the necessary works have been completed.
6. Excavation and concrete pour is to be undertaken in a balanced sequence and have a max level difference either side of 250mm.
7. Concrete and reinforcement specified in accordance with Eurocode execution.
8. All horizontal exposed arris have 25 x 25 chamfer, unless stated otherwise.
9. All reinforcement is grade B500B or B500C steel conforming to BS4449, bent and cut to BS8666.
10. All tie wire is 1.2mmØ stainless steel in accordance with Specification for Highway Works clause 1714.
11. Concrete Specification
    Exposure Class = XC3/4
    Cement/Combination = All in table A6 of BS8500-1 except IVB-V

    Concrete Saddle
    Strength Class = C32/40
    Max. w/c = 0.55
    Min. Cement = 300kg/m^3
    Cover, Cnom = 50mm for fixing tolerances (Δc=10mm)
    Cover, Cmin = 40mm
    Finishes = U4 to top of saddle, F2 to sides.

    Concrete Verge
    ST2 concrete
    Finishes U2
12. Please refer to the Design Risk Management Schedule for details of the risks associated with the maintenance, operation, decommissioning and demolition phases.

⚠	**Indicates a residual risk as a warning** Select this symbol when the risk being identified is unusual and cannot be designed out
	Indicates a residual risk requiring a compulsory action Select this symbol when the risk being identified requires operatives to take a specific action or actions
⊘	**Indicates a residual risk requiring a prohibitive action** Select this symbol when the risk being identified requires operatives to avoid a specific action or actions
ℹ	**Indicates a residual risk for information** Select this symbol when specific information needs to be conveyed

Contractor Design:
Formwork - Mass concrete saddle
Centering - Support of arch barrel during construction stage.
Footbridge - Access for pedestrians.
Services - Diverted/supported during works.
Ground - Ground support/stability check.

REV	DATE	BY	DESCRIPTION	CHK	APP
P02	08/02/2022	SV	FIRST ISSUE	JM	TW
P01	21/01/2022	SV	FIRST ISSUE	JM	TW

DRAWING STATUS:
S4 - FOR CONSTRUCTION APPROVAL

11 High Cross, Truro, TR1 2AJ, UK
T+ 44 (0) 187 224 5860
wsp.com

CLIENT: Balfour Beatty Living Places

ARCHITECT:

SITE/PROJECT: Bullocks Mill Bridge

TITLE: Proposed General Arrangement Sheet 2 of 2

SCALE @ A1:	CHECKED:	APPROVED:
AS SHOWN	J. Mills	T. Walker

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70085417	T. Walker	S.Vignesh	Feb 2022

DRAWING No: 70085417-WSP-SBR-SWI-DE-CB-00704 REV: P02

Appendix B

FLOOD PERMIT

Appendix C

DIVERSION ROUTE - TO BE INSERTED BY BBLP

11 High Cross
Truro
Cornwall
TR1 2AJ

wsp.com