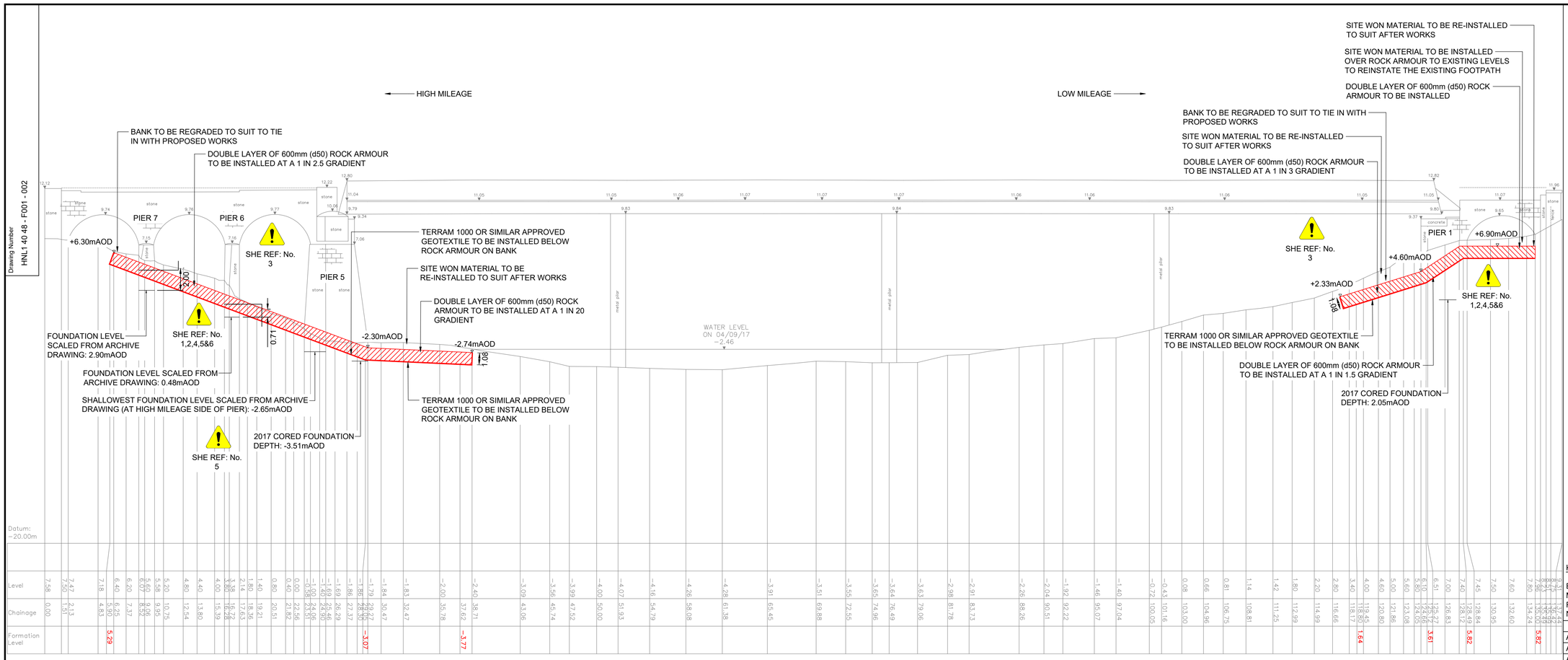
Drawing Number HNL1 40 48 - F001 - 002



SECTION A-A (UPSTREAM ELEVATION)

SCALE 1:200

SERVICES INVESTIGATION GAUGE:

- DESK STUDY SEARCH ONLY
- DESK STUDY AND GPR SURVEY
- DESK STUDY AND TRIAL HOLES

ANY MASONRY REPAIRS REQUIRED SHOULD BE CARRIED OUT IN ACCORDANCE WITH NETWORK RAIL STANDARDS: NR-CIV-SD-101. CONTRACTOR TO INSPECT BRICKWORK/MASONRY AND PROPOSE REPAIR TO DESIGN CRE FOR CONFIRMATION AND NETWORK RAIL DPE FOR APPROVAL

SCOUR SCORE:

EXISTING SCOUR SCORE (PR) = 17.03 - HIGH PRIORITY

SCOUR SCORE (PR) FOR PIER 1, PIER 5 , PIER 6 & PIER 7 FOLLOWING INSTALLATION OF SCOUR PROTECTION = 10.00 - LOW PRIORITY

F001 DESIGN		
CRE	PROJECT ENGINEER	ASSET ENGINEER

SAFETY, HEALTH & ENVIRONMENTAL RISK ASSESSMENT	
NOTE: The designers risk documentation includes full details of the risks associated with this scheme.	
Hazard	Site Risk Mitigation
Construction and Operation	
1. Installation of Rock	Installation to be carried out by trained and competent contractor. To be detailed in method statement. Adequate temporary works to be implemented.
2. Unknown buried services	CAT scans and trial excavations to be carried out where required.
3. Limited space available for construction	Appropriate working method to be identified in contractors method statement. Appropriate PPE to be worn at all times.
4. Excavation	Excavation to be carried out by trained and competent contractor. To be detailed in method statement. Adequate temporary works to be implemented.
5. Potential undermining of structure foundations	Extra care to be taken when excavating near elements. Excavation to be carried out in 1m bays. Structure to be continually monitored during the works in close proximity to foundations
Environmental	
6.Pollution hazards associated with working near a watercourse	Machines to be run on Bio-oil. Spill kits to be available on site. Refueling of vehicles to be carried out within site compound.
It is assumed that all works will be completed by a competent contractor and therefore all normal risks associated with construction works will be considered	

Grading requirement of stone

	d0 / M0 (Minimum stone size)	d50 / M50 (Average stone size)	d100 / M100 (Maximum stone size)
Size (mm)	420	600	820
Weight (kg)	185	540	1378

Minimum properties of stone

Test	Reference BS	Unit	Value
Oven Dry Particle Density (min)	BS EN 13383-2	t/m³	2.5
Apparent Particle Density (min)	BS EN 13383-2	t/m³	2.52
Water Absorption (WA) (max)	BS EN 13383-2	%	2.0
Compressive Strength Category	EN 1926	-	CS_{90}
Resistance to wear: Micro-Deval Co-effiecient (Mde) (max)	BS EN 1097 Part 1	-	10-30
Resistance to fragmentation: Los Angeles test (LA) (max)	BS EN 1097 Part 2	%	<25
Magnesium Sulphate Soundness: (max)	BS EN 1367-2	%	10
Freeze- Thaw Loss: (max)	BS EN 13383-2	%	1.0

REQUIREMENTS FOR INSTALLATION OF ROCK ARMOUR:

A. Rock armour size to be within the range and distribution set out in the technical specification. Specific stone size and grading information is tabulated on this drawing. Shape and other characteristics will be as defined in the technical specification.

B. The rock armour to the specification defined above, to form a minimum double layer such that each layer is keyed into one another.

C. As an approximate guide, and due to the fact that some interlocking of the two layers takes place, the approximate thickness of a double layer of D50 stone can be calculated as such: (2 x d50) x 0.9. For the purpose of the construction, this thickness should be treated as a minimum.

D. Under no circumstances will any excavations to place the rock armour at the base of the piers and abutments extend below foundation level. This is to ensure that undermining of the foundations does not take place.

E. Trial holes must be undertaken at the base of all elements subject to scour protection works. The trial hole must extend to the proposed formation level and the findings should be reviewed by an engineer before undertaking further works.

F. Maximum length of any excavation around the base of the piers to be no greater than 3m. This limit to the length of excavation is to reduce the risk posed to the structure in case of a sudden change to flow that would increase the short term risk from scour.

G. No excavation to be left unattended or left open overnight. Each section of excavation to be fully protected with rock armour by the end of the working day.

SPAN 1 - UPSTREAM FACE

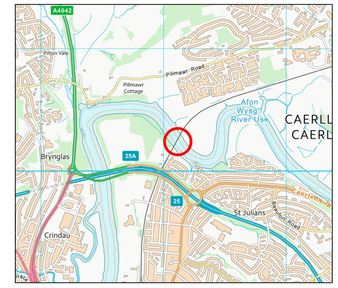
VIEW UPSTREAM

Our Lifesaving Rules

everyone home safe every day

General Notes

1. All dimensions shown are in metres unless otherwise stated and levels in metres to a local datum.
2. Do not scale from this drawing. All dimensions must be checked/verified on site.
3. Any discrepancies noted on site are to be reported to the Engineer immediately.
4. All works in watercourses will be carried out with care to minimise the risk of pollution.
5. All works affecting flood defences, main watercourses and/or ordinary watercourses will be subject to Consent for Permanent and Temporary Works under the Land Drainage Act 1991.
6. The locations of any known services shown on drawing are approximate and for guidance only. The Contractor will confirm the location of any services prior to the commencement of any works.
7. The electronic model of this drawing is not to be used for setting out.
8. All mileages shown on drawing are approximate.
9. Survey information collected by Anthony Brookes Surveys on behalf of Dyer & Butler.



Location Plan
SCALE: 1:2500

Key

- Existing or unchanged
- Modified or to be moved
- Redundant or to be removed
- New, proposed or additional

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A03	16/09/19	Following Comments	IF	SR	RGB
A02	10/09/19	Following Comments	IF	SR	RGB
A01	15/03/19	Form 001 Design	PW	SR	RGB

Status: F001

Network Rail
Floor 2
St. Patricks House
17 Penarth Road
Cardiff
CF10 5ZA

Contractor

Consultant

JBA Consulting
The Old School House
St Joseph's Street
TADCASTER
LS24 9HA
Tel: 01937 837900

Project

Scour Protection Design
HNL1 40 48
St Julian's, Newport

Drawing Title

HNL1 40 48 - Scour Protection Design
Proposed Section

Designed	P Whitwell	Signed	Date 22/03/19
Drawn	P Whitwell	Signed	Date 22/03/19
Checked	S Riddlestone	Signed	Date 22/03/19
Approved	R Buck	Signed	Date 22/03/19

Scale(s): AS SHOWN @ A1

ELR & Mileage: HNL1 40m 1056yds

Alternative Reference

Sheet: 1 of 1

Drawing Number: HNL1 40 48 - 002

Revision: A03