

Drawing Number
3255-MHB-DRG-001

GENERAL NOTES

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 2. THE CONTRACTOR TO CHECK ALL DIMENSIONS ON SITE AND REPORT ANY DIFFERENCE TO THE DESIGNER.
 3. ALL LEVELS ARE IN METRES ABOVE ORDANCE DATUM UNLESS STATED OTHERWISE.
 4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH:
 - 3255-MHB-DRG-010 EXISTING GENERAL ARRANGEMENT
 - 3255-MHB-DRG-100 GENERAL ARRANGEMENT OF PROPOSED WORKS
 - 3255-MHB-DRG-101 PROPOSED SECTIONS 1 OF 2
 - 3255-MHB-DRG-102 PROPOSED SECTIONS 2 OF 2
 - 3255-MHB-DRG-120 PROPOSED MATTRESS DETAILS
 - 3255-MHB-DRG-121 PROPOSED SHEETPILES DETAILS
 4. DRAWINGS BASED ON TOPOGRAPHICAL SURVEY CARRIED OUT IN APR 2021 BY ASPECT LAND + HYDROGRAPHIC SURVEYS AND RECORD INFORMATION SUPPLIED BY NETWORK RAIL.
 5. TYPICAL HAZARDS THAT SHOULD BE IDENTIFIED BY A COMPETENT CONTRACTOR ARE NOT INCLUDED. THE CONTRACTOR SHALL CARRY OUT THE WORKS USING AN APPROPRIATE SYSTEM OF WORK. FURTHER INFORMATION ON HAZARDS CAN BE FOUND IN THE DESIGNERS RISK ASSESSMENT 2864-MHB-DRA-001.
 6. ALL WASTE ARISING FROM SITE CLEARANCE INCLUDING SHEET PILES SHALL BE REMOVED OFF SITE AND NOT REUSED ANYWHERE IN THE WORKS.
- SERVICES**
7. ALL AREAS OF WORKS TO BE SCANNED WITH APPROVED CAT SCANNER PRIOR TO COMMENCEMENT. IF ANY SERVICES ARE FOUND, DESIGNER TO BE CONTACTED.
- CONCRETE**
8. CONCRETE SCOUR MATTRESS WITH OUTER EDGES AT THE UPSTREAM AND DOWNSTREAM ENDS TO BE TOED INTO TRENCHES WHICH ARE BACKFILLED WITH ROCK ARMOUR STONES TO PROVIDE FALLING APRONS.
 9. CONCRETE MATTRESS PANELS TO BE FILLED WITH A MICRO AGGREGATE SAND CEMENT AND ADMIXTURE SELECTED TO PROVIDE A MIN CHARACTERISTIC 28 DAY COMPRESSIVE CUBE STRENGTH OF 40N/mm².
 10. THE FABRIC FORMWORK SHALL BE MANUFACTURED FROM A WOVEN POLYAMIDE / POLYPROPYLENE FABRIC AND SHALL BE DESIGNED TO AVOID ENTRAPPED WATER VOIDS.
 11. MATTRESS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS, DRAWINGS AND DETAILS.
 20. SPECIFICATION AND TESTING OF CONCRETE SHALL BE IN ACCORDANCE WITH MCHW VOL 1. SPECIFICATION FOR HIGHWAYWORKS SERIES 1700 STRUCTURAL CONCRETE, BS 8500 AND BS-EN-206-2013.
 21. 4No. OF SAMPLES TO BE TAKEN EVERY THREE LOADS AND TESTED AT 3, 7 AND 28 DAYS TO ENSURE 28 DAYS TO ENSURE 28 DAY OF 40N/mm²
- EARTHWORKS**
22. CAREFUL EXCAVATION SHOULD BE UNDERTAKEN TO ENSURE NO UNDERMINING OF THE FOUNDATIONS OF THE ABUTMENTS AND PIERS.
 23. EXCAVATIONS TO BE LEFT OPEN FOR AS SHORT A TIME AS POSSIBLE AND NO EXCAVATION TO BE LEFT OPEN BETWEEN SHIFTS.
 24. ALL SOFT SPOTS, LOOSE MATERIAL AND TOPSOIL TO BE REMOVED.
 25. FORMATION TO BE MEDIUM DENSE GRANULAR MATERIAL OR FIRM CLAY AND IS TO BE INSPECTED PRIOR TO PLACING THE CONCRETE MATTRESS BY A SUITABLY QUALIFIED ENGINEER.
 26. FORMATION TO BE LEVELLED AS ACCURATELY AS REASONABLY PRACTICABLE: ALL VOIDS TO BE FILLED WITH SITE - WON MATERIAL. ALL BULGES TO BE LEVELLED - THIS IS TO BE DONE PRIOR TO PLACING THE CONCRETE MATTRESS.
 27. WHERE RIVER BED MATERIAL HAS BEEN EXCAVATED, MATERIAL TO BE RETAINED AND TO BE REUSED WHERE POSSIBLE.
 28. NATURAL RIVER BED MATERIAL TO BE PLACED ON TOP OF THE CONCRETE MATTRESS TO REINSTATE NATURAL CONDITIONS.
 29. ANY ADDITIONAL MATERIAL BROUGHT FROM AN EXTERNAL SOURCE TO REINSTATE EXISTING RIVER BED SHALL BE REQUIRED TO BE TESTED IN ACCORDANCE WITH MCHW VOL 1. SPECIFICATION FOR HIGHWAY WORKS SERIES 0600 EARTHWORKS TABLE 6/1

ROCK ARMOUR

30. SPECIFICATION AND TESTING OF STONE FOR SCOUR PROTECTION SHALL BE IN ACCORDANCE WITH BS EN 13383-1, UNLESS IDENTIFIED OTHERWISE.
31. THE STONE TO BE USED SHALL BE A NATURAL STONE OF SUITABLE ANGULAR SHAPE, DIMENSION AND WEIGHT. IT SHALL BE HARD, DURABLE AND SOUND, FREE FROM LAMINATIONS, WEAK CLEAVAGE PLANES, AND UNDESIRABLE WEATHERING AND SHALL BE OF SUCH A CHARACTER THAT IT WILL NOT DISINTEGRATE OR ERODE FROM THE ACTION OF AIR, WATER, SALTS, WETTING AND DRYING, FREEZING AND THAWING, OR IMPACT DUE TO WAVE OR WATER FLOW ACTION. IT SHALL ALSO BE CAPABLE OF BEING HANDLED AND PLACED WITHOUT UNDUE FRACTURE OR DAMAGE.
32. THE CONTRACTOR TO ENSURE THAT MEASURES ARE TAKEN TO PREVENT POLLUTION OF THE RIVER WITH SUSPENDED SOLIDS, FUELS OR OTHER HARMFUL SUBSTANCES.
33. ROCK ARMOUR STONE LENGTH TO THICKNESS RATIO LT_A SHALL NOT BE MORE THAN 3.
34. ROCK ARMOUR STONE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 60MPa (CS₂₀) IN ACCORDANCE WITH EN 13383-1:2013) AND SHALL BE FREE FROM SIGNIFICANT DISCONTINUITIES THAT COULD LEAD TO BREAKAGE DURING LOADING, UNLOADING OR PLACING.
35. STONE USED FOR MATTRESS PROTECTION SHALL BE GRADE LMB 60/300, IN ACCORDANCE WITH BS EN 13383-1:2013 AND BS EN 13383-2:2019.
36. NON-WOVEN GEOTEXTILE IS TO BE PLACED ON SLOPES PRIOR TO PLACING ROCK ARMOUR.
37. NON-WOVEN GEOTEXTILE IS TO BE MACCAFERRI MACTEX H1000 OR SIMILAR APPROVED, WITH 300mm OVERLAPS BETWEEN CONSECUTIVE SHEETS. OVERLAPS TO BE ORIENTATED TO TAKE ACCOUNT DIRECTION OF FLOW
40. ALL FORMATION SURFACES IN CONTACT WITH THE GEOTEXTILE, SHALL NOT HAVE PROTRUSIONS WHICH ARE LIKELY TO DAMAGE THE GEOTEXTILE DURING INSTALLATION OR IN SERVICE. THE METHOD OF INSTALLATION SHALL NOT IMPOSE STRESSES OR STRAINS LIKELY TO CAUSE DAMAGE TO THE GEOTEXTILE AND SHALL ENSURE THAT THE GEOTEXTILE IS IN CONTINUOUS CONTACT WITH THE SURFACE ON WHICH IT IS PLACED WITHOUT STRETCHING OR BRIDGING OVER HUMPS OR HOLLOWES. CONSTRUCTION PLANT MUST NOT OPERATE DIRECTLY ON THE GEOTEXTILE.

CONCRETE BACKFILL SPECIFICATION IN ACCORDANCE WITH BS8500-1:2015 + A2:2019

COMPRESSIVE STRENGTH CLASS	C25/30
MINIMUM CHARACTERISTIC CUBE STRENGTH AT 28 DAYS	30N/mm ²
MAXIMUM AGGREGATE SIZE	20mm
REINFORCEMENT COVER C _{NOM}	N/A
MAXIMUM FREE WATER CEMENT RATIO	0.55
MINIMUM CEMENT OR COMBINATION CONTENT	320kg/m ²
CEMENT TYPE	IIB-P, IIB-Q, IIB-V, IIIA
CONSISTENCE CLASS	S3
EXPOSURE CLASS	XC4, XS1
AGGREGATES	N/A



PHOTO 1 - DOWNSTREAM VIEW TO THE BRIDGE
SCALE 1:25



SITE LOCATION
1:25 OS MAPS EXTRACT
NTS



SAFETY, HEALTH & ENVIRONMENTAL INFORMATION

THE FOLLOWING NOTES HIGHLIGHT SIGNIFICANT RESIDUAL HAZARDS IDENTIFIED BY THE DESIGNER, TYPICAL HAZARDS THAT SHOULD BE IDENTIFIED BY A COMPETENT CONTRACTOR ARE NOT INCLUDED. THE CONTRACTOR SHALL CARRY OUT THE WORKS USING AN APPROVED SAFE SYSTEM OF WORK. FURTHER INFORMATION ON HAZARDS CAN BE FOUND IN THE DRA AND / OR CSM HAZARD LOG

#	RISK	STAGE	MITIGATING MEASURES
1	WORKING IN A WATERCOURSE, DROWNING	C/O	WATER LEVEL IN THE RIVER TO BE MONITORED, CONTRACTOR TO PROVIDE SAFE SYSTEM OF WORK TO ADDRESS THIS. THIS MAY INCLUDE LOW TIDE WORKING, SAFETY ROPES, FLOTATION RINGS ETC.
2	DAMAGE TO UNIDENTIFIED BURIED SERVICES WITHIN THE WATERCOURSE DURING EXCAVATION	C	ALL AREAS OF EXCAVATION TO BE SCANNED WITH APPROVED EQUIPMENT PRIOR TO BREAKING GROUND. WHERE SERVICES ARE FOUND THE DESIGNER IS TO BE CONTACTED AND LIAISON TO HAPPEN WITH THE STATUTORY UNDERTAKERS.
3	SEPA (AND MARINE SCOTLAND) APPROVAL REQUIRED FOR WORKS ADJACENT TO AND OVER WATERCOURSE - RISK TO PROGRAMME IF APPLICATIONS ARE DELAYED	C	RELEVANT APPROVALS ARE IN PLACE AND ANY SIGNIFICANT DEVIATIONS FROM LICENCE REQUIREMENTS MUST BE COMMUNICATED.
4	CONTAMINATION OF WATERCOURSE	C	THE INSTALLATION OF THE MAIN INVERT SHALL BE UNDERTAKEN WITHIN A DRIED WORKING AREA. ANY CONTAMINATION WITHIN THE AREA SHALL BE CLEARED AS DETAILED WITHIN THE CONTRACTOR'S METHOD OF WORKING.
5	FLOODING, HIGH RISING WATER CAUSING DAMAGE TO THE WORKS	C	FLOOD AND TIDE LEVELS TO BE MONITORED THROUGHOUT THE WORKS, CONTRACTOR TO INCLUDE MEASURES WITHIN METHOD STATEMENT.
6	DAMAGE TO THIRD PARTY LAND	C	CONTRACTOR TO PROVIDE THE RELEVANT ACCESS TO PROTECT BOTH SITE STAFF AND THIRD PARTY LAND INCLUDING BUT NOT LIMITED TO HANDRAILING, BOG MATS, STONE FILL WORKING PLATFORMS ETC.
7	PIER APRON BEING SHALLOWER, THAN EXPECTED OR BEING MADE OF GRANULAR MATERIAL - RISK OF INSTABILITY OF THE APRON DURING THE WORKS. INCREASED SCOPE OF WORKS	C/D	STRUCTURE TO BE MONITORED DURING THE CUTTING BACK OF THE APRON AND DIGGING TRENCHES FOR THE SHEETPILES
8	RISK OF CONCRETE MATTRESS BEING UNDERMINED BY ONGOING HYDRAULIC FORCES	D	N/A
9	LIFTING OPERATIONS OF MATERIALS, PLANT AND OBJECTS ON SITE	C	EXCLUSION ZONE WHEN LIFTING OPERATIONS ARE TAKING PLACE AND CORRECT PPE. LIFTING OPERATIONS TO COMPLY WITH THE CONTRACTOR LIFTING PROCEDURES AND SAFE SYSTEM OF WORKS.
10	INSTABILITY OF SHEET PILES DUE TO UNDERESTIMATED LOADS, OR APRON FILL BEING DIFFERENT, THAN EXPECTED.	C/D	CONTRACTOR TO ENSURE NO ADDITIONAL LOADS ARE APPLIED TO THE REAR OF THE SHEET PILES. CONCRETE TO BE POURED EVENLY AROUND THE APRON
11	UNDERMINING OF THE EXISTING APRONS IN SPANS 5-7 - DUE TO THE PROPOSED MATTRESS INSTALLATION BEING ILIMITED TO SPANS 1-4	D/O	N/A
12	PLANT DAMAGING THE MATTRESS DURING WORKS	C/D	SUFFICIENT CURING TIME TO BE PROVIDED FOR THE MATTRESS FILL TO CURE
13	SHEETPILE WALL MOVEMENT AFTER CUTTING OUT TEMPORARY ANCHORS	C/D	SUFFICIENT CURING TIME TO BE PROVIDED FOR THE CONCRETE TO CURE. MATTRESS TO BE INSTALLED PRIOR TO CUTTING TOP ANCHORS OFF

STAGE CODE: O = OPERATION C = CONSTRUCTION/ DECOMMISSIONING D = DESIGN

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B01	28/04/23	FOR APPROVAL	BZ	CS	-
P02	05/04/23	DRAFT	BZ	CS	-
P01	09/03/23	DRAFT	BZ	-	-
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

FOR APPROVAL

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Project

**BRIDGE OF DEE
SCOUR PROTECTION**

Drawing Title

GENERAL NOTES

Scale(s)	Drawn	Date	Checked	Date	Approved	Date
AS SHOWN	BZ	16/02/2023	CS	05/04/2023	-	-
Drawing Number						Revision
3255-MHB-DRG-001						B01

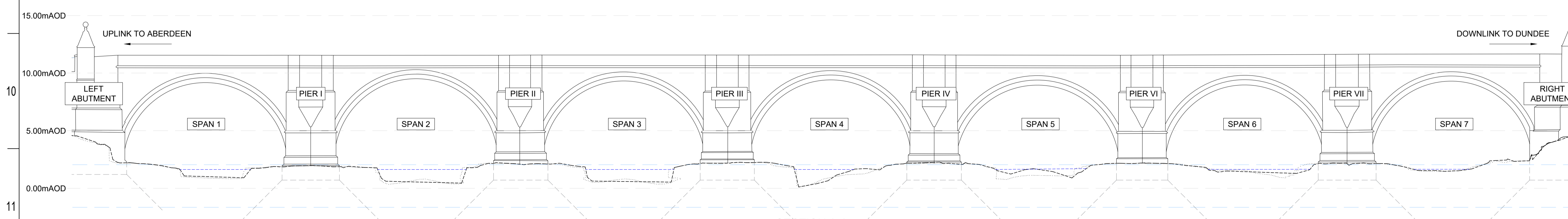
Drawing Number
3255-MHB-DRG-010

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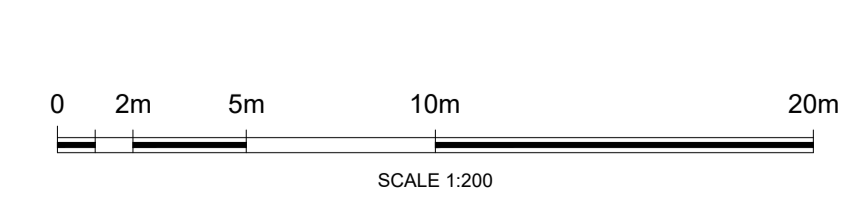
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PLAN
SCALE 1:250



SECTION A-A
SCALE 1:200



KEY:

-----	BED LEVEL PROFILE APRIL 2021
-----	WATER LEVEL PROFILE APRIL 2021
-----	BED LEVEL PROFILE SEPTEMBER 2016

B01	28/04/23	FOR APPROVAL	BZ	CS	-
P02	05/04/23	DRAFT	BZ	CS	-
P01	09/03/23	DRAFT	BZ	-	-
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

FOR APPROVAL

Client(s)

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Project
**BRIDGE OF DEE
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Drawing Title
**EXISTING
GENERAL ARRANGEMENT**

Scale(s)	Drawn	Date	Checked	Date	Approved	Date
AS SHOWN	BZ	16/02/2023	CS	05/04/2023	-	-
Drawing Number	3255-MHB-DRG-010					Revision
					B01	

CONSTRUCTION OF FISH HABITATS - T.B.C.
DESIGNER TO BE CONSULTED IN ORDER TO ENSURE
THAT PROPOSED WORKS HAVE NO SIGNIFICANT
IMPACT ON THE FLOWS CONSIDERED IN THE DESIGN

PROPOSED RIP-RAP - SEE 3255-MHB-DRG-120

PROPOSED PROSERVE MATTRES.
LAYOUT OF FABRIC T.B.C. BY
PROSERVE

ROCK ARMOUR TOE PROTECTION - SEE
3255-MHB-DRG-120

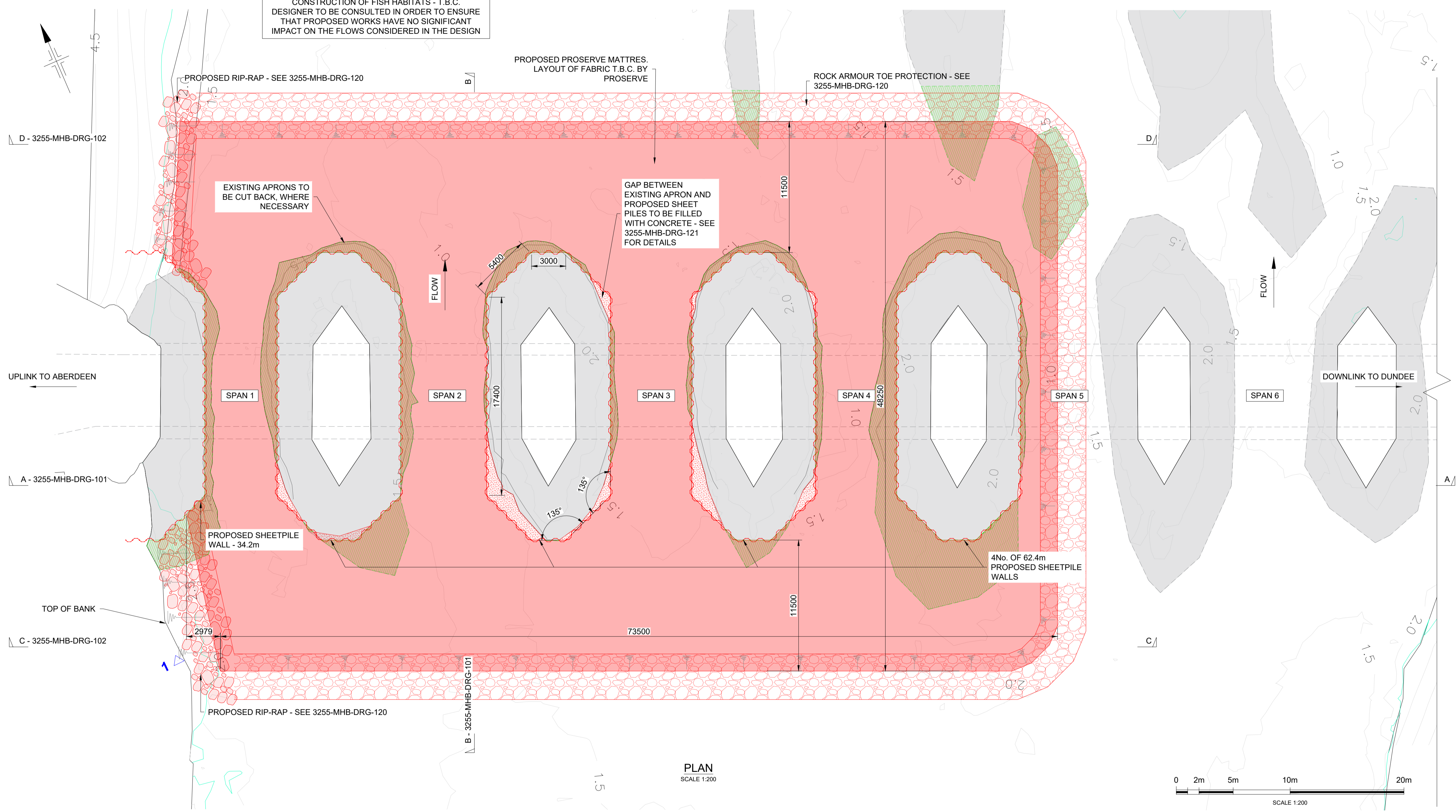
EXISTING APRONS TO
BE CUT BACK, WHERE
NECESSARY

GAP BETWEEN
EXISTING APRON AND
PROPOSED SHEET
PILES TO BE FILLED
WITH CONCRETE - SEE
3255-MHB-DRG-121
FOR DETAILS

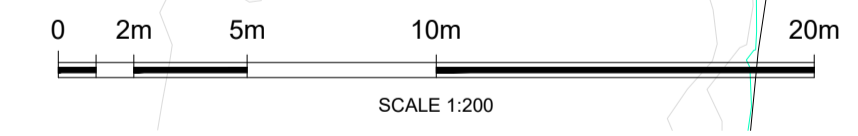
4No. OF 62.4m
PROPOSED SHEETPILE
WALLS

PROPOSED SHEETPILE
WALL - 34.2m

Drawing Number
3255-MHB-DRG-100



PLAN
SCALE 1:200



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P01	09/03/23	DRAFT	BZ	-	-
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Status **FOR APPROVAL**

Client(s)

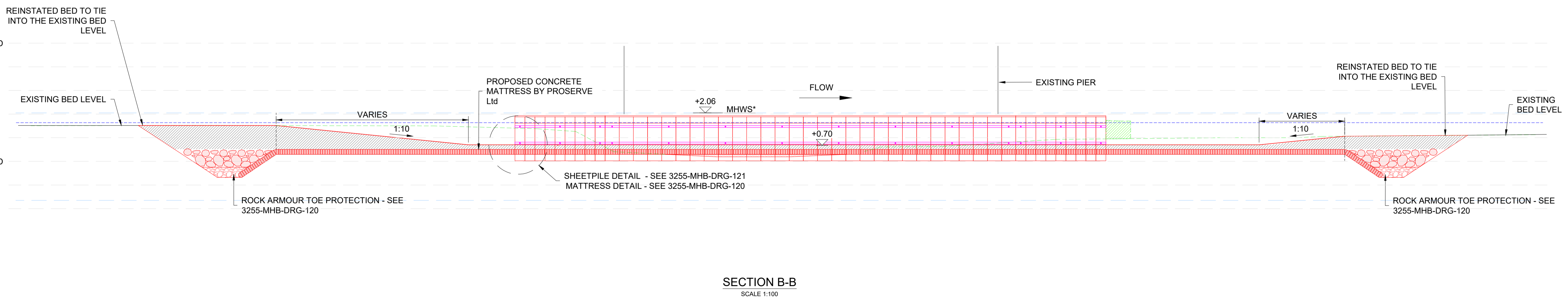
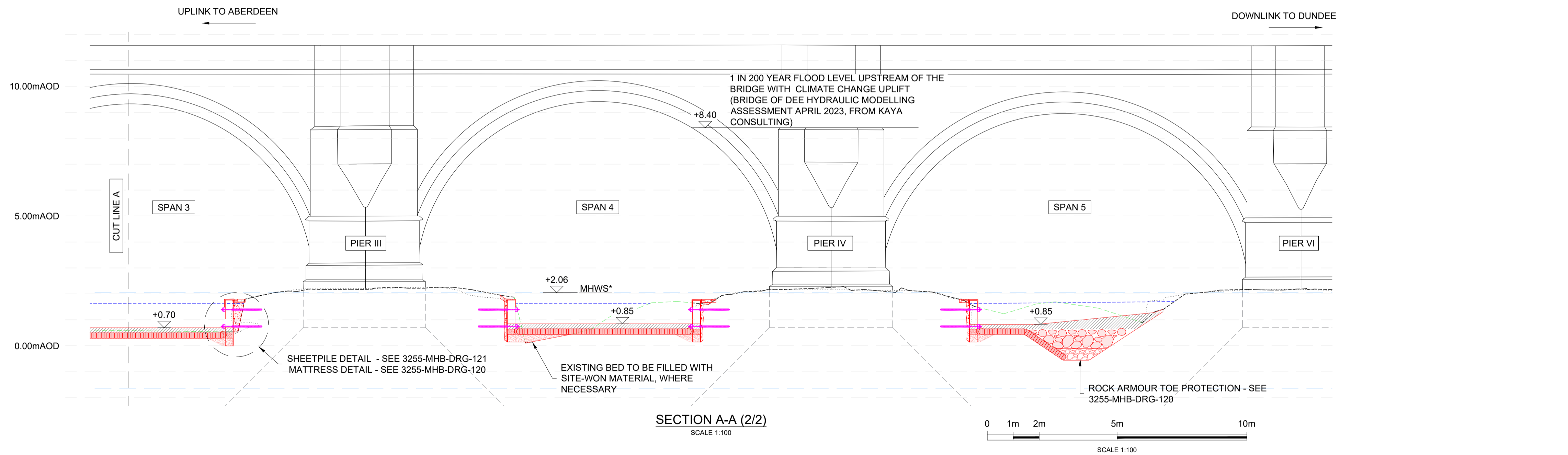
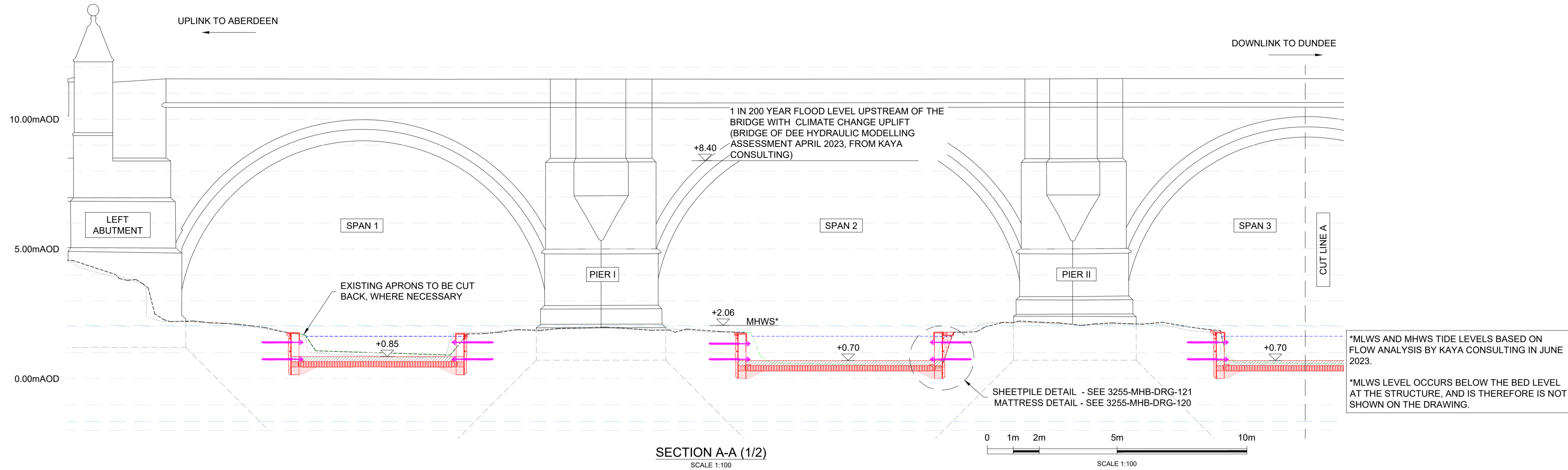
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Project
**BRIDGE OF DEE
SCOUR PROTECTION**

Drawing Title
**GENERAL ARRANGEMENT
OF PROPOSED WORKS**

Scale(s) AS SHOWN	Drawn BZ	Date 16/02/2023	Checked CS	Date 05/04/2023	Approved -	Date -
Drawing Number 3255-MHB-DRG-100	Revision B01					

Drawing Number
3255-MHB-DRG-101



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KEY:

	BED MATERIAL TO BE REMOVED
	WATER LEVEL PROFILE APRIL 2021
	PROPOSED WORKS
	TEMPORARY WORKS

B02	01/06/23	FOR APPROVAL	BZ	CS	-
B01	28/04/23	FOR APPROVAL	BZ	CS	-
P02	05/04/23	DRAFT	BZ	CS	-
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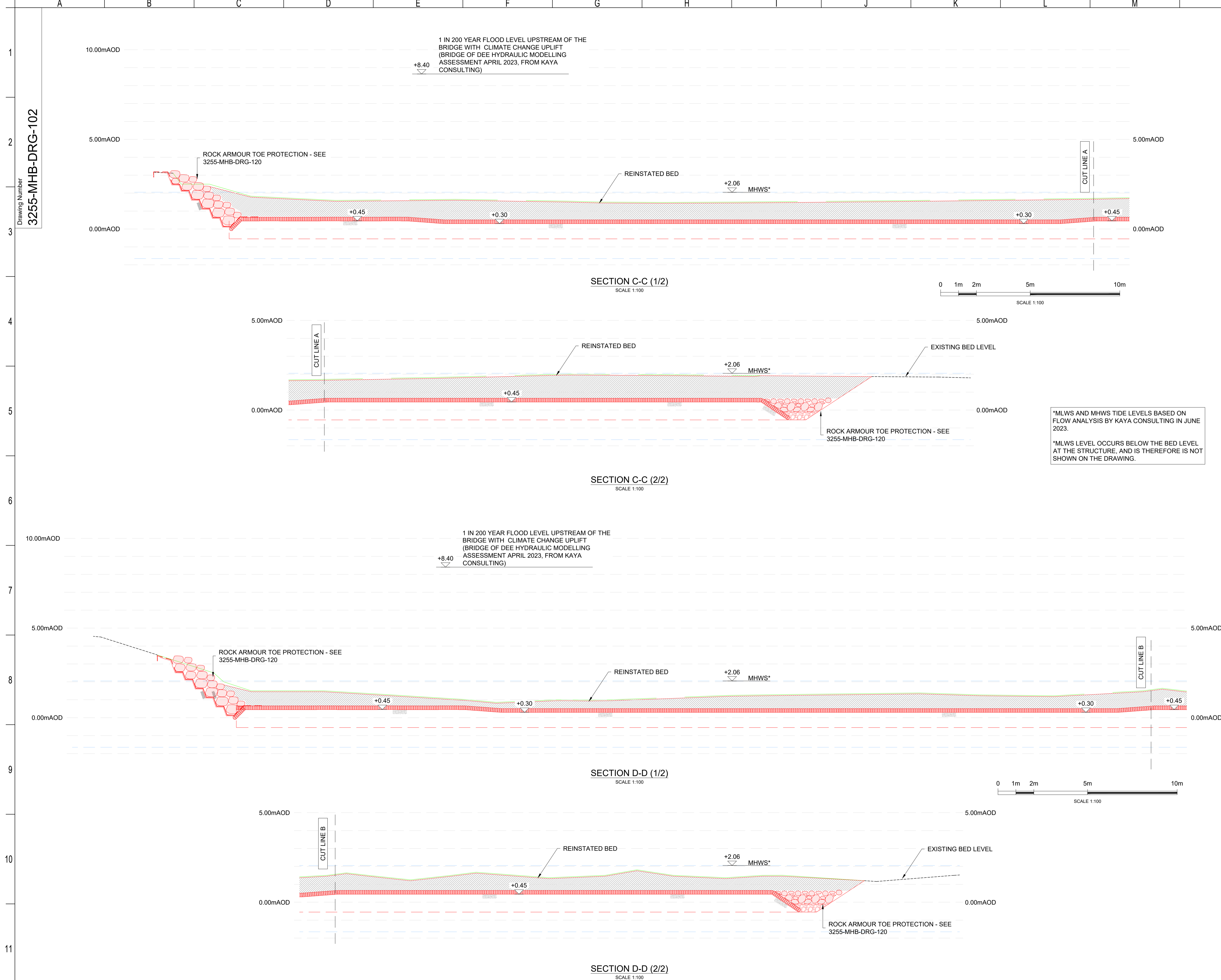
Project

BRIDGE OF DEE SCOUR PROTECTION

Drawing Title

PROPOSED SECTIONS SHEET 1 OF 2

Scale(s)	Drawn	Date	Checked	Date	Approved	Date
AS SHOWN	BZ	16/02/2023	CS	05/04/2023	-	-
Drawing Number	3255-MHB-DRG-101					Revision
					B02	



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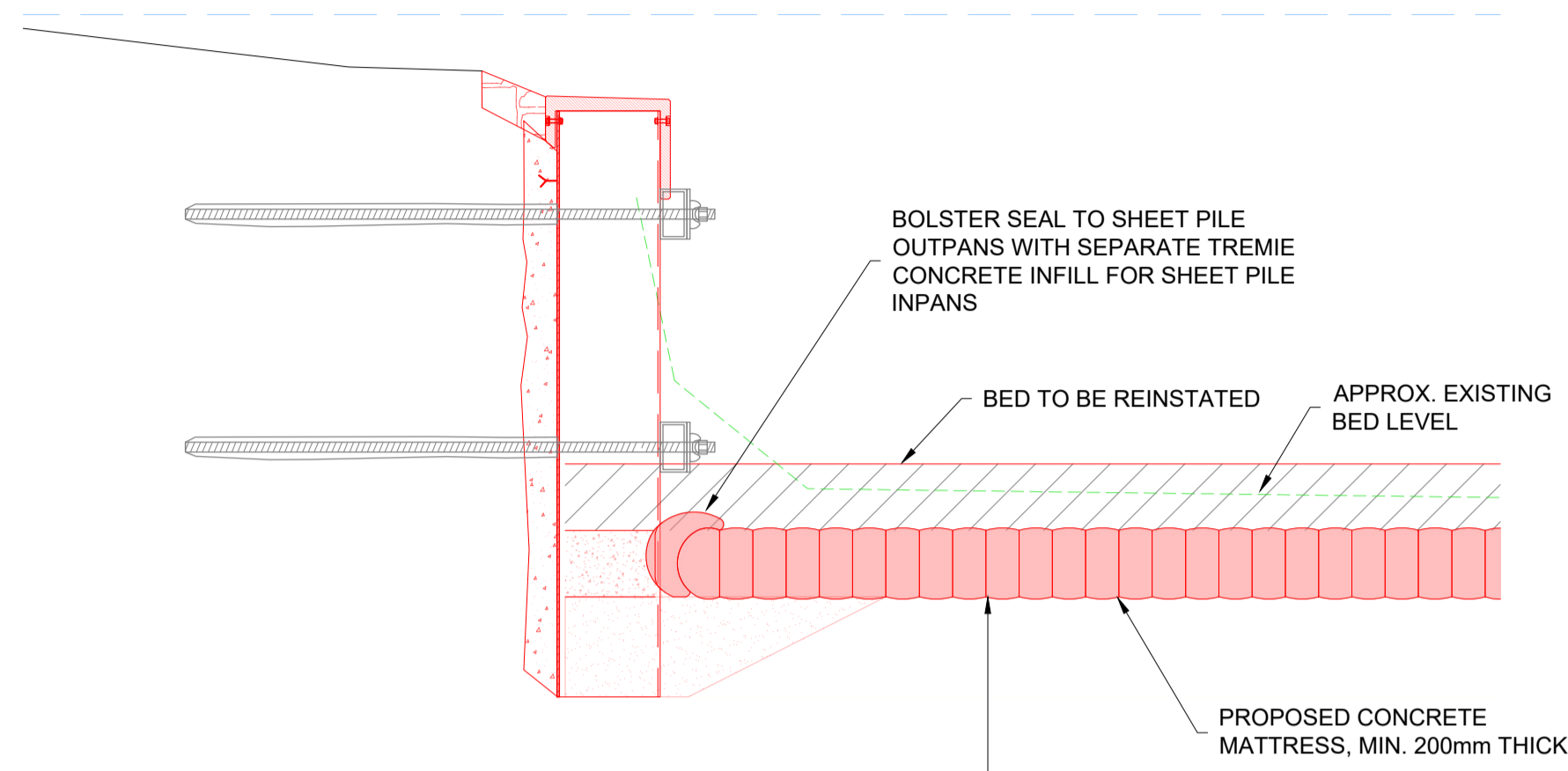
**PROPOSED SECTIONS
SHEET 2 OF 2**

Scale(s)	Drawn	Date	Checked	Date	Approved	Date	
AS SHOWN	BZ	16/02/2023	CS	05/04/2023	-	-	
Drawing Number	3255-MHB-DRG-101					Revision	B02

Drawing Number
3255-MHB-DRG-120

1
2
3
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11

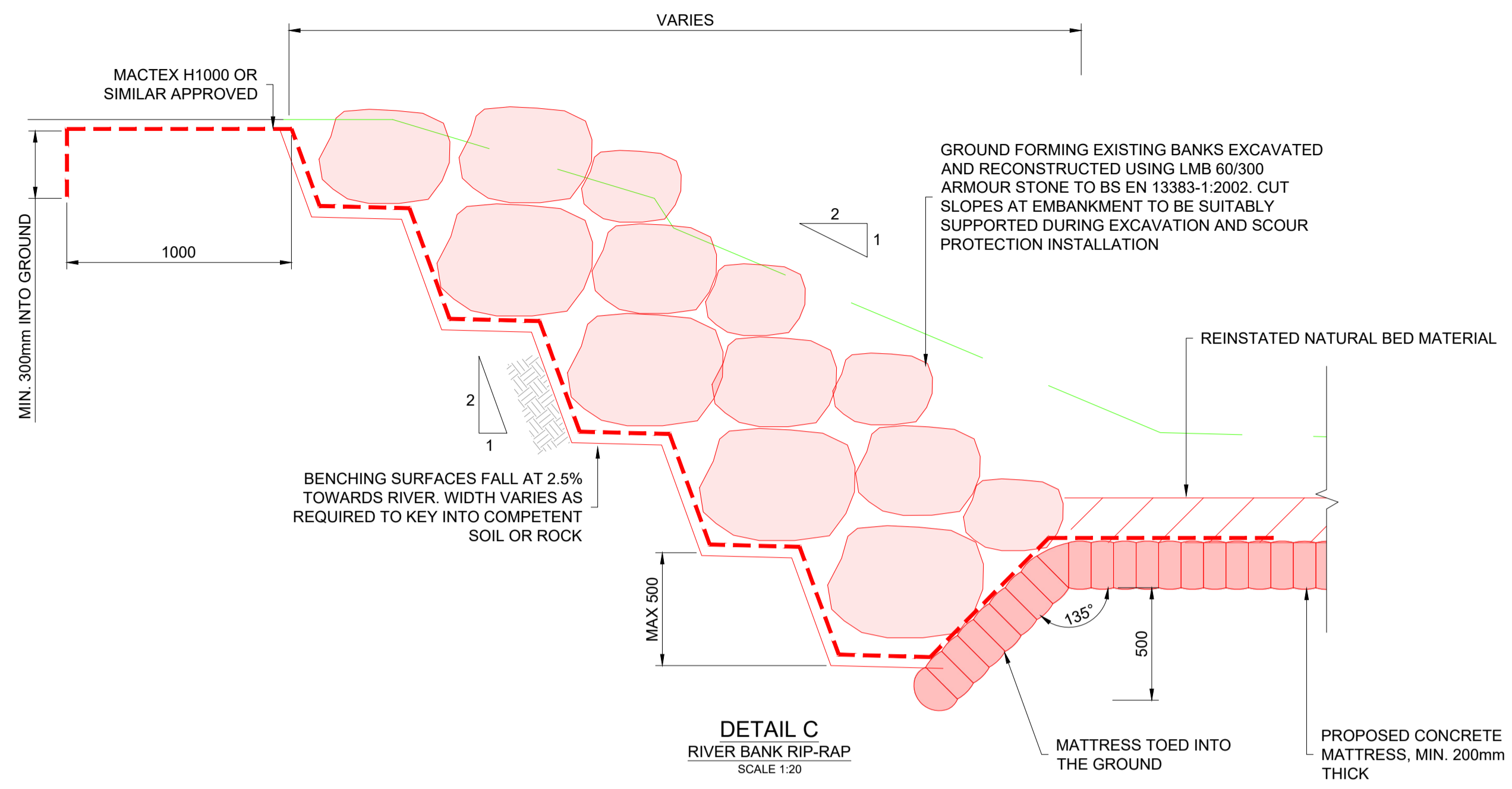
SHEET PILES TO BE LOCATED SUCH THAT ALL REPAIRS ARE ENCAPSULATED. SHEET PILES ALL TIED TOGETHER



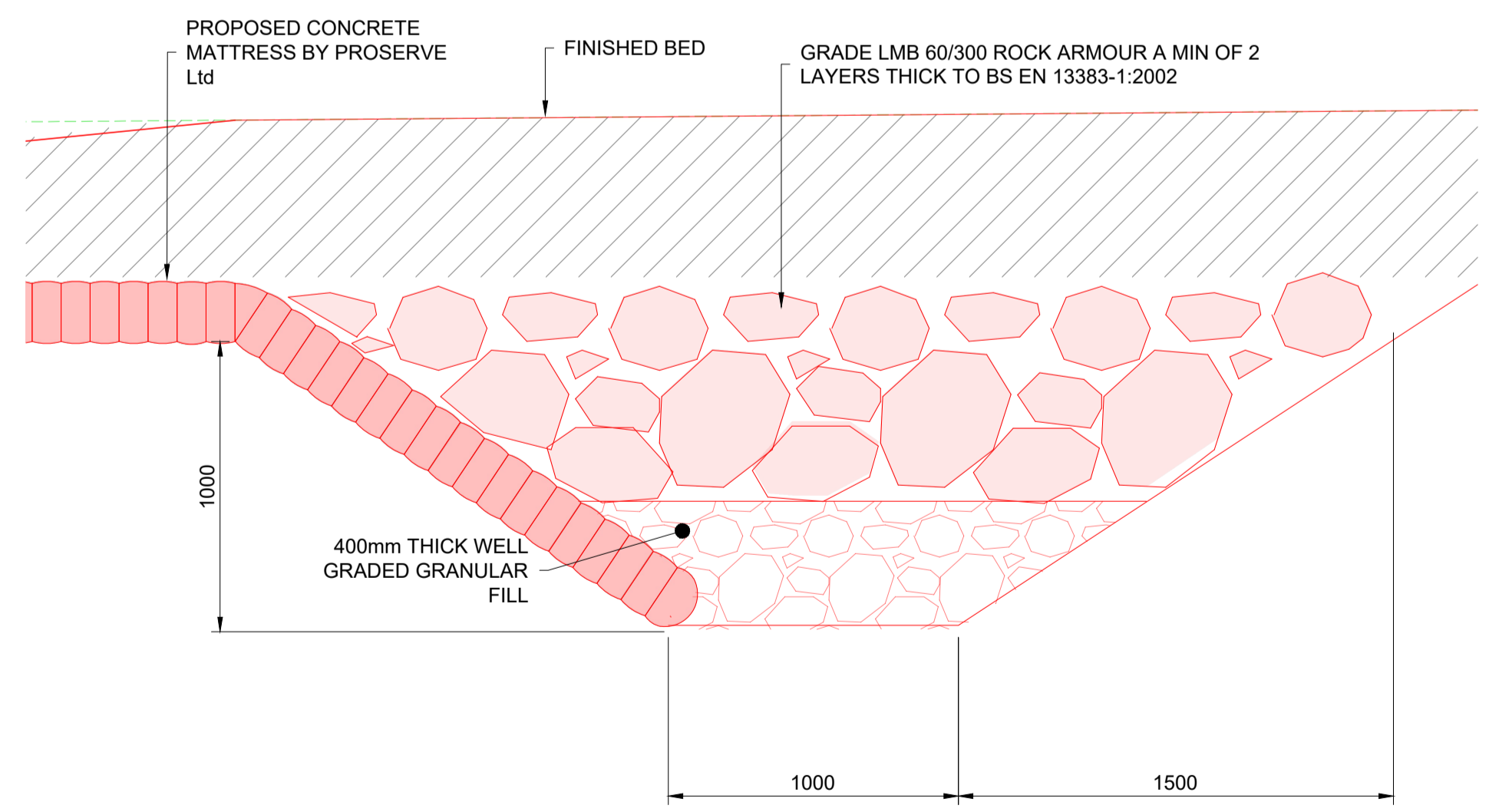
DETAIL A
MATTRESS - SHEETPILE CONNECTION DETAIL
SCALE 1:20

GROUND LEVEL TO UPFILLED (OR REDUCED) AND LEVELED PRIOR TO INSTALLING NEW MATTRESS WHERE REQUIRED

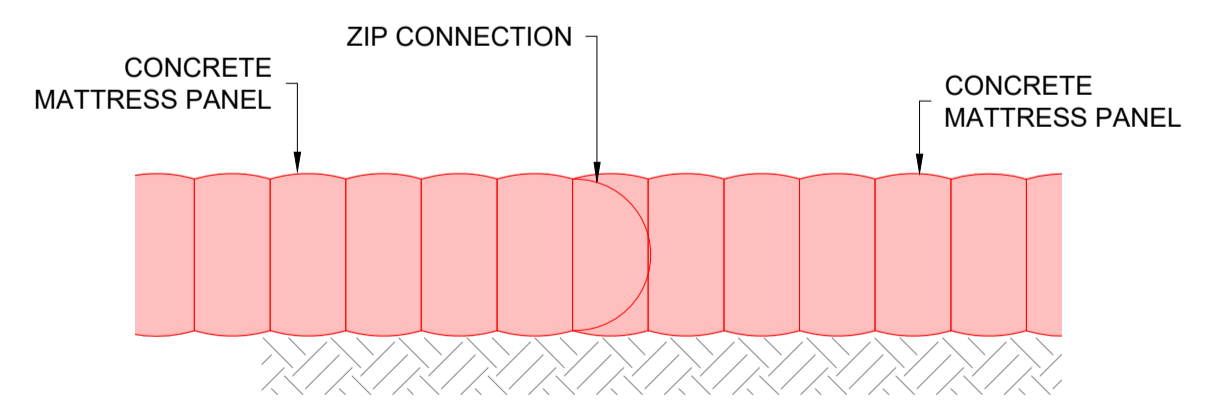
MATERIAL FOR THE UPFILL CAN BE OBTAINED ON SITE



DETAIL C
RIVER BANK RIP-RAP
SCALE 1:20



DETAIL B
MATTRESS EDGE PROTECTION
SCALE 1:20



DETAIL D
BALL AND SOCKET JOIN DETAIL IN CONCRETE MATTRESS
SCALE 1:10

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FOR APPROVAL



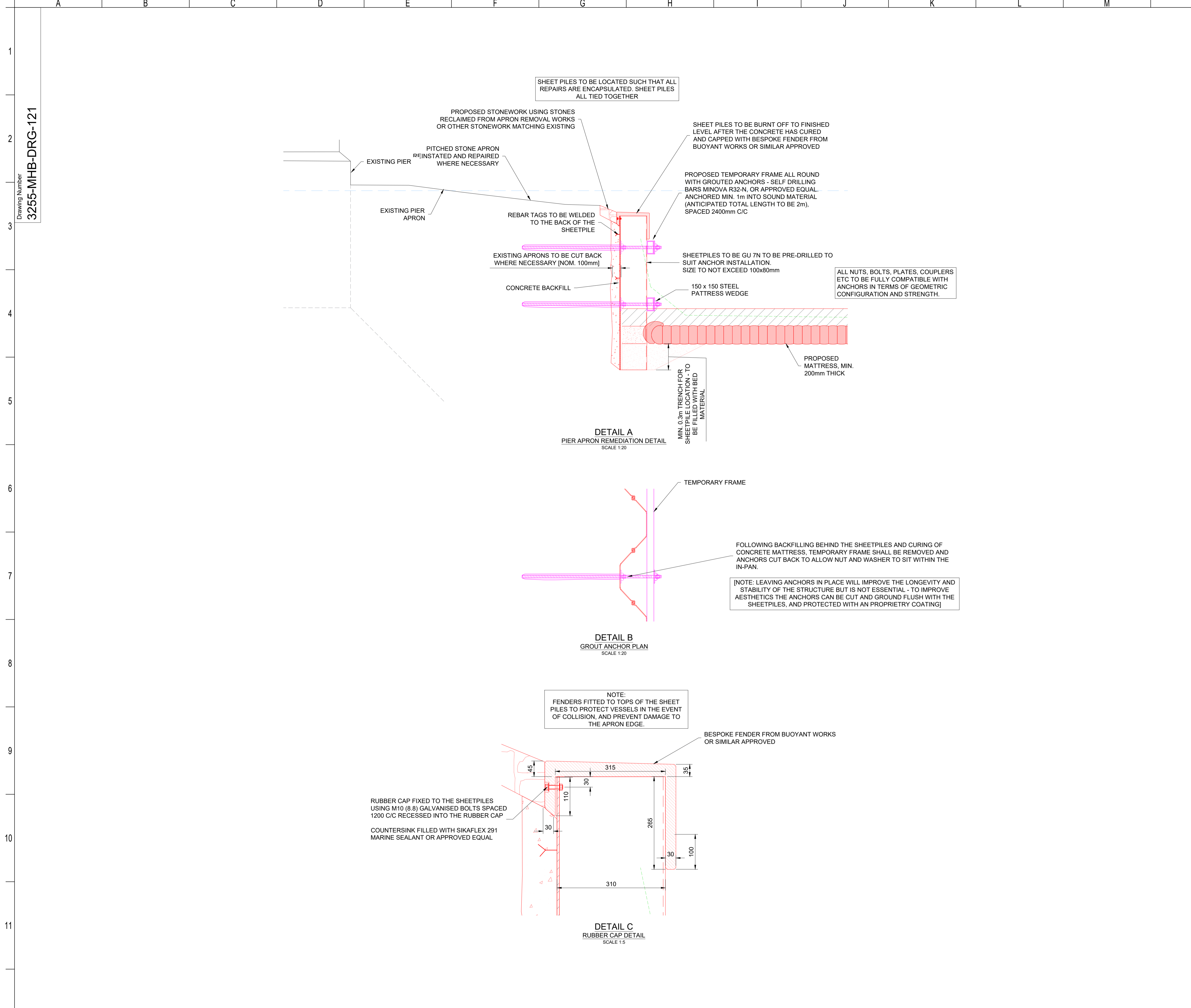
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Project
BRIDGE OF DEE SCOUR PROTECTION

Drawing Title
PROPOSED MATTRESS DETAILS

Scale(s) AS SHOWN	Drawn BZ	Date 16/02/2023	Checked CS	Date 05/04/2023	Approved -	Date -
Drawing Number 3255-MHB-DRG-120	Revision B01					



Drawing Number
3255-MHB-DRG-121

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Project
**BRIDGE OF DEE
SCOUR PROTECTION**

Drawing Title
PROPOSED SHEETPILE DETAILS

Scale(s) AS SHOWN	Drawn BZ	Date 16/02/2023	Checked CS	Date 05/04/2023	Approved -	Date -
Drawing Number 3255-MHB-DRG-121	Revision B01					