A1

SECTION 1-1
1:25

C20/25 concrete levelling pad on a competent bearing stratum to provide a safe bearing resistance of 80kPa. Significant depths of variable MADE GROUND are present at and below formation level of the wall. **The Client's Consulting Engineer & Principal Contractor must ensure that the material at and below formation level will provide a minimum safe bearing resistance of 80kPa and possess a minimum effective friction angle of 28°. These parameters must be confirmed through plate bearing tests and laboratory shear box testing of representative samples of the MADE GROUND prior to construction to allow confirmation of the Lock+Load design.**

If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

Any soft/ low strength (c_u<40kPa), loose or unsuitable material (such as topsoil, soft/ loose made ground or alluvium) present at or below formation level of the walls must be excavated down to medium-dense material and replaced with compacted Class 6F2/6F5 granular fill. **If any soft, loose or unsuitable material (c_u<40kPa, SBR<80kPa) is left in place at or below wall formation level, instability and/ or excessive settlement of the Lock+Load walls may occur. If these parameters cannot be achieved, ground improvement (such as dynamic compaction, etc.) should be considered by the Principal Contractor.**

SECTION 2-2
1:25

C20/25 concrete levelling pad on a competent bearing stratum to provide a safe bearing resistance of 80kPa. Significant depths of variable MADE GROUND are present at and below formation level of the wall. **The Client's Consulting Engineer & Principal Contractor must ensure that the material at and below formation level will provide a minimum safe bearing resistance of 80kPa and possess a minimum effective friction angle of 28°. These parameters must be confirmed through plate bearing tests and laboratory shear box testing of representative samples of the MADE GROUND prior to construction to allow confirmation of the Lock+Load design.**

If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

Any soft/ low strength (c_u<40kPa), loose or unsuitable material (such as topsoil, soft/ loose made ground or alluvium) present at or below formation level of the walls must be excavated down to medium-dense material and replaced with compacted Class 6F2/6F5 granular fill. **If any soft, loose or unsuitable material (c_u<40kPa, SBR<80kPa) is left in place at or below wall formation level, instability and/ or excessive settlement of the Lock+Load walls may occur. If these parameters cannot be achieved, ground improvement (such as dynamic compaction, etc.) should be considered by the Principal Contractor.**

SECTION 3-3
1:25

C20/25 concrete levelling pad on a competent bearing stratum to provide a safe bearing resistance of 80kPa. Significant depths of variable MADE GROUND are present at and below formation level of the wall. **The Client's Consulting Engineer & Principal Contractor must ensure that the material at and below formation level will provide a minimum safe bearing resistance of 80kPa and possess a minimum effective friction angle of 28°. These parameters must be confirmed through plate bearing tests and laboratory shear box testing of representative samples of the MADE GROUND prior to construction to allow confirmation of the Lock+Load design.**

If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

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SECTION 4-4
1:25

C20/25 concrete levelling pad on a competent bearing stratum to provide a safe bearing resistance of 80kPa. Significant depths of variable MADE GROUND are present at and below formation level of the wall. **The Client's Consulting Engineer & Principal Contractor must ensure that the material at and below formation level will provide a minimum safe bearing resistance of 80kPa and possess a minimum effective friction angle of 28°. These parameters must be confirmed through plate bearing tests and laboratory shear box testing of representative samples of the MADE GROUND prior to construction to allow confirmation of the Lock+Load design.**

If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

Any soft/ low strength (c_u<40kPa), loose or unsuitable material (such as topsoil, soft/ loose made ground or alluvium) present at or below formation level of the walls must be excavated down to medium-dense material and replaced with compacted Class 6F2/6F5 granular fill. **If any soft, loose or unsuitable material (c_u<40kPa, SBR<80kPa) is left in place at or below wall formation level, instability and/ or excessive settlement of the Lock+Load walls may occur. If these parameters cannot be achieved, ground improvement (such as dynamic compaction, etc.) should be considered by the Principal Contractor.**

SECTION 5-5
1:25

It is assumed that the building foundations will be piled. Please advise us of the rig's required minimum offset and BRE470 LC1 & LC2 maximum surcharges, as the design must be reviewed prior to construction taking these loads into account. The Lock+Load geogrid reinforcement lengths may need to increase pending the results of the rig load checks. The piling contractor must provide a competent piling mat from which the rig can operate. The rig must always be kept facing and perpendicular to the Lock+Load walls when in operation. An exclusion zone should be marked out at the top of the wall to ensure that the rig is restricted to the piling areas assumed at each Plot.

It is assumed that the building foundations will be taken to such a level so as to ensure that no loads are transferred to the Lock+Load walls. The building foundations must not rely on the flexible Lock+Load walls and reinforced backfill for support (including lateral support), and are outside the scope of this design. The pile designer must ensure the piles are designed to cater for all the vertical & lateral loading from the building and that these loads are transmitted to the ground below formation level of the Lock+Load wall.

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If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

Any soft/ low strength (c_u<40kPa), loose or unsuitable material (such as topsoil, soft/ loose made ground or alluvium) present at or below formation level of the walls must be excavated down to medium-dense material and replaced with compacted Class 6F2/6F5 granular fill. **If any soft, loose or unsuitable material (c_u<40kPa, SBR<80kPa) is left in place at or below wall formation level, instability and/ or excessive settlement of the Lock+Load walls may occur. If these parameters cannot be achieved, ground improvement (such as dynamic compaction, etc.) should be considered by the Principal Contractor.**

NOTES:

1) All dimensions in mms unless otherwise specified.

2) BLOCKS: LOCK+LOAD
GEOGRID: SECUGRID 40/40

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

4) REINFORCED BACKFILL:
Class 6I granular fill, in accordance with MCHW SHW Series 600. Granular fill to be benched into in-situ soils and compacted in layers in accordance with the Specification for Highway Works, Series 600, Table 6/4. Class 6I fill to be restricted to '30mm down' for first 1m behind face.

Compliance testing must be undertaken on the Class 6I granular fill, both prior to commencement and throughout the works. This must include particle size testing and shear box of representative samples. Class 6I must have a maximum fines (63µm) content of 15% and comply with the limits in Table 6/3 of Series 600.

This material is assumed to have the following characteristics: Phi' = 35 degrees, Gamma = 19 kN/m³ and c' = 0 kPa, compacted to in accordance with SRW 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.

5) FOUNDATION FOR WALLS 01, 02, 02A, 05 & 05A:
C20/25 concrete levelling pad on a competent bearing stratum to provide a safe bearing resistance of 80kPa. Significant depths of variable MADE GROUND are present at and below formation level of the wall. **The Client's Consulting Engineer & Principal Contractor must ensure that the material at and below formation level will provide a minimum safe bearing resistance of 80kPa and possess a minimum effective friction angle of 28°. These parameters must be confirmed through plate bearing tests and laboratory shear box testing of representative samples of the MADE GROUND prior to construction to allow confirmation of the Lock+Load design.**

If made ground is to be left in place at or below formation level, it must be proof-rolled to check for any soft/ loose areas and confirmed to be medium-dense. Any cohesive material present at or below formation level must be confirmed to possess a minimum undrained shear strength (c_u) of 40kPa.

Any soft/ low strength (c_u<40kPa), loose or unsuitable material (such as topsoil, soft/ loose made ground or alluvium) present at or below formation level of the walls must be excavated down to medium-dense material and replaced with compacted Class 6F2/6F5 granular fill. **If any soft, loose or unsuitable material (c_u<40kPa, SBR<80kPa) is left in place at or below wall formation level, instability and/ or excessive settlement of the Lock+Load walls may occur. If these parameters cannot be achieved, ground improvement (such as dynamic compaction, etc.) should be considered by the Principal Contractor.**

6) SITE / IN-SITU SOILS :
Retained: MADE GROUND (ashy gravelly SAND [ASH & CLINKER]) & compacted Class 1/2 upfill. These materials are assumed to have the following minimum properties:
MADE GROUND* ϕ' = 28°, γ = 18kN/m³ and c' = 0 kPa.
CLASS 1/2 FILL ϕ' = 28°, γ = 19kN/m³ and c' = 0 kPa.

Foundation: Proof-rolled granular MADE GROUND (medium-dense ashy gravelly SAND [ASH & CLINKER]). This material is assumed to have the following minimum properties:
PROOF-ROLLED MADE GROUND* ϕ' = 28°, γ = 18kN/m³ and c' = 0kPa.

*Laboratory shear box testing of representative samples of the MADE GROUND must be undertaken prior to construction. The Contractor & Client's Consulting Engineer are responsible for ensuring the in-situ soils comply with the geotechnical characteristics as shown on the relevant drawings and in the design calculations.

7) DRAINAGE:
A minimum 150mmØ perforated drain pipe should be placed along the full length of the walls. This should be roddable and connected to an appropriate site drainage outlet with consent to discharge. Intermediate rodding points will be required to allow the full length of drain to be maintained (to be determined by scheme drainage designer). Rodding points should be installed at maximum 20m spacings at the top of the walls.

8) FACE ANGLE = 5.7°.

9) TEMPORARY EXCAVATIONS/ SETTING OUT
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 excavations have the potential to fail rapidly and without warning, particularly in granular material. The Principal Contractor/ Wall installer must produce a method statement and risk assessment for the works to be approved by the Client's Consulting Engineer. Temporary stability and design of any temporary works are outside our scope and should be confirmed by others.

All wall geometry, setting out and required offsets to be confirmed by the Principal Contractor and/ or Client's Consulting Engineer prior to construction.

10) BUILDING FOUNDATIONS
It is assumed that any building foundations in the vicinity of the walls will be taken to such a level that no loads will be transferred to the Lock+Load walls and reinforced backfill. Building foundations must not rely on the flexible Lock+Load walls and reinforced backfill for support (including lateral support), and are outside the scope of this design. Please advise us if a piling/ vibro rig and/ or large plant is to be used on the retained side of the Lock+Load walls, as well as their required minimum offsets and maximum operational surcharges, as the design will need to be checked for the rig loads.

11) NOTES ON CALCULATIONS/DRAWINGS:
These plans and the accompanying design documentation should be thoroughly checked by the Client's Consulting Engineer. Any apparent errors, omissions or variations should be reported immediately to Geoman Ltd. Construction of this wall shall not commence unless and until the Client/ Client's Consulting Engineer has considered the Geoman Design Submission Document (QP06 Ref 24-5558) to ensure that there are no errors, omissions or conflict with the scheme design.

Geoman Ltd. will not be liable for any loss or damage resulting from or arising out of the use of this drawing where it has been used other than in accordance with Geoman's advice and specifications. Unless advice is specifically requested in respect of parts of the site not within the area where the works are undertaken, Geoman shall not be liable for any loss or damage resulting from or arising out of any weakness or other problem in the ground outside the area where the works are undertaken.

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CONCEPT ONLY
NOT FOR CONSTRUCTION

Rev.	Issue / Revision:	Drawn:	Date:
0		WM	11.09.24

GEOMAN
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Project Title:
WESTGATE, CLECKHEATON

Client:
GILLCON GROUP

Drawing Title:
LOCK+LOAD CROSS-SECTIONS

Designed:		Date:		Project No:	24-5558
Drawn:	WM	Date:	11.09.24	Scale: AS INDICATED AT A1	
Checked:		Date:			
Drawing No:	SK24-5558-F1-03			Revision:	0