



PROPOSED DRAINAGE OUTFALL (BY OTHERS) TO BE IN COMPETENT ROCK BENEATH STABILIZED REGION.

JGP, LAWRENCE ASSOCIATES AND MBA TO LAISE OVER THIS REGION PRIOR TO COMMENCEMENT. PROPOSED RETAINING WALL SYSTEM LEAVES UNSUPPORTED SOIL ZONE ON NORTH FACING SIDE WITH INSUFFICIENT ROOM TO INSTALL ANCHORAGES. POSSIBLE SOLUTIONS INVOLVE REDUCING LEVELS IN THIS REGION, OR ANCHORING UNDERNEATH BLOCK WITH TIGHTENED ANCHORAGE SPACING AND INCREASED BOND LENGTHS TO CATER FOR ADDITIONAL LOADING FROM SOIL MASS ABOVE.

APPROX ZONE EDGE POSITION CONTOUR INFORMATION FROM LIDAR GROUND MODEL

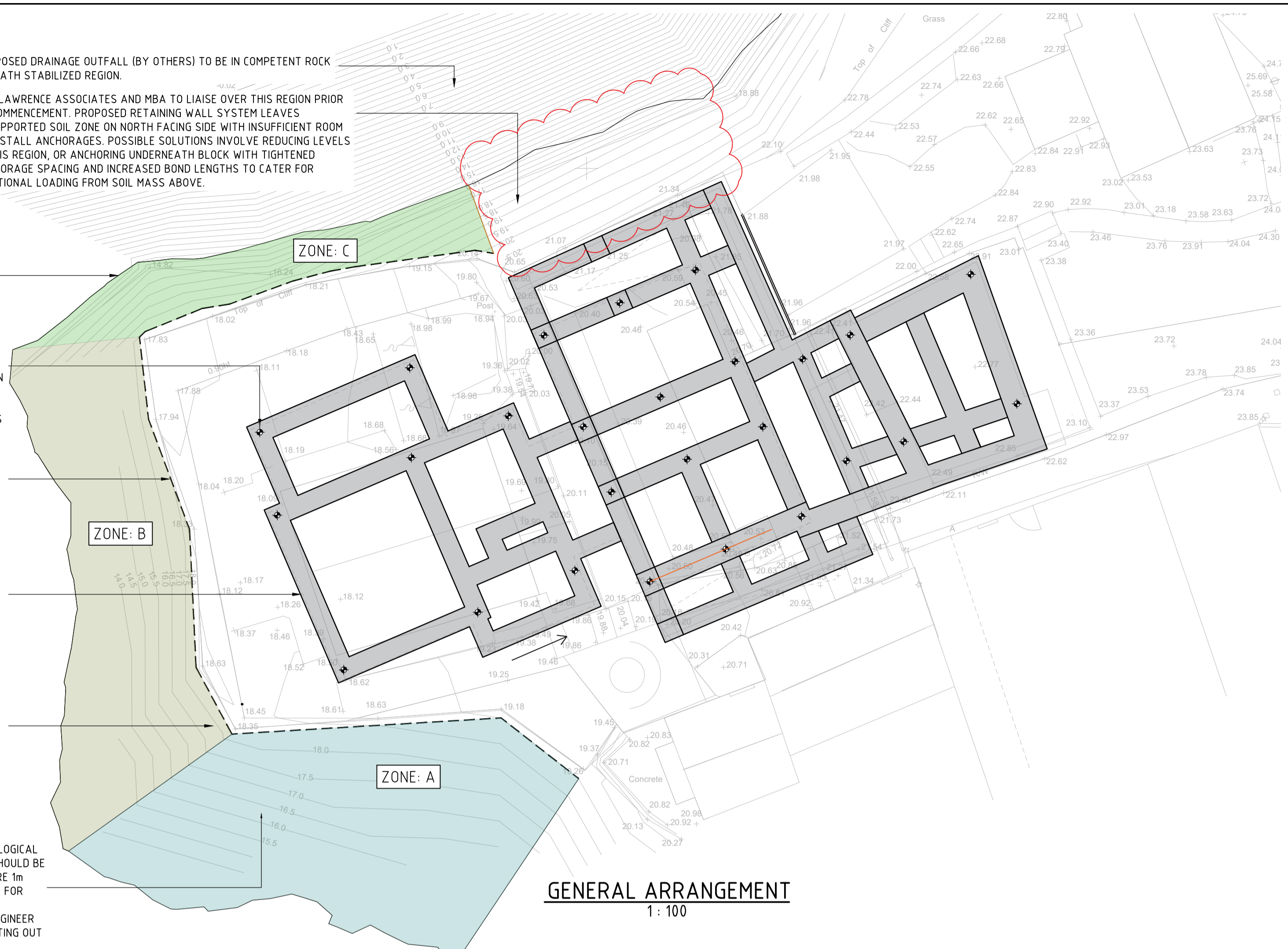
PILE POSITIONS TO BE ESTABLISHED ON SITE PRIOR TO COMMENCEMENT. ANCHORAGES CAN BE SPAYED BY UP TO 10° WHERE REQUIRED AND MOVED BY UP TO 0.4m IN PLAN TO ENSURE ANCHORS DO NOT CLASH WITH PILES.

CREST POSITION (DASHED RED LINE) TO BE CONFIRMED BY JGP GEOTECHNICAL ENGINEER PRIOR TO ANCHORAGE SETTING OUT AND FOLLOWING CONFIRMATION OF PROPOSED GROUND BEAM LEVELS FROM STRUCTURAL ENGINEER

GROUND BEAM AND PILE SETTING OUT IN ACCORDANCE WITH MBA DRAWING 21073-10\_D. SEE JGP DRAWING 17791-205 FOR PILE DETAILS

ANCHORS TO BE SPAYED AT RETURNS AND CAN BE LOCALLY INCREASED IN SPACING TO 15m c/c TO PROTECT AGAINST CLASHES WHERE REQUIRED

WHERE TOPOGRAPHICAL AND GEOLOGICAL LEVELS VARY, SOIL NAIL ROWS SHOULD BE ADDED OR SUBTRACTED TO ENSURE 1m VERTICAL SPACING IS MAINTAINED FOR FULL HEIGHT OF ZONE REQUIRING STABILIZATION. GEOTECHNICAL ENGINEER TO ADVISE ON APPROPRIATE SETTING OUT



GENERAL ARRANGEMENT  
1:100

**LEGEND**

- PROBABLE MADE GROUND UNIT WEIGHT=18kN/m<sup>3</sup>, Phi=26°
- PROBABLE PERIGLACIAL HEAD UNIT WEIGHT=18kN/m<sup>3</sup>, Phi=30°
- PROBABLE BRECCICATED MUDSTONE UNIT WEIGHT=20kN/m<sup>3</sup>, Phi=38°
- PROBABLE WEATHERED MUDSTONE UCS = 5MPa
- Denotes the location of piles on the foundation, in the general arrangement
- SOIL NAIL TYPE A
- SOIL NAIL TYPE B

**SOIL NAIL DESIGN SPECIFICATIONS**

- ALL SOIL NAILS STAINLESS GRADE 316 R25 INJECTION ANCHOR BY STAINLESS UK OR EQUIVALENT DRILLED USING MINIMUM 90° BIT. COMPLETE WITH PLATE, NUT AND CORRECTION WEDGES.
- NON-SHRINK, ANTI-WASH OUT GROUT FLUSH TO HAVE MINIMUM 40N/mm<sup>2</sup> 28DAY CUBE STRENGTH. ACEC EXPOSURE CLASS XS2 XC3/4. ANTICIPATED MINIMUM CEMII/A-LI, CONTENT >400KG/m<sup>3</sup>, W/C RATIO 0.4-0.45.
- SPACING OF ALL SOIL NAILS IS 1.2m HORIZONTAL, 1m VERTICAL.
- ALL SOIL NAILS ARE INCLINED AT 20°
- PLATES
  - TYPE A - 400x400x15 STAINLESS GRADE 316
  - TYPE B - 300x300x15 STAINLESS GRADE 316
- ALL SOIL NAILS TO BE STAGGERED IN FORMATION.
- ALL SOIL NAIL PLATES TO BE BENCHD INTO SLOPE AT 70°
- ALL SOIL NAILS TO BE NOMINALLY TENSIONED TO 10kN WITH A TORQUE WRENCH

**NOTES**

- SOIL NAIL TESTING TO BE CARRIED OUT TO CONFIRM BOND CAPACITIES AND OFFER POTENTIAL REFINEMENT WHICH COULD RESULT IN INCREASED SOIL NAIL SPACING AND/OR DECREASED LENGTHS. REFINEMENT TO THE SPACING AND OR LENGTHS WOULD RESULT IN COST SAVINGS, IMPROVED AESTHETICS AND A MORE ENVIRONMENTALLY SUSTAINABLE DESIGN.
- WHERE SLOPE HEIGHT EXCEEDS THAT INDICATED, ADDITIONAL ROWS OF SOIL NAILS TO BE INSTALLED TO MAINTAIN VERTICAL SPACING
- DESIGN MAY REQUIRE REVISION FOLLOWING CONFIRMATION OF GROUND BEAM LEVELS
- FINAL EXTENTS TO BE AGREED BETWEEN ARCHITECT, STRUCTURAL ENGINEER AND GEOTECHNICAL ENGINEER

**NOTES**

- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM.
- DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING.

**RISK REGISTER**  
WARNING! REQUIRES CAREFUL ATTENTION AND ACTION

**1.0 UNKNOWN GROUND CONDITIONS - CONSTRUCTION AND RESIDUAL RISK**

- POTENTIAL FOR VARIABLE AND OR UNEXPECTED GROUND CONDITIONS.
- SHOULD GROUND CONDITIONS DIFFER FROM THOSE EXPECTED THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY.

**2.0 RISK OF CLASHES WITH OTHER STRUCTURAL ELEMENTS - CONSTRUCTION RISK**

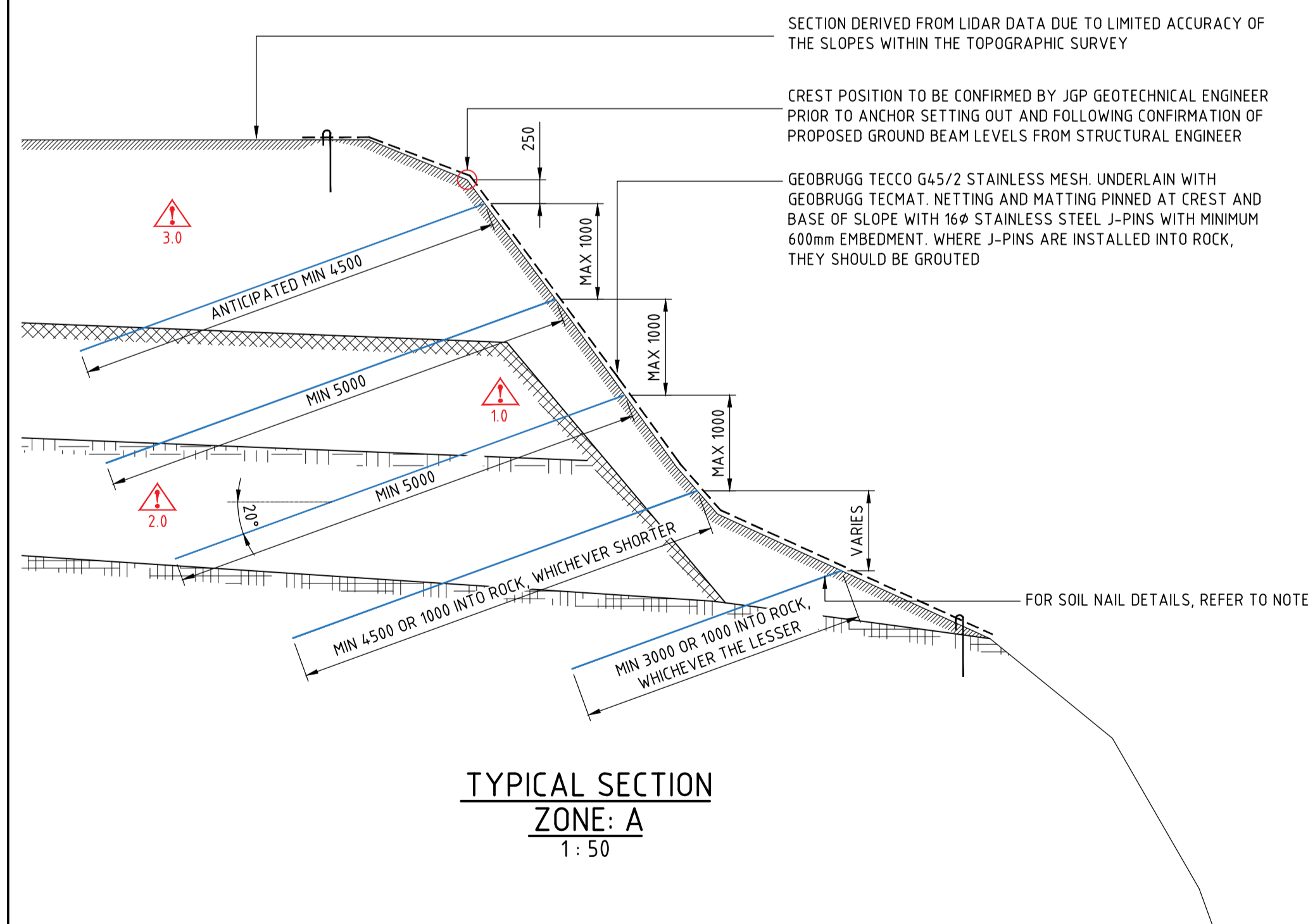
- PULLOUT TESTS TO BE CARRIED OUT ON SOIL NAILS TO QUALIFY IF SPACINGS CAN BE INCREASED TO REDUCE RISK OF CLASHES.
- SOIL NAILS AND ANCHORAGES TO BE SPAYED WHERE NECESSARY TO ENSURE THAT CLASHES ARE AVOIDED
- TEMPORARY PILE CASINGS MAY BE INSTALLED PRIOR TO SOIL NAIL INSTALLATION TO ENSURE THAT ANY CLASHES ARE OBSERVED.

**3.0 SERVICES - CONSTRUCTION RISK**

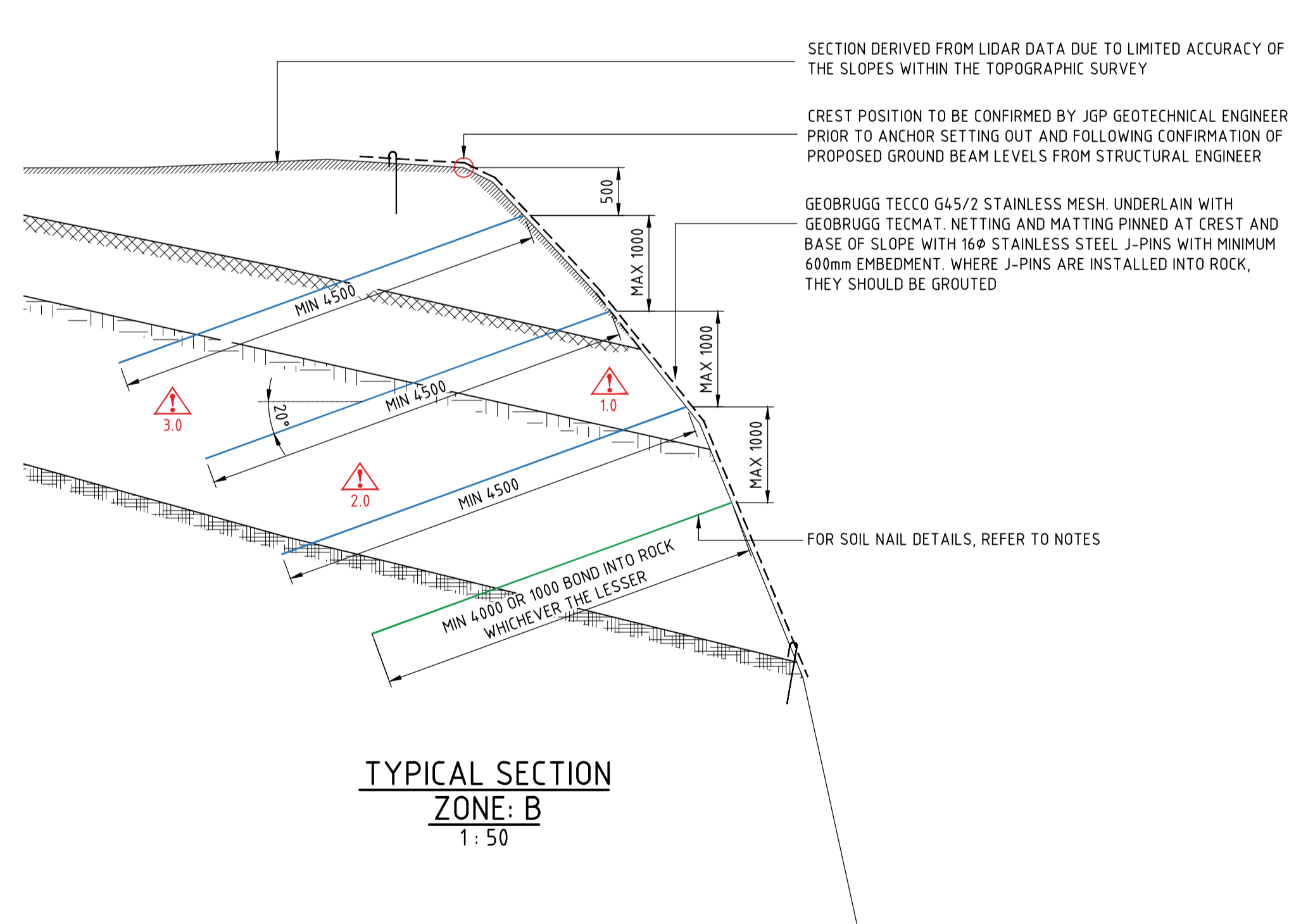
- MEASURES TO BE TAKEN TO ENSURE THAT SERVICES ARE NOT DAMAGED AND THUS DISCHARGE WATER INTO THE CLIFF FACE.
- SERVICE LOCATIONS TO BE CONFIRMED PRIOR TO INSTALLATION. CONTRACTOR TO SATISFY THEMSELVES THAT THE RISK OF SERVICE CLASH IS MITIGATED PRIOR TO PROCEEDING.

**4.0 WORKS AT HEIGHT IN COASTAL ENVIRONMENT - CONSTRUCTION RISK**

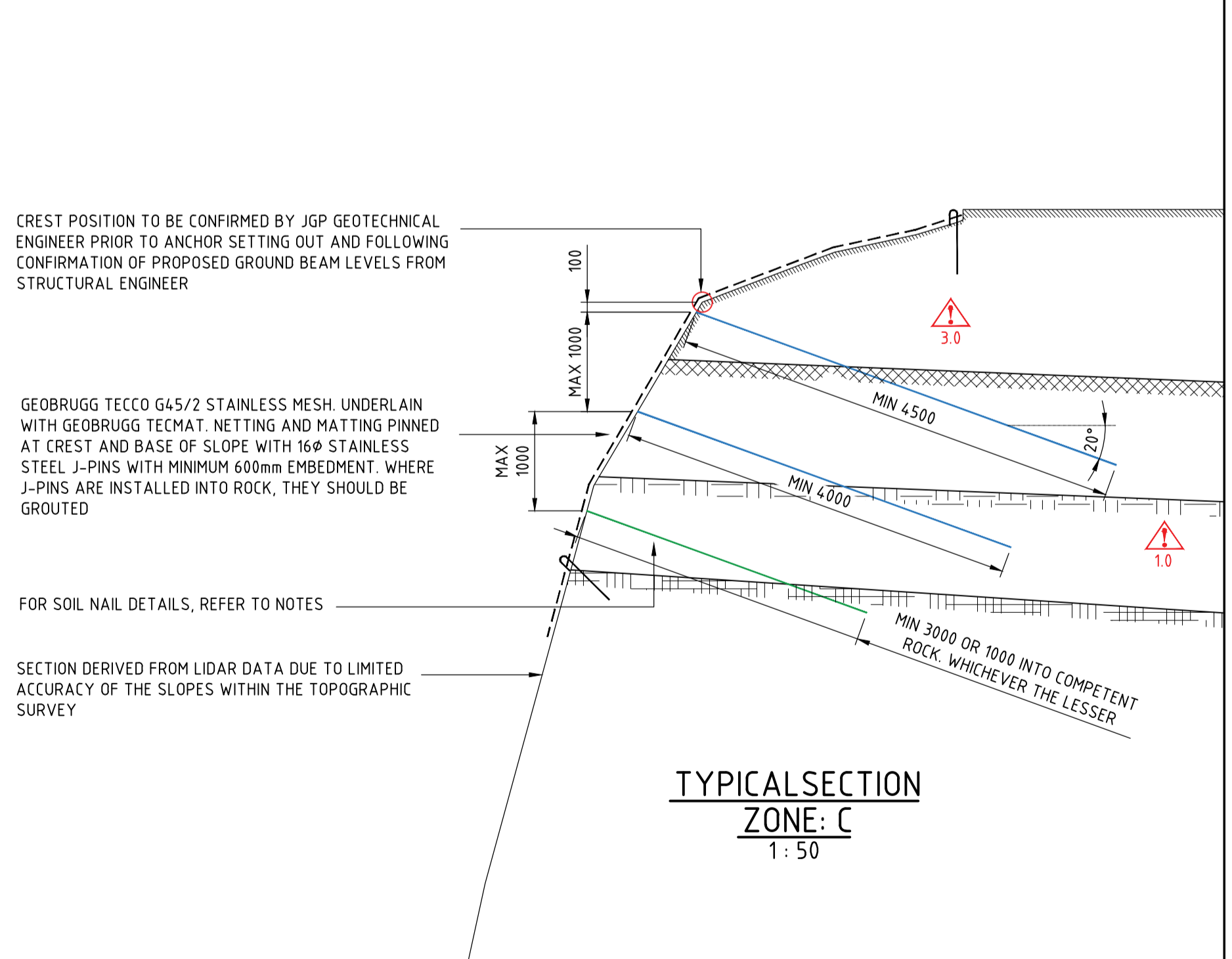
- ALL SOIL NAILS TO BE INSTALLED USING ROPED ACCESS METHODS
- TOP DOWN CONSTRUCTION TO BE IMPLEMENTED THROUGHOUT
- VISUAL MONITORING OF THE SLOPE TO BE CONDUCTED DAILY. IF MOVEMENT IS OBSERVED, WORKS SHOULD BE HALTED IMMEDIATELY.



TYPICAL SECTION  
ZONE: A  
1:50



TYPICAL SECTION  
ZONE: B  
1:50



TYPICAL SECTION  
ZONE: C  
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Issue	Description	Date	Drwn	Chkd
P2	PRELIMINARY ISSUE - SITE OUTLINES REMOVED	26MAR24	CE	
P1	PRELIMINARY ISSUE	6APR23	MT	AC

**Notes:**

**HEALTH AND SAFETY**

- THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 APPLY TO THIS WORK
- THE CLIENT, CONTRACTORS AND DESIGNERS HAVE LEGAL DUTIES UNDER CDM 2015 REFER TO THE HEALTH AND SAFETY EXECUTIVE WEBSITE (<http://www.hse.gov.uk>) AND THE CONSTRUCTION INDUSTRY TRAINING BOARD WEBSITE ([www.citb.co.uk](http://www.citb.co.uk)) FOR FURTHER DETAILS.
- JOHN GRIMES PARTNERSHIP LTD ARE NOT THE PRINCIPAL DESIGNER. THE PRINCIPAL CONTRACTOR AND ALL SUBCONTRACTORS MUST SATISFY THEMSELVES THAT THEY FULLY UNDERSTAND THE DESIGN

AND SITE CONSTRAINTS/ACTIVITIES IN TERMS OF CDM 2015 AND THAT AN APPROPRIATE CONSTRUCTION PHASE PLAN IS IN PLACE PRIOR TO COMMENCING ANY WORKS ON SITE. THE CONSTRUCTION PHASE PLAN SHALL INCLUDE RISK ASSESSMENTS AND SAFE METHODS OF WORKING AS A MINIMUM.

- POTENTIAL CONSTRUCTION RISKS ASSOCIATED WITH THIS SITE INCLUDE:
  - SEE RISK REGISTER ABOVE
  - THE PRINCIPAL CONTRACTOR AND SUBCONTRACTORS SHALL PROVIDE RELEVANT RECORDS AND INFORMATION TO THE PRINCIPAL DESIGNER FOR INCLUSION IN THE HEALTH AND SAFETY FILE. THIS MAY INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING INFORMATION,

CERTIFICATES IN RESPECT TO SUITABILITY AND SPECIFICATION COMPLIANCE OF RELEVANT MATERIALS AND/OR MANUFACTURE PROCESSES, OPERATION AND MAINTENANCE MANUALS, AS CONSTRUCTED DRAWINGS.

Client	MR MARK STAMP	
Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION	
Copyright	reserved	First Issue Signatures
Scales	AS SHOWN	Author M. TOWNSEND
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Project	THE CHALET, SLOPE STABILISATION, PORT ISAAC	
Title	GENERAL ARRANGEMENT	

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