

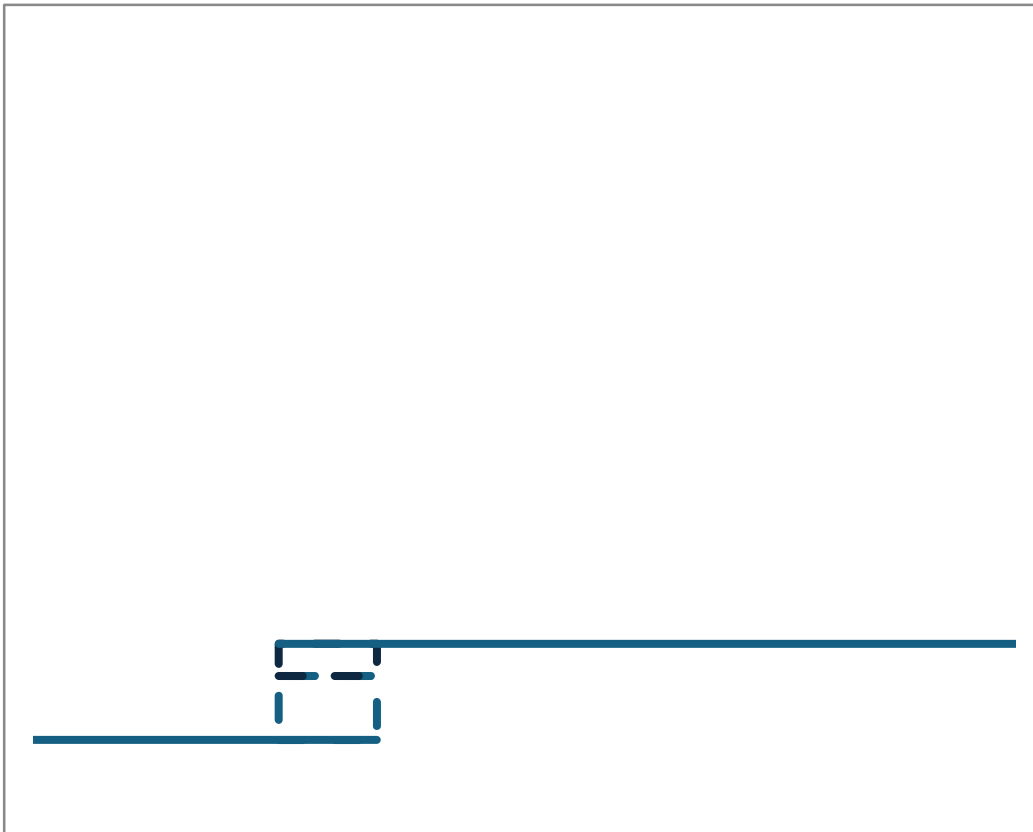
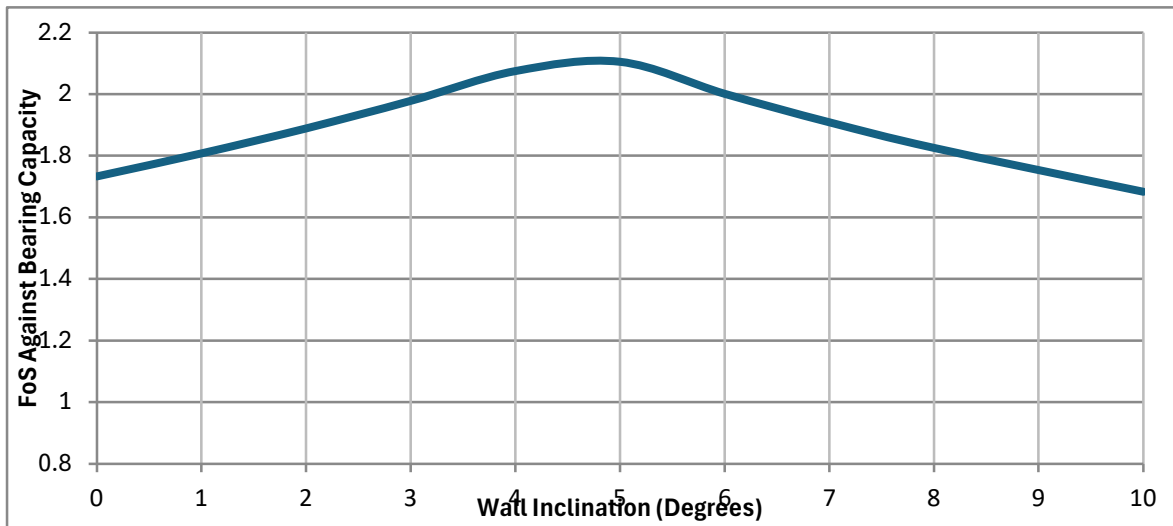
MJ Civil Engineering	Project:	40 Sweetwater Park		By:MAJ
	Calculation:	1.5m high 0 degree Gabion Wall Design		
	Sheet Number:	1	Date: 13.07.2025	Rev A
				Approved: JAJ

<u>Gabion Wall Geometry</u>			
Gabion Level 1	Width	1	m
	Height	1	m
Gabion Level 2	Width	1	m
	Height	0.5	m
Gabion Level 3	Step Between Level 1 & 2	0	m
	Width	0	m
	Height	0	m
Gabion Level 4	Step Between Level 2 & 3	0	m
	Width	0	m
	Height	0	m
Gabion Level 5	Step Between Level 3 & 4	0	m
	Width		m
	Height		m
Gabion Level 6	Step Between Level 4 & 5		m
	Width		m
	Height		m
Gabion Level 7	Step Between Level 5 & 6		m
	Width		m
	Height		m
Gabion Level 8	Step Between Level 6 & 7		m
	Width		m
	Height		m
Gabion Level 9	Step Between Level 7 & 8		m
	Width		m
	Height		m
Wall Inclination		0	Degrees
Slope of Retained Material		0	Degrees

<u>Other Details</u>			
Unit Weight of Gabions		18.00	kN/m ³
Friction Angle Between Gabions		35	Degrees
Loading - Variable Surcharge		5.00	kN/m ²
Soil Characteristic Effective Shearing Resistance Angle		34	Degrees
Soil Characteristic Saturated Density		18.00	kN/m ³
Coefficient for Wall Friction		0.75	
Wall Friction Angle		35	Degrees
Characteristic Base Friction Angle		34	Degrees
Bearing Capacity of Underlying Soil		100	kN/m ²

MJ Civil Engineering	Project: 40 Sweetwater Park		By: MAJ	
	Calculation: 1.5m high 0 degree Gabion Wall Design		Approved:	
	Sheet Number:	2	Date: 13.07.2025	Rev A
				JAJ
	Results			
	Pressures @ Base			
	Total Unfactored Overturning Force	4.25	kN/m	
	Total Unfactored Restoring Force	25.43	kN/m	
	Eccentricity	0.04	Reaction Within Middle Third of Base	
	Pressure at Toe	57.68	kN/m ²	
	Pressure at Heel	34.70	kN/m ²	
	Factor of Safety	1.73		
	Allowable Factor of Safety	1.00	Pass	
	Design Approach 1			
	Partial Factors on Actions - Section A.3.1 - Combination 1			
	Action Factor Set - A1			
	Permanent unfavourable action	1.35		
	Permanent favourable action	1.00		
	Variable unfavourable action	1.50		
	Variable favourable action	0.00		
	Partial factors for soil parameters - Section A.3.2 - Combination 1			
	Soil Factor Set - M1			
	Angle of Shearing Resistance	1.00		
	Weight Density	1.00		
	Whole Structure			
	Overturning Moment	7.5kN	Overturning Resistance	21.18kN
	Factor of Safety	2.82	Allowable FoS	1.00 Pass
	Sliding Force	13.09kN	Sliding Resistance	25.98kN
	Factor of Safety	1.98	Allowable FoS	1.00 Pass
	Check Overturning & Sliding Between Courses 1 & 2			
	Overturning Moment	0.07kN	Overturning Resistance	8.62kN
	Factor of Safety	116.86	Allowable FoS	1.00 Pass
	Sliding Force	0.35kN	Sliding Resistance	10.63kN
	Factor of Safety	30.65	Allowable FoS	1.00 Pass
	Check Overturning & Sliding Between Courses 2 & 3			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 3 & 4			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 4 & 5			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 5 & 6			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 6 & 7			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 7 & 8			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00
	Check Overturning & Sliding Between Courses 8 & 9			
	Overturning Moment		Overturning Resistance	
	Factor of Safety		Allowable FoS	1.00
	Sliding Force		Sliding Resistance	
	Factor of Safety		Allowable FoS	1.00

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	Sheet Number:		3	Date: 13.07.2025	Rev A	
Design Approach 1						
Partial Factors on Actions - Section A.3.1 - Combination 2						
Action Factor Set - A2						
Permanent unfavourable action				1.00		
Permanent favourable action				1.00		
Variable unfavourable action				1.30		
Variable favourable action				0.00		
Partial factors for soil parameters - Section A.3.2 - Combination 2						
Soil Factor Set - M2						
Angle of Shearing Resistance				1.25		
Weight Density				1.00		
Whole Structure						
Overturning Moment		7.14kN	Overturning Resistance	21.38kN		
Factor of Safety		2.99	Allowable FoS	1.00	Pass	
Sliding Force		12.28kN	Sliding Resistance	20.95kN		
Factor of Safety		1.71	Allowable FoS	1.00	Pass	
Check Overturning & Sliding Between Courses 1 & 2						
Overturning Moment		0.25kN	Overturning Resistance	7.95kN		
Factor of Safety		31.35	Allowable FoS	1.00	Pass	
Sliding Force		1.18kN	Sliding Resistance	14.18kN		
Factor of Safety		6.76	Allowable FoS	1.00	Pass	
Check Overturning & Sliding Between Courses 2 & 3						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 3 & 4						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 4 & 5						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 5 & 6						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 6 & 7						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 7 & 8						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		
Check Overturning & Sliding Between Courses 8 & 9						
Overturning Moment			Overturning Resistance			
Factor of Safety			Allowable FoS	1.00		
Sliding Force			Sliding Resistance			
Factor of Safety			Allowable FoS	1.00		



Results Sumamry

Eccentricity Reaction within Middle Third of Base
 Bearing Capacity FoS **1.73**

Combintion 1	Overturning	Sliding
Whole Structure	2.82	1.98
Between Levels 1 & 2	116.86	30.65

Combintion 2	Overturning	Sliding
Whole Structure	2.99	1.71
Between Levels 1 & 2	31.35	6.76