



STRUCTURAL CALCULATIONS

AUX777

design@auxiliumse.com www.auxiliumse.com



Project name: Retaining wall design

Client name: Cerys Lewis

Property address: 62 twelfth Avenue
Galon uchaf
Merthyr Tydfil
Cf479td

Document prepared by: Marcin Krawucki
BSc (Hons) MCIOB, MIET, ACABE, GMICE
MCIOB Membership no.: 7006632
MIET Membership no.: 1101281027
CABE Membership no.: 80455303
ICE Membership no.: 92007313
Address: 50 Quarry Row,
Merthyr Tydfil,
CF47 8PS

Date of preparation: 23/05/2026

Job reference number: AUX777



Table of Contents

1	<i>Introduction</i>	4
2	<i>Location of the Property</i>	4
3	Sequence of Operations: Reinforced Masonry Retaining wall (Grouted cavity):	5 4
	<i>Sequence of operations for Mass Masonry Retaining Wall</i>	8
5	<i>Appendices</i>	10



AUXILIUM
Structural Engineering
And CAD Services

design@auxiliumse.com

www.auxiliumse.com

1 Introduction

In accordance with instructions received from the client I have carried out a Structural calculations in relation to the retaining wall design.

2 Location of the Property



The property is situated at

62 twelfth Avenue Galon uchaf Merthyr Tydfil Cf479td

See below the satellite view from Google Maps.



3 Sequence of Operations: Reinforced Masonry Retaining wall (Grouted cavity)



Project Notes:

- Building Control: Before starting any of the below works please contact Building Control for guidance regarding Building Control Approval
- Do not exceed the maximum pour height (lift height) specified by the block manufacturer or engineer (typically 8–10 courses or ~2.0m) to effectively prevent "blow-outs" of the block face.
- Grout mix must be a High Slump (flowing) concrete (e.g., S4 slump or similar) with small aggregate (10mm) to ensure all voids are filled without honeycombing.
- Works must be carried out in accordance with BS EN 1996 (Eurocode 6) or relevant local standards.

1. Excavation and Formation

- Excavation: Excavate to the formation level for the strip footing/base.
- Safety: Install earthwork support (shoring) if the excavation is deep (>1.2m) or ground conditions are unstable.
- Blinding: Pour a 50mm layer of blinding concrete to provide a clean surface for marking out.

2. Base Construction and Starter Bars

- Rebar Fixing: Fix the foundation reinforcement cage.
- Starter Bars: Install L-shaped starter bars at the correct spacing to match the hollow cores of the blocks (e.g., every 200mm, 333mm, or 400mm centres depending on block type).
 - *Critical Check:* Ensure starter bars are strictly aligned with the wall line; misalignment will make stacking blocks over them impossible.
- Concreting: Pour the concrete footing and finish with a rough tamp or kicker level to accept the first course of blocks.

3. First Course Installation

- Bedding: Lay the first course of hollow blocks on a standard 1:3 cement/sand mortar bed.
- Levelling: This course must be perfectly level and aligned, as it dictates the verticality of the entire wall.
- Cleanouts: If "High Lift" grouting is planned (pouring >1.5m at once), create "cleanout" openings at the base of the wall at reinforcement intervals to allow removal of mortar droppings before grouting.



4. Wall Assembly (Dry Stacking)

- **Stacking:** Lay subsequent courses of blocks. Depending on the system (e.g., Stepoc, Anderton), these are typically dry-stacked (no mortar) or laid with a thin-bed adhesive.
- **Bond:** Maintain a half-bond pattern (staggering vertical joints) to ensure the internal cavities align vertically for the grout.
- **Horizontal Steel:** Place horizontal reinforcement bars in the notches/grooves of the blocks as the wall rises (typically every course or every other course as designed).
- **Vertical Steel:** Drop full-height vertical bars into the cores, lapping them with the starter bars extending from the base. Secure bars to keep them central in the void.

5. Preparation for Grouting

- **Cleaning:** Remove any debris or mortar droppings from the internal cavities.
- **Soaking:** If using porous aggregate blocks in hot weather, dampen the blocks before grouting to prevent them from sucking moisture out of the grout too quickly (check manufacturer guidelines).
- **Propping:** Temporarily prop/brace the wall if required by the manufacturer, particularly at corners or ends, to resist the hydrostatic pressure of the wet grout.

6. Grouting (Concreting the Core)

- **Pouring:** Fill the cavities with the specified high-slump concrete/grout (typically C32/40, 10mm aggregate, high flow).
- **Method:** Use a concrete pump or skip. Pour in stages (lifts) if the wall is tall to reduce pressure.
- **Compaction:** Compact using a poker vibrator (small diameter, e.g., 25mm or 35mm) to ensure the grout flows around the steel and fully fills the voids.
- **Finishing:** Stop the concrete 50-75mm below the top of the final block course if a further lift is to be added later (to provide a key), or finish flush if at full height.

7. Curing and Waterproofing

- **Curing:** Allow the grout to cure (harden). Do not apply any backfill load for at least 714 days (or as specified).
- **Waterproofing:** Apply a tanking slurry, bituminous coating, or self-adhesive membrane to the earth-retaining side of the wall.
- **Capping:** Install coping stones or capping units to the top of the wall to prevent water ingress from above.

8. Drainage and Backfill

- **Drainage:** Install a perforated land drain at the heel of the wall encased in clean gravel.



- Backfilling: Backfill behind the wall with free-draining granular material (shingle/crushed stone).
- Compaction: Compact the backfill in layers (150mm), ensuring no heavy machinery is used close to the rear face of the wall.

9. Contractor Disclaimer (Recommended)

The contractor is responsible for ensuring the grout mix design is suitable for the method of placement (pump/pour) and that the blockwork is adequately braced to withstand wet concrete pressures. Voids or honeycombing in the grout core will compromise the structural integrity.



4 *Construction Works Description: Mass Masonry Retaining Wall*

Standards: BS EN 1996 (Eurocode 6), BS EN 1997 (Eurocode 7), and BS 8000.

1. Site Clearance and Excavation

- Clearance: Clear the site of all vegetation, topsoil, and organic matter to the required working area.
- Excavation: Excavate to the formation level as indicated on the drawings. The sides of the excavation must be battered back or shored up in accordance with temporary works requirements and CDM 2015 regulations.
- Formation Inspection: The exposed formation level (subgrade) is to be inspected by the Engineer or Building Control Officer to confirm the allowable ground bearing capacity matches the design assumption (typically $> 100\text{kN/m}^2$ or as specified).
- Soft Spots: Any soft spots encountered at formation level must be excavated and replaced with lean mix concrete or compacted granular material.

2. Concrete Foundation

- Blinding: If the formation is clay or susceptible to softening, place a 50mm layer of blinding concrete immediately after excavation.



- Reinforcement (if applicable): Place reinforcement cages (if the design is a reinforced strip) on approved spacers to ensure minimum cover (typically 50mm/75mm for earth-facing concrete).
- Concreting: Pour the mass concrete strip footing using the specified mix (e.g., C30/37 or GEN3).
- Keyway: If the design requires a shear key, form a rebate in the wet concrete or install starter bars as detailed.
- Curing: Allow the foundation to cure for a minimum of 48 hours before commencing masonry work.

3. Masonry Construction

- Setting Out: Accurately set out the wall line. Ensure the wall remains within the legal boundary.
- Materials: Use masonry units (brick, block, or stone) and mortar designation (typically Designation (ii) / M6 or Designation (i) / M12 for earth-retaining structures) as specified in the calculation design output.
- Bonding: Construct the wall in the specified bond (e.g., English Bond or Flemish Bond for brickwork) to ensure monolithic action.
- Note: There must be no vertical continuous joints.
- Wall Ties (for Double Skin): If the wall consists of a facing brick and backing block, install stainless steel wall ties at the frequency specified (typically 900mm horizontal, 450mm vertical) to ensure the two skins act as a composite mass.
- Movement Joints: Install vertical movement joints at maximum centres (typically 6m to 12m depending on material) to prevent thermal cracking. Ensure the joint continues through the coping.

4. Drainage and Waterproofing

- Rear Face Protection: Apply two coats of bituminous paint or a proprietary waterproof membrane to the rear (earth-retaining) face of the masonry to prevent moisture penetration.
- Weep Holes: Form weep holes using 75mm plastic tubes or weep vents at 900mm – 1000 mm horizontal centres, located 150mm above external ground level.
- Rear Filter Drain: Install a perforated land drain (min 100mm diameter) at the heel of the wall, surrounded by clean gravel and wrapped in a geotextile membrane to prevent silt clogging. This must discharge to a suitable outfall or soakaway.



5. Backfilling (Critical Stage)

- Timing: Do not commence backfilling until the masonry mortar has reached sufficient strength (typically 7 days minimum, subject to temperature).
- Material: Backfill using free-draining granular material (e.g., SHW Clause 600 series, Class 6I or 6J, or clean crushed stone). Do not use cohesive clay or site-won topsoil as backfill.
- Placement: Place backfill in horizontal layers not exceeding 150mm in depth.
- Compaction: Compact each layer using a vibrating plate or pedestrian roller.
- Warning: Heavy compaction plant (ride-on rollers) must not be used within 2.0m of the rear of the wall to prevent generating excessive lateral earth pressures that could overturn the wall.
- Hand compaction only is permitted within 500mm of the masonry face.

6. Finishing

- Coping: Bed coping stones on the top of the wall using a high-bond mortar. Copings should overhang the wall face by at least 40mm and feature a drip throat to shed water away from the masonry face.
- Pointing: Finish joints with a bucket handle or weather-struck profile to maximise durability against frost action. Recessed pointing is not recommended for retaining walls

A handwritten signature in black ink, appearing to read 'Marcin Krawucki'.

Marcin Krawucki

BSc (Hons) MCIOB, MIET, ACABE, GMICE

MCIOB Membership no.: 7006632

MIET Membership no.: 1101281027

CABE Membership: 80455303

ICE Membership no.: 92007313



AUXILIUM
Structural Engineering
And CAD Services

design@auxiliumse.com

www.auxiliumse.com

5 Appendices

5.1 Calculations

5.2 Drawings



AUXILIUM
Structural Engineering
And CAD Services

design@auxiliumse.com

www.auxiliumse.com

STRUCTURAL CALCULATIONS

Using
MASTERSERIES POWERPAD

Project Name

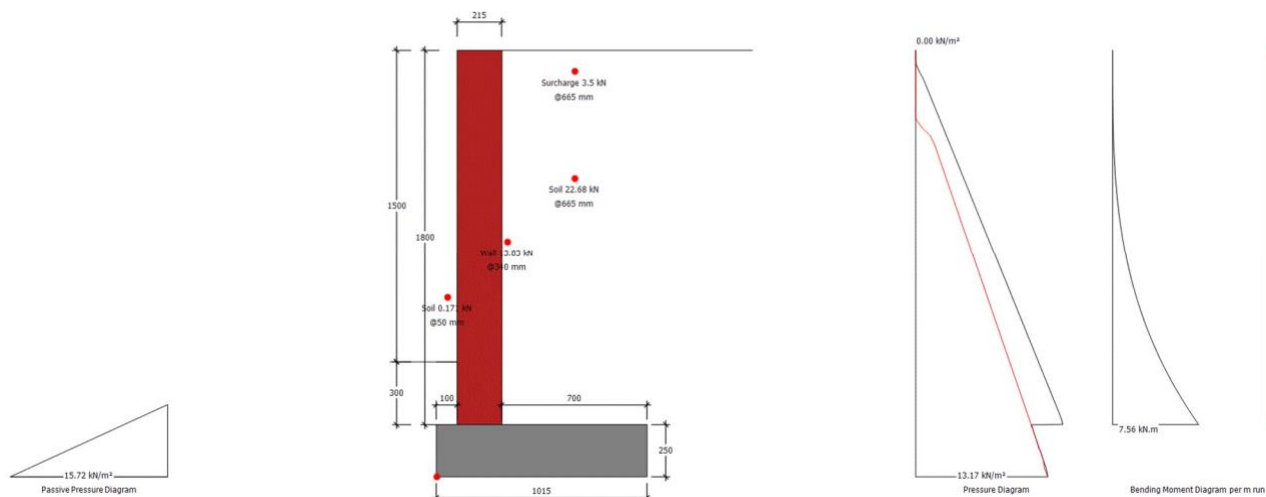
62 twelfth Avenue
Galon uchaf
Merthyr Tydfil
Cf479td

STRUCTURAL ENGINEERS
AUXILIUM

PROJECT No: AUX777

_MasterSeries Sample Output 3 Castle Street Carrickfergus, County Antrim, BT38 7BE Tel: (028) 9036 5950	Job ref : Job Ref Sheet : Sheet Ref / 2 - Made By : Date : 23 May 2026/ Version 2015.04 Checked : Approved :
---	--

MASTERKEY : RETAINING WALL DESIGN TO BS 8002 : 1994, BS EN 1996-1-1:2005+A1:2012 AND BS 8110 : 1997
Reinforced Hollow blocks Retaining wall
Reinforced Masonry Retaining Wall with Reinforced Concrete Base



Summary of Design Data

EC6 National Annex UK	Notes	All dimensions are in mm and all forces are per metre run	Material Densities
(kN/m³) Soil 18.00, Concrete 24.00, Masonry 20.00		Concrete grade	fcu 30 N/mm², Permissible tensile stress 0.250 N/mm²
Concrete covers (mm)	Wall inner cover 50 mm, Wall outer cover 50 mm, Base cover 70 mm	Reinforcement design	
fy 500 N/mm², fyt 500 N/mm² designed to BS 8110: 1997	Surcharge and Water Table	Surcharge 5.00 kN/m², Fully drained	
Unplanned excavation depth	Front of wall 205 mm		
† The Engineer must satisfy him/herself to the reinforcement detailing requirements of the relevant codes of practice			

Soil Properties

Bearing pressure	Permissible service pressure @ front 100.00 kN/m², @ back 100.00 kN/m²	Back Soil Friction and Cohesion $\phi =$
$\text{Atn}(\tan(25)/1.2) = 21.24^\circ$, $c = 3/1.5 = 2 \text{ kN/m}^2$	Base Friction and Cohesion	$\delta = \text{Atn}(0.75 \times \tan(\text{Atn}(\tan(25)/1.2))) = 16.25^\circ$, $c = 0.75 \times 3/1.5 = 1.5 \text{ kN/m}^2$

Front Soil Friction and Cohesion $\phi = \text{Atn}(\tan(30)/1.2) = 25.69^\circ$ Loading Cases

G_{Soil} - Soil Self Weight, G_{Wall} - Wall & Base Self Weight, $F_{V_{\text{Heel}}}$ - Vertical Loads over Heel, from surcharge, P_p - Passive Earth Pressure	Case 1: Geotechnical Design	$1.00 G_{\text{Soil}} + 1.00 G_{\text{Wall}} + 1.00 F_{V_{\text{Heel}}} + 1.00 P_a + 1.00 P_{\text{surcharge}} + 1.00 P_p$
---	-----------------------------	--

Case 2: Structural Ultimate Design	$1.40 G_{\text{Soil}} + 1.40 G_{\text{Wall}} + 1.60 F_{V_{\text{Heel}}} + 1.00 P_a + 1.00 P_{\text{surcharge}} + 1.00 P_p$
------------------------------------	--

Geotechnical Design

Wall Stability - Virtual Back Pressure

Case 1 Overturning/Stabilising	7.484/22.122	0.338	OK
--------------------------------	--------------	-------	----

Wall Sliding - Virtual Back Pressure

$F_x / (R_{x_{\text{Friction}}} + R_{x_{\text{Passive}}})$	12.247 / (13.233 + 2.719)	0.768	OK
--	---------------------------	-------	----

Soil Pressure

Virtual Back (No uplift)	$\text{Max}(73.094/100, 6.080/100) \text{ kN/m}^2$	0.731	OK
--------------------------	--	-------	----

Wall Back 95.621/100 kN/m², Length under pressure 0.84 m 0.956 OK **Structural Design**

Masonry Wall Details

Partial Safety Factor (γ _{mc} /γ _{mf})	Units Category II, Execution Control Class 2	3/2.7	Table NA.1
---	--	-------	------------

_MasterSeries Sample Output

3 Castle Street
Carrickfergus,
County Antrim, BT38 7BE

Tel: (028) 9036 5950

Job ref : Job Ref
Sheet : Sheet Ref / 3 -
Made By :
Date : 23 May 2026/ Version 2015.04
Checked :
Approved :

Material	Concrete blocks, $\gamma=20 \text{ kN/m}^3$	0.47	
Units and Mortar Strength	7.3 N/mm ² , Mortar designation M12/(i)		
Blocks Ratio	Unit height=100, Least horizontal dimensions=215		
Compressive Strength (f_k)	Group 1	3.65 N/mm ²	Table NA.4

Wall Design (Inner Steel)

Critical Section	Critical @ 0 mm from base, Case 2 Steel Provided (Cover)		
H10@200 (50 mm)		393 mm ²	OK
Leverarm $z=\text{fn}(d,b,As,f_y,f_{yk})$	160 mm, 1000 mm, 393 mm ² , 500 N/mm ² , 3.7 N/mm ²	97 mm	
$M_r=\text{fn}(\text{above}, \gamma_{mf}, \gamma_{ms})$	2.70, 1.15	13.8 kN.m	
Moment Capacity Check (M/M _r)	M 7.6 kN.m, M _r 13.8 kN.m	0.546	OK
Shear Capacity Check	F 12.7 kN, f_{vk} 0.617 N/mm ² , F _{vr} 39.5 kN	0.32	OK

Base Top Steel Design

Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	OK
Compression Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	
Leverarm $z=\text{fn}(d,b,As,f_y,F_{cu})$	175 mm, 1000 mm, 393 mm ² , 500 N/mm ² , 30 N/mm ²	166 mm	
$M_r=\text{fn}(\text{above}, As', d', x, x/d)$	393 mm ² , 75 mm, 14 mm, 0.08	28.4 kN.m	
Moment Capacity Check (M/M _r)	M 7.8 kN.m, M _r 28.4 kN.m	0.275	OK
Shear Capacity Check	F 15.4 kN, v_c 0.502 N/mm ² , F _{vr} 87.8 kN	0.17	OK

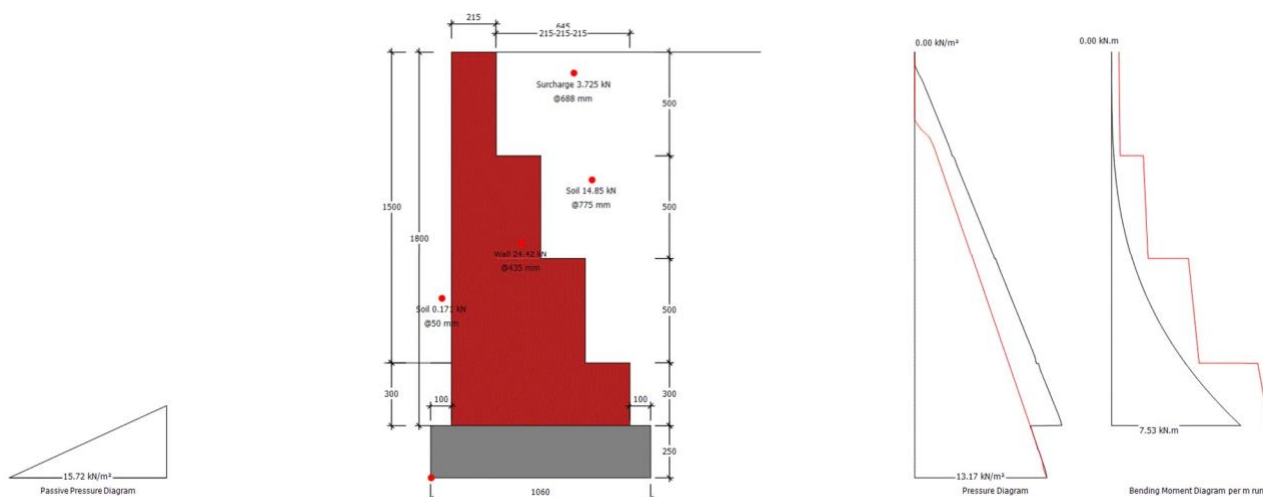
Base Bottom Steel Design

Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	OK
Compression Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	
Leverarm $z=\text{fn}(d,b,As,f_y,F_{cu})$	175 mm, 1000 mm, 393 mm ² , 500 N/mm ² , 30 N/mm ²	166 mm	
$M_r=\text{fn}(\text{above}, As', d', x, x/d)$	393 mm ² , 75 mm, 14 mm, 0.08	28.4 kN.m	
Moment Capacity Check (M/M _r)	M 0.5 kN.m, M _r 28.4 kN.m	0.016	OK

_MasterSeries Sample Output 3 Castle Street Carrickfergus, County Antrim, BT38 7BE Tel: (028) 9036 5950	
Job ref	: Job Ref Sheet : Sheet Ref / 4 -
Made By	:
Date	: 23 May 2026/ Version 2015.04 Checked
	:
Approved	:

MASTERKEY : RETAINING WALL DESIGN TO BS 8002 : 1994, BS EN 1996-1-1:2005+A1:2012 AND BS 8110 : 1997 Masonry retaining wall

Gravity Masonry Retaining Wall with Reinforced Concrete Base



Summary of Design Data

EC6 National Annex UK Notes All dimensions are in mm and all forces are per metre run Material Densities
(kN/m³) Soil 18.00, Concrete 24.00, Masonry 20.00 Concrete grade fcu 30 N/mm², Permissible tensile stress 0.250 N/mm²

Concrete covers (mm) Base cover 70 mm
Reinforcement design fy 500 N/mm², fyb 500 N/mm² designed to BS 8110: 1997 Surcharge and Water Table
Surcharge 5.00 kN/m², Fully drained
Unplanned excavation depth Front of wall 205 mm
† The Engineer must satisfy him/herself to the reinforcement detailing requirements of the relevant codes of practice

Soil Properties

Bearing pressure Premissable service pressure @ front 100.00 kN/m², @ back 100.00 kN/m² Back Soil Friction and Cohesion $\phi =$
 $\text{Atn}(\tan(25)/1.2) = 21.24^\circ$, $c = 3/1.5 = 2 \text{ kN/m}^2$ Base Friction and Cohesion $\delta = \text{Atn}(0.75 \times \tan(\text{Atn}(\tan(25)/1.2))) = 16.25^\circ$, $c =$
 $0.75 \times 3/1.5 = 1.5 \text{ kN/m}^2$

Front Soil Friction and Cohesion $\phi = \text{Atn}(\tan(30)/1.2) = 25.69^\circ$ **Loading Cases**

G_{Soil} - Soil Self Weight, G_{Wall} - Wall & Base Self Weight, $F_{V\text{Heel}}$ - Vertical Loads over Heel, P_a - Active Earth Pressure, $P_{\text{surcharge}}$ - Earth pressure from surcharge, P_p - Passive Earth Pressure Case 1: Geotechnical Design $1.00 G_{\text{Soil}} + 1.00 G_{\text{Wall}} + 1.00 F_{V\text{Heel}} + 1.00 P_a + 1.00 P_{\text{surcharge}} + 1.00 P_p$

Case 2: Structural Ultimate Design $1.40 G_{\text{Soil}} + 1.40 G_{\text{Wall}} + 1.60 F_{V\text{Heel}} + 1.00 P_a + 1.00 P_{\text{surcharge}} + 1.00 P_p$

Geotechnical Design

Wall Stability - Virtual Back Pressure

Case 1 Overturning/Stabilising 7.484/22.664 0.330 OK

Wall Sliding - Virtual Back Pressure

$F_x / (R_{x\text{Friction}} + R_{x\text{Passive}})$ 12.247/(13.231+2.719) 0.768 OK

Soil Pressure

Virtual Back (No uplift) Max(69.661/100, 5.699/100) kN/m² 0.697 OK

Wall Back 89.813/100 kN/m², Length under pressure 0.889 m 0.898 OK **Structural Design**

Masonry Wall Details

Partial Safety Factor (ymc/ymf) Units Category II, Execution Control Class 2 3/2.7 Table NA.1

_MasterSeries Sample Output

3 Castle Street
Carrickfergus,
County Antrim, BT38 7BE

Tel: (028) 9036 5950

Job ref : Job Ref
Sheet : Sheet Ref / 5 -
Made By :
Date : 23 May 2026/ Version 2015.04
Checked :
Approved :

Material	Concrete blocks, $\gamma=20 \text{ kN/m}^3$	0.47	
Units and Mortar Strength	7.3 N/mm ² , Mortar designation M12/(i)		
Blocks Ratio	Unit height=100, Least horizontal dimensions=215		
Compressive Strength (f_k)	Group 1	3.65 N/mm ²	Table NA.4

Wall Design (Inner Face Tension)

Critical Section	Critical @ 300 mm from base, Case 2		
Section Properties @ 300 mm	t=645 mm, Area=6450 cm ² , Zb=69337 cm ³		
Flexural Strength f_{xk1}	$f_{xk1}=0.15$, $gd=0.02 \text{ N/mm}^2$, $f_{xk1}=f_{xk1}+0.9 \text{ gd} \cdot \gamma_m f$	0.199 N/mm ²	Table NA.6
$M_r=f_{xk1} \cdot Z_b/\gamma_m f$	0.199x69337/2.7	5.1 kN.m	
Moment Capacity Check (M/M _r)	M 4.3 kN.m, M _r 5.1 kN.m	0.840	OK
Shear Capacity Check	F 8.9 kN, $f_{vk}0.208 \text{ N/mm}^2$, F _{vr} 53.7 kN	0.16	OK

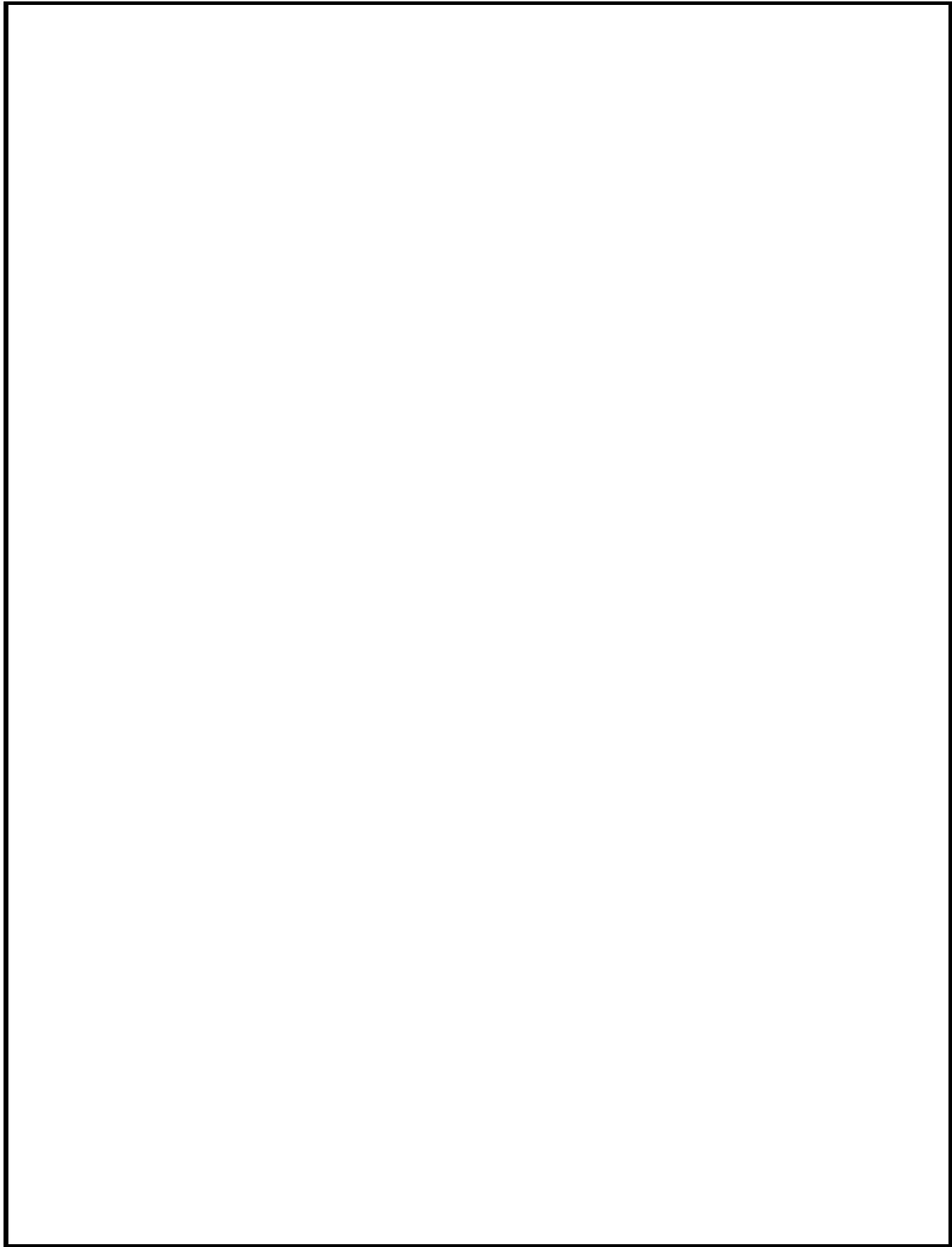
Base Top Steel Design

Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	OK
Compression Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	
Leverarm $z=fn(d,b,As,f_y,F_{cu})$	175 mm, 1000 mm, 393 mm ² , 500 N/mm ² , 30 N/mm ²	166 mm	
$M_r=fn(\text{above}, As', d', x, x/d)$	393 mm ² , 75 mm, 14 mm, 0.08	28.4 kN.m	
Moment Capacity Check (M/M _r)	M 0.3 kN.m, M _r 28.4 kN.m	0.009	OK
Shear Capacity Check	F 5.1 kN, $vc 0.502 \text{ N/mm}^2$, F _{vr} 87.8 kN	0.06	OK

Base Bottom Steel Design

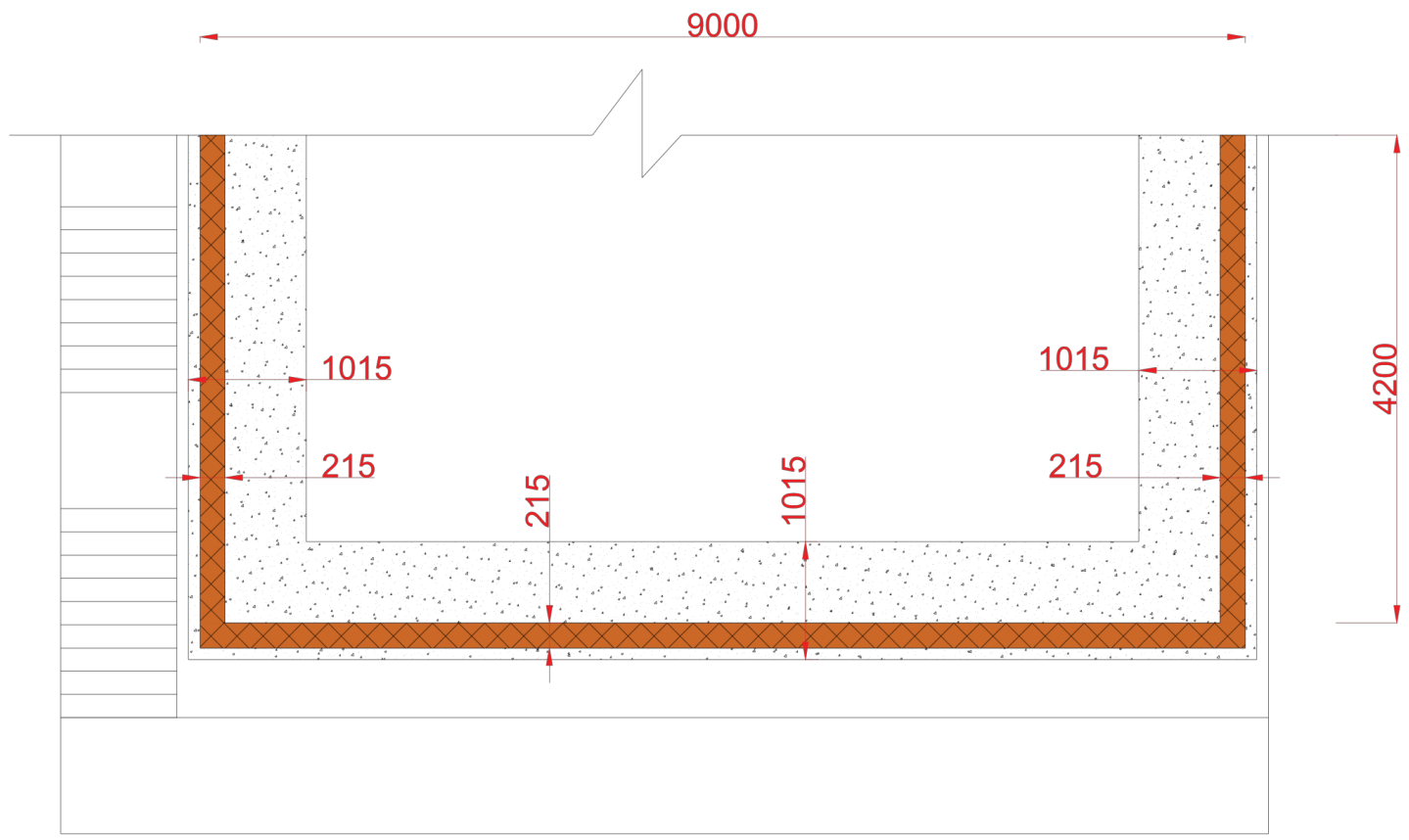
Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	OK
Compression Steel Provided (Cover)	Main H10@200 (70 mm) Dist. H10@200 (80 mm)	393 mm ²	
Leverarm $z=fn(d,b,As,f_y,F_{cu})$	175 mm, 1000 mm, 393 mm ² , 500 N/mm ² , 30 N/mm ²	166 mm	
$M_r=fn(\text{above}, As', d', x, x/d)$	393 mm ² , 75 mm, 14 mm, 0.08	28.4 kN.m	
Moment Capacity Check (M/M _r)	M 0.4 kN.m, M _r 28.4 kN.m	0.015	OK

MasterSeries Sample Output 3 Castle Street Carrickfergus, County Antrim, BT38 7BE Tel: (028) 9036 5950	
	Job ref : Job Ref Sheet : Sheet Ref / 6 - Made By : Date : 23 May 2026/ Version 2015.04 Checked : Approved :



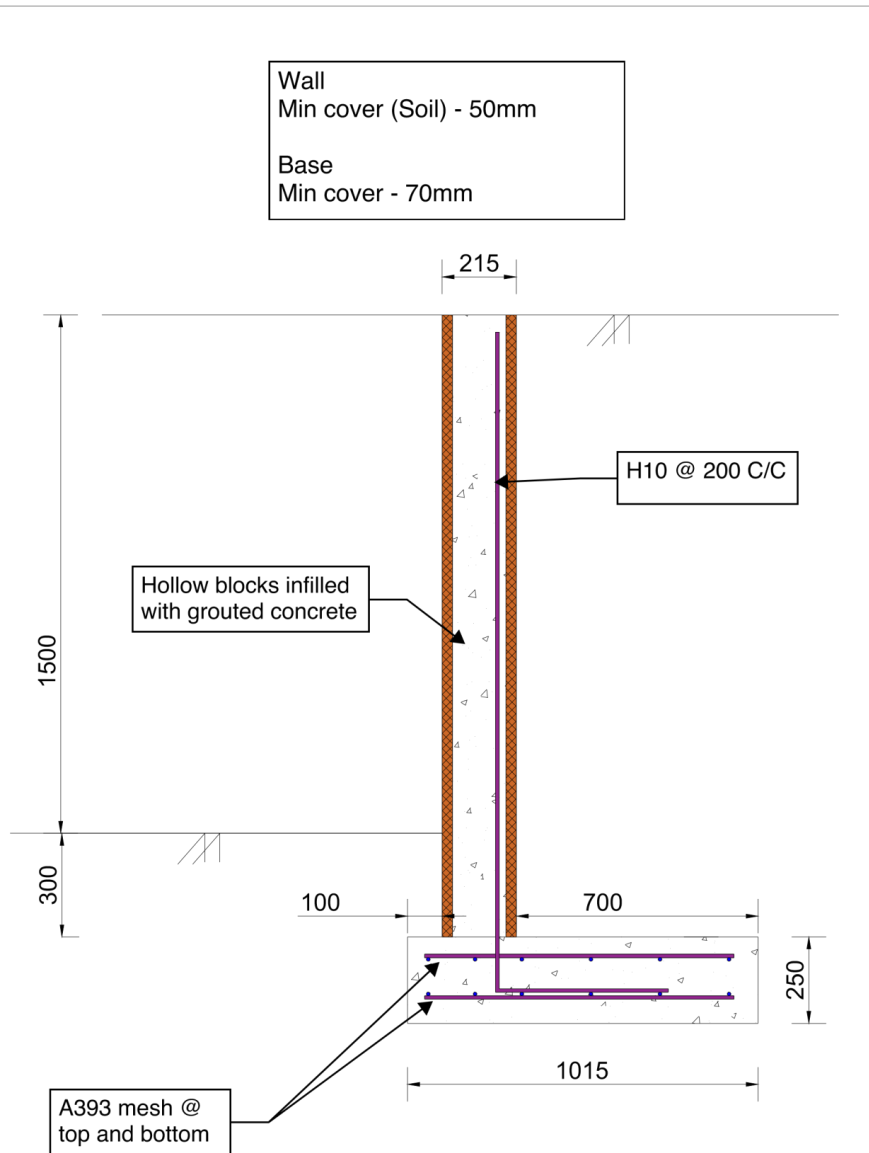
Note : Contractor must take his own measurements prior to ordering any structural material.

- NOTES:
- 1. ALL DIMENSIONS IN mm UNLESS NOTED OTHERWISE.
 - 2. DO NOT SCALE FROM THIS DRAWING.
 - 3. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCING WORKS



PLAN SHOWING NEW RETAINING WALL

 AUXILIUM STRUCTURAL ENGINEERING Mobile: +44 745819500 Email: design@auxilium.co.uk	
Client Cerys Lewis	
Project 62 twelfth Avenue Galon uchaf Merthyr Tydfil CF479td	
Drawing Title Plan showing new retaining wall	
Drawing Status For Construction	
Drawn By: MK	Date: 23/05/2026
Checked By:	Date:
Design Stage:	Scale:

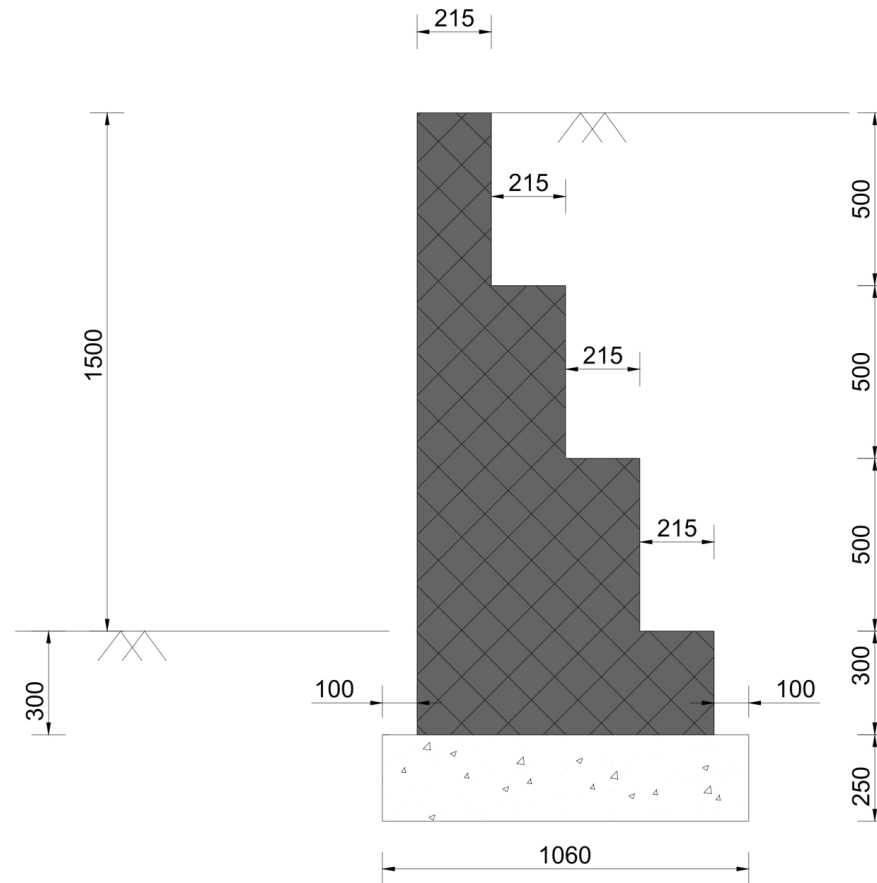


Retaining wall option 1
Reinforced hollow blocks with
concrete filled cavity

Note : Contractor must take his own measurements prior to ordering any structural material.

NOTES:

1. ALL DIMENSIONS IN mm UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING.
3. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCING WORKS



Retaining wall option 2
Block wall (Block laid flat)

	
Client	Cerys Lewis
Project	62 twelfth Avenue Galon uchaf Merthyr Tydfil Cf479td
Drawing Title	Retaining wall sections
Drawing Status	For Construction
Drawn By:	Date:
Checked By:	Date:
Contract No:	Scale:



AUXILIUM

Structural Engineering And CAD Services

design@auxiliumse.com

www.auxiliumse.com

50 Quarry Row,
Merthyr Tydfil
CF47 8PS