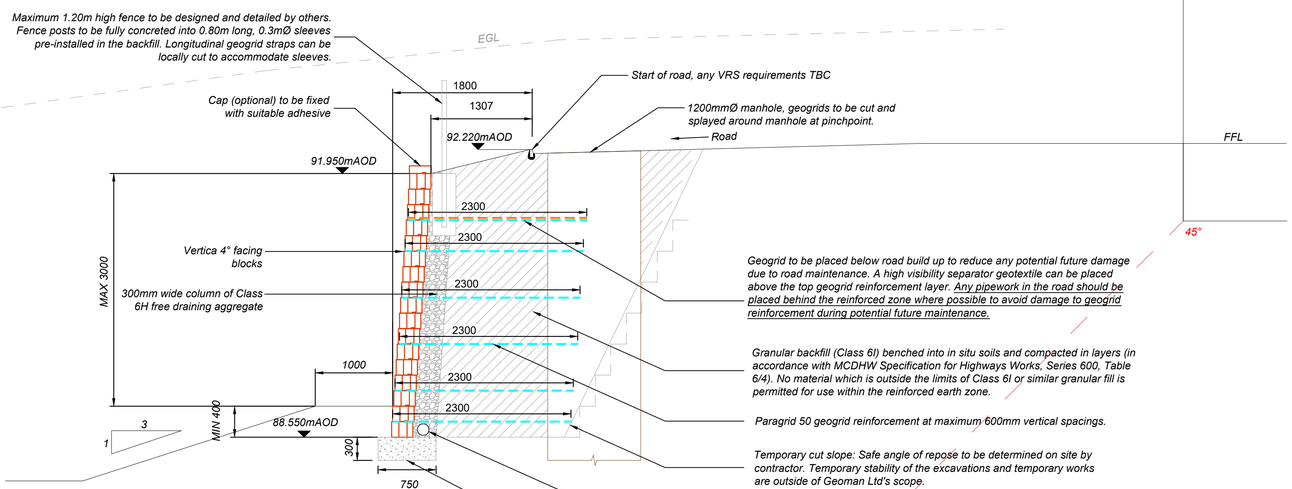
A1

SECTION 3-3
1:40

The proposed building foundations must be taken to such a level so as to ensure that no loads will be transferred to the retaining wall. The building foundations must not rely on the flexible wall for support (including lateral support), and are outside the scope of this design.

This design considers a general uniformly distributed load of 10kN/m² on the retained side of the wall. The flexible wall retaining system is sensitive to additional surcharge loading. Please advise if a more onerous surcharge should be considered.

Some settlement of the reinforced backfill and retained material will occur following construction. This should be monitored and the installation of surface finishes, barriers/ fences, etc delayed until it has ceased.



Geogrid to be placed below road build up to reduce any potential future damage due to road maintenance. A high visibility separator geotextile can be placed above the top geogrid reinforcement layer. Any pipework in the road should be placed behind the reinforced zone where possible to avoid damage to geogrid reinforcement during potential future maintenance.

Granular backfill (Class 6I) benched into in situ soils and compacted in layers (in accordance with MCDHW Specification for Highways Works, Series 600, Table 6/4). No material which is outside the limits of Class 6I or similar granular fill is permitted for use within the reinforced earth zone.

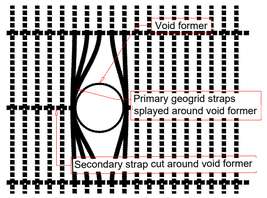
Paragrid 50 geogrid reinforcement at maximum 600mm vertical spacings.

Temporary cut slope: Safe angle of repose to be determined on site by contractor. Temporary stability of the excavations and temporary works are outside of Geoman Ltd's scope.

Min. 150mmØ PVC perforated drainage pipe laid to positive outfall to be determined by the project drainage designer. Pipe must be fully roddable/jetable and regularly maintained. Contractor must ensure the perforated drainage pipe noted is installed.

C20/25 concrete levelling pad to be formed on weak to moderately weak MUDSTONE/ SANDSTONE BEDROCK. Any soft/ loose overburden (such as made ground/ soft clay) present at or below formation level must be excavated out down to BEDROCK and be replaced with compacted Class 6F2/ 6F5 granular fill.

FENCE POST SLEEVE DETAIL
NTS



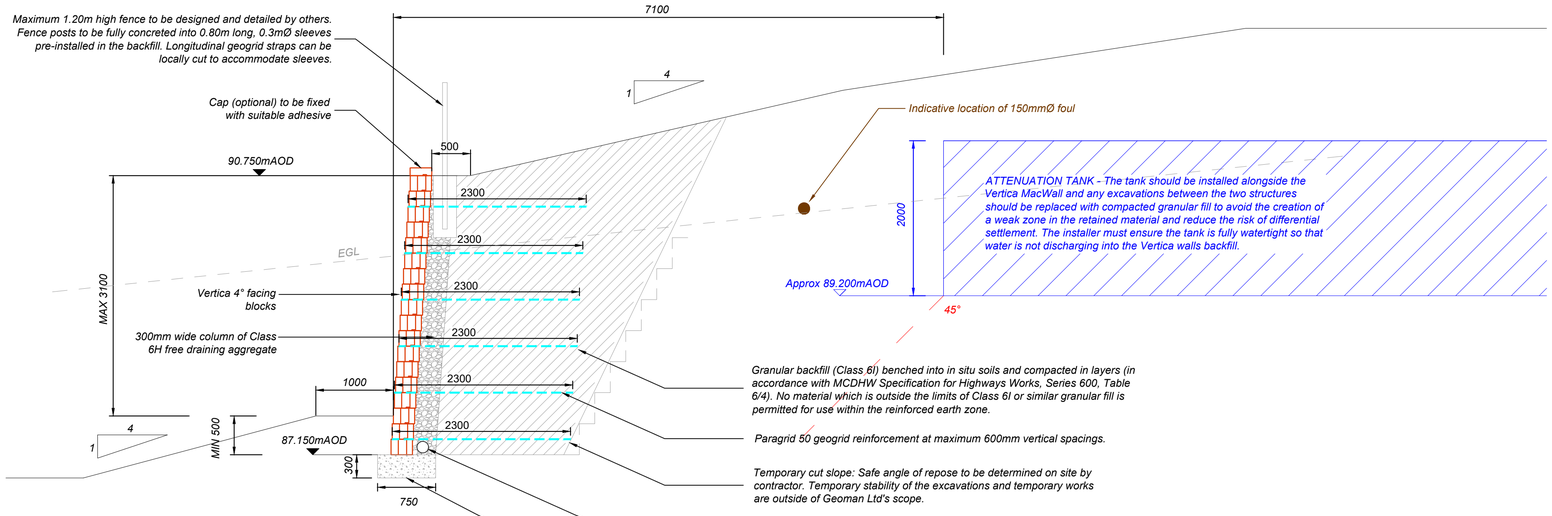
The retaining structure is designed to support a 1.20m fence in the permanent condition, however in the temporary condition issues can arise as the fence may not be fully supported. This can lead to damage to the fence and the retaining structure. Therefore we would make the following recommendations to avoid any movement of the fence in the temporary condition.

- We strongly recommend all fence boarding to be left off where possible until all other surrounding works are complete (e.g. fence returns, upfilling, surrounding structures)
- Where boarding must be installed prior to installation of fence returns (ie fences between gardens) , temporary braces should be installed.
- Backfill **must** be brought up to design height prior to boarding being installed
- In locations where any of the above is not possible boarding **must not** be installed until all other works are complete

Where any movement occurs in the temporary case and these recommendations have not been followed, Maccaferri shall not be held liable for the cost of any repairs to the fencing and / or the retaining structure.

SECTION 4-4
1:40

Some settlement of the reinforced backfill and retained material will occur following construction. This should be monitored and the installation of surface finishes, barriers/ fences, etc delayed until it has ceased.



Granular backfill (Class 6I) benched into in situ soils and compacted in layers (in accordance with MCDHW Specification for Highways Works, Series 600, Table 6/4). No material which is outside the limits of Class 6I or similar granular fill is permitted for use within the reinforced earth zone.

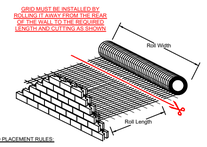
Paragrid 50 geogrid reinforcement at maximum 600mm vertical spacings.

Temporary cut slope: Safe angle of repose to be determined on site by contractor. Temporary stability of the excavations and temporary works are outside of Geoman Ltd's scope.

Min. 150mmØ PVC perforated drainage pipe laid to positive outfall to be determined by the project drainage designer. Pipe must be fully roddable/jetable and regularly maintained. Contractor must ensure the perforated drainage pipe noted is installed.

C20/25 concrete levelling pad to be formed on weak to moderately weak MUDSTONE/ SANDSTONE BEDROCK. Any soft/ loose overburden (such as made ground/ soft clay) present at or below formation level must be excavated out down to BEDROCK and be replaced with compacted Class 6F2/ 6F5 granular fill.

PARAGRID CONSTRUCTION DETAIL
NTS



GEOGRID PLACEMENT RULES:

1) 1st layer no higher than top of the 1st block course

2) Subsequent layers at no greater than 600mm vertical c/c (3 Vertica block courses)

3) Top layer to be min 200 mm (1 blocks) or max 400mm (2 blocks) below finished ground level. *If geogrid is present in road build up it may need lowered to suit to avoid damage due to road maintenance. Refer to sections for more details.*

4) Where a geogrid layer steps up/down one course, there should be a minimum overlap of 457mm (one block length)

5) Grid lengths from the higher sections should be used for intermediate wall heights.

6) The geogrid is always placed with the roll direction (direction of strength) perpendicular to the wall face, i.e. cut in the required lengths.

7) When filling over the geogrid, a minimum of 100mm of fill must be placed over the geogrid before driving plant over it.

NOTES:

1) All dimensions in mm's unless otherwise specified.

2) BLOCKS:
Block type: MacWall Vertica 4 degree blocks

3) INSTALLATION:
Please refer to standard Manufacturer's installation guidelines.

4) GEOGRID REINFORCEMENT:
Paragrid 50/15 geogrid. Grids to be installed at maximum 3 block vertical centres with the bottom geogrid layer to be placed on top of the base Vertica block. Grid lengths to be as shown in sections. Intermediate wall heights to be constructed with grid lengths from the higher section.

5) BACKFILL:
GEOGRID SECTIONS
The reinforced backfill for the wall shall comprise a selected compacted granular fill material to comply with SFHW Class 6I or similar approved. This material is assumed to have the following characteristics: Phi' = 38 degrees, Gamma = 18 kN/m³ and c' = 0 kPa, compacted in accordance with SFHW Series 600, Table 6/4.

The Contractor is responsible for the selection of this material to ensure compliance with the geotechnical characteristics as shown on the relevant drawings and in the design documents/ calculations.

No material which is outside the limits of Class 6I or similar granular fill is permitted for use within the reinforced earth zone.

CONCRETE BACKFILL
C20/25 concrete backfill with minimum density of 24kN/m³. The concrete backfill is to be placed in maximum 600mm high lifts per day. Concrete backfill to be tamped into the voids in and behind the Vertica blocks at the wall as per Section 2-2/ 2A-2A to create a monolithic structure.

6) DRAINAGE:
Standard Vertica MacWall drainage detail is to be formed behind the facing blocks. This is to comprise a 300mm width of free draining aggregate (CLASS 6H) behind the blocks (with block voids filled with same material). A 150mmØ rigid perforated drainage pipe should be placed along the full length of the wall at the base of the drainage column. The pipe should be roddable and connected to an appropriate site drainage outlet with consent to discharge. To be confirmed by drainage designer. ***Any run-off from the road must not enter the walls backfill, permanent and temporary drainage are outside the scope of this design.***

Where concrete backfill is used, MacDrain drainage geocomposite or similar is to be installed behind the concrete backfill. The drainage pipe should be wrapped in MacDrain and surrounded in free draining pea gravel.

The excavated slopes should be checked for any flows or seepage that require drainage measures. Any flows, seepage or standing water must be directed to a suitable outfall as soon as they are encountered. It should be ensured that adequate drainage is present beyond the crest of the Vertica MacWall to avoid excess surface water run-off from entering the backfill of the wall.

7) FOUNDATION FOR WALL:
To achieve a suitable foundation for the block wall, excavation must take place down to the levels indicated on the drawing and allow for the placement of a 300mm deep C20/25 concrete foundation. It must be ensured that original, undisturbed weak to moderately weak SANDSTONE/ MUDSTONE BEDROCK at and below formation level. **This should be confirmed prior to construction by the Contractor**. Any soft/ loose overburden present at or below formation level must be excavated out down to original BEDROCK and replaced with compacted Class 6F2/6F5 granular fill.

8) SITE / IN-SITU SOILS:

FOUNDATION:

Original, weak to moderately weak SANDSTONE/ MUDSTONE, this material is assumed to have the following minimum properties:

Φ' = 32°, γ = 21kN/m³, c' = 5kPa

RETAINED:

Original, weak to moderately weak SANDSTONE/ MUDSTONE, this material is assumed to have the following minimum properties:

Φ' = 32°, γ = 21kN/m³, c' = 5kPa

Granular fill (Road Build Up assumed for the top 500mm below finished road level where road is present), this material is assumed to have the following minimum properties:

Φ' = 38°, γ = 18kN/m³, c' = 0kPa

Soft CLAY/ MADE GROUND or Class 1/ 2 engineered upfill *(towards the end of the wall where the finished levels sit above existing levels)*, this material is assumed to have the following minimum properties:

Φ' = 28°, γ = 18kN/m³, c' = 0kPa

As the wall is in a significant cut it is likely most of the soft stratum noted in Haigh Huddleston & Associates Geo-Environmental Report No. E23/8060/R001A will be removed for large parts of the retaining wall prior to reaching finished retained levels at the site.

9) TYPICAL FRONT FACE STEP:
Face angle = 4°.

10) TEMPORARY EXCAVATION:
This solution is for the permanent works only, and is issued on the basis that a safe system of works is provided for construction. Temporary stability and design of any temporary works is entirely outside our scope and should be confirmed by a Temporary Works Designer appointed by the Principal Contractor.

11) HEAVY CONSTRUCTION TRAFFIC OPERATING CLOSE TO THE WALL:
It should be ensured that the face batter is not compromised by the use of heavy compaction plant machinery too close to the front face of the MacWall. If construction plant is to traffic the crest area of the wall, a suitable haul road design must be undertaken and be set back an adequate distance from the rear of the wall (designed by others). If construction plant operates on the unprotected retained material, bulging of the wall may occur.

12) SURCHARGE AT THE CREST OF THE WALL:
A maximum live load of 10kN/m² was assumed to act on the slope on the retained side of the wall in the permanent condition. Please advise us if the surcharge on the retained side of the wall in the permanent condition is to exceed the assumed loads. The Principal Designer/ Client's Consulting Engineer must inform Geoman Ltd. prior to construction to allow this design to be reviewed.

13) PEDESTRIAN/ VEHICLE PROTECTION:
It is assumed a maximum 1.2m high fence (designed by others) will be installed behind the MacWall. The geogrids may be cut locally in the secondary reinforcement direction to accommodate the fence post sleeves. ***Refer to notes regarding the fence in the temporary condition for more details.***

Any VRS requirements are outside the scope of this design and should be confirmed prior to construction.

14) STATUTORY APPROVALS:
Any statutory approvals should be confirmed by others. We strongly recommend construction does not proceed until approvals have been granted (if required).

15) SETTLEMENT OF THE REINFORCED BACKFILL:
Some settlement of the reinforced backfill and retained material will occur following construction. This should be monitored and the installation of surface finishes, barriers/fences, etc. delayed until it has ceased.

16) MAINTENANCE REQUIREMENTS:
The client should be made aware of the maintenance requirements for the wall noted in Section 6.0 of the document.

17) SETTING OUT:
Setting out to be provided by scheme designer. Wall line shown on plan is as per drawing provided (Haigh Huddleston & Associates Drawing No. E23/8060/021_01B External Works Plan). Fenceline is offset from toe of walls as shown on sections - any required correction to toe line to accommodate to be confirmed prior to construction.

18) PROPOSED BUILDING FOUNDATIONS:
The proposed building foundations must be taken to such a level so as to ensure that no loads will be transferred to the retaining wall. The building foundations must not rely on the flexible wall for support (including lateral support), and are outside the scope of this design.

This design considers a general uniformly distributed load of 10kN/m² on the retained side of the wall. The flexible wall retaining system is sensitive to additional surcharge loading. Please advise if a more onerous surcharge should be considered.

19) ATTENUATION TANK:
The tank should be installed alongside the Vertica MacWall and any excavations between the two structures should be replaced with compacted granular fill to avoid the creation of a weak zone in the retained material and reduce the risk of differential settlement. The installer must ensure the tank is fully watertight so that water is not discharging into the walls backfill.

20) MANHOLES IN VICINITY OF RETAINING WALL:
C20/25 concrete backfill is to be used at the pinchpoint with the manholes. A layer of A393 mesh is to be used in the concrete backfill and foundation and concrete is to be pokered into Vertica blocks, refer to Section 2-2 for further details. Pipes are to run perpendicular to manholes, any pipe bridging details required are to be confirmed by others prior to construction.

21) NOTES ON CALCULATIONS/DRAWINGS:
These plans and the accompanying design documentation should be thoroughly checked by the Client's Consulting Engineer/ Principal Designer. Any apparent errors, omissions or variations should be reported immediately to Geoman Ltd. Construction of the wall shall not commence unless and until the Client's Consulting Engineer/ Principal Designer has considered the Geoman Design Submission Document (QP06 Ref: 24-5915-F1) to ensure that there are no errors, omissions or conflict with the scheme design.

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Status/Rev:	Description:	Drawn:	App.:	Date:
B	DIMENSIONS INCREASED CLOSE TO ROAD	DMcG		07.11.25
A	HAPAS BBA BLOCKS INCLUDED	DMcG		22.08.25
0	CONCRETE DETAIL AT MANHOLES	DMcG		30.03.25
0		DMcG		21.03.25

Drawing Title: VERTICA MACWALL SECTIONS			Designed: DMCG	Date: 07.11.25	Project Title: PENINSTONE LANE, FEANEY BRIDGE
Scale @ A1: AS SHOWN	Unit: MM	Project Number: 24-5915-F1	Drawn: DMCG	Date: 07.11.25	Client: K HARAN CIVILS
Drawing Number: SK24-5915-F1-04		Revision: B	Checked: GM	Date: 07.11.25	Drawing Status: CONCEPT/PRELIMINARY ONLY ☐ **FOR APPROVAL** ☒ FOR CONSTRUCTION ☐ AS BUILT ☐

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