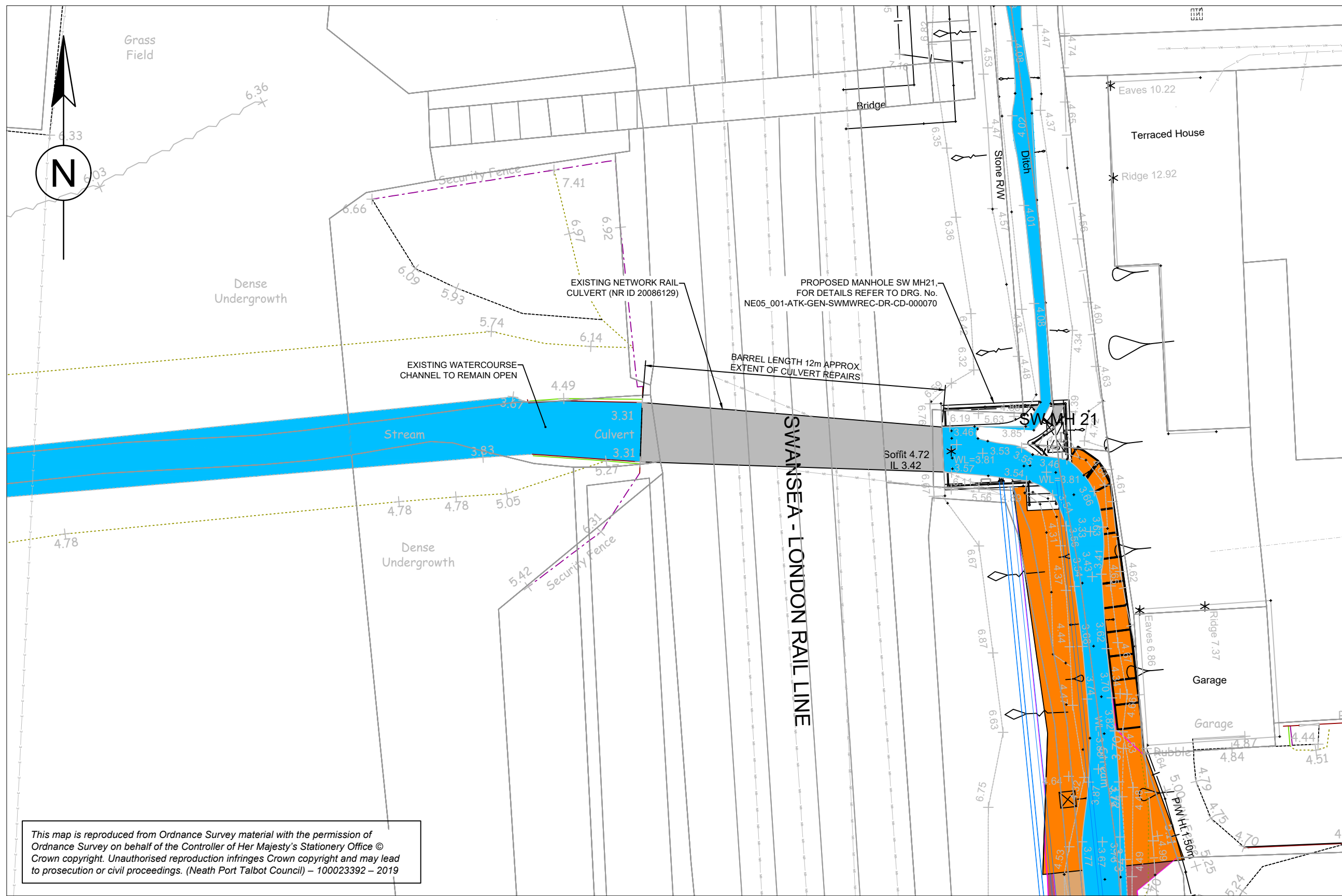


DO NOT SCALE

100
10
0
Millimetres



PLAN
1:100



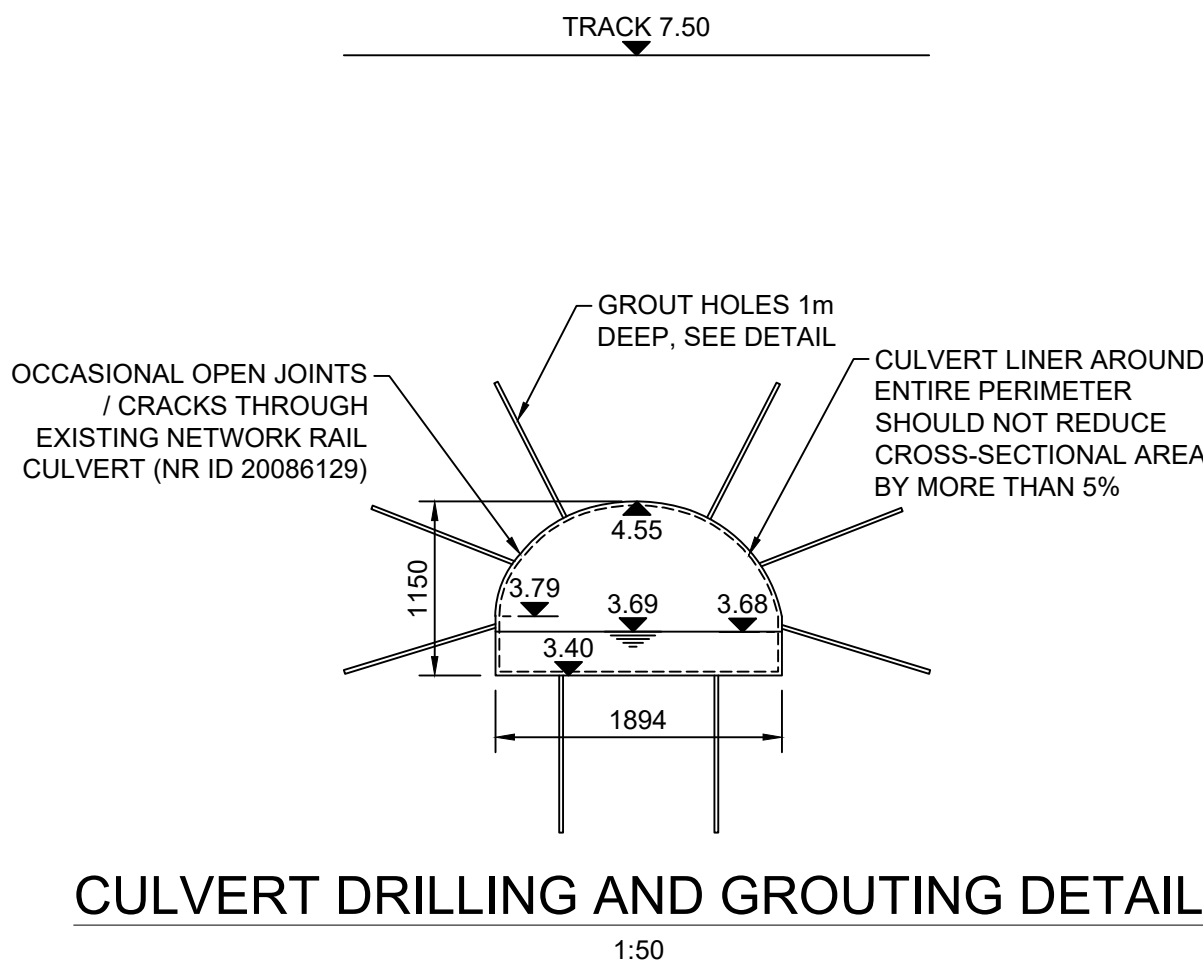
VIEW OF CULVERT ENTRANCE
(WEST SIDE)



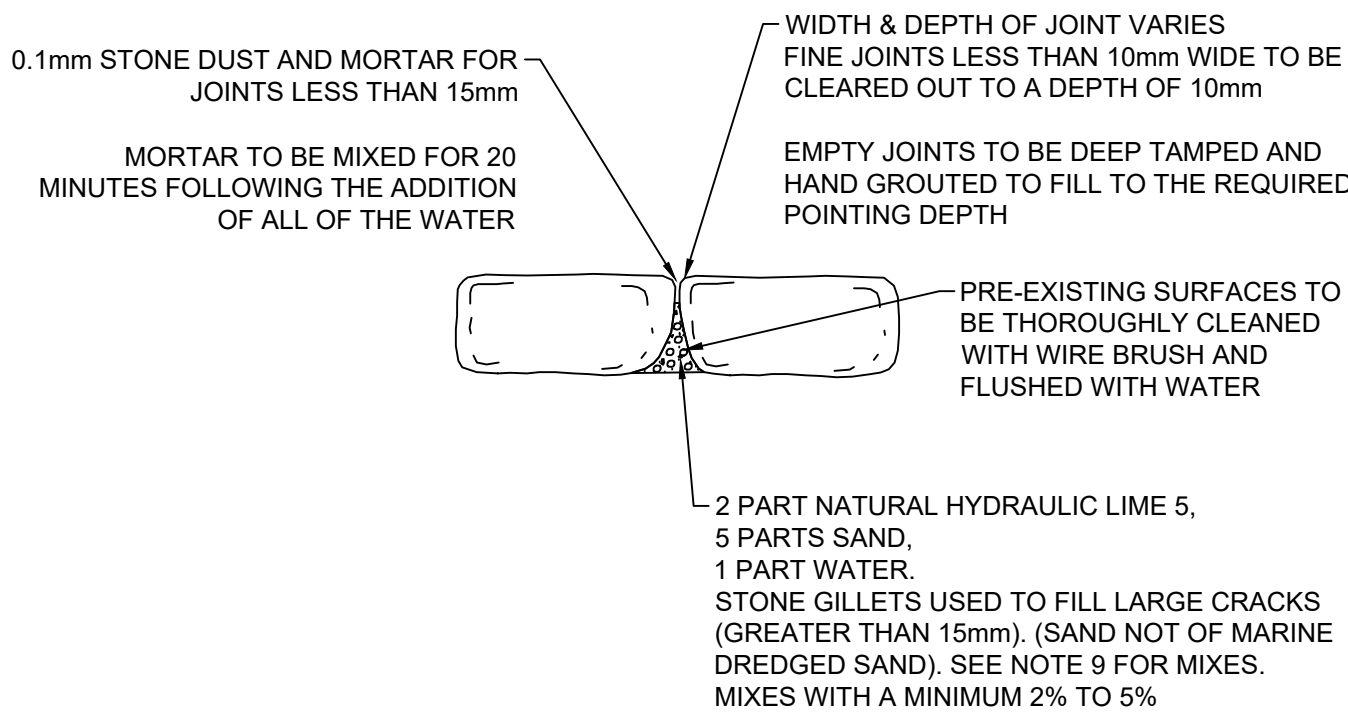
VIEW OF CULVERT ENTRANCE
(EAST SIDE)



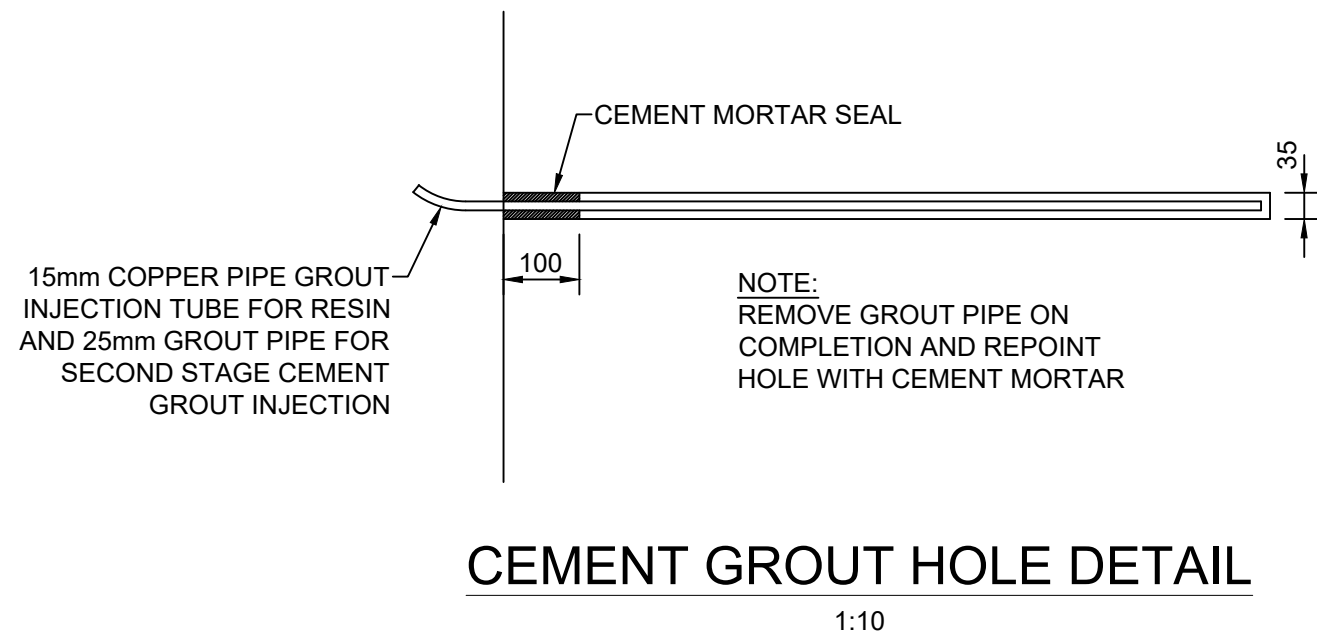
SOFFIT VIEW



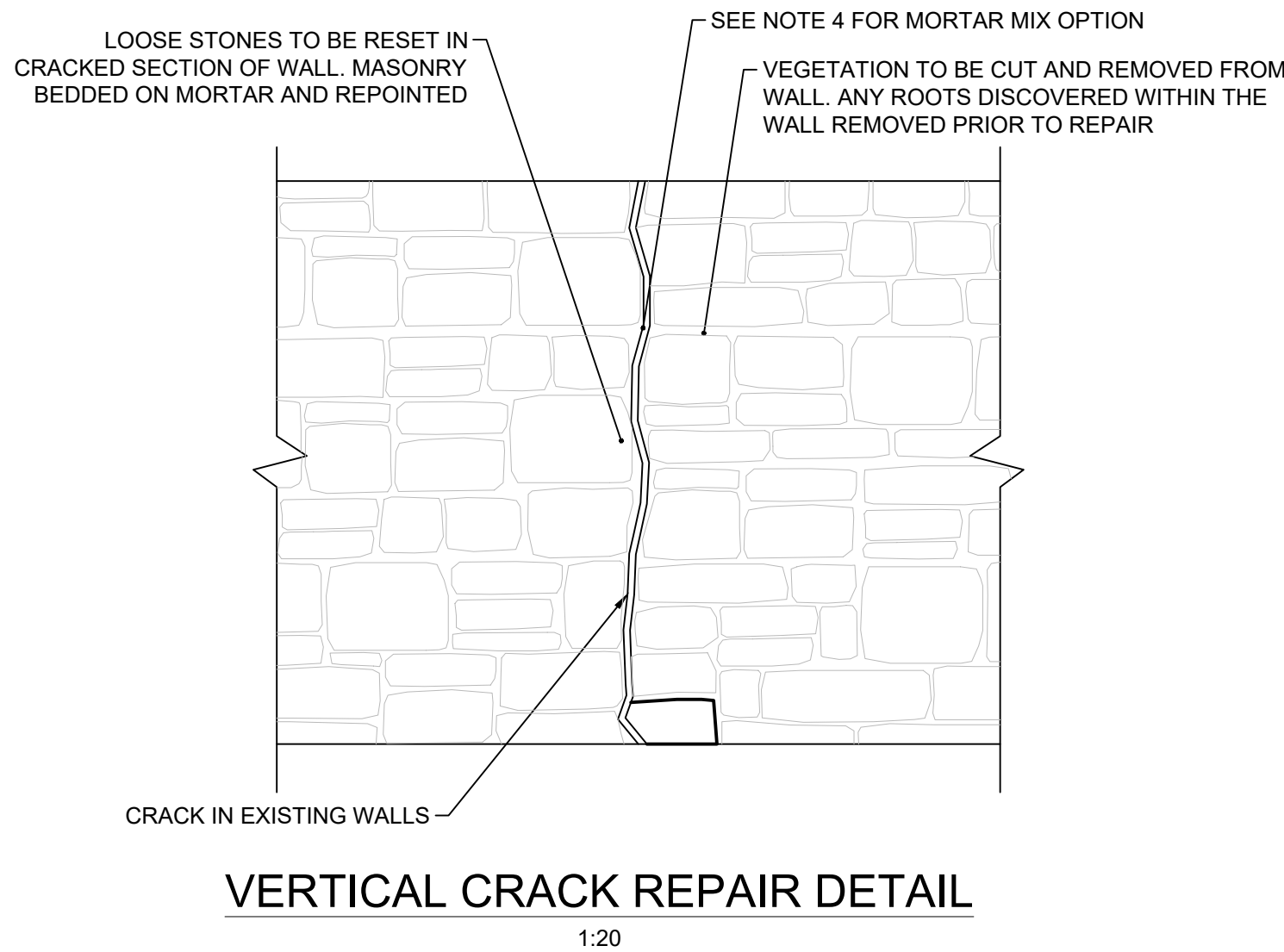
CULVERT DRILLING AND GROUTING DETAIL
1:50



MASONRY WALL REPOINTING DETAIL
1:20



CEMENT GROUT HOLE DETAIL
1:10



VERTICAL CRACK REPAIR DETAIL
1:20

PROPOSED METHODOLOGY FOR CULVERT REPAIRS

THE CULVERT REPAIRS WILL BE BASED ON THE FOLLOWING OUTLINE METHODOLOGY AND STAGES:

PHASING

1. GROUTING WORKS WILL COMMENCE GENERALLY FROM THE MIDDLE OF THE CULVERT WORKING OUTWARDS TOWARDS THE CULVERT ENTRANCES.
2. AN INITIAL STAGE OF RESIN GROUTING WILL BE FOLLOWED BY CEMENT GROUTING.

PREPARATORY WORK

3. THE TUNNEL WILL REQUIRED DAMMING OFF AT BOTH ENDS AND OVERPUMPING OF FLOW THROUGH THE CULVERT.
4. DEBRIS TO THE CULVERT BASE SHALL BE REMOVED AND DISPOSED.
5. EXPLORATORY HOLES SHALL BE DRILLED IN THE SIDE WALLS, CULVERT BASE AND SOFFIT TO ASCERTAIN THE THICKNESS OF THE MASONRY CONSTRUCTION IN ADVANCE OF ANY VOID FILLING / GROUTING WORK.

RESIN GROUTING - FIRST STAGE

4. WORKS WITHIN EACH PHASE WILL BEGIN WITH OPEN HOLE DRILLING 35 DIA. 1m DEEP AS DETAILED ON DRAWINGS. ALL HOLES WITHIN EACH PHASE OF GROUTING SHALL BE DRILLED BEFORE GROUTING.
5. FOLLOWING THE HOLE DRILLING PHASE, RESIN GROUTING SHALL BE UNDERTAKEN USING TAMPUR 125 EXPANDING RESIN GROUT AND UTILISING 15mm COPPER PIPE FOR GROUT INJECTION. SEALED WITH TEMPORARY MORTAR SEAL. RESIN GROUTING SHALL WORK FROM THE MIDDLE OF THE CULVERT AND WORK TOWARDS THE ENTRANCE IN AN ORDERLY MANNER. IT IS ANTICIPATED THAT ANY SEEPAGES FROM THE DRILLED HOLES WILL 'DRY-UP' INCLUDING THOSE OF ADJACENT DRILLED HOLES AS THE RESIN IS INJECTED.
6. RESIN GROUT SEEPAGE FROM CRACKS AND OTHER HOLES SHALL BE PLUGGED USING TIMBER WEDGES OR RAPID HARDENING CEMENT.

7. QUANTITIES OF RESIN GROUT WILL NEED TO BE LIMITED, AS EXCESSIVE QUANTITIES OF RESIN MAY IMPLY LARGER VOIDS WHICH MAY NEED TO BE DEALT WITH SEPARATELY. THE PM OR SUPERVISOR SHOULD BE INFORMED AND WILL ADVISE.
8. AS WORK PROGRESSES AND IN ORDER TO PROVIDE ADVICE, IT WILL BE NECESSARY TO PROVIDE CCTV LIVE PICTURE AND AUDIBLE COMMS LINK TO THE PM OR HIS REPRESENTATIVE TO AVOID ENTRY OF 'UNTRAINED CONFINED SPACE' STAFF INTO THE CONFINED SPACE

CEMENT GROUTING - SECOND STAGE

9. ONCE RESIN INJECTION IS COMPLETE, THE 35mm DIA. HOLES WILL BE CLEARED (RE-DRILLED IF NECESSARY) AND CEMENT GROUTING WILL COMMENCE. CEMENT GROUTING WILL PROCEED USING 25mm GROUT PIPE (OR SIMILAR) UNDER MAXIMUM OF 1 BAR PRESSURE UNLESS OTHERWISE INSTRUCTED. THE GROUT PIPE WILL BE SEALED IN THE WALL WITH TEMPORARY PACKERS.
10. AS PREVIOUSLY INDICATED GROUTING SHALL WORK FROM THE MIDDLE OF THE SLUICE AND WORK TOWARDS THE ENTRANCE IN AN ORDERLY MANNER.
11. ON COMPLETION OF GROUTING, ALL HOLES SHALL BE SEALED WITH A CEMENT MORTAR PLUG 100mm DEEP.
12. RECORDS SHALL BE KEPT FOR EACH GROUT HOLE, INDICATING THE TOTAL RESIN AND CEMENT GROUT UPTAKE FOR EACH HOLE IN LITRES OR KILOGRAMS. THESE RECORDS SHALL BE PROVIDED AT THE COMPLETION OF EACH SHIFT TO THE PM OR SUPERVISOR.
13. UPON COMPLETION OF THIS PHASE, THE PM OR SUPERVISOR WILL REVIEW THE WORKS UNDERTAKEN, PRIOR TO THE ANY FURTHER STAGE BEING INSTRUCTED. THE PM MAY ORDER VARIATIONS IN THE LOCATION, SPACING AND TYPE OF GROUTING UNDERTAKEN IN SUBSEQUENT PHASES.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
3. EXCAVATED MATERIAL TO BE DISPOSED OF AT CONTRACTOR'S LICENSED TIP.
4. POINTING MORTAR MIX OPTIONS, BUILDING / POINTING, 5 PARTS SAND, 2 PARTS LIME (NHL5), 1 PART WATER
5. REPLACEMENT STONES TO BE BEDDED BUT NOT INITIALLY POINTED. POINTING OF THE OUTER 25mm LEFT UNTIL BEDDING WORK HAD SETTLED.
6. MORTAR TO BE CURED FOR A MINIMUM 2 WEEKS, BY MISTING THE MORTAR WITH A FINE SPRAYER AT LEAST 4 TIMES A DAY.
7. RESIN TO BE TAMPUR 124 EXPANDING RESIN GROUT. CEMENT GROUT TO BE NEAT CEMENT.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

SERVICES LEGEND

- Neath Port Talbot Borough Council - Drainage
- Neath Port Talbot Borough Council - Gully
- Neath Port Talbot Borough Council - Street Light
- Neath Port Talbot Borough Council - Street Lighting
- Neath Port Talbot Borough Council - Electric Street Furniture
- Dwr Cymru Welsh Water - Sewerage
- Dwr Cymru Welsh Water - Water
- Openreach - British Telecommunications
- Openreach - British Telecommunications - Overhead
- Virgin Media
- Vodafone
- Wales and West Utilities
- GTC
- Western Power Distribution
- Western Power Distribution - Overhead
- Western Power Distribution - Substation
- Radar Trace
- Ysgol Carreg Hir Surface Water - Drainage
- Ysgol Carreg Hir Surface Water - Filter Drain
- Ysgol Carreg Hir Foul Sewer
- Network Rail asset

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability	Status	Project Title
WORK IN PROGRESS	S0	GRANDISON BROOK
CULVERT REPAIRS AT NETWORK RAIL CULVERT (NR ID 20086129) GENERAL ARRANGEMENT AND DETAILS		
Drawing Number Project NE05_001 - ATK - GEN - SWMWREC - DR - CD - 000130		
Location Original Size: A1 Scale: AS SHOWN Project Ref. No.: 5192793 Sheet: 1 of 1 Rev: P01.2		