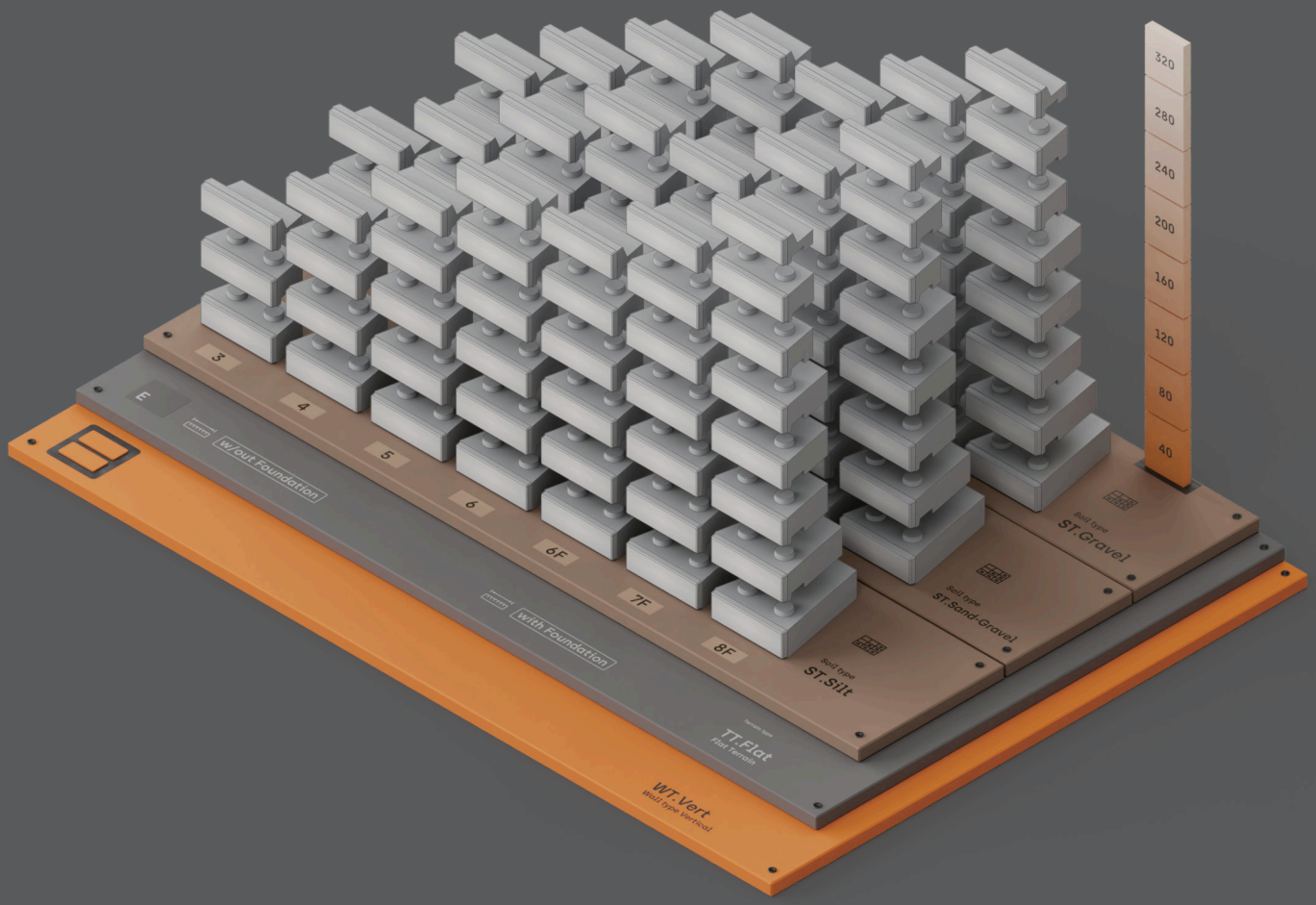
easyblock

Retaining Wall structural analysis for the Easyblock Retaining Wall System

Efficient construction with the modular Easyblock block system

V1 / 04.2026



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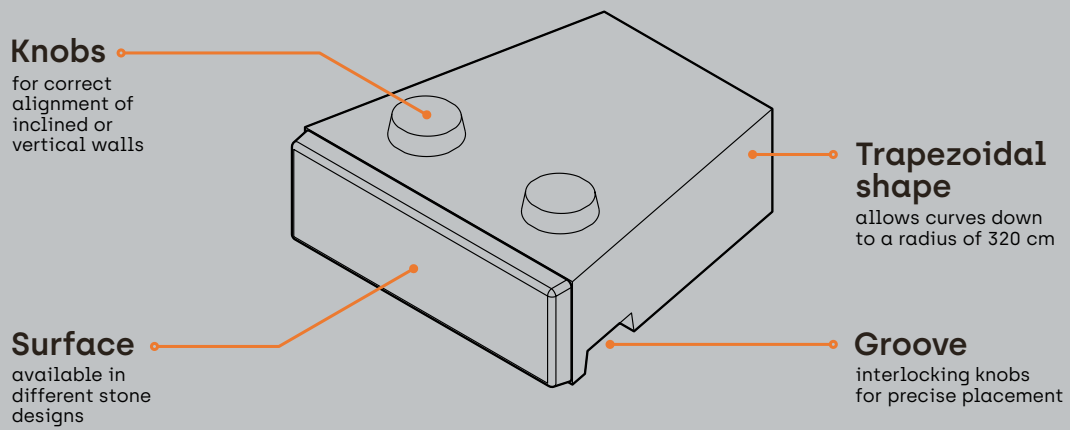
European system solution for retaining walls

Modular block system with 23 block types

Block architecture



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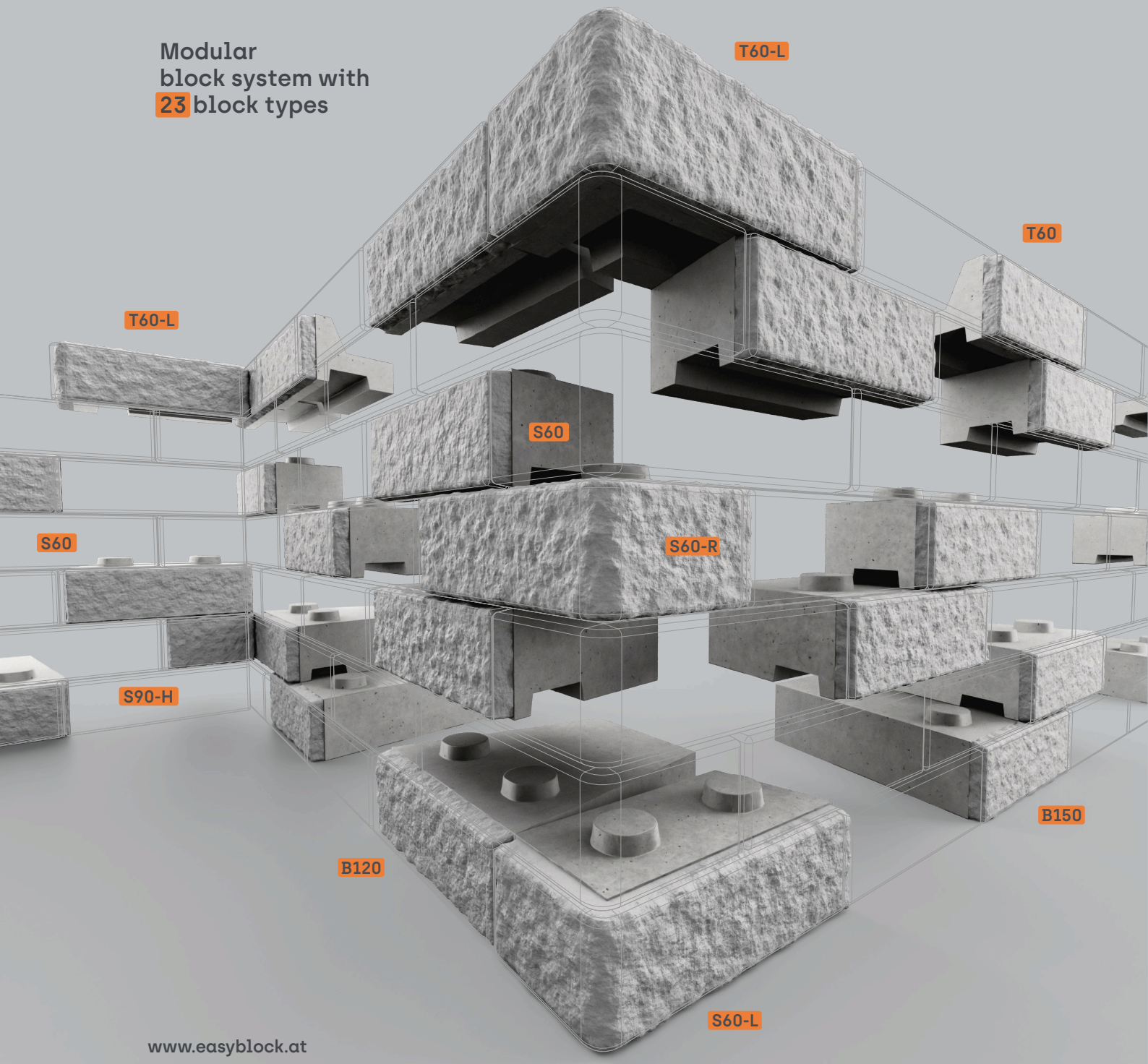
Modular block system with 23 block types



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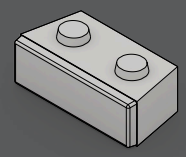
Structural analysis for the Easyblock retaining wall system

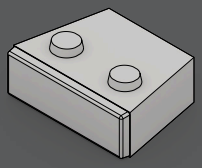
Easyblock block system – 23 blocks in 3 groups

Each block is 40 cm high.

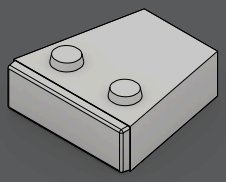
Base Blocks



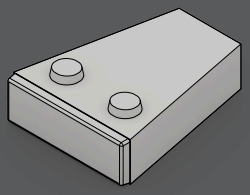
B60
639 kg
120 × 60 cm



B90
904 kg
120 × 90 cm

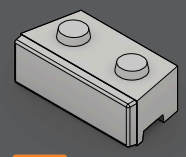


B120
1.077 kg
120 × 120 cm

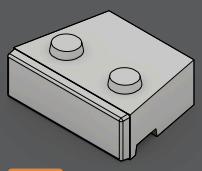


B150
1.240 kg
120 × 150 cm

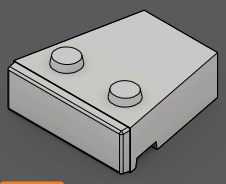
Standard Blocks



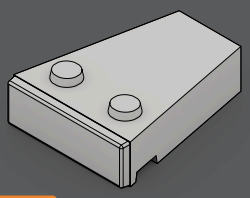
S60
585 kg
120 × 60 cm



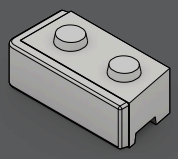
S90
850 kg
120 × 90 cm



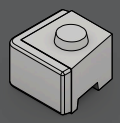
S120
1.005 kg
120 × 120 cm



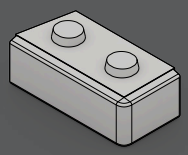
S150
1.190 kg
120 × 150 cm



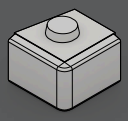
S60-L
613 kg
120 × 60 cm



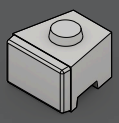
S60-LH
296 kg
60 × 60 cm



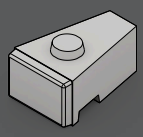
S60-R
613 kg
120 × 60 cm



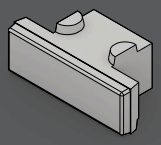
S60-RH
296 kg
60 × 60 cm



S60-H
267 kg
60 × 60 cm

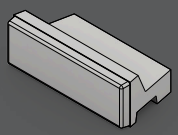


S90-H
362 kg
60 × 90 cm

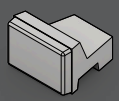


S60-FB
389 kg
120 × 60 cm

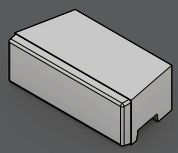
Top Blocks



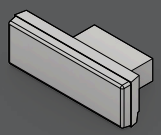
T60
381 kg
120 × 60 cm



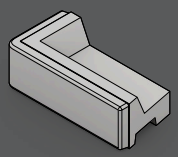
T60-H
178 kg
60 × 60 cm



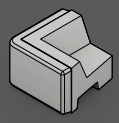
T60-F
530 kg
120 × 60 cm



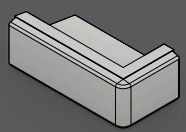
T60-FB
281 kg
120 × 60 cm



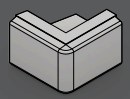
T60-L
438 kg
120 × 60 cm



T60-LH
234 kg
60 × 60 cm



T60-R
438 kg
120 × 60 cm



T60-RH
234 kg
60 × 60 cm

Easyblock Wall Statics

This document contains structural analysis in the form of assembly diagrams demonstrating the stability of an Easyblock retaining wall, based on different wall types, site conditions and their load cases, and soil types.

This structural analysis document is valid exclusively in conjunction with the wall construction document and the introductory document for the block system. The verifications and calculations contained herein presuppose the complete and professional implementation of all specifications from the aforementioned documents.

Block system

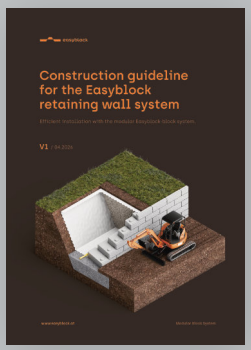
European system solution for retaining walls

An introduction to the Easyblock-Blocksystem is available in our Easyblock-blocksystem.pdf document.

Wall Construction

Construction guidelines for erecting an Easyblock retaining wall

Steps for erecting an Easyblock retaining wall in our Easyblock-wall-construction-guidelines.pdf document



1. Application: Easyblock structural analysis

During the development process, various wall types were combined with different load cases and predefined soil types and analysed mathematically. The resulting tables of structural configurations enable the selection of a suitable wall structure under specified boundary conditions. The application of this standardised structural analysis requires that the project-specific ground and load parameters correspond to the assumptions defined in this document.

Below is an explanation of the conditions under which the structural diagrams in this document can be used.

A

Geotechnical site investigation and determination of site parameters

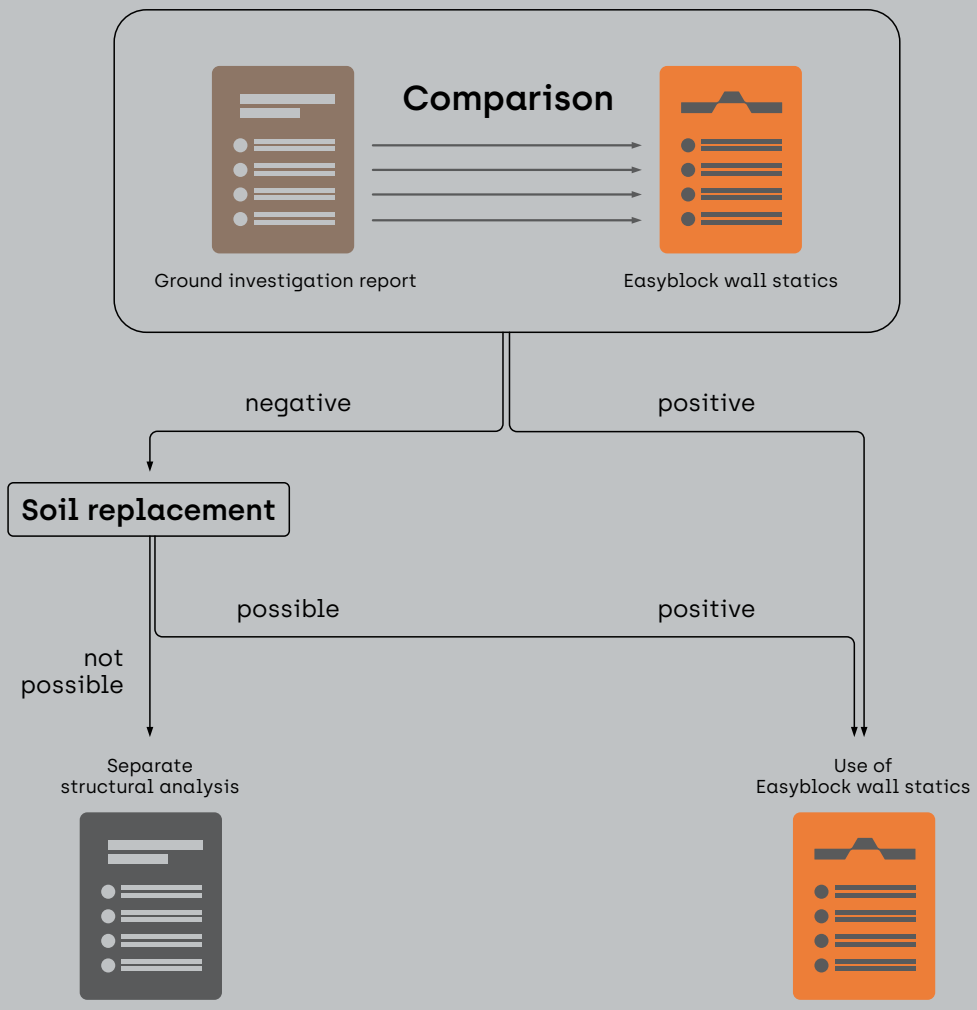
A detailed site analysis is required for the design and construction of a retaining wall. In a geotechnical report, all relevant site parameters are systematically recorded, evaluated and documented.

- Soil classification
- Bearing capacities
- Groundwater conditions
- Friction coefficients

B

Comparison of the ground investigation report with Easyblock wall statics

The ground parameters determined in the report are then compared with the parameters in this wall statics analysis.



If the required or specified soil properties cannot be verified by a geotechnical report, a structural calculation is required for the deviating conditions of the retaining wall system. In this case, we recommend consulting the supplier.

If the slope type and soil type defined in the report correspond to the parameters of the Easyblock wall statics, the wall type, foundation variant and necessary block types for the desired wall height can be selected from the construction diagram. The soil must be chosen that is on the safer side compared to the report.

2. Investigated site parameters

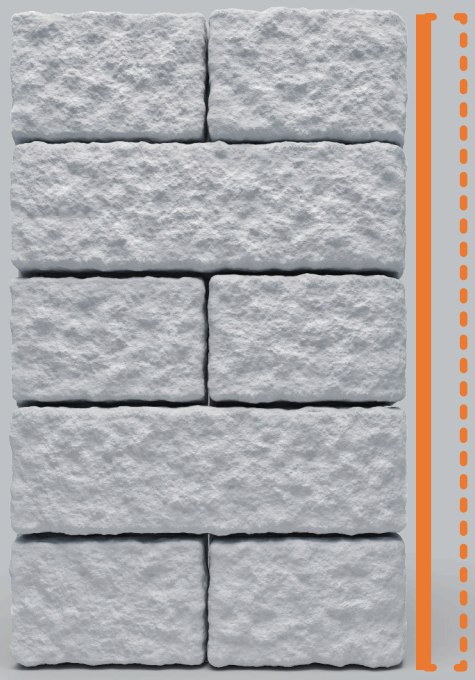
2.1 Wall types

There are three different types of retaining wall, each of which offers varying levels of stability depending on the construction method and therefore allows for different wall heights.

Gravity wall

TT.Vert

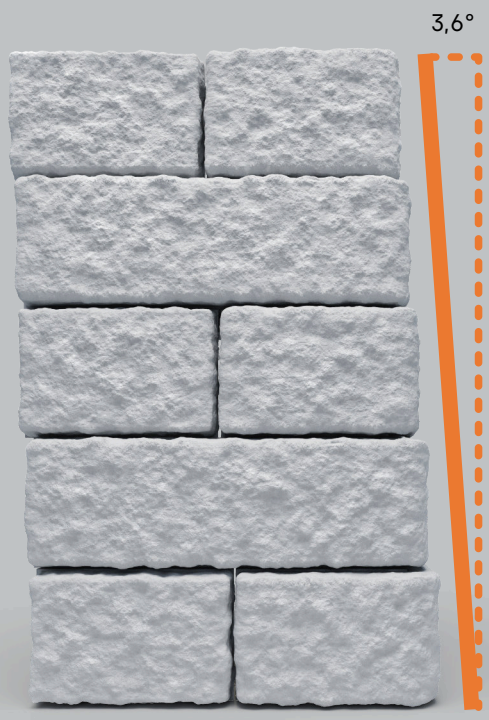
Gravity Wall
Vertical



In a vertical gravity wall, the blocks are positioned directly one above the other. This is the simplest construction method with the lowest wall heights.

TT.Incl

Gravity Wall
Inclined



In the case of a sloped gravity wall, the blocks are set back in each row. This results in a wall inclination of 3.6°. The setback allows for greater wall heights to be achieved.

As a rule, most walls up to a height of approximately 3.60 m are constructed as vertical or sloping gravity walls. Compared to geogrid walls, gravity walls require less excavation. For taller walls and walls with complex ground conditions, it is recommended to consult a geotechnical expert for the assessment and design of the wall.

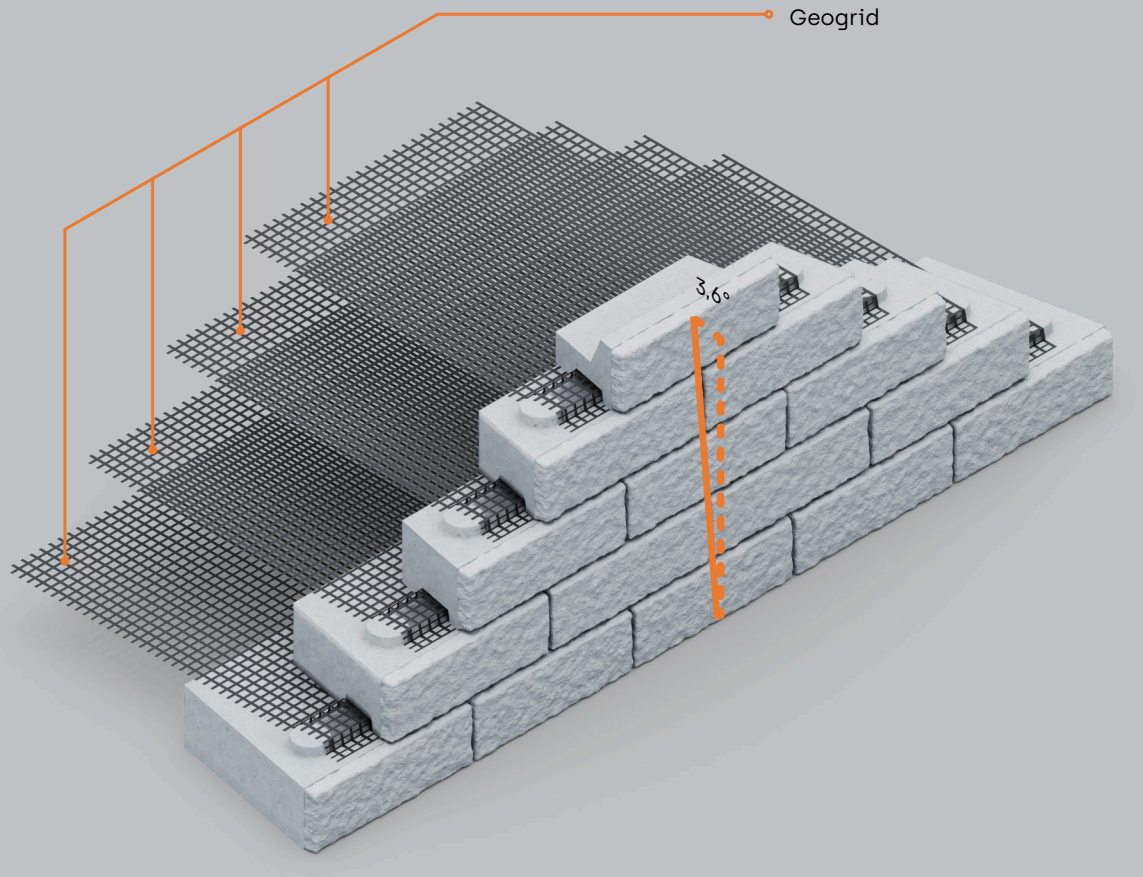
Geogrid walls are generally used for taller walls or under heavy loads, such as on roads, infrastructure projects, bridge abutments, etc. Furthermore, the use of geogrid walls is also efficient in applications where there is ample space available in the area of the planned retaining wall.

Geogrid Wall

TT.Grid

Geogrid Wall

Inclined



In a geogrid wall, a geogrid is inserted into the joints between the individual blocks. This ensures greater stability and allows for the construction of walls of the greatest possible height.

2.2 Terrain types and load cases

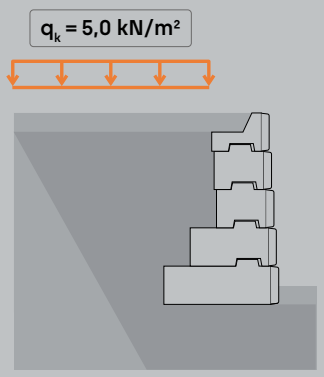
Flat terrain

Sloping terrain

E

TT.Flat

Flat terrain

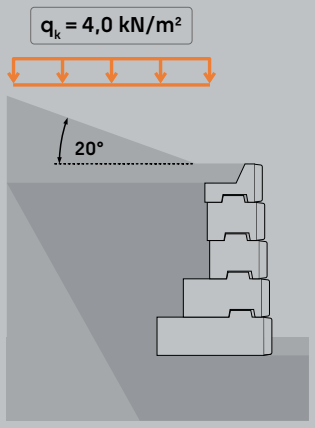


For the 'flat terrain' load case, a uniformly distributed, variable surface load of 5.0 kN/m² (500 kg/m²) and a terrain surface inclination angle ß of 0° are assumed. The design is carried out for up to five rows of blocks and a maximum height of 1.80 m using active earth pressure; above this, the assumed earth pressure consists of 80% active earth pressure and 20% passive earth pressure.

H20°

TT.Slope 20°

Slope 20°

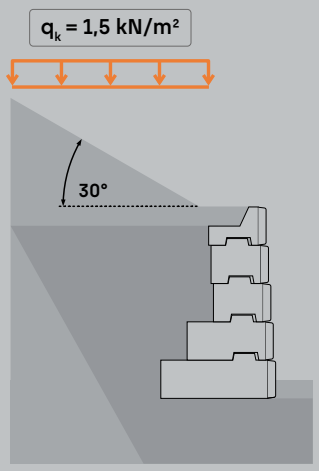


For the load case with a 20° slope, a uniformly distributed, variable surface load of 4.0 kN/m² (400 kg/m²) and a slope angle ß of 20° is assumed. The design is carried out for up to five rows of blocks and a maximum height of 1.80 m using active earth pressure; above this, the assumed earth pressure consists of 80% active earth pressure and 20% passive earth pressure.

H30°

TT.Slope 30°

Slope 30°



For the load case with a 30° slope, a uniformly distributed, variable surface load of 1.5 kN/m² (150 kg/m²) and a slope angle ß of 30° is assumed. The design is based on active earth pressure for up to five courses of blocks and a maximum height of 1.0 m; above this, the assumed earth pressure consists of 80% active earth pressure and 20% passive earth pressure.

For all the terrain types listed and their load cases, the horizontal component of a potential rail load (when using a fall protection system, e.g. a fence) at the top of the retaining wall was assumed to be 1.00 kN/m. The transfer of the horizontal component from the rail load has thus been verified. Structural measures must be taken to transfer the bending moment from the rail load.

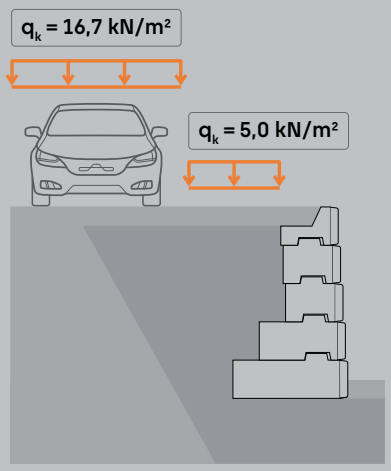
Road terrain

Terrain with larger loads

S16

TT.Road 16,7 kN

Road 16,7 kN

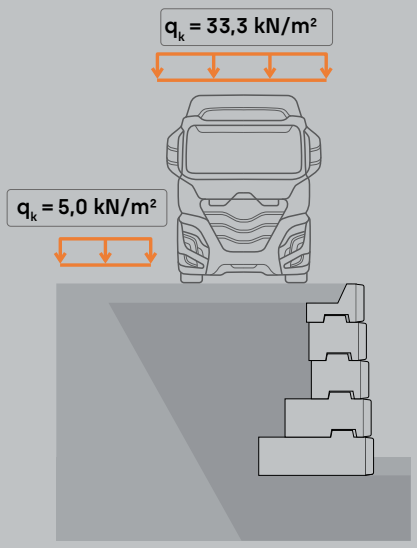


Two uniformly distributed variable surface loads of 5,0 and 16,7 kN/m² (500 and 1.670 kg/m²) are considered. These are intended to represent different traffic load models in a simplified manner. Verification of the applicable and required design traffic loads in accordance with relevant standards, based on the above-mentioned surface loads, is mandatory. The earth pressure consists of 50% active earth pressure and 50% at-rest earth pressure.

S33

TT.Road 33,3 kN

Road 33,3 kN



Two uniformly distributed variable surface loads of 33,33 and 5,0 kN/m² (3.330 and 500 kg/m²) are considered. These are intended to represent the SLW traffic load model in a simplified manner. Verification of the applicable and required design traffic loads in accordance with relevant standards, based on the above-mentioned surface loads, is mandatory. No impact or braking forces acting normal to the wall have been considered in the design. Furthermore, the joints of the top three block courses must be permanently bonded using a suitable method to ensure structural load transfer. When using an adhesive or bonding mortar, the tensile bond strength of the adhesive must exceed the tensile strength of the concrete. The earth pressure consists of 50% active earth pressure and 50% at-rest earth pressure.

Deviating loads

If covered parking spaces are to be constructed on the wall, the area required for the canopy per vehicle must be at least 2.50 m × 5.00 m.

It would therefore be possible to arrange parking spaces on the higher side of the retaining wall, provided that the maximum load specifications are adhered to and monitored (vehicle live loads in accordance with ÖNORM EN 1991-1-1 or DIN EN 1991-1-1, snow loads, structural design, etc.).

For higher live loads or adjacent traffic areas, the load case 'Road 16.7 kN' or 'Road 33.3 kN' may be applied. A structural analysis must be carried out by a competent and qualified person.

Any deviations in terms of higher live loads, angles of inclination and earth pressures have not been addressed and require a separate structural analysis.

2.3 Soil types

Silt

Sand-Gravel

Gravel

ST.Silt

ST.Sand-Gravel

ST.Gravel

Properties		ST.Silt	ST.Sand-Gravel	ST.Gravel	Subgrade Frost pocket and backfill
Density γk	[kN/m³]	19,0	19,5	19,5	20,0 - 21,0
Effective density γ'k	γ'k [kN/m³]	10	9,5	9,5	-
Friction angle φ	[°]	25,0	32,0	35,0	≥ 35,0
Cohesion c	[kN/m²]	5,0	2,0	2,0	0,0
Max. base pressure Gravity wall	[kN/m²]	150,0	200,0	250,0	-
Max. base pressure Geogrid wall	[kN/m²]	200,0	250,0	275,0	-

The groundwater table was assumed to be 2.0 m below the ground level. Consequently, no buoyancy calculations were carried out. Separate design calculations must be carried out for use in lakeside/shoreline areas or where groundwater is present.

3. Further notes on structural analysis

3.1 Stability analyses and standards

In Germany in accordance with DIN EN 1997-1, DIN EN 1997-1/NA and DIN 1054 for design situation BS-P and in Austria, the verification is carried out in accordance with ÖNORM EN 1997-1 or ÖNORM B 1997-1 for design situation BS1 and damage consequence class CC2.

BS1 or BS-P – Permanent design situation
Situations corresponding to the normal conditions of use of the structure. These include all actions and combinations of actions to be expected during normal operation, such as permanent loads, regularly occurring live loads and traffic loads as well as snow, groundwater and wind.

CC2 – Consequence class 2
Risk to human life and/or significant economic consequences (e.g. embankments and slope stabilisation on transport routes, flood retention dams).

Verification at the limit state of bearing capacity:
- Resultant forces at the centre of the wall cross-section
- Sliding (GEO-2)
- Ground failure (GEO-2)
- Material failure (STR)
- Tipping (EQU) (Foundation and rows of stones)

Verification at the serviceability limit state:
- Base surface (no gaping joint)

3.2 Notes on gravity walls and geogrid walls

- Active and passive earth pressures are determined in accordance with 2.2. Site types and load cases, taking into account a wall friction angle of 2/3 φ. Due to the chosen calculation principles, wall movements cannot be ruled out.

- In order to ensure that the design requirements and safety factors are met, the project-specific boundary conditions must correspond to the calculation principles. For example, the soil properties of the backfill must at least correspond to the used parameters in the calculation. Furthermore, the soil at the base or foundation level of the retaining wall must correspond to the soil parameters of the static input parameters. Topsoil may only be applied above the statically required embedment depth.

- No seismic effects were taken into account in the design calculations carried out. In accordance with ÖNORM B 1997-1-5 and ÖNORM B 1998-1, verification for the seismic design case is required in the following instances:
  1. Earthquake zone 3: Damage consequence class CC3
  2. Earthquake zone 4: Damage consequence classes CC2 and CC3
  In this case, separate calculations must be carried out by an authorised company. In Germany, verification for the design case of earthquakes may be omitted in the case of "very low seismicity" in accordance with DIN EN 1998-1 or DIN EN 1998-1/NA. In all other cases, verification must be provided.

- The calculated resistance to sliding and ground failure is maintained provided that the lowest block has at least the specified embedment depth and dimensions, and the underlying frost-resistant material has been installed in accordance with the specifications and requirements, or the specified base pressures can be absorbed by the adjacent soil. Should any pipes be laid retrospectively at the front or structural work be carried out in this area, the corresponding resistance to sliding and ground failure is no longer guaranteed. Should any work that could compromise stability nevertheless be carried out at the front, this must only be carried out in small sections using the "open-close" method and with the involvement of a competent person.

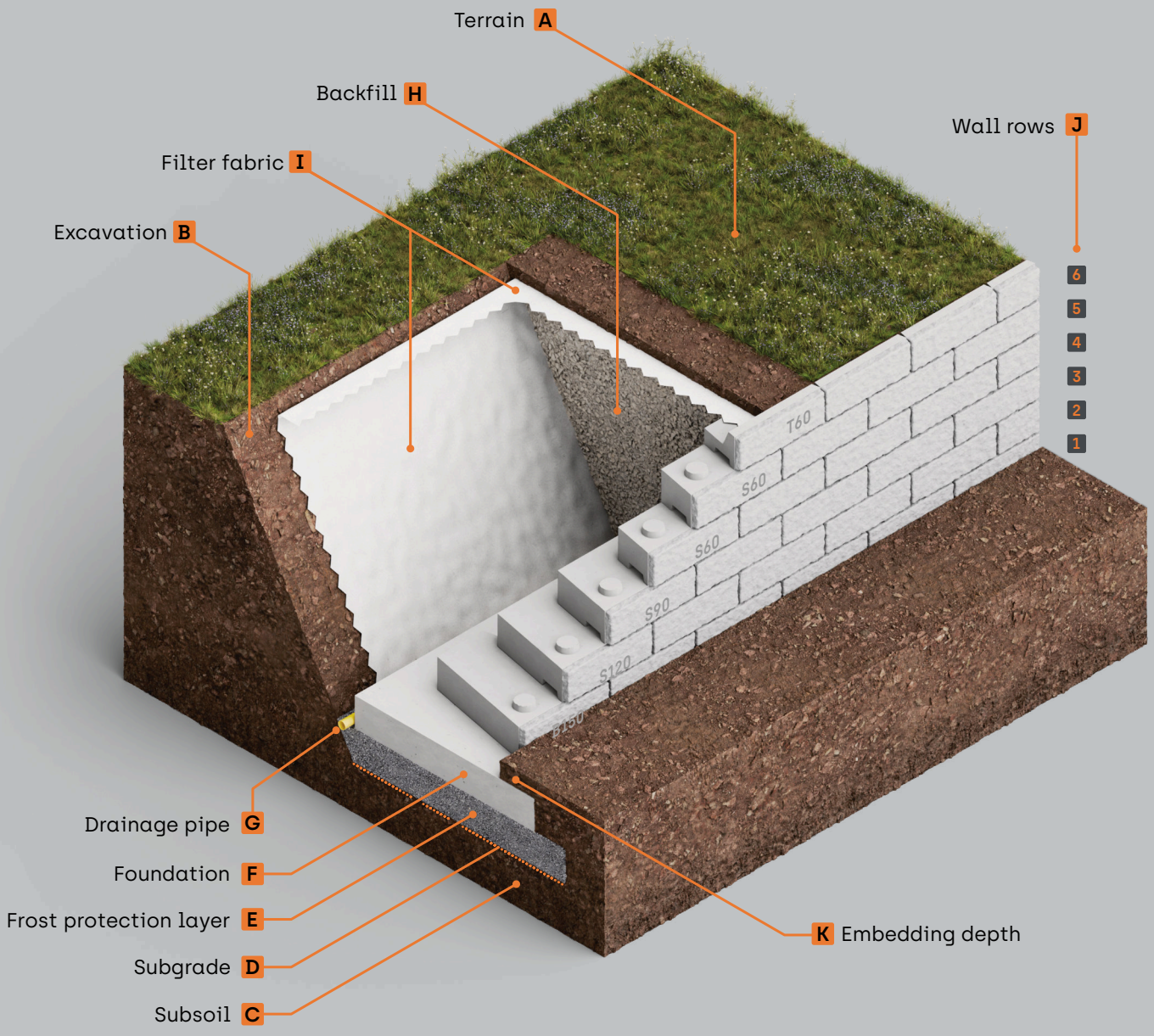
3.3 Special notes on geogrid retaining walls

- For the construction of a retaining wall system using geogrids, it is recommended to use a geogrid product that meets at least the specifications of the Miragrid GX 110/30.

- In the standard design calculations for geogrid retaining walls, only walls with a 3.6° slope have been analysed.

4. Notes on wall construction

Schematic diagram of a gravity wall



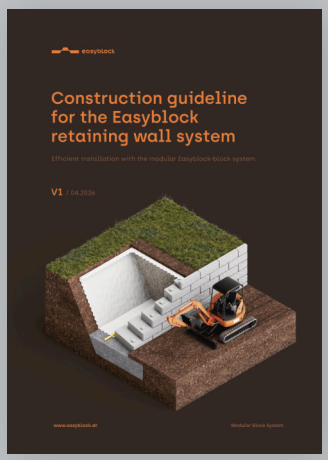
Jagged edges on the filter fabric indicate that the fabric continues.

Fundamentals of Construction

The structural analyses presented in these standard calculations apply exclusively to the correct construction of the retaining wall in accordance with the standard sections and structural diagrams shown. All structural specifications, in particular regarding embedment depth, foundation design, frost protection, drainage, backfill and compaction, must be adhered to in accordance with the specifications. Deviations from the construction details shown may compromise structural stability and require a separate structural assessment.

The masonry construction document is authoritative for the detailed description of the construction. All specifications, construction guidelines and processing instructions defined therein must be strictly adhered to.

Details on the construction process can be found in our construction guide:



Wall construction

Construction guidelines for erecting an Easyblock retaining wall

Steps for erecting an Easyblock retaining wall in our Easyblock-construction-guidelines.pdf document

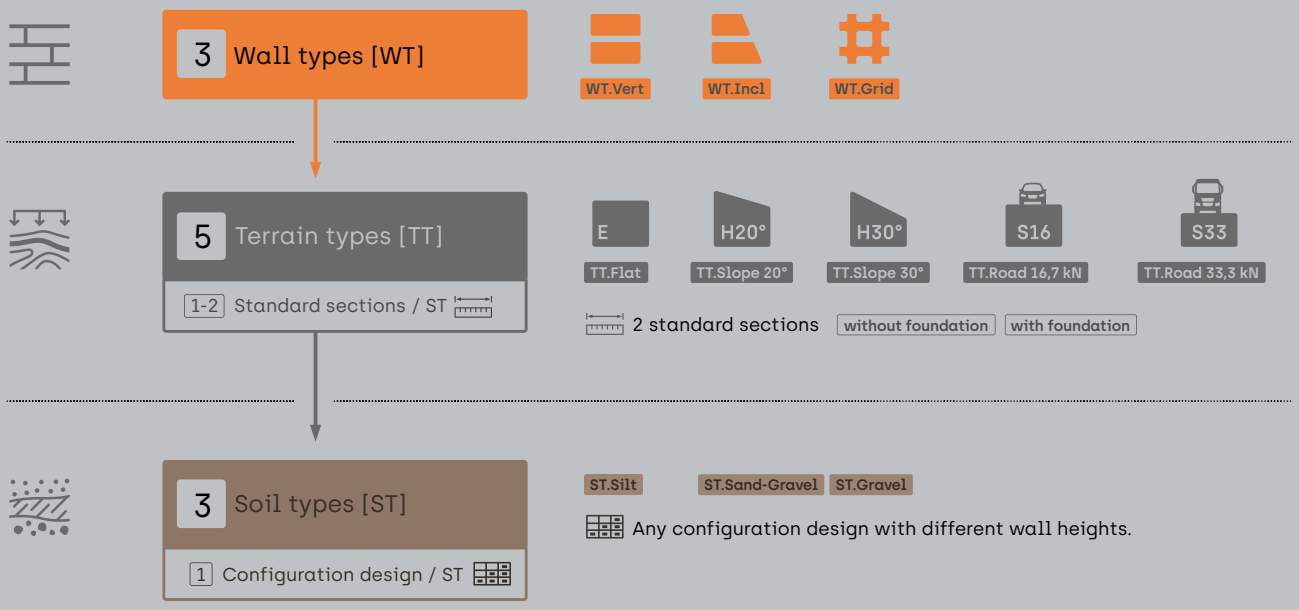
5. Wall structural analysis and interrelationships

5.1 Interdependencies between wall type, terrain type and soil type

Each type of wall has been statically tested for different terrain types and their load cases.

Each terrain type has been statically tested for three soil types and shows two standard sections – with and without a foundation.

Each soil type shows a structural diagram for building an Easyblock retaining wall for different wall heights.



Gesamtstatik					
25 Standard sections	4 × 2	+ 5 × 2	+ 3 × 1 + 2 × 2	= 25
42 Configuration design	4 × 3	+ 5 × 3	+ 5 × 3	= 42

Schematic representation of the relationships

Wall types, terrain types and their standard sections, as well as soil types and their configuration designs.

5.2 Standard sections and configuration designs for retaining walls

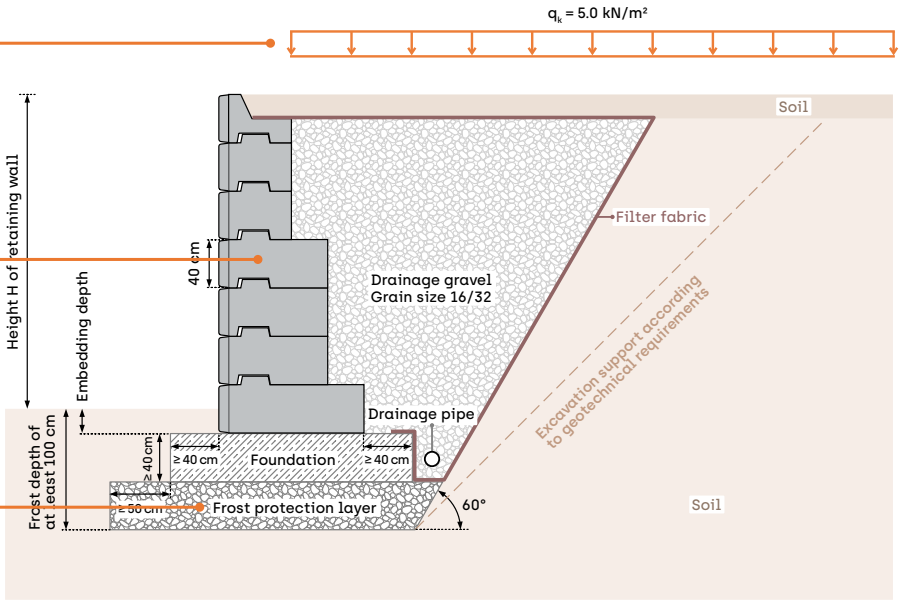
Example of a standard section

For each type of terrain, standard sections illustrate the basic structure of the retaining wall within the terrain. For gravity walls, one standard cross-section shows the wall with a foundation and another without. For geogrid walls, one standard section shows the wall without a foundation.

Load case
Live load

Easyblock blocks and wall type

Basic version: frost-proof box with or without a foundation



Standard section with foundation **WT.Vert** **TT.Flat** **with foundation**

Unique code for the standard section.
Retaining wall type – site type – with/without foundation

Example

The different combinations of wall types, terrain types and soil types result in 42 structural diagrams for a retaining wall, showing possible retaining wall heights and the block types required per row. For retaining walls, there are construction variants with and without foundations.

α = 0,0° Wall inclination vertical 0,0°/inclined 3,6°
ß = 0° Terrain type slope angle 0°/20°/30°
qk = 5.0 kN/m² Live load acting on terrain

Unique key for the configuration design
Wall type – Terrain type – Soil type

WT.Vert TT.Flat ST.Silt

Configuration design - Soil type Silt

Gravity wall – Vertical / Flat terrain α = 0.0°, ß = 0°, qk = 5.0 kN/m²

Wall type

Terrain type

Which blocks must be used in which row

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7F	8F
400									
360									
320									60
280								60	60
240						60	60	60	60
200					60	60	60	60	90
160				60	60	60	60	90	90
120			60	60	60	90	90	90	90
80		60	60	60	120	120	90	90	120
40	60	60	60	90	120	150	90	120	150
F							F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	300

Wall height excluding embedment depth

Need for foundation

Embedment depth of the bottom block row

Effective wall height

5.3 Overview of wall heights

The table shows the possible wall heights for all construction schemes based on the ground conditions and the wall types required for each.

Summary table of effective wall heights, including embedment depths

	ST.Silt	ST.Sand-Gravel	ST.Gravel	Foundation	WT.Vert	WT.Incl	WT.Grid	Configuration design on page no.
TT.Flat	2,20	2,20	2,60		●			Page 30
	3,00	3,40	3,80	✓	●			Page 30
	2,20	2,60	2,60			●		Page 48
	3,00	3,80	3,80	✓		●		Page 48
	5,20	5,20	5,20				●	Page 72
TT.Slope 20°	1,80	1,80	1,80		●			Page 34
	2,60	3,00	3,00	✓	●			Page 34
	1,80	1,80	1,80			●		Page 52
	2,60	3,00	3,40	✓		●		Page 52
	5,20	5,20	5,20				●	Page 76
TT.Slope 30°	1,40	1,40	1,80		●			Page 38
	2,20	2,20	2,20	✓	●			Page 38
	1,40	1,40	1,80			●		Page 56
	2,20	2,20	2,60	✓		●		Page 56
	3,20	4,40	4,80				●	Page 82
	-	5,20	5,20	✓			●	Page 82
TT.Road 16,7 kN	1,80	1,80	1,80		●			Page 42
	2,60	3,00	3,00	✓	●			Page 42
	2,20	2,60	2,60			●		Page 60
	3,00	3,80	3,80	✓		●		Page 60
	5,20	5,20	5,20				●	Page 86
TT.Road 33,3 kN	0,20	0,20	0,20			●		Page 64
	1,80	1,80	1,80	✓		●		Page 64
	4,00	5,20	5,20				●	Page 92
	5,20	5,20	5,20	✓			●	Page 92

Example: Determining the required wall type

The example site has construction parameters featuring a 20° slope and a ground consisting of a gravel-sand mixture. A wall height of 3 m is required.

Desired wall height	Terrain type	Soil type
3 m	TT.Slope 20°	ST.Sand-Gravel

1. Select the table rows with the appropriate terrain type. → TT.Slope 20°
2. Select the table column with the appropriate soil type. → ST.Sand-Gravel
3. In the intersecting cells for terrain type and soil type, select the wall heights that are greater than or equal to the desired wall height. → desired wall height ≥ possible wall height

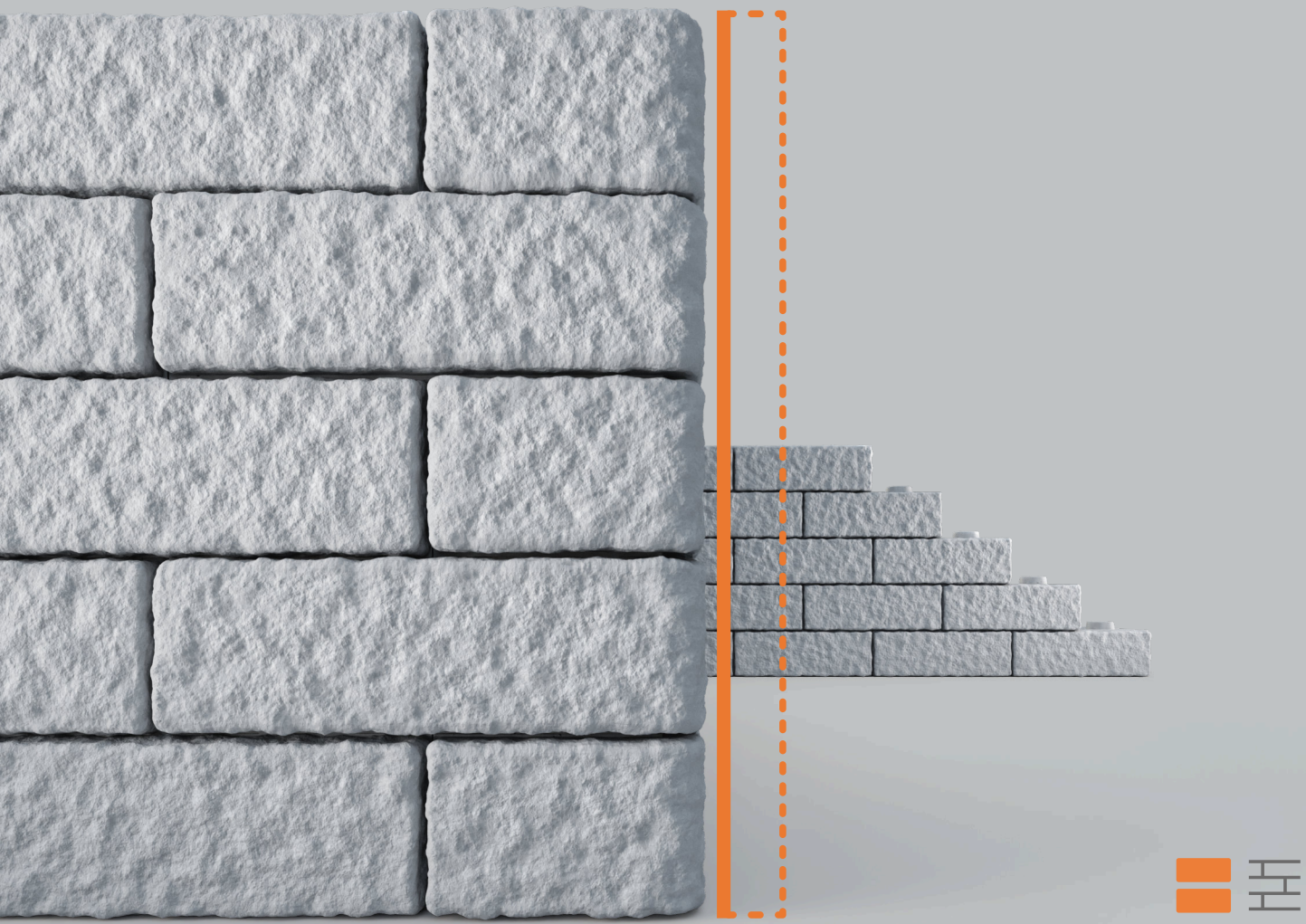
   Additional suitable wall heights.
4. In the same row of wall heights, you can see which wall type is required and whether a foundation is needed.

   Additional suitable wall types.

	ST.Silt	ST.Sand-Gravel	ST.Gravel	Foundation	WT.Vert	WT.Incl	WT.Grid
TT.Flat	2,20	2,20	2,60		●		
	3,00	3,40	3,80	✓	●		
	2,20	2,60	2,60			●	
	3,00	3,80	3,80	✓		●	
	5,20	5,20	5,20				●
TT.Slope 20°	1,80	1,80	1,80		●		
	2,60	3,00	3,00	✓	●		
	1,80	1,80	1,80			●	
	2,60	3,00	3,40	✓		●	
	5,20	5,20	5,20				●
TT.Slope 30°	1,40	1,40	1,80		●		
	2,20	2,20	2,20	✓	●		
	1,40	1,40	1,80			●	
	2,20	2,20	2,60	✓		●	
	3,20	4,40	4,80				●
	-	5,20	5,20	✓			●
TT.Road 16,7 kN	1,80	1,80	1,80		●		
	2,60	3,00	3,00	✓	●		
	2,20	2,60	2,60			●	
	3,00	3,80	3,80	✓		●	
	5,20	5,20	5,20				●
TT.Road 33,3 kN	0,20	0,20	0,20			●	
	1,80	1,80	1,80	✓		●	
	4,00	5,20	5,20				●
	5,20	5,20	5,20	✓			●

6. Gravity wall Vertical

WT.Vert



Vertical Gravity Retaining Wall

Effective wall heights up to 3.80 m

4 m wall height including a 20 cm embedment depth

4 Terrain types with load cases 

8 Standard sections 

12 Configuration designs 

WT.Vert

TT.Flat TT.Slope 20° TT.Slope 30° TT.Road 16,7 kN

ST.Silt ST.Sand-Gravel ST.Gravel

with foundation without foundation

The vertical gravity retaining wall allows for a wall height of up to 4 m, including a 20 cm embedment depth. The effective wall height is therefore 3.80 m.

The structural analysis of the vertical gravity wall covers 4 terrain types with 8 standard cross-sections and 12 construction schemes with 3 soil types.

Wall type

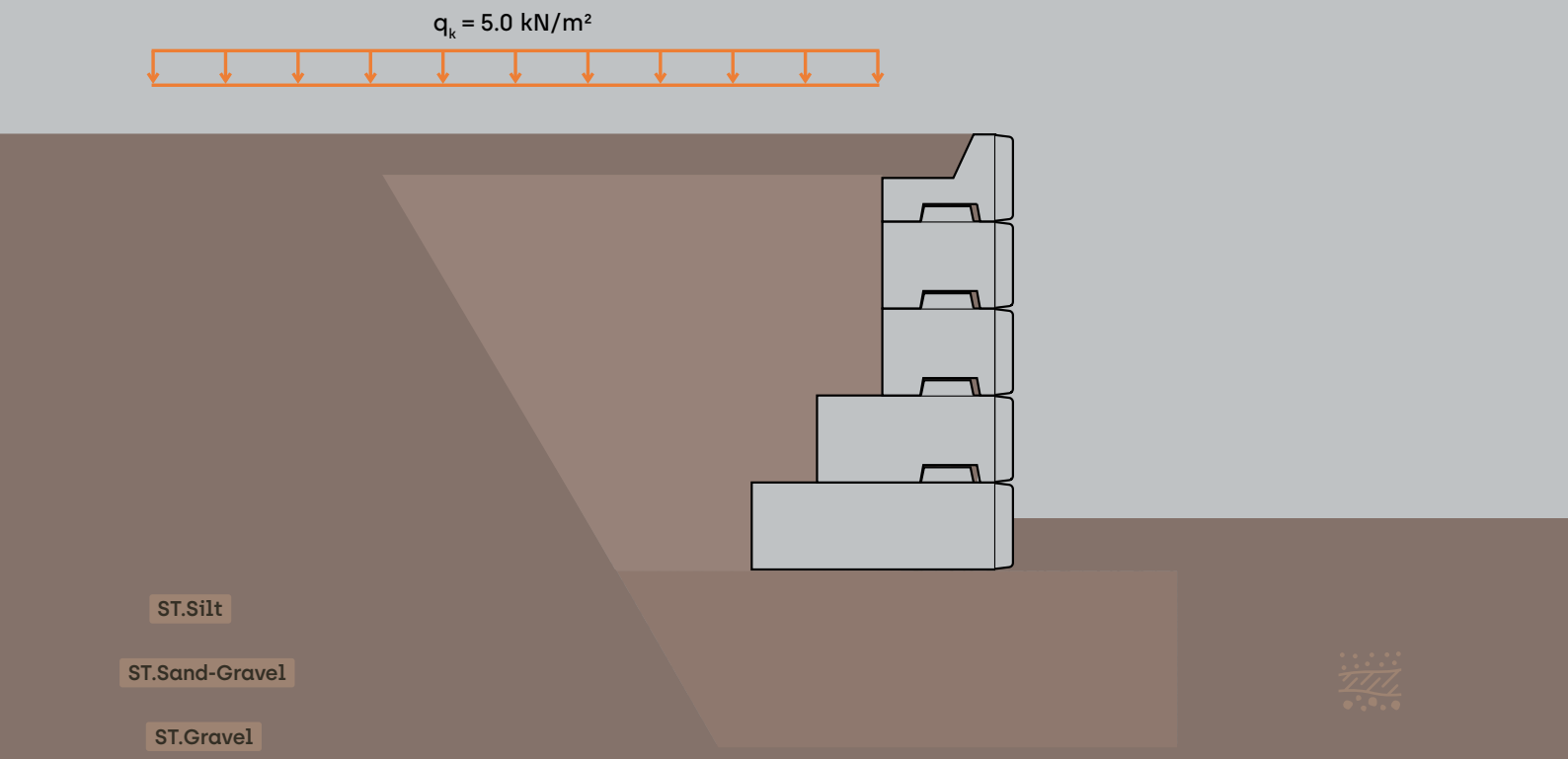
WT.Vert

Gravity wall Vertical

Terrain type

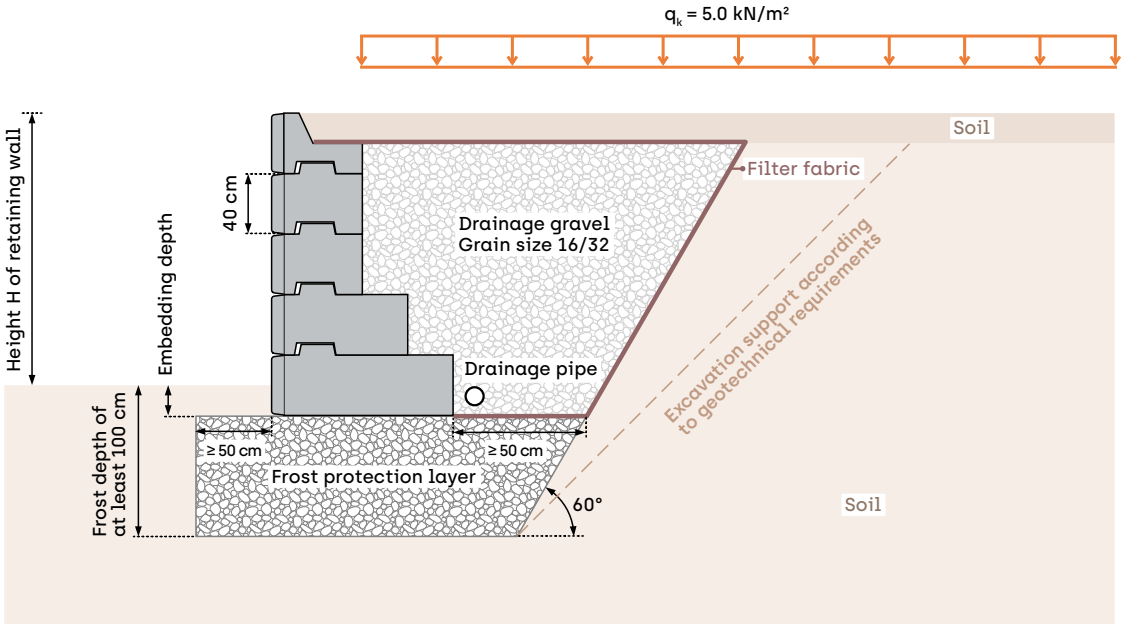
6.1 Flat terrain

TT.Flat Load case α = 0,0°, ß = 0°, q_k = 5.0 kN/m²



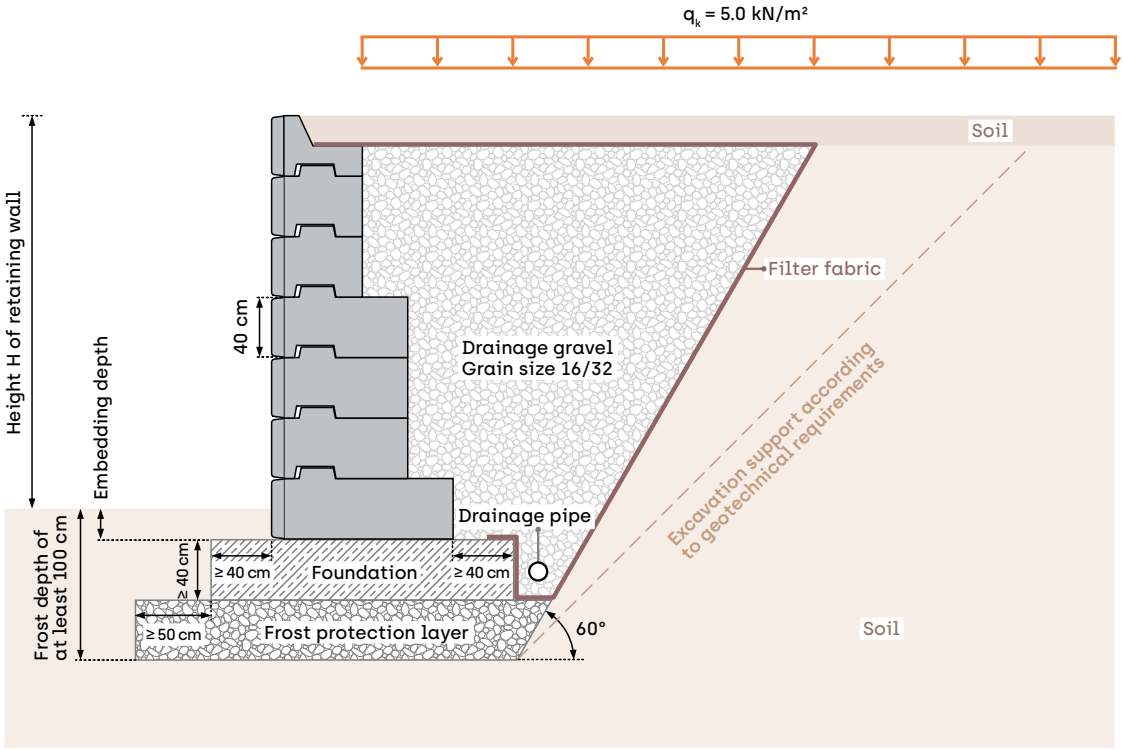
6.1.1. Standard section - Flat terrain

Gravity wall, vertical



Standard section without foundation

WT.Vert TT.Flat without foundation



Standard section with foundation

WT.Vert TT.Flat with foundation

Configuration design - Flat terrain

Gravity wall, vertical / Load case α = 0,0°, ß = 0°, q_k = 5.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

6.1.2. Configuration design - Soil type Silt

WT.Vert TT.Flat ST.Silt

Gravity wall, vertical / Flat terrain α = 0,0°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7F	8F
400									
360									
320									60
280								60	60
240						60	60	60	60
200					60	60	60	60	90
160				60	60	60	60	90	90
120			60	60	60	90	90	90	90
80		60	60	60	120	120	90	90	120
40	60	60	60	90	120	150	90	120	150
F							F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	300

6.1.3. Configuration design - Soil type Sand-Gravel WT.Vert TT.Flat ST.Sand-Gravel

Gravity wall, vertical / Flat terrain α = 0,0°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7F	8F	9F
400										
360										60
320									60	60
280								60	60	60
240						60	60	60	60	90
200					60	60	60	60	90	90
160				60	60	60	60	90	90	90
120			60	60	60	90	90	90	90	120
80		60	60	60	90	90	90	90	120	150
40	60	60	60	90	120	150	90	120	150	150
F							F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	300	340

6.1.4. Configuration design - Soil type Gravel

Gravity wall, vertical / Flat terrain α = 0,0°, ß = 0°, q_k = 5.0 kN/m² WT.Vert TT.Flat ST.Gravel

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7	7F	8F	9F	10F
400												60
360											60	90
320										60	60	120
280								60	60	60	60	150
240						60	60	90	60	60	90	150
200					60	60	60	120	60	90	90	150
160				60	60	60	60	120	90	90	90	150
120			60	60	60	90	90	150	90	90	120	150
80		60	60	60	90	90	90	150	90	120	150	150
40	60	60	60	90	90	150	90	150	120	150	150	150
F							F		F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	260	300	340	380

Wall type

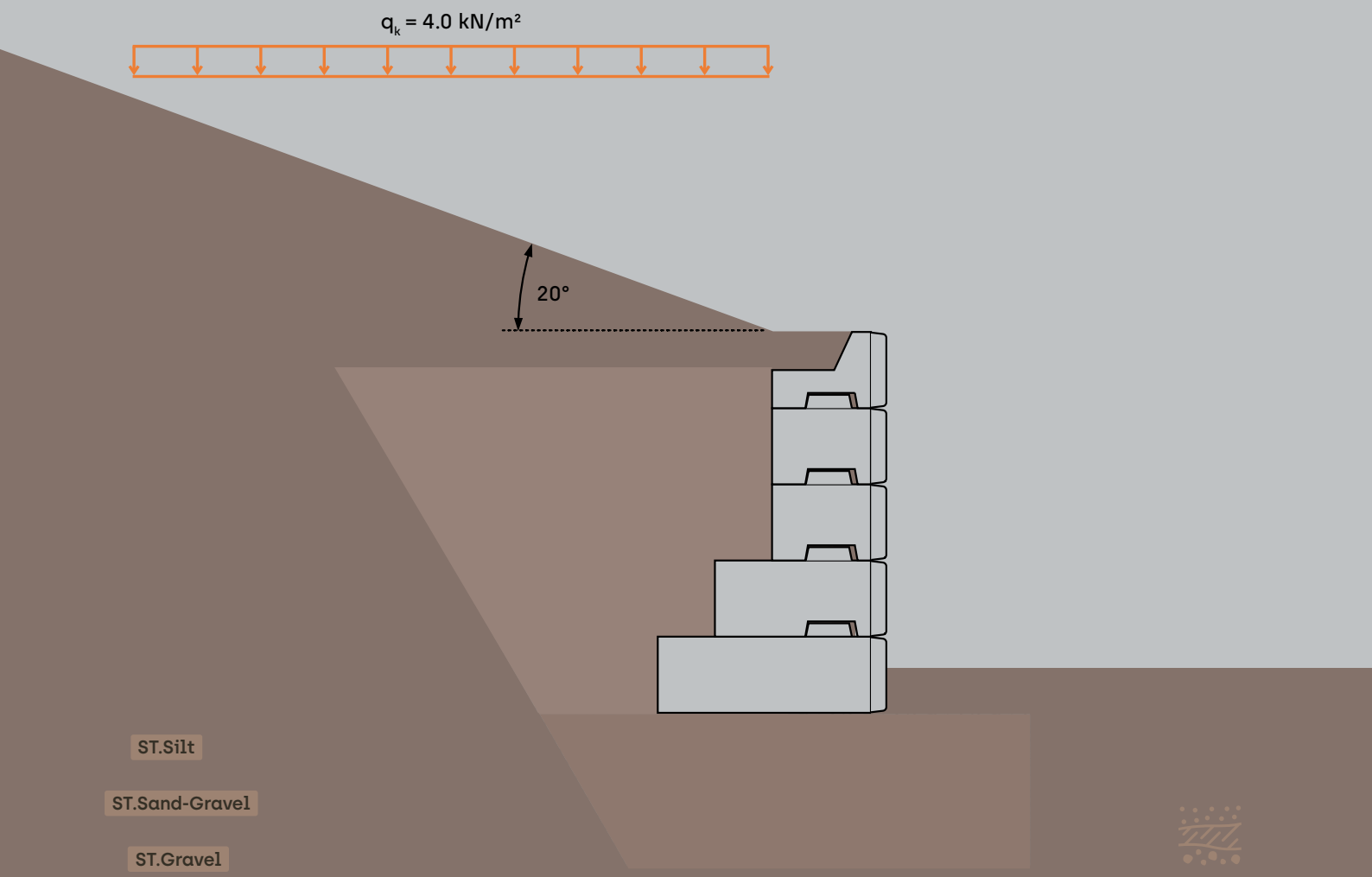
WT.Vert

Gravity wall Vertical

Terrain type

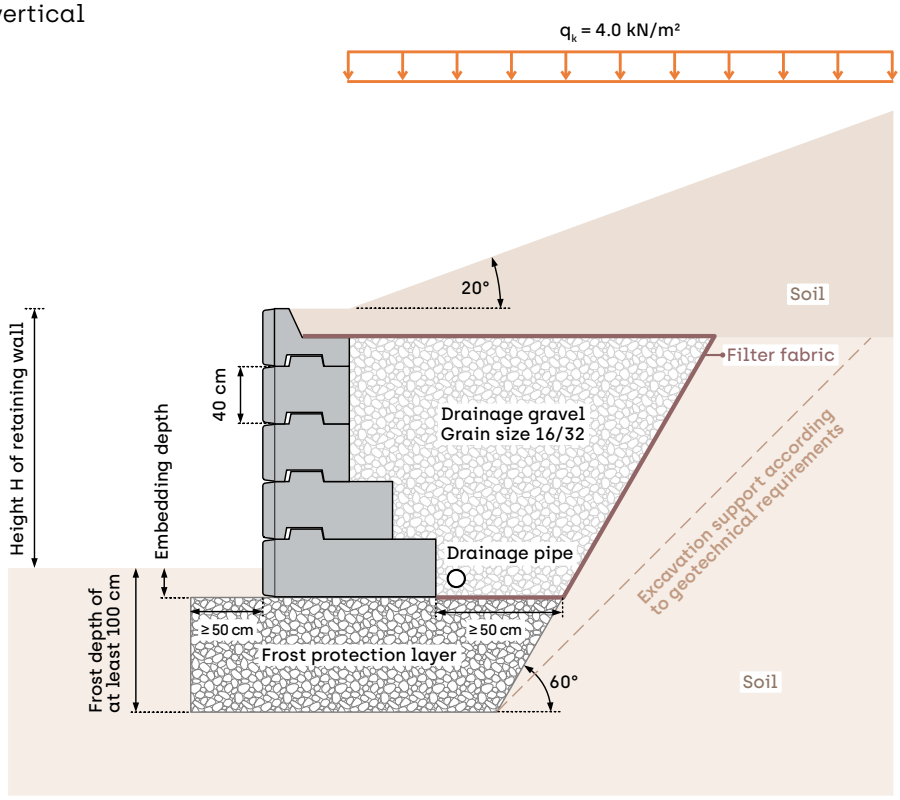
6.2 Slope 20°

TT.Slope 20° Load case α = 0,0°, ß = 20°, q_k = 4.0 kN/m²

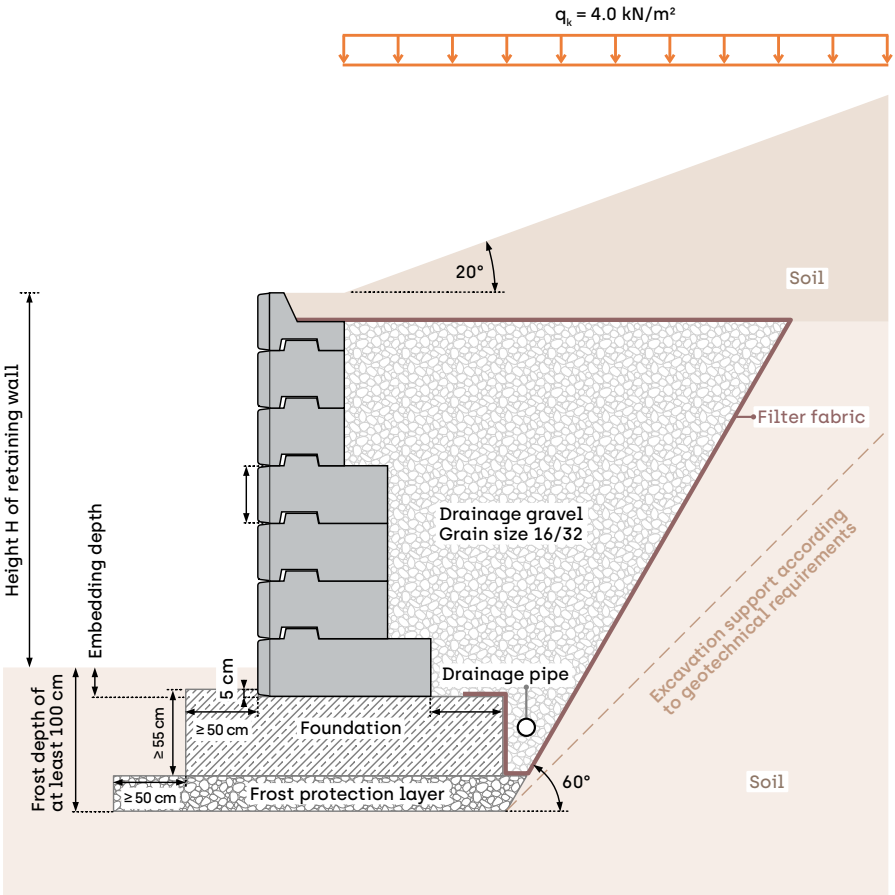


6.2.1. Standard section - Slope 20°

Gravity wall, vertical



Standard section without foundation WT.Vert TT.Slope 20° without foundation



Standard section with foundation WT.Vert TT.Slope 20° with foundation

Configuration design - Slope 20°

Gravity wall, vertical / Load case α = 0,0°, ß = 20°, q_k = 4.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

6.2.2. Configuration design - Soil type Silt

WT.Vert TT.Slope 20° ST.Silt

Gravity wall, vertical / Slope 20° α = 0,0°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F
400								
360								
320								
280								60
240							60	60
200					60	60	60	90
160				60	90	60	90	90
120			60	60	120	60	90	120
80		60	60	90	120	90	120	120
40	60	60	60	120	150	120	120	150
F						F	F	F
ED	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260

6.2.3. Configuration design - Soil type Sand-Gravel

WT.Vert | TT.Slope 20° | ST.Sand-Gravel

Gravity wall, vertical / Slope 20° α = 0,0°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F
400									
360									
320									60
280								60	60
240							60	60	90
200					60	60	60	60	90
160				60	60	60	60	90	120
120			60	60	90	60	90	90	120
80		60	60	60	120	90	90	120	150
40	60	60	60	120	150	120	120	150	150
F						F	F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300

6.2.4. Configuration design - Soil type Gravel

WT.Vert | TT.Slope 20° | ST.Gravel

Gravity wall, vertical / Slope 20° α = 0,0°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F
400									
360									
320									60
280								60	60
240							60	60	90
200					60	60	60	60	90
160				60	60	60	60	90	120
120			60	60	90	60	90	90	120
80		60	60	60	120	90	90	120	150
40	60	60	60	120	150	120	120	150	150
F						F	F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300

Wall type

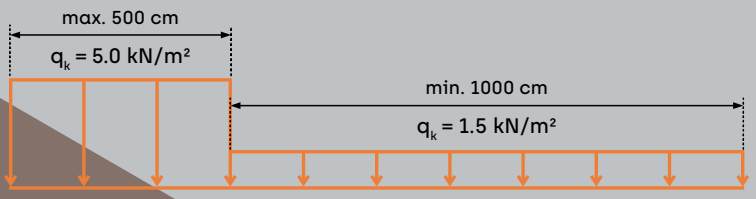
WT.Vert

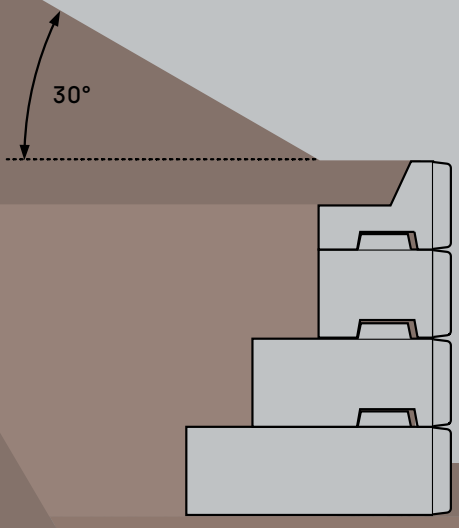
Gravity wall Vertical

Terrain type

6.3 Slope 30°

TT.Slope 30° Load case α = 0,0°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²





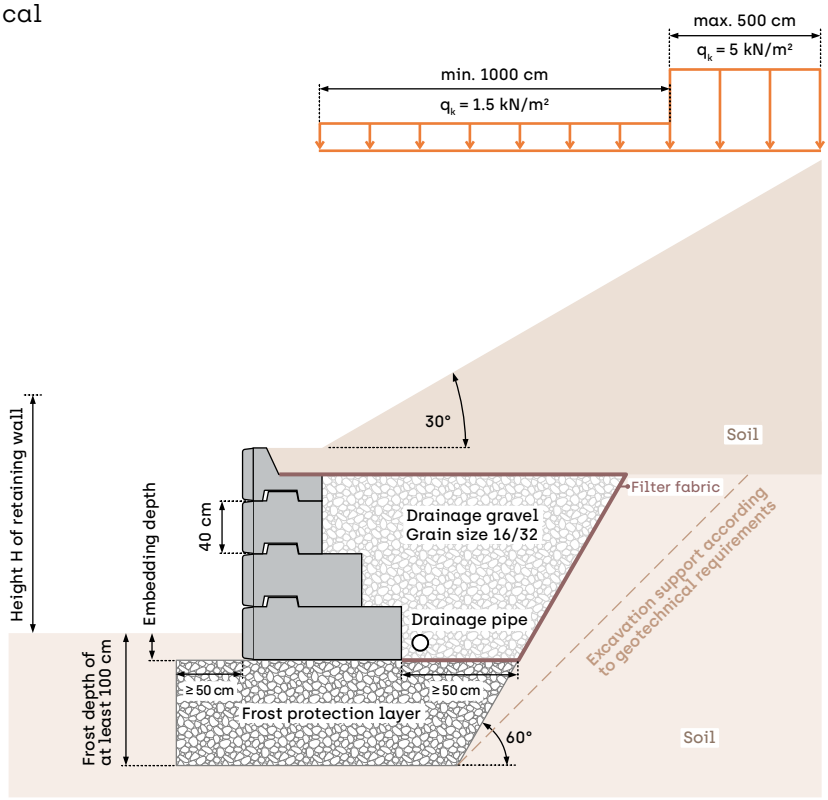
ST.Silt

ST.Sand-Gravel

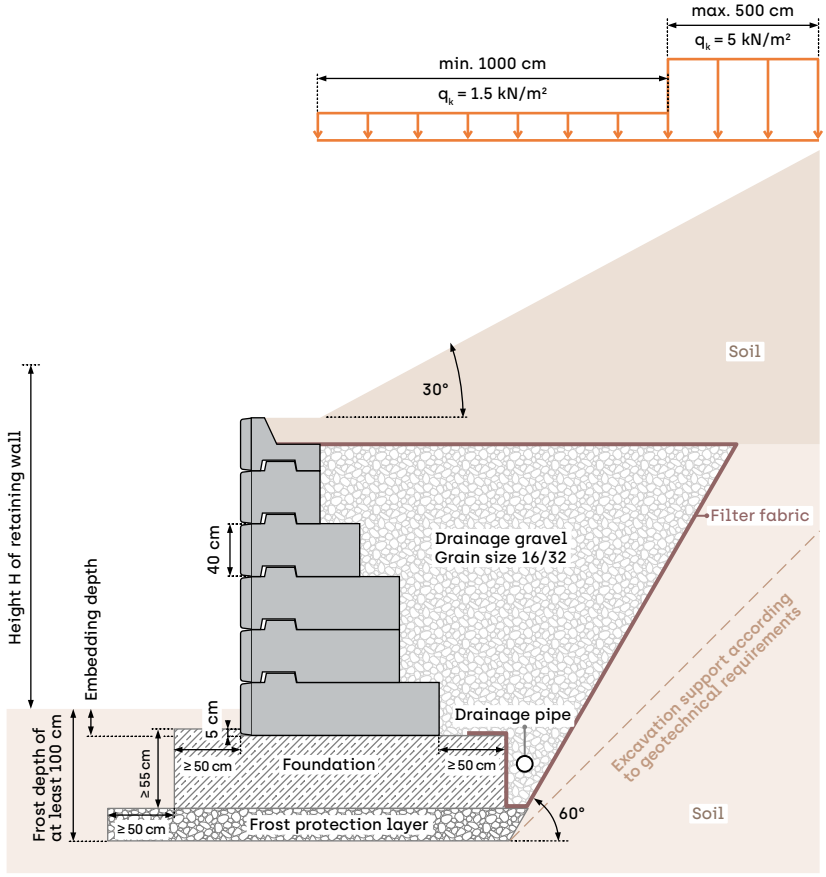
ST.Gravel

6.3.1. Standard section - Slope 30°

Gravity wall, vertical



Standard section without foundation WT.Vert TT.Slope 30° without foundation



Standard section with foundation WT.Vert TT.Slope 30° with foundation

Configuration design - Slope 30°

Gravity wall, vertical / Load case α = 0,0°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

6.3.2. Configuration design - Soil type Silt

WT.Vert TT.Slope 30° ST.Silt

Gravity wall, vertical / Slope 30° α = 0,0°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5F	6F
400							
360							
320							
280							
240							60
200						60	60
160				60	60	60	90
120			60	60	60	90	120
80		60	60	90	90	120	120
40	60	60	90	150	90	120	150
F					F	F	F
ED	20	20	20	20	20	20	20
H	20	60	100	140	140	180	220

6.3.3. Configuration design - Soil type Sand-Gravel

WT.Vert | TT.Slope 30° | ST.Sand-Gravel

Gravity wall, vertical / Slope 30° α = 0,0°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5F	6F
400							
360							
320							
280							
240							60
200						60	60
160				60	60	60	90
120			60	60	60	90	120
80		60	60	90	90	120	120
40	60	60	90	120	90	120	150
F					F	F	F
ED	20	20	20	20	20	20	20
H	20	60	100	140	140	180	220

6.3.4. Configuration design - Soil type Gravel

WT.Vert | TT.Slope 30° | ST.Gravel

Gravity wall, vertical / Slope 30° α = 0,0°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5	5F	6F
400								
360								
320								
280								
240								60
200						60	60	60
160				60	60	60	60	90
120			60	60	60	90	90	120
80		60	60	90	90	120	120	120
40	60	60	90	120	90	150	120	150
F					F		F	F
ED	20	20	20	20	20	20	20	20
H	20	60	100	140	140	180	180	220

Wall type

WT.Vert

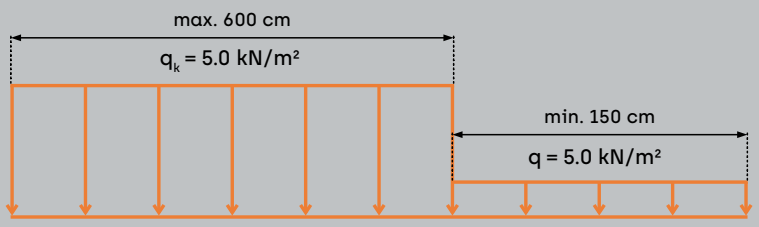
Gravity wall Vertical

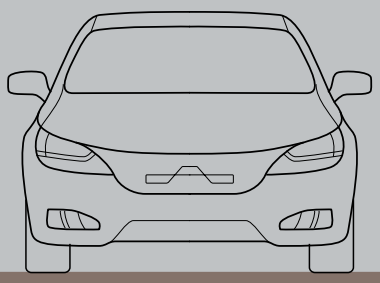
Terrain type

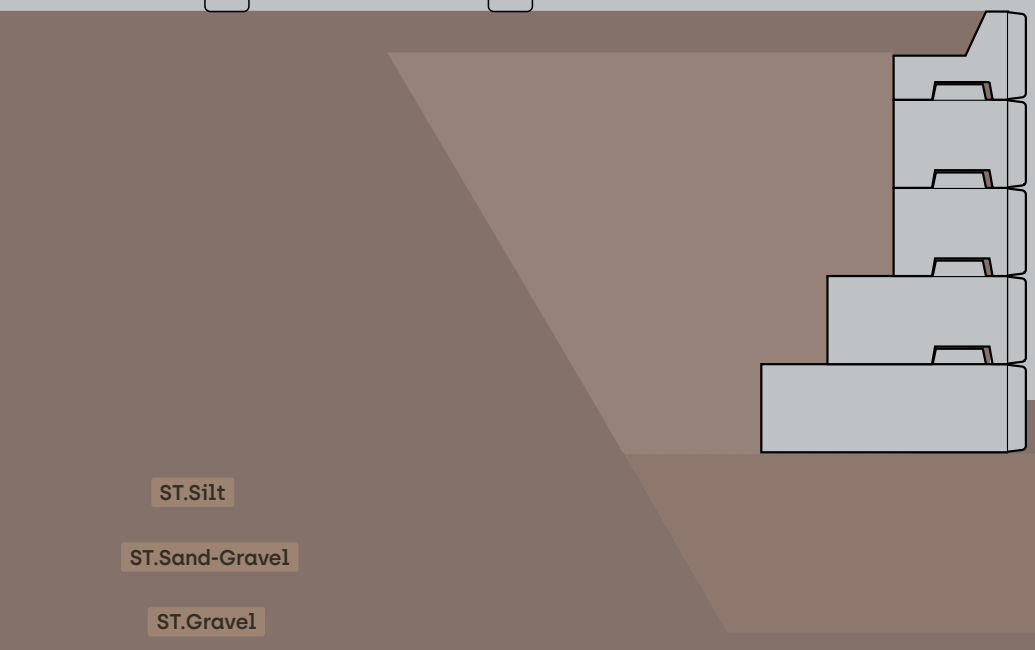
6.4 Road 16,7 kN

S16

TT.Road 16,7 kN Load case α = 0,0°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²







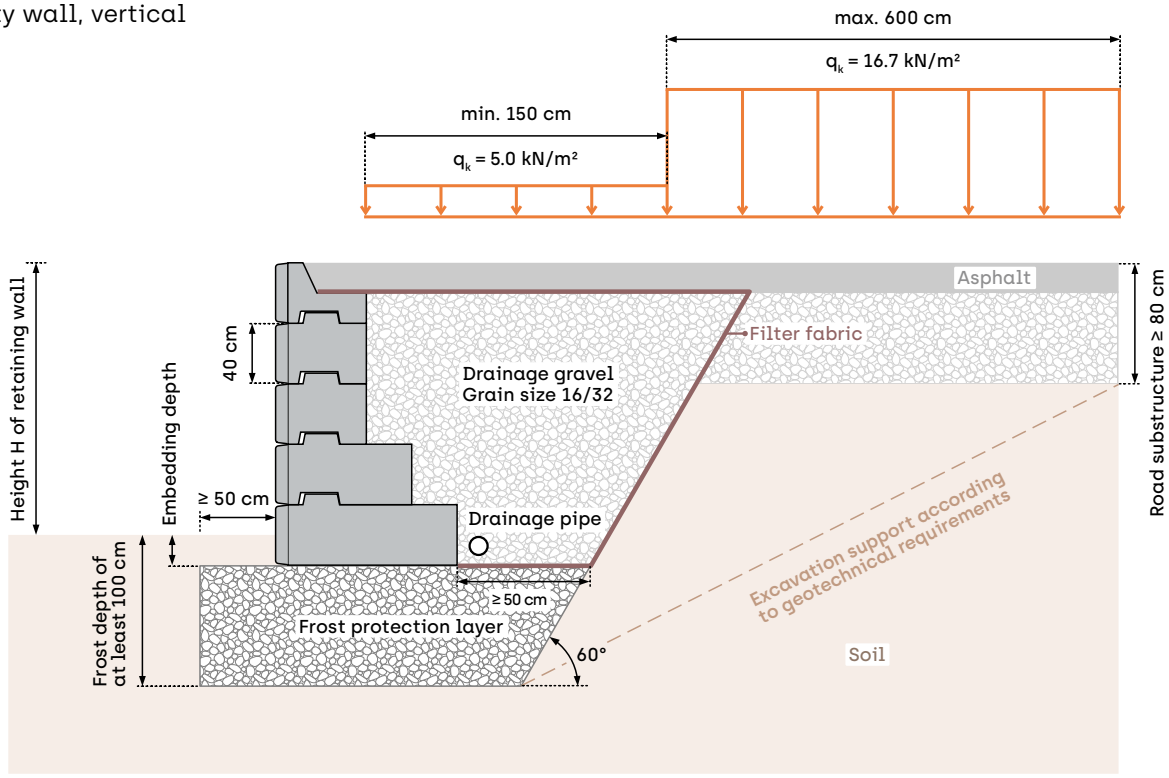
ST.Silt

ST.Sand-Gravel

ST.Gravel

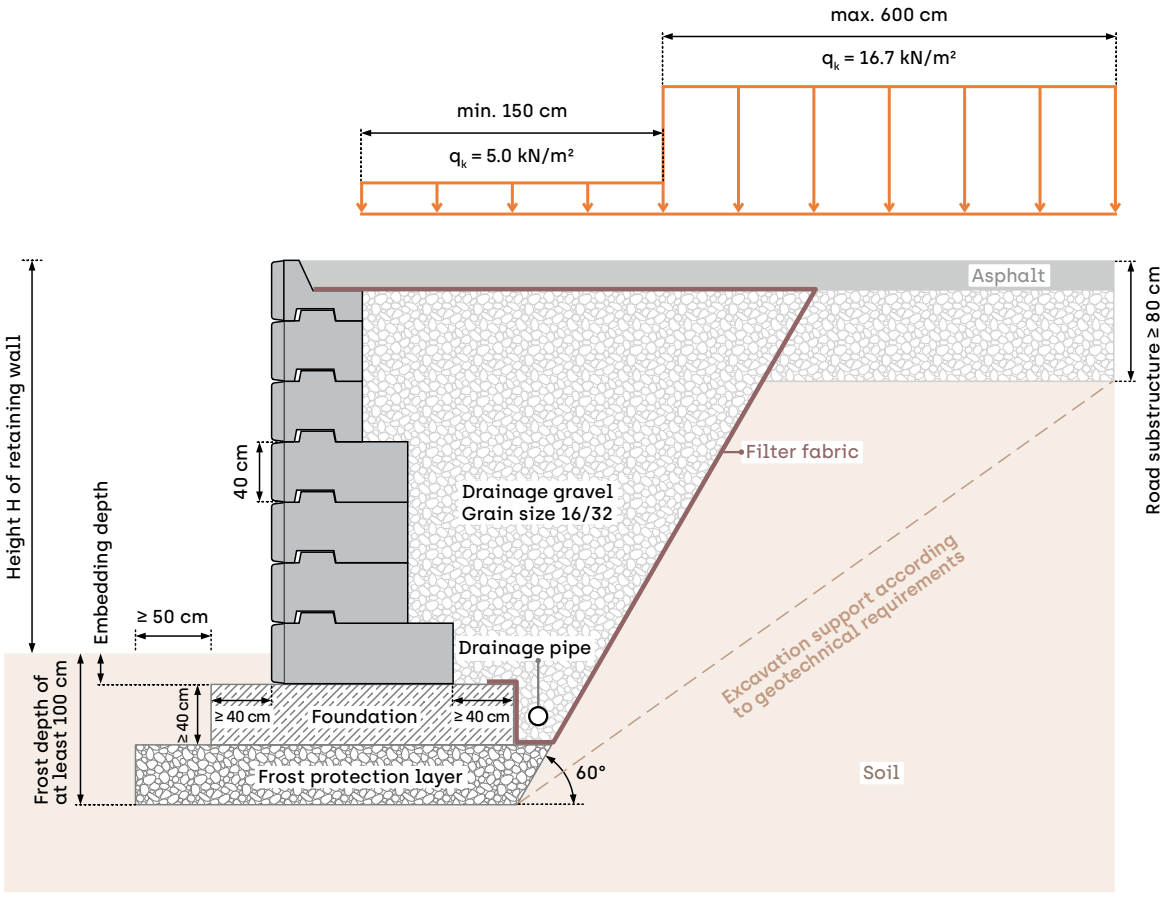
6.4.1. Standard section - Road 16,7 kN

Gravity wall, vertical



Standard section without foundation

WT.Vert | TT.Road 16,7 kN | without foundation



Standard section with foundation

WT.Vert | TT.Road 16,7 kN | with foundation

Configuration design - Road 16,7 kN

Gravity wall, vertical / Load case α = 0,0°, ß = 0°, q_k = 16,7 kN/m²

Key

ED	The minimum required embedment depth of the blocks is 20 cm
H	Height of the retaining wall, taking into account the minimum embedment depth
F	Foundation required (component thickness at least 40 cm)

60 90 120 150

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

6.4.2. Configuration design - Soil type Silt

WT.Vert TT.Road 16,7 kN ST.Silt

Gravity wall, vertical / Road 16,7 kN α = 0,0°, ß = 0°, q_k = 16,7 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F
400								
360								
320								
280								60
240							60	90
200					60	60	90	120
160				60	90	90	90	120
120			60	90	120	90	120	150
80		60	60	90	150	120	120	150
40	60	60	90	120	150	120	150	150
F						F	F	F
ED	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260

6.4.3. Configuration design - Soil type Sand-Gravel

WT.Vert | TT.Road 16,7 kN | ST.Sand-Gravel

Gravity wall, vertical / Road 16,7 kN α = 0,0°, ß = 0°, q_k = 16,7 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F
400									
360									
320									60
280								60	90
240							60	60	90
200					60	60	60	90	120
160				60	90	60	90	120	120
120			60	60	120	90	120	120	150
80		60	60	90	150	120	120	150	150
40	60	60	90	120	150	120	150	150	150
F						F	F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300

6.4.4. Configuration design - Soil type Gravel

WT.Vert | TT.Road 16,7 kN | ST.Gravel

Gravity wall, vertical / Road 16,7 kN α = 0,0°, ß = 0°, q_k = 16,7 kN/m²

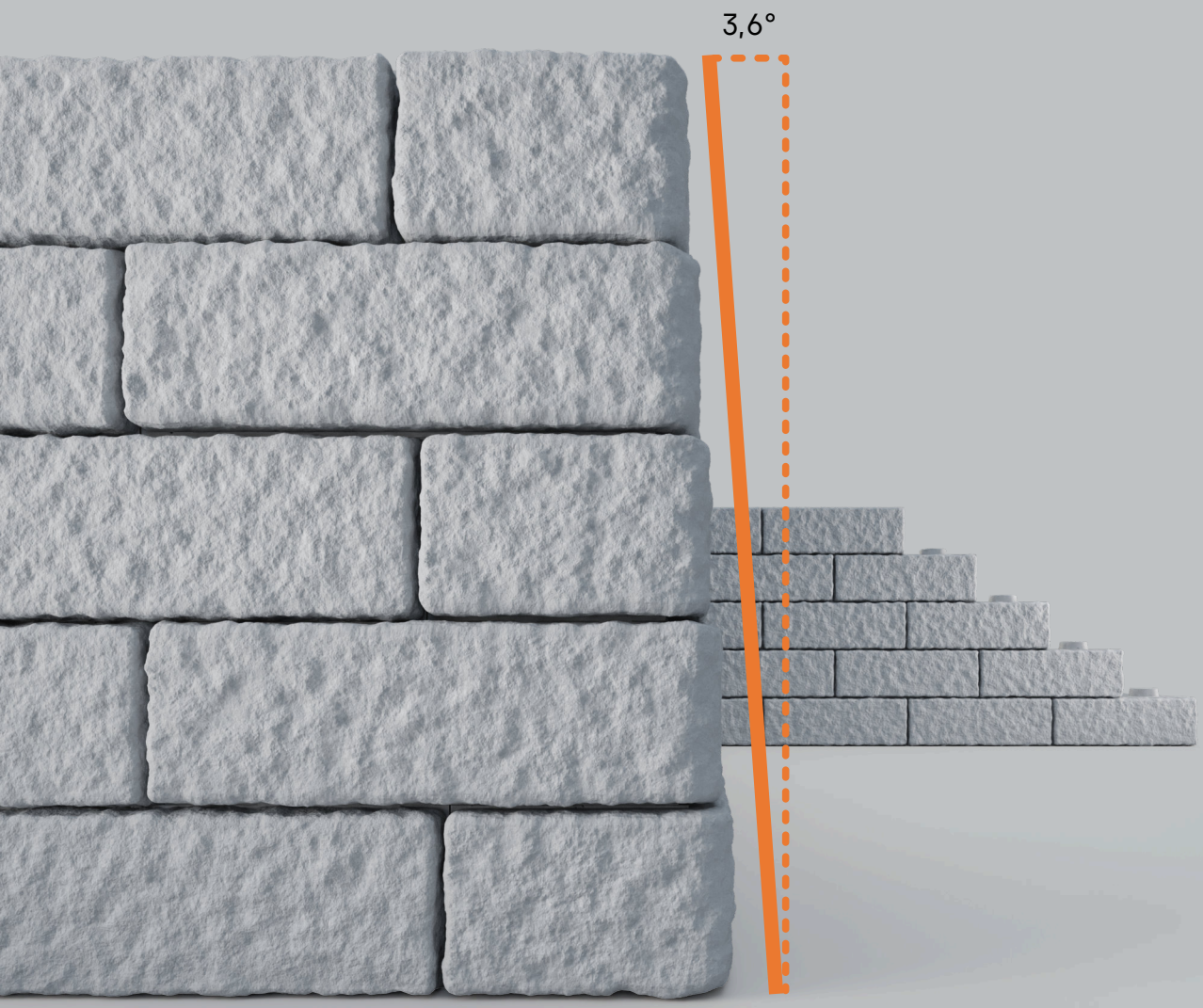
Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F
400									
360									
320									60
280								60	90
240							60	60	90
200					60	60	60	90	120
160				60	90	60	90	120	120
120			60	60	120	90	120	120	150
80		60	60	90	150	120	120	150	150
40	60	60	90	120	150	120	120	150	150
F						F	F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300

7.

WT.Incl

Gravity wall
Inclined



Gravity wall, inclined

Effective wall heights up to 3.80 m

4 m wall height, including a foundation depth of 20 cm

5 Terrain types with load cases 

10 Standard sections 

15 Configuration designs 

WT.Incl

TT.Flat TT.Slope 20° TT.Slope 30° TT.Road 16,7 kN TT.Road 33,3 kN

ST.Silt ST.Sand-Gravel ST.Gravel

with foundation without foundation

The inclined gravity retaining wall allows wall heights of up to 4 m, including an embedment depth of 20 cm. The effective wall height is therefore 3.80 m.

The structural analysis of the inclined gravity retaining wall includes 5 terrain types, 10 standard sections and 15 configuration designs for 3 soil types.

Wall type

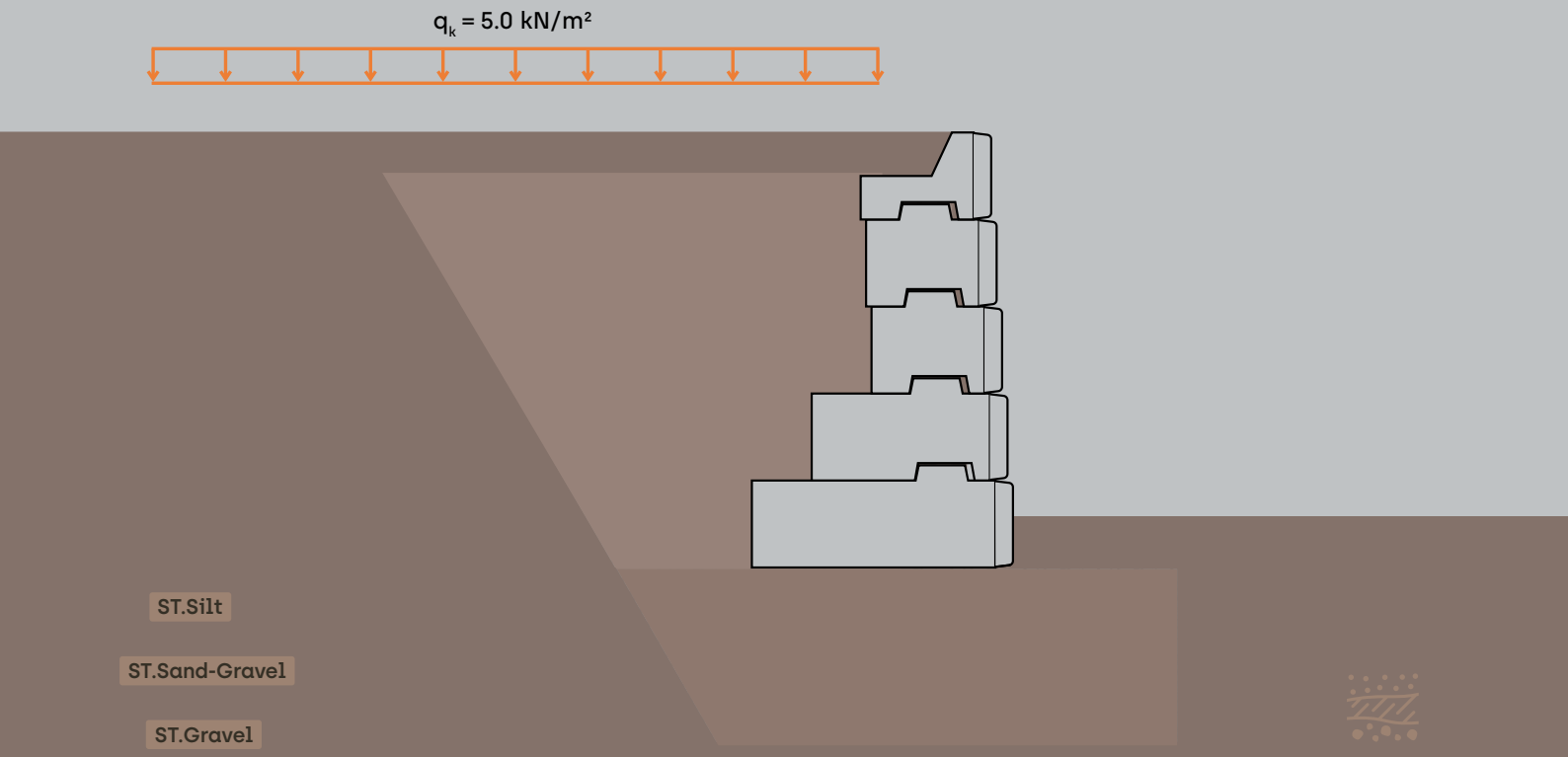
WT.Incl

Gravity wall Inclined

Terrain type

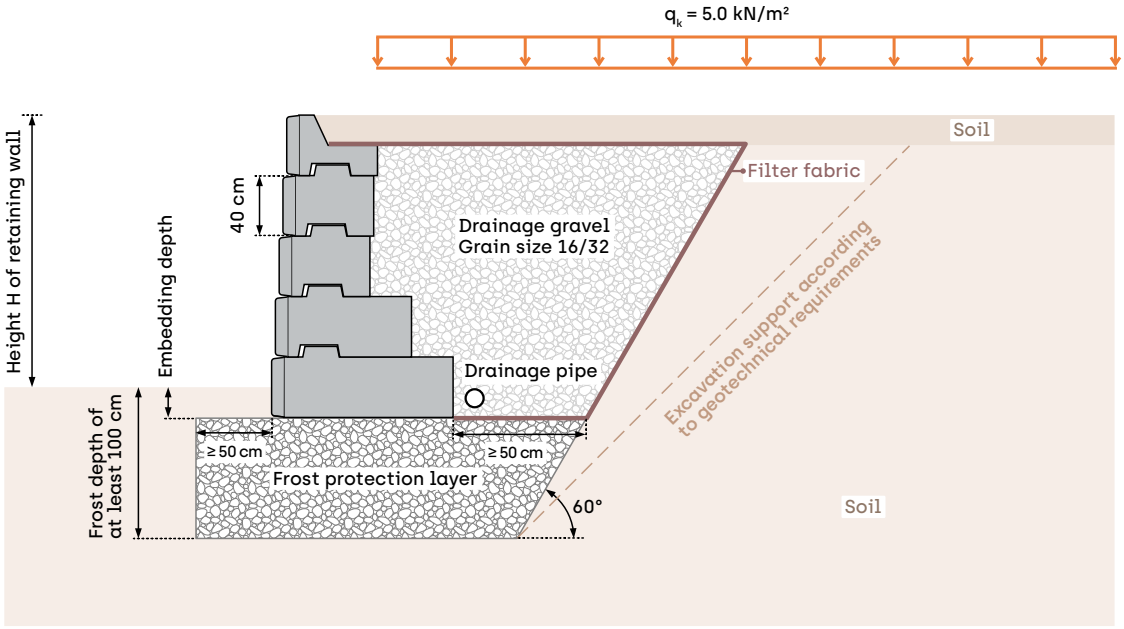
7.1 Flat terrain

TT.Flat Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m²



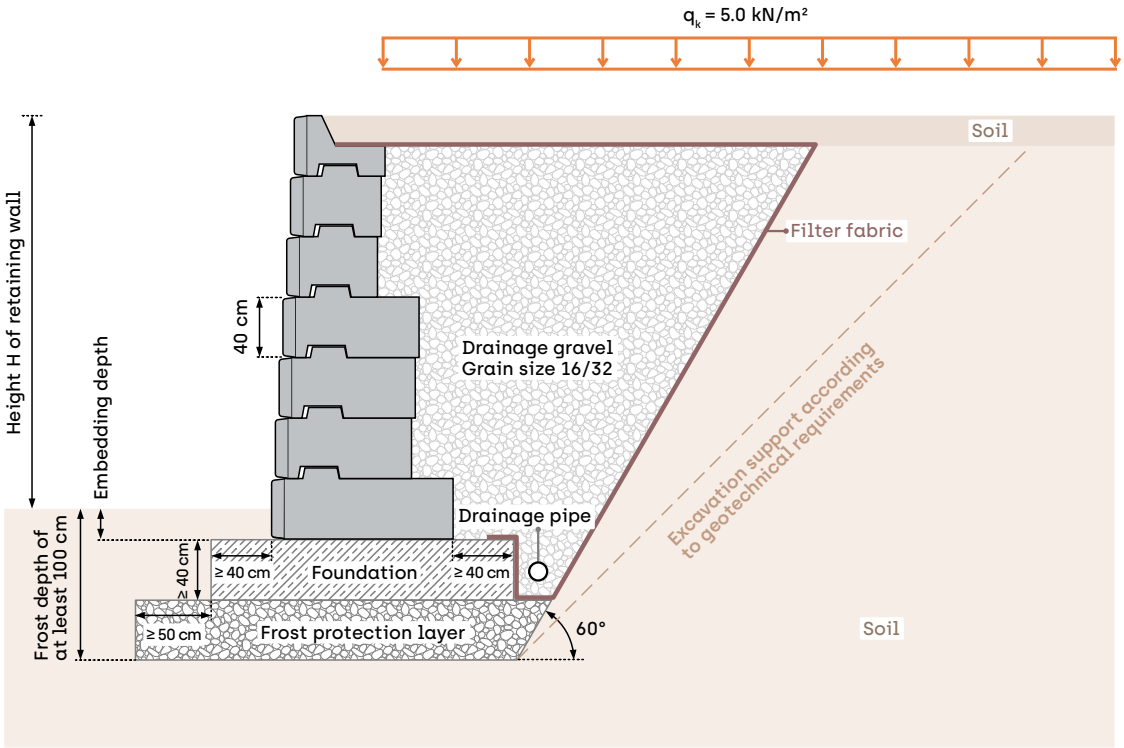
7.1.1. Standard section - Flat terrain

Gravity wall, inclined



Standard section without foundation

WT.Incl TT.Flat without foundation



Standard section with foundation

WT.Incl TT.Flat with foundation

Configuration design - Flat terrain

Gravity wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

7.1.2. Configuration design - Soil type Silt

WT.Incl TT.Flat ST.Silt

Gravity wall, inclined / Flat terrain α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7F	8F
400									
360									
320									60
280								60	60
240						60	60	60	60
200					60	60	60	60	90
160				60	60	60	60	90	90
120			60	60	60	90	90	90	90
80		60	60	60	90	90	90	90	120
40	60	60	60	90	120	150	90	120	150
F							F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	300

7.1.3. Configuration design - Soil type Sand-Gravel

WT.Incl TT.Flat ST.Sand-Gravel

Gravity wall, inclined / Flat terrain α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7	7F	8F	9F	10F
400												60
360											60	60
320										60	60	90
280								60	60	60	60	90
240						60	60	60	60	60	60	120
200					60	60	60	90	60	60	90	150
160				60	60	60	60	120	60	90	90	150
120			60	60	60	60	60	150	90	90	120	150
80		60	60	60	60	90	90	150	90	120	150	150
40	60	60	60	60	90	150	90	150	120	150	150	150
F							F		F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	260	300	340	380

7.1.4. Configuration design - Soil type Gravel

WT.Incl TT.Flat ST.Gravel

Gravity wall, inclined / Flat terrain α = 3,6°, ß = 0°, qk = 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	6	6F	7	7F	8F	9F	10F
400												60
360											60	60
320										60	60	90
280								60	60	60	60	90
240						60	60	60	60	60	60	120
200					60	60	60	90	60	60	90	150
160				60	60	60	60	120	60	90	90	150
120			60	60	60	60	60	150	90	90	120	150
80		60	60	60	60	90	90	150	90	120	150	150
40	60	60	60	60	90	150	90	150	120	150	150	150
F							F		F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	260	300	340	380

Wall type

WT.Incl

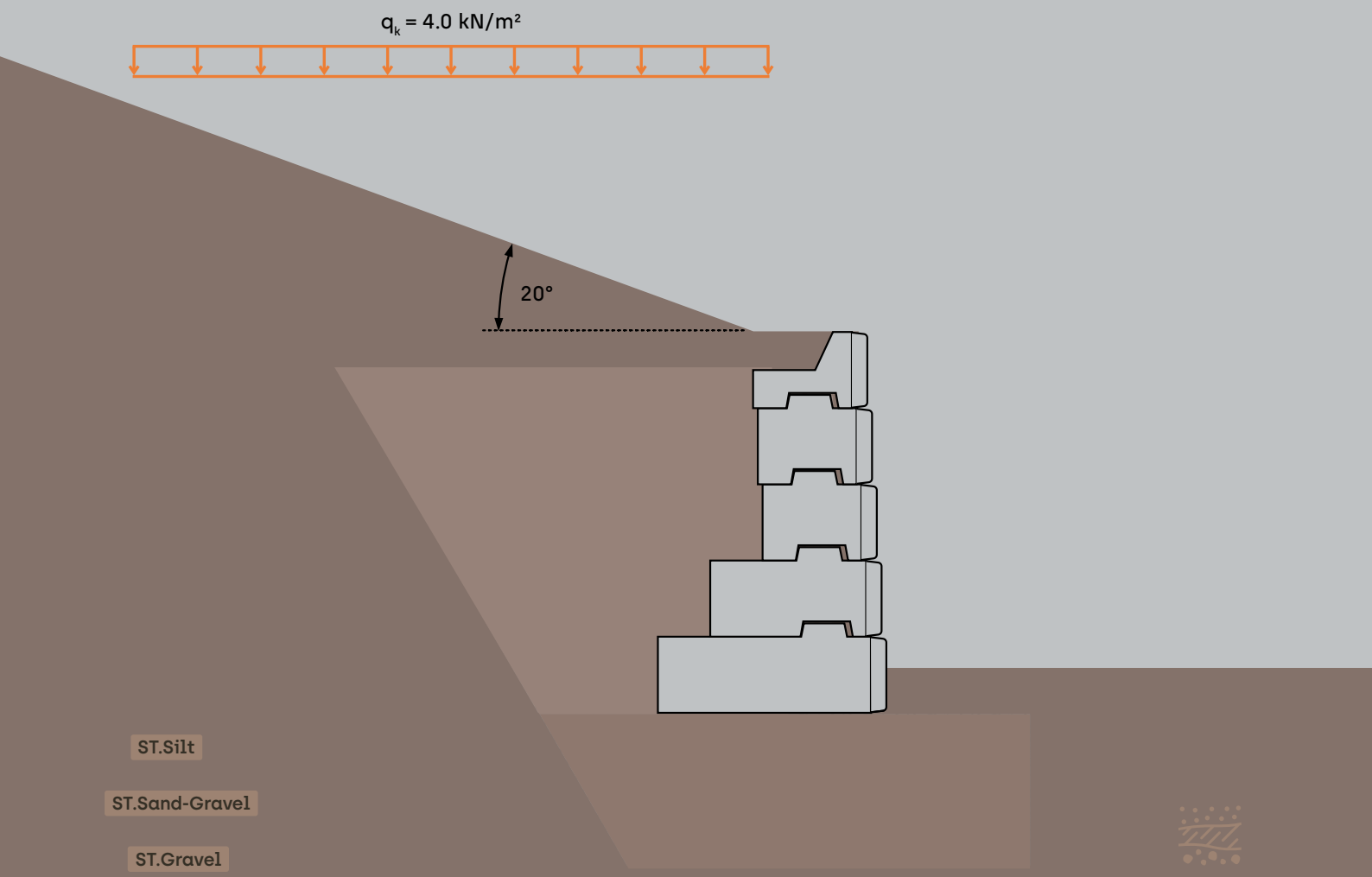
Gravity wall Inclined

Terrain type

7.2 Slope 20°

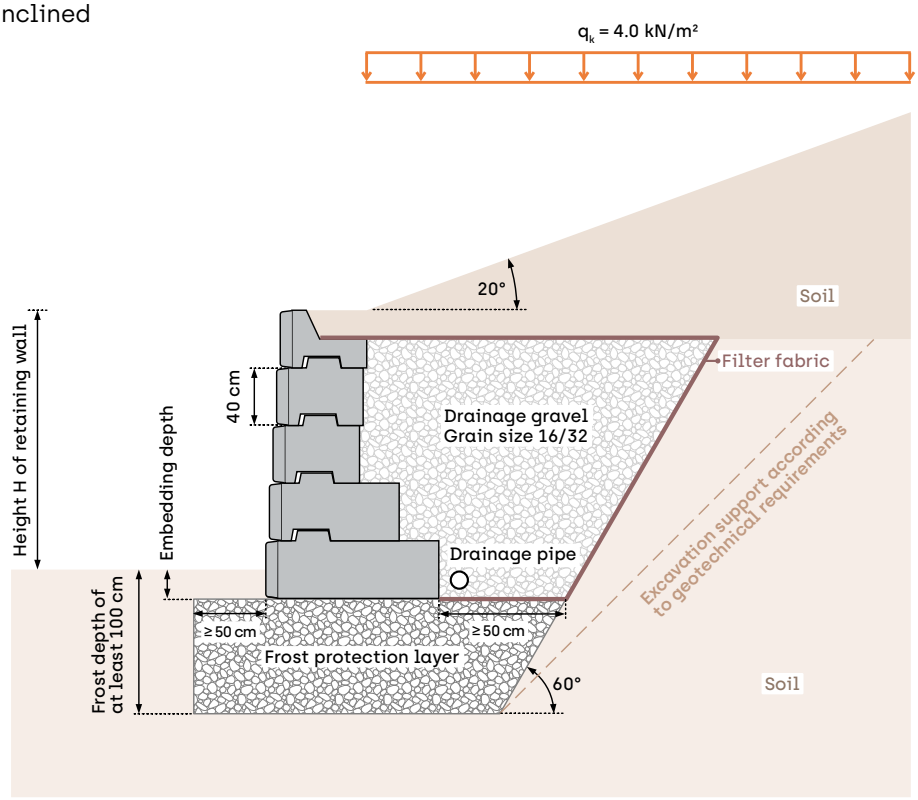
H20°

TT.Slope 20° Load case α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

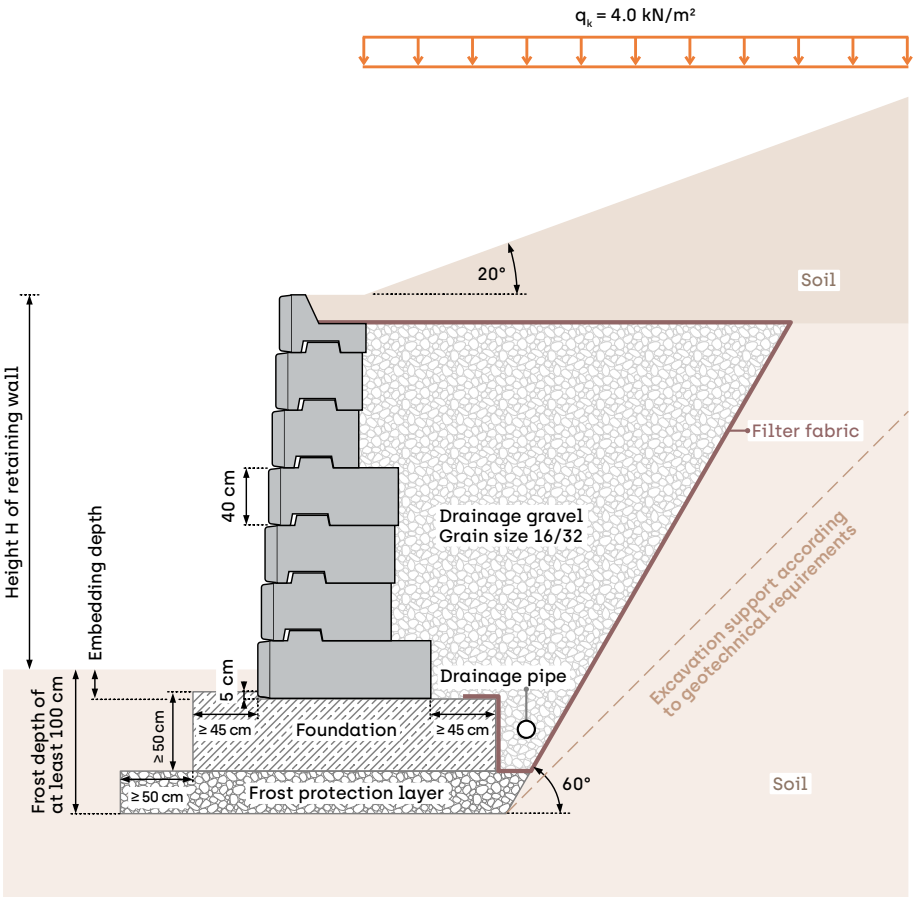


7.2.1. Standard section - Slope 20°

Gravity wall, inclined



Standard section without foundation WT.Incl TT.Slope 20° without foundation



Standard section with foundation WT.Incl TT.Slope 20° with foundation

Configuration design - Slope 20°

Gravity wall, inclined / Load case α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

7.2.2. Configuration design - Soil type Silt

WT.Incl TT.Slope 20° ST.Silt

Gravity wall, inclined / Slope 20° α = 3,6°, ß = 20°, qk = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F
400								
360								
320								
280								60
240							60	60
200					60	60	60	60
160				60	60	60	60	90
120			60	60	90	60	90	90
80		60	60	60	90	90	90	120
40	60	60	60	120	150	90	120	150
F						F	F	F
ED	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260

7.2.3. Configuration design - Soil type Sand-Gravel

WT.Incl | TT.Slope 20° | ST.Sand-Gravel

Gravity wall, inclined / Slope 20° α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F
400									
360									
320									60
280								60	60
240							60	60	60
200					60	60	60	60	90
160				60	60	60	60	90	90
120			60	60	60	60	90	90	120
80		60	60	60	90	90	90	120	120
40	60	60	60	120	150	120	120	120	150
F						F	F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300

7.2.4. Configuration design - Soil type Gravel

WT.Incl | TT.Slope 20° | ST.Gravel

Gravity wall, inclined / Slope 20° α = 3,6°, ß = 20°, qk = 4.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F	9F
400										
360										60
320									60	60
280								60	60	90
240							60	60	60	120
200					60	60	60	60	90	150
160				60	60	60	60	90	90	150
120			60	60	60	60	90	90	120	150
80		60	60	60	90	90	90	120	120	150
40	60	60	60	120	150	120	120	120	150	150
F						F	F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	220	220	260	300	340

Wall type

WT.Incl

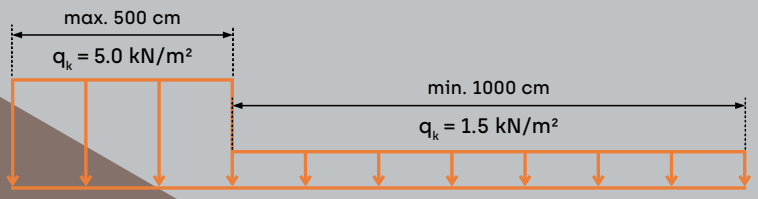
Gravity wall Inclined

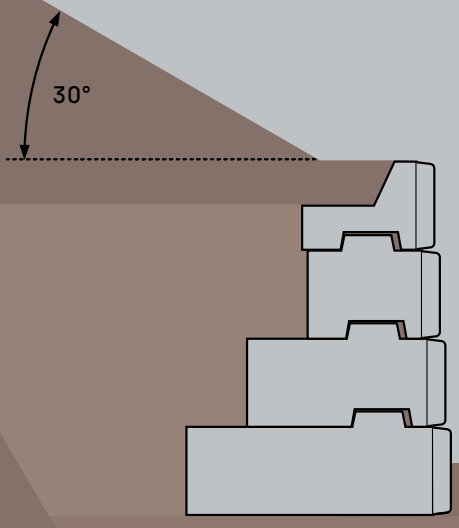
Terrain type

7.3 Slope 30°

H30°

TT.Slope 30° Load case α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²





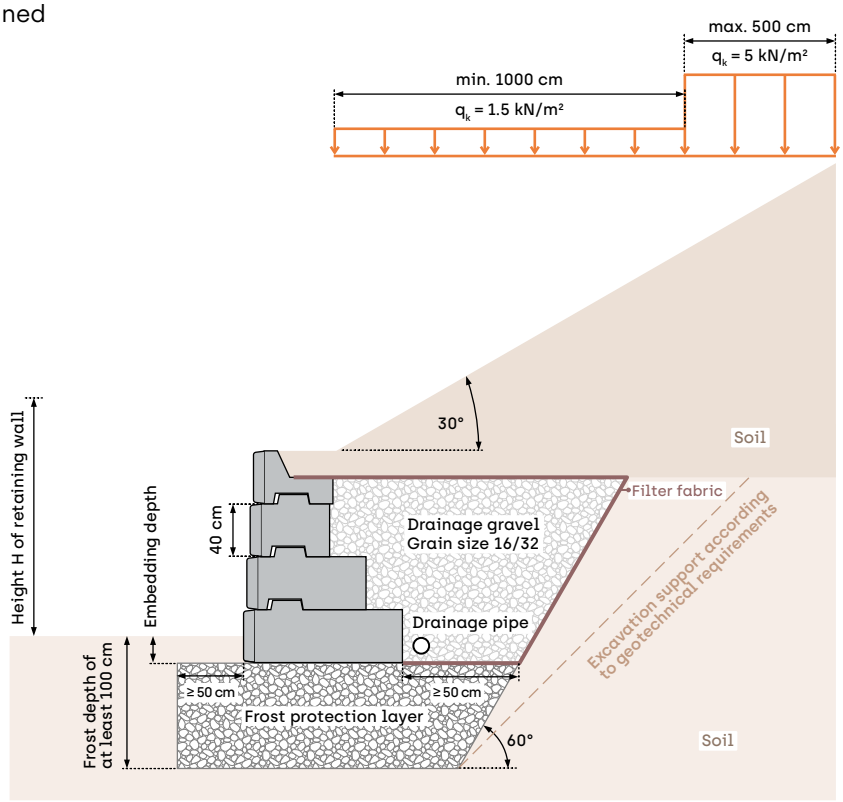
ST.Silt

ST.Sand-Gravel

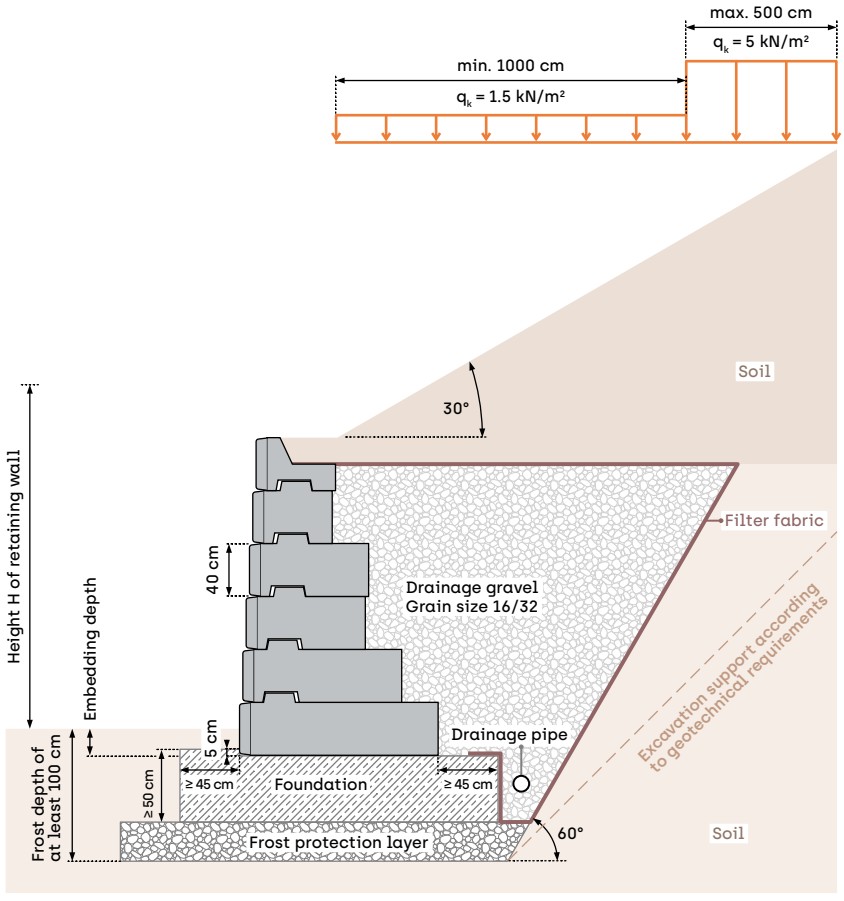
ST.Gravel

7.3.1. Standard section - Slope 30°

Gravity wall, inclined



Standard section without foundation WT.Incl TT.Slope 30° without foundation



Standard section with foundation WT.Incl TT.Slope 30° with foundation

Configuration design - Slope 30°

Gravity wall, inclined / Load case α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Key

ED The minimum required embedment depth of the blocks is 20 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

7.3.2. Configuration design - Soil type Silt

WT.Incl TT.Slope 30° ST.Silt

Gravity wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5F	6F
400							
360							
320							
280							
240							60
200						60	60
160				60	60	60	90
120			60	60	60	90	90
80		60	60	90	90	90	120
40	60	60	90	150	90	120	150
F					F	F	F
ED	20	20	20	20	20	20	20
H	20	60	100	140	140	180	220

7.3.3. Configuration design - Soil type Sand-Gravel

WT.Incl | TT.Slope 30° | ST.Sand-Gravel

Gravity wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5F	6F
400							
360							
320							
280							
240							60
200						60	60
160				60	60	60	90
120			60	60	60	90	90
80		60	60	90	90	90	120
40	60	60	90	120	90	120	150
F					F	F	F
ED	20	20	20	20	20	20	20
H	20	60	100	140	140	180	220

7.3.4. Configuration design - Soil type Gravel

WT.Incl | TT.Slope 30° | ST.Gravel

Gravity wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2	3	4	4F	5	5F	6F	7F
400									
360									
320									
280									60
240								60	60
200						60	60	60	90
160				60	60	60	60	90	90
120			60	60	60	90	90	90	120
80		60	60	90	90	90	90	120	150
40	60	60	60	120	90	150	120	150	150
F					F		F	F	F
ED	20	20	20	20	20	20	20	20	20
H	20	60	100	140	140	180	180	220	260

Wall type

WT.Incl

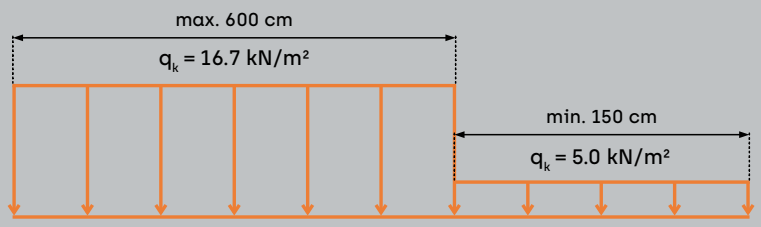
Gravity wall Inclined

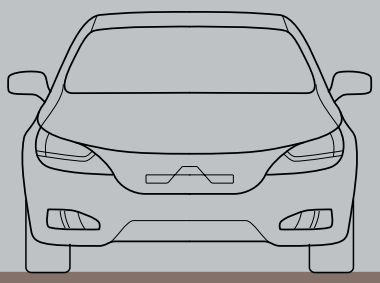
Terrain type

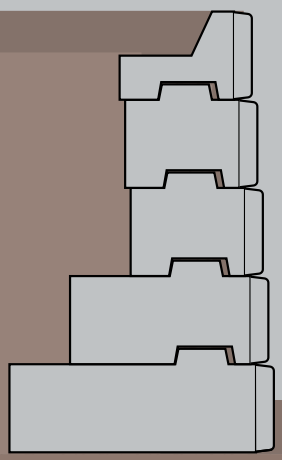
7.4 Road 16,7 kN

S16

TT.Road 16,7 kN Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²







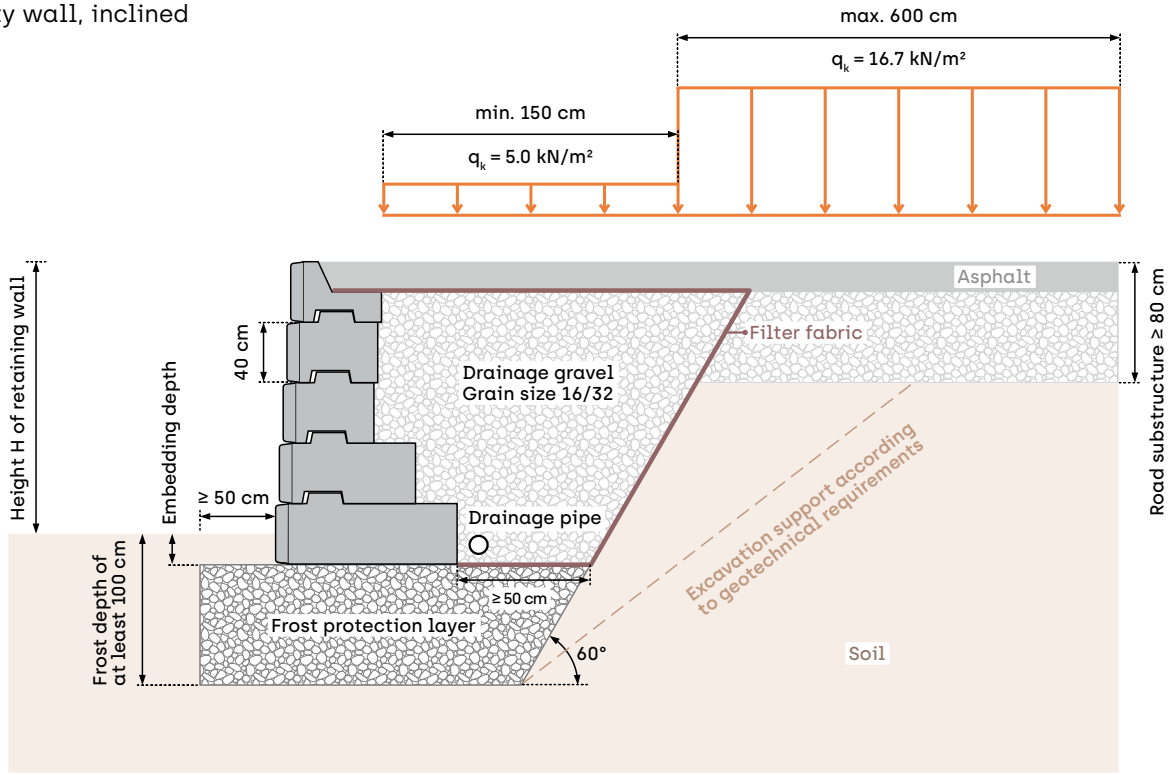
ST.Silt

ST.Sand-Gravel

ST.Gravel

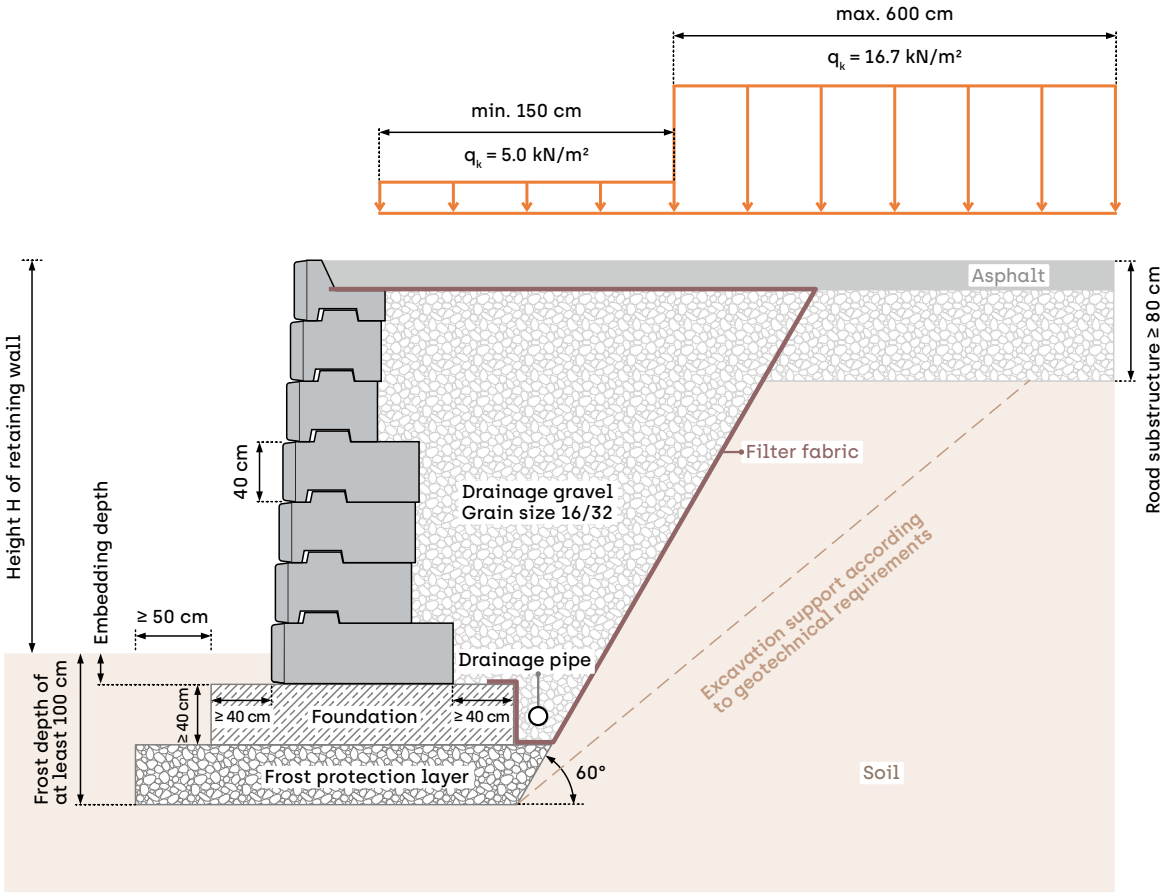
7.4.1. Standard section - Road 16,7 kN

Gravity wall, inclined



Standard section without foundation

WT.Incl | TT.Road 16,7 kN | without foundation



Standard section with foundation

WT.Incl | TT.Road 16,7 kN | with foundation

Configuration design - Road 16,7 kN

S16

Gravity wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Key

ED	The minimum required embedment depth of the blocks is 20 cm
H	Height of the retaining wall, taking into account the minimum embedment depth
F	Foundation required (component thickness at least 40 cm)

60 90 120 150

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

7.4.2. Configuration design - Soil type Silt

WT.Incl TT.Road 16,7 kN ST.Silt

Gravity wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F
400								
360								
320								
280								60
240							60	60
200					60	60	60	90
160				60	90	60	90	120
120			60	60	120	90	120	120
80		60	60	90	150	120	120	120
40	60	60	90	120	150	120	150	150
F						F	F	F
ED	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260

7.4.3. Configuration design - Soil type Sand-Gravel

WT.Incl | TT.Road 16,7 kN | ST.Sand-Gravel

Gravity wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F	9F
400										
360										60
320									60	90
280								60	60	90
240							60	60	90	120
200					60	60	60	90	90	120
160				60	90	60	90	90	120	150
120			60	60	120	90	90	120	120	150
80		60	60	90	150	90	120	120	150	150
40	60	60	90	120	150	120	150	150	150	150
F						F	F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300	340

7.4.4. Configuration design - Soil type Gravel

WT.Incl | TT.Road 16,7 kN | ST.Gravel

Gravity wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	1	2	3	4	5	5F	6F	7F	8F	9F
400										
360										60
320									60	90
280								60	60	90
240							60	60	90	120
200					60	60	60	90	90	120
160				60	90	60	90	90	120	150
120			60	60	120	90	90	120	120	150
80		60	60	90	150	90	120	120	150	150
40	60	60	90	120	150	120	120	150	150	150
F						F	F	F	F	F
ED	20	20	20	20	20	20	20	20	20	20
H	20	60	100	140	180	180	220	260	300	340

Wall type

WT.Incl

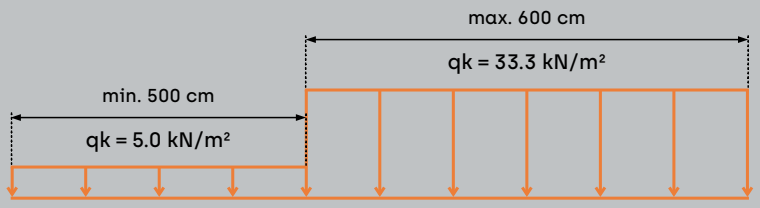
Gravity wall Inclined

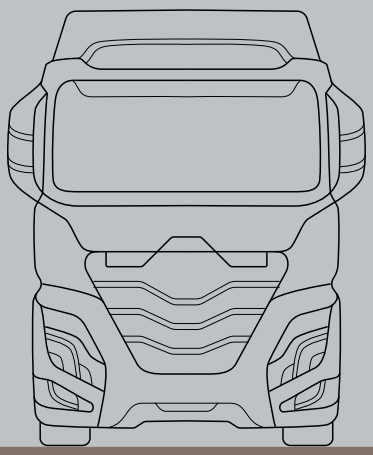
Terrain type

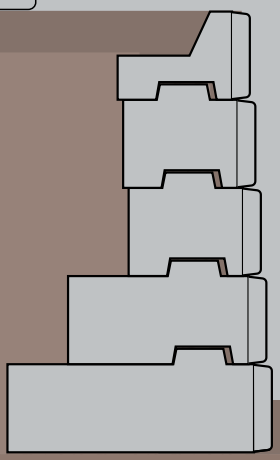
7.5 Road 33,3 kN

S33

TT.Road 33,3 kN Load case α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²







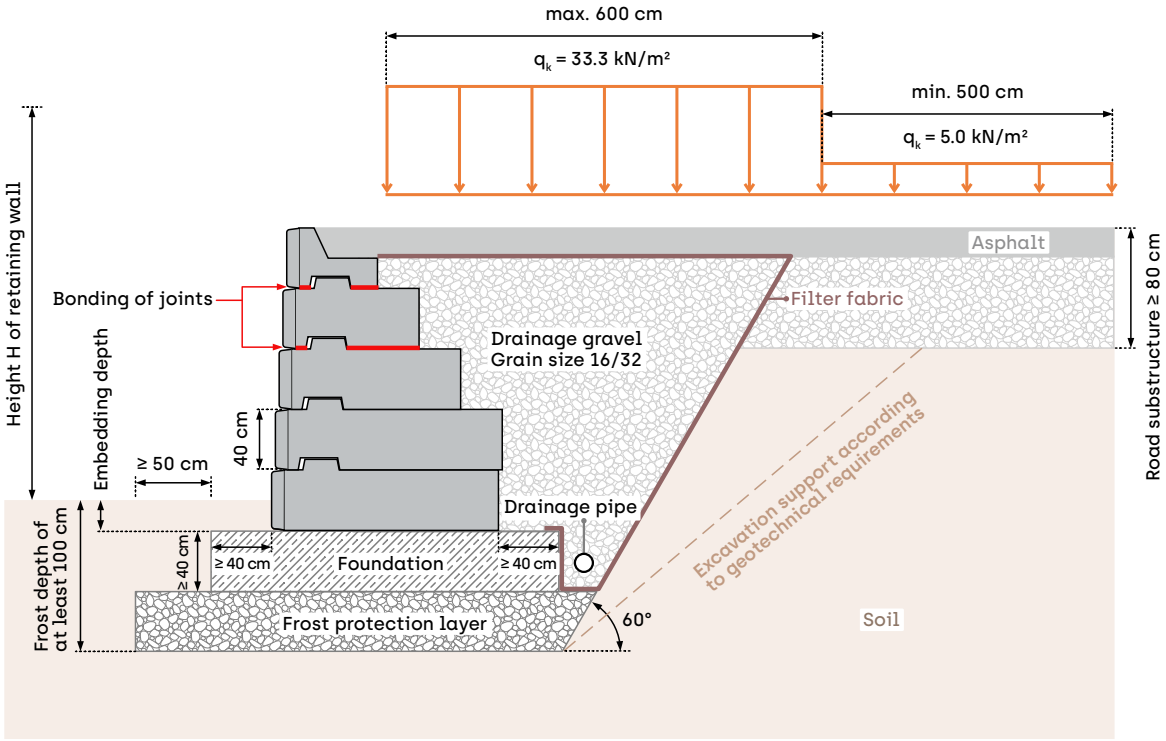
ST.Silt

ST.Sand-Gravel

ST.Gravel

7.5.1. Standard section Road 33,3 kN

Gravity wall, inclined



Standard section with foundation

WT.Incl | TT.Road 33,3 kN | with foundation

Configuration design Road 33,3 kN

S33

Gravity wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Key

ED	The minimum required embedment depth of the blocks is 20 cm
H	Height of the retaining wall, taking into account the minimum embedment depth
F	Foundation required (component thickness at least 40 cm)

60 90 120 150

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

7.5.2. Configuration design - Soil type Silt

WT.Incl TT.Road 33,3 kN ST.Silt

Gravity wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2F	3F	4F	5F
400					
360					
320					
280					
240					
200					60
160				60	90
120			60	90	120
80		60	90	120	150
40	60	120	120	150	150
F		F	F	F	F
ED	20	20	20	20	20
H	20	60	100	140	180

7.5.3. Configuration design - Soil type Sand-Gravel

WT.Incl | TT.Road 33,3 kN | ST.Sand-Gravel

Gravity wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	1	2F	3F	4F	5F
400					
360					
320					
280					
240					
200					60
160				60	90
120			60	90	120
80		60	90	120	150
40	60	120	120	150	150
F		F	F	F	F
ED	20	20	20	20	20
H	20	60	100	140	180

7.5.4. Configuration design - Soil type Gravel

WT.Incl | TT.Road 33,3 kN | ST.Gravel

Gravity wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

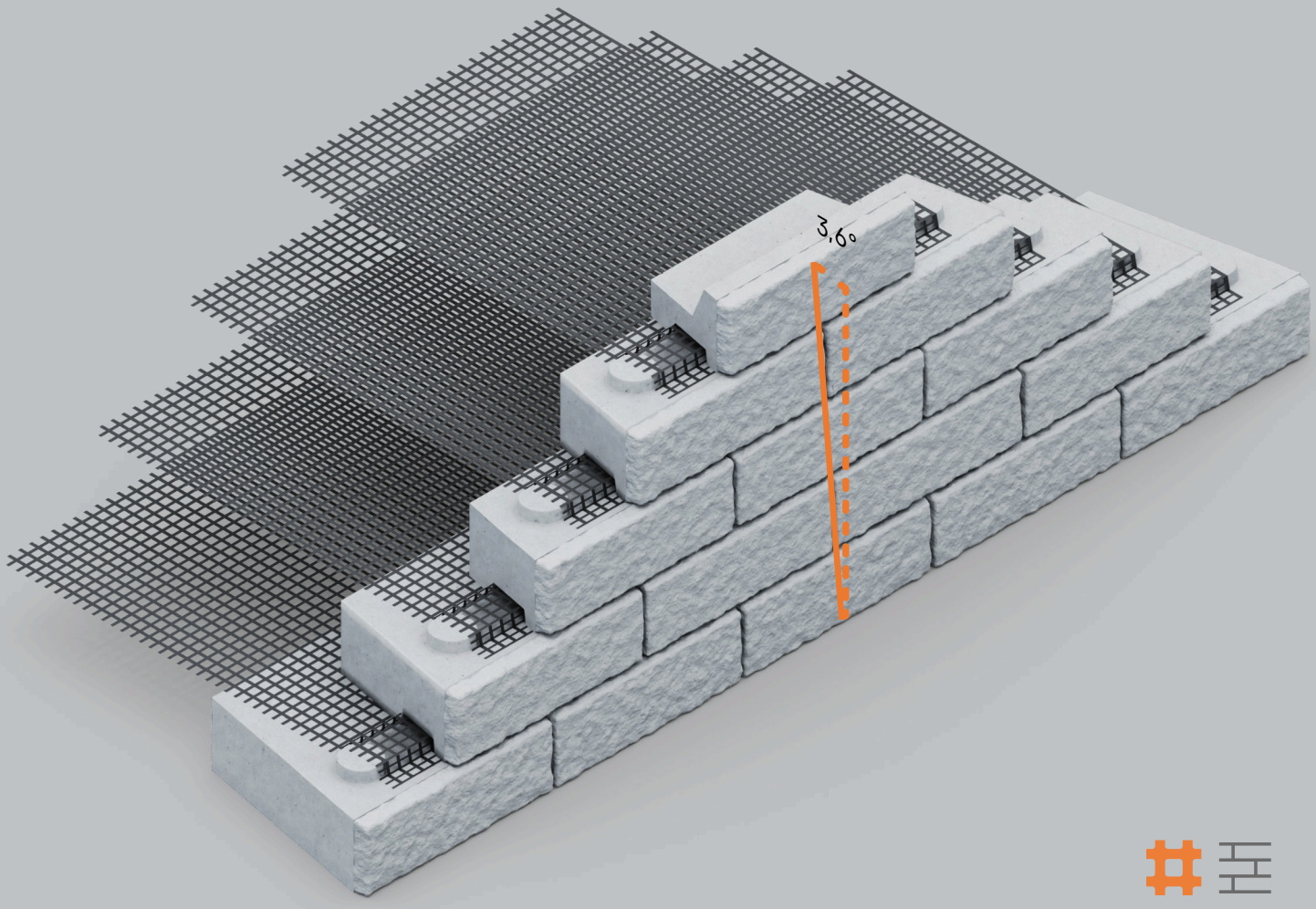
Number of block rows

Height in cm	1	2F	3F	4F	5F
400					
360					
320					
280					
240					
200					60
160				60	90
120			60	90	120
80		60	90	120	150
40	60	120	120	150	150
F		F	F	F	F
ED	20	20	20	20	20
H	20	60	100	140	180

8. Geogrid wall

WT.Grid

Inclined



Geogrid wall, inclined

Effective wall heights up to 5.20 m

5.60 m wall height, including a foundation depth of 40 cm

Significantly greater wall heights can be achieved through project-specific structural analysis.

5 Terrain types with load cases

7 Standard sections

15 Configuration designs

WT.Grid

TT.Flat | TT.Slope 20° | TT.Slope 30° | TT.Road 16,7 kN | TT.Road 33,3 kN

ST.Silt | ST.Sand-Gravel | ST.Gravel

with foundation | without foundation

The geogrid wall allows for a wall height of up to 5.60 m, including a burial depth of 40 cm. The effective wall height is therefore 5.20 m.

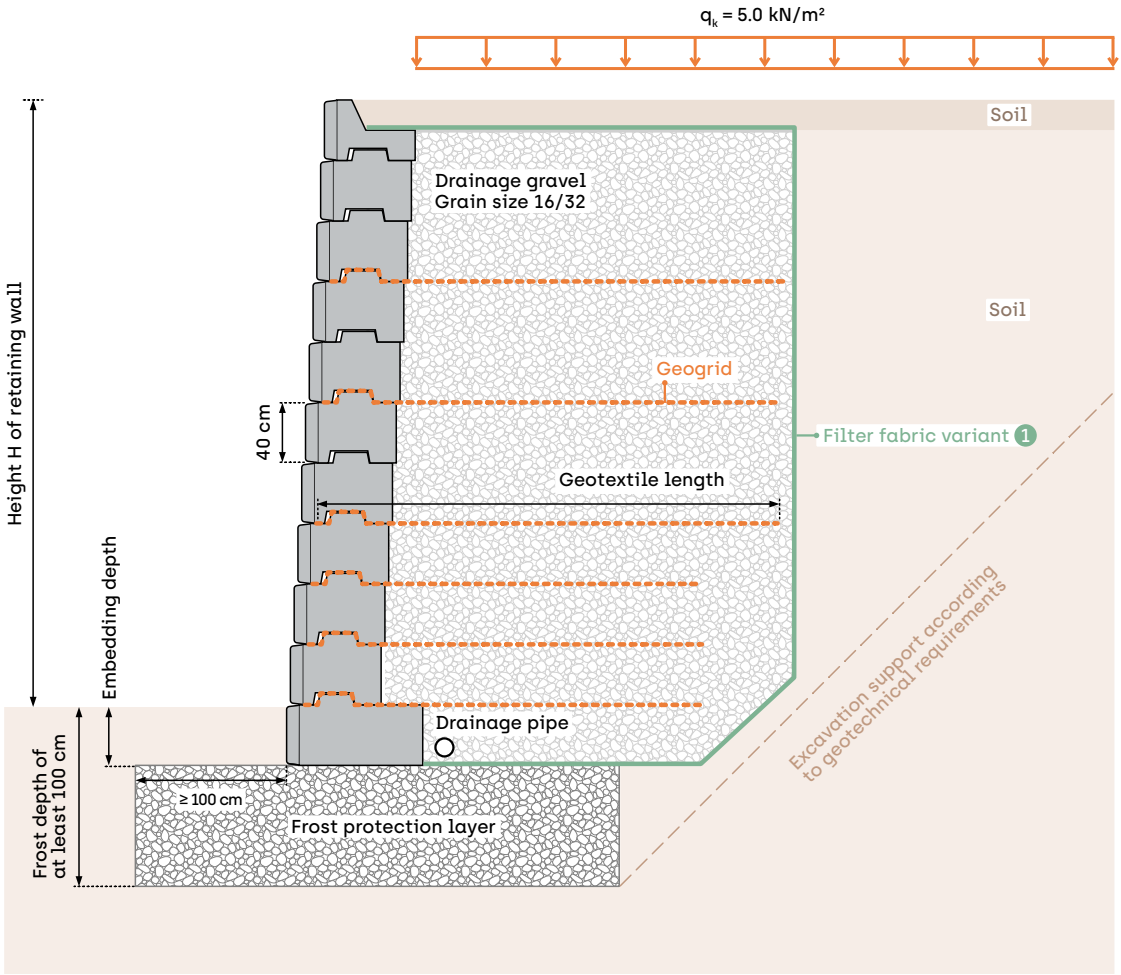
The structural analysis of the sloped gravity wall covers 5 terrain types with 7 standard sections and 15 structural diagrams with 3 soil types.

Installation options for filter fabric

For geogrid walls, there are two ways in which the filter fabric can be installed.

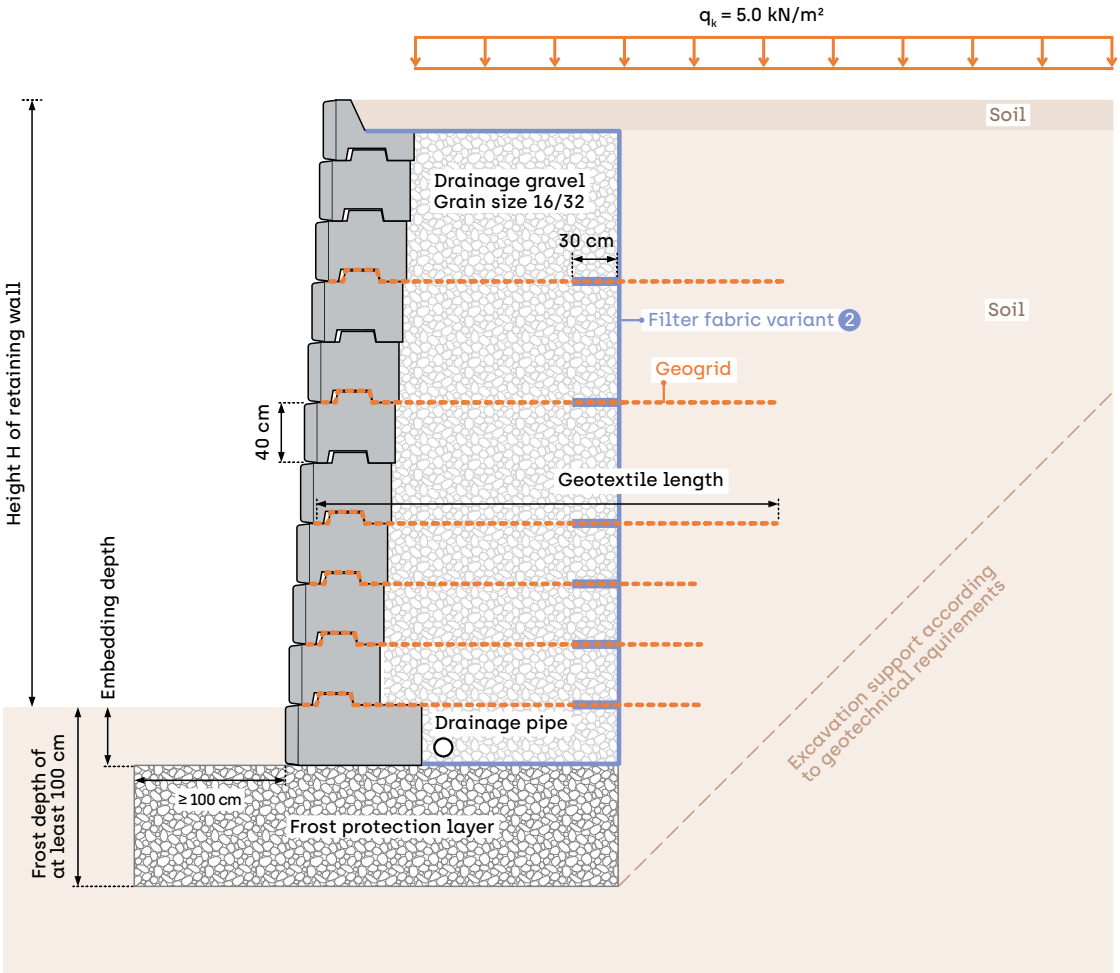
Filter fabric variant 1 — Fully wrapped

In order to separate the soil from the backfill, all geogrids are fully wrapped in a continuous filter fabric and the backfill extends to the end of the geogrids.



Filter fabric variant 2 — Individually wrapped

The backfill is shorter than the total length of the geogrids. In this case, the backfill must be individually wrapped between the geogrids to allow for separation between the soil and the backfill.



Wall type

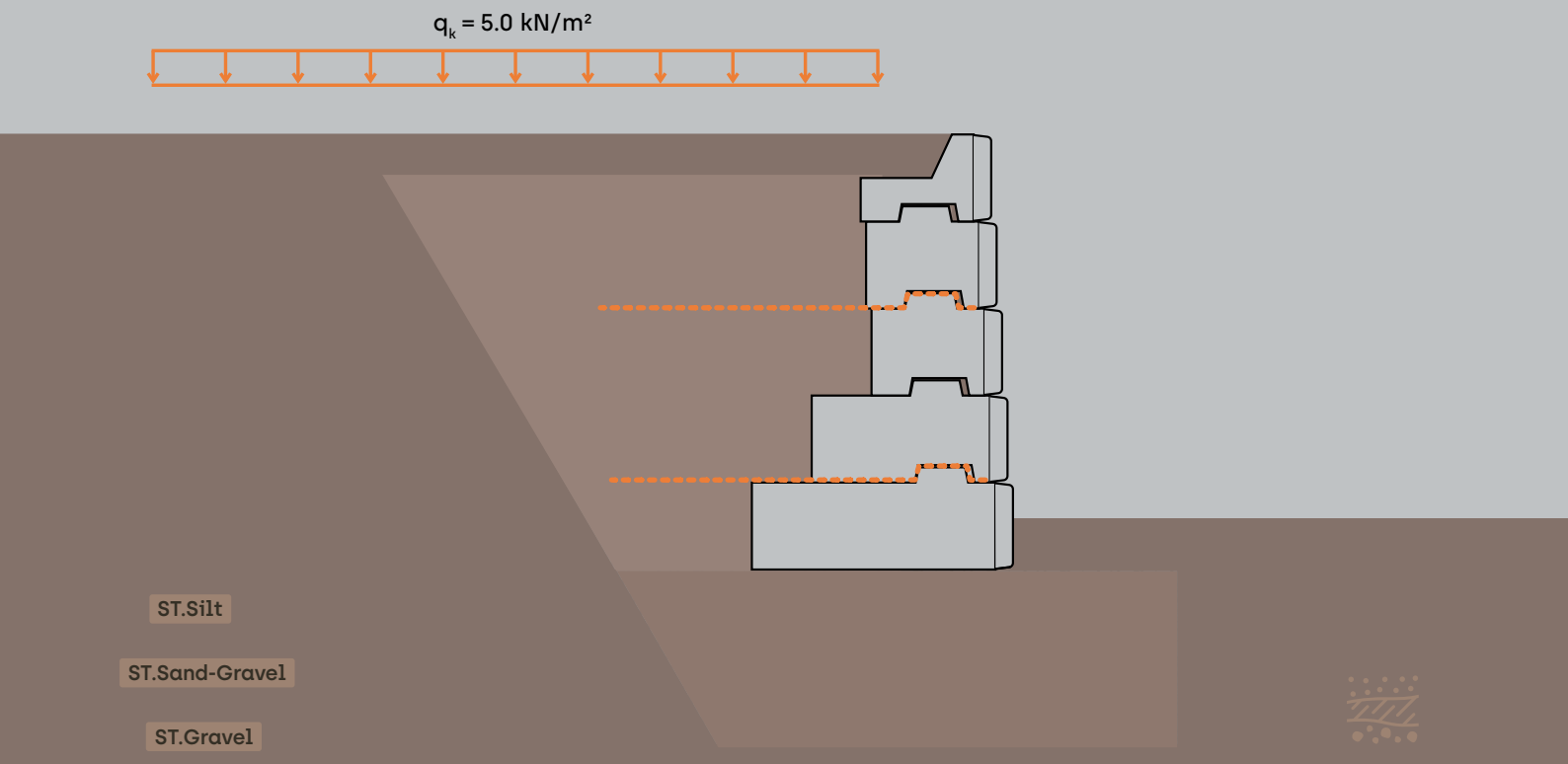
WT.Grid

Geogrid wall Inclined

Terrain type

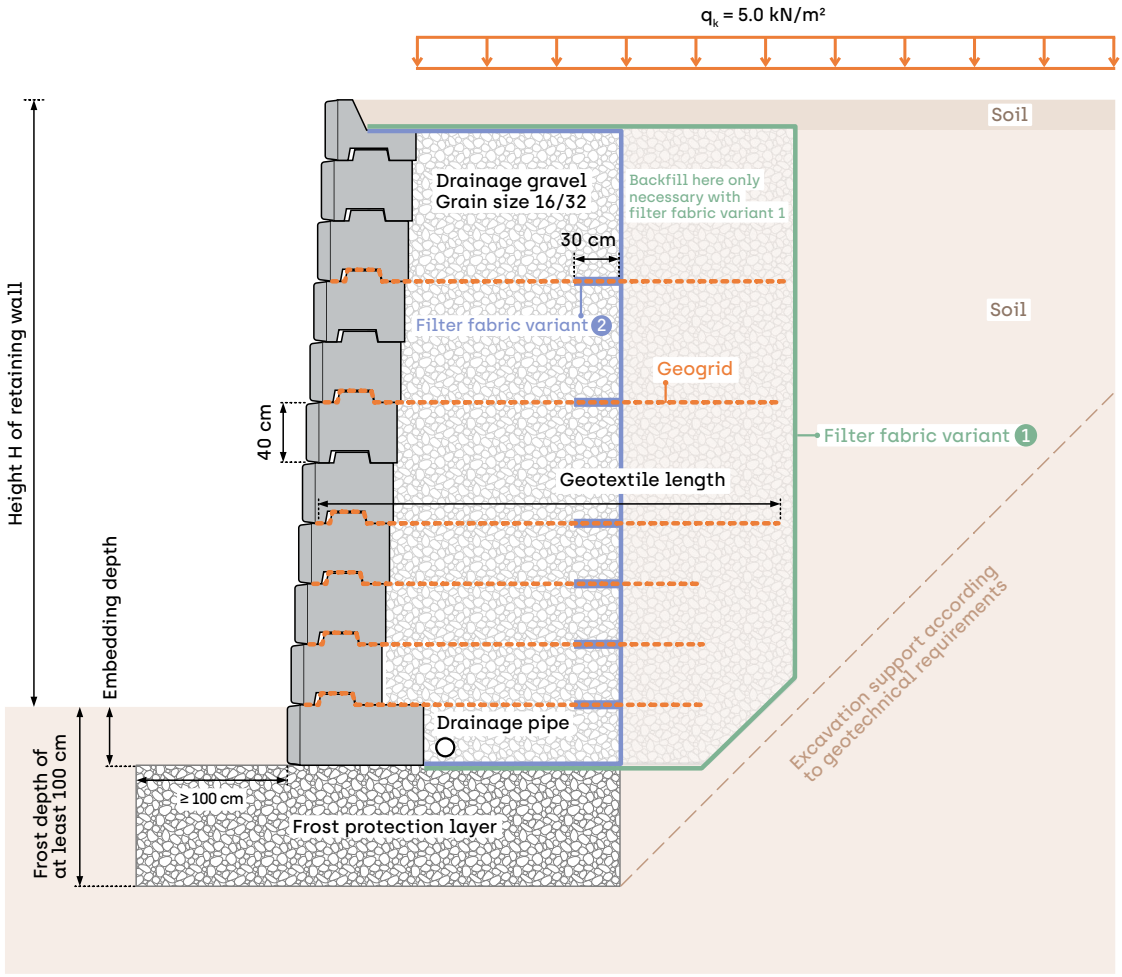
8.1 Flat terrain

TT.Flat Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m²



8.1.1. Standard section - Flat terrain

Geogrid wall, Inclined



Standard section without foundation

WT.Grid TT.Flat without foundation

Configuration design - Flat terrain

Geogrid wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Key

B Block type

GL Length of the geogrid in metres.
The geogrid of a row is placed under the block type of the same row.

ED The minimum required embedment depth for the blocks is 40 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

8.1.2. Configuration design - Soil type Silt

WT.Grid TT.Flat ST.Silt

Geogrid wall, inclined / Flat terrain α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																			60	-
520																	60	-	60	-
480															60	-	60	4,0	60	4,0
440													60	-	60	-	60	-	60	-
400											60	-	60	-	60	4,0	60	4,0	60	4,0
360									60	-	60	3,1	60	3,1	60	-	60	-	60	-
320							60	-	60	-	60	-	60	-	60	4,0	60	4,0	60	4,0
280					60	-	60	-	60	3,1	60	3,1	60	3,1	60	3,6	60	3,6	60	3,6
240			60	-	60	2,6	60	2,6	60	-	60	-	60	-	60	3,6	60	3,6	60	3,6
200	60	-	60	-	60	-	60	-	60	3,1	60	3,1	60	3,1	60	3,6	60	3,6	60	3,6
160	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	3,2	60	3,2	60	3,2
120	60	-	60	-	60	-	60	-	60	2,6	60	2,6	60	2,6	60	3,2	60	3,2	60	3,2
80	60	2,6	60	2,6	60	2,6	60	2,6	90	2,6	90	2,6	90	2,6	120	3,2	120	3,2	120	3,2
40	90		90		90		90		120		120		120		150		150		150	
ED	40		40		40		40		40		40		40		40		40		40	
H	160		200		240		280		320		360		400		440		480		520	

8.1.3. Configuration design - Soil type Sand-Gravel

WT.Grid TT.Flat ST.Sand-Gravel

Geogrid wall, inclined / Flat terrain α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																			60	-
520																	60	-	60	-
480															60	-	60	3,5	60	3,5
440													60	-	60	-	60	-	60	-
400											60	-	60	-	60	3,5	60	3,5	60	3,5
360									60	-	60	2,8	60	2,8	60	-	60	-	60	-
320							60	-	60	-	60	-	60	-	60	3,5	60	3,5	60	3,5
280					60	-	60	-	60	2,8	60	2,8	60	2,8	60	3,2	60	3,2	60	3,2
240			60	-	60	2,3	60	2,3	60	-	60	-	60	-	60	3,2	60	3,2	60	3,2
200	60	-	60	-	60	-	60	-	60	2,8	60	2,8	60	2,8	60	3,2	60	3,2	60	3,2
160	60	2,3	60	2,3	60	2,3	60	2,3	60	2,2	60	2,6	60	2,2	60	2,6	60	2,6	60	2,6
120	60	-	60	-	60	-	60	-	60	2,2	60	2,6	60	2,2	60	2,6	60	2,6	60	2,6
80	60	2,3	60	2,3	60	2,3	60	2,3	60	2,2	60	2,6	60	2,2	90	2,6	90	2,6	90	2,6
40	90		90		90		90		90		90		90		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40	
H	160		200		240		280		320		360		400		440		480		520	

8.1.4. Configuration design - Soil type Gravel

WT.Grid TT.Flat ST.Gravel

Geogrid wall, inclined / Flat terrain α = 3,6°, ß = 0°, q_k = 5.0 kN/m²

Number of block rows

Height in cm	5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																			60	-
520																	60	-	60	-
480															60	-	60	3,1	60	3,1
440													60	-	60	-	60	-	60	-
400											60	-	60	-	60	3,1	60	3,1	60	3,1
360									60	-	60	2,6	60	2,6	60	-	60	-	60	-
320							60	-	60	-	60	-	60	-	60	3,1	60	3,1	60	3,1
280					60	-	60	-	60	2,6	60	2,6	60	2,6	60	2,8	60	2,8	60	2,8
240			60	-	60	2,0	60	2,0	60	-	60	-	60	-	60	2,8	60	2,8	60	2,8
200	60	-	60	-	60	-	60	-	60	2,6	60	2,6	60	2,6	60	2,8	60	2,8	60	2,8
160	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,4	60	2,4	60	2,4
120	60	-	60	-	60	-	60	-	60	2,0	60	2,0	60	2,0	60	2,4	60	2,4	60	2,4
80	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	90	2,4	90	2,4	90	2,4
40	90		90		90		90		90		90		90		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40	
H	160		200		240		280		320		360		400		440		480		520	

Wall type

WT.Grid

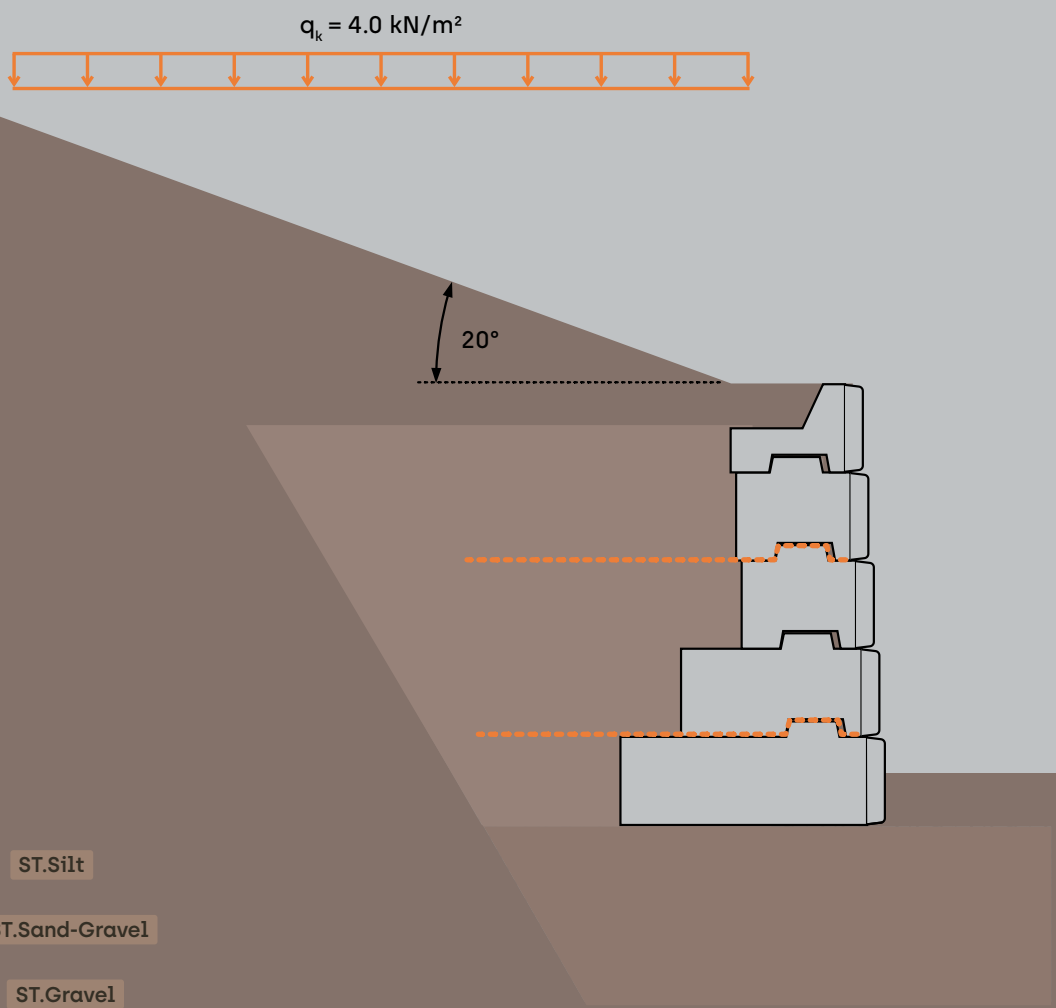
Geogrid wall Inclined

Terrain type

8.2 Slope 20°

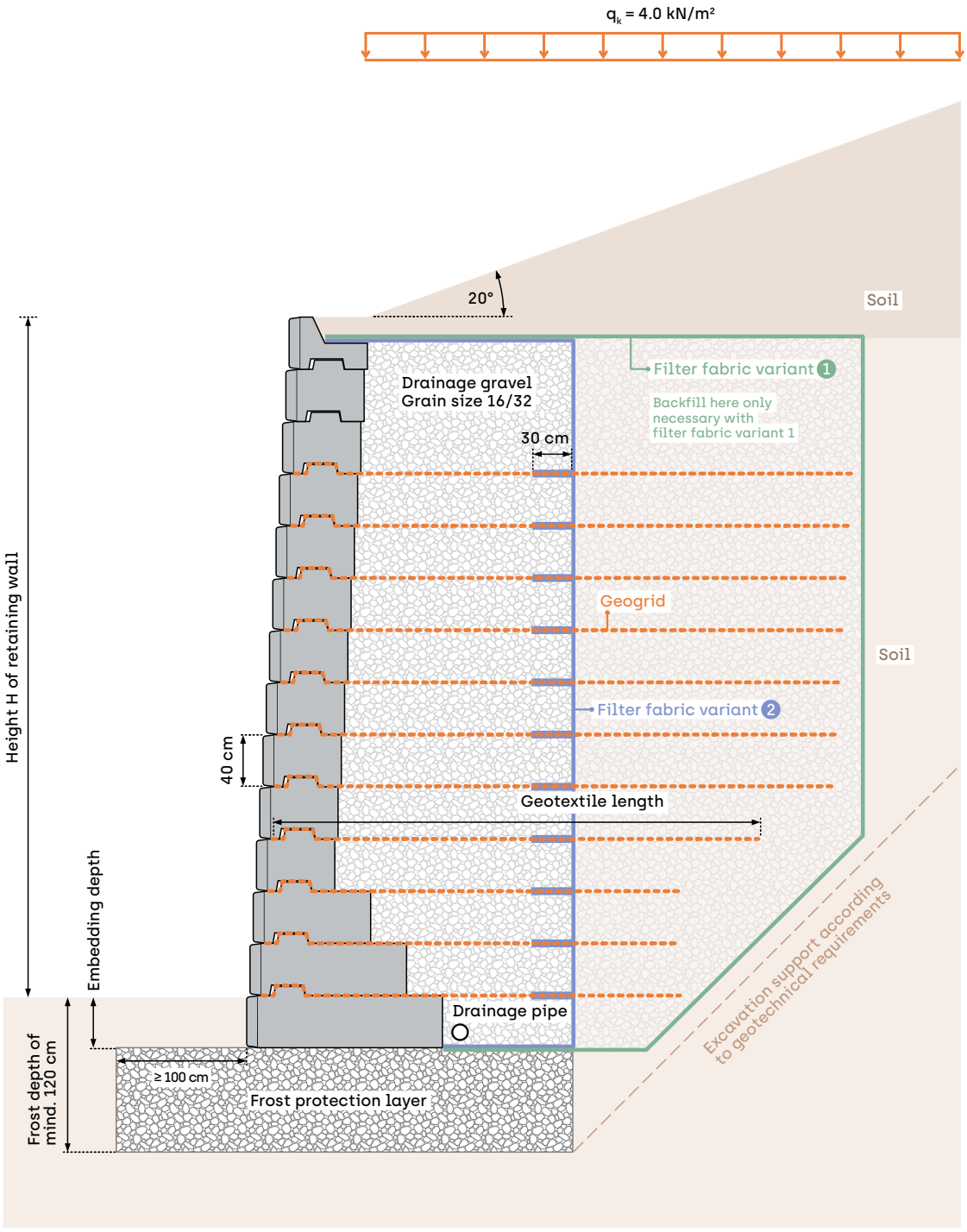
H20°

TT.Slope 20° Load case α = 3,6°, ß = 20°, q_k = 4.0 kN/m²



8.2.1. Standard section - Slope 20°

Geogrid wall, inclined



Standard section without foundation

WT.Grid | TT.Slope 20° | without foundation

Configuration design - Slope 20°

Geogrid wall, inclined / Load case α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Key

B Block type

GL Length of the geogrid in metres.
The geogrid of a row is placed under the block type of the same row.

ED The minimum required embedment depth for the blocks is 40 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

8.2.2. Configuration design - Soil type Silt

WT.Grid TT.Slope 20° ST.Silt

Geogrid wall, inclined / Slope 20° α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	-
480																	60	-	60	-	60	4,4
440															60	-	60	-	60	4,4	60	4,4
400													60	-	60	-	60	4,4	60	4,4	60	4,4
360											60	-	60	-	60	3,4	60	4,4	60	4,4	60	4,4
320									60	-	60	-	60	3,4	60	3,4	60	4,4	60	4,4	60	4,4
280							60	-	60	-	60	3,4	60	3,4	60	3,4	60	3,8	60	3,8	60	3,8
240					60	-	60	-	60	2,6	60	3,4	60	3,4	60	3,4	60	3,8	60	3,8	60	3,8
200			60	-	60	-	60	2,6	60	2,6	60	3,4	60	3,4	60	3,4	60	3,8	60	3,8	60	3,8
160	60	-	60	-	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	3,2	60	3,2	60	3,2
120	60	-	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	90	3,2	90	3,2	90	3,2
80	60	2,6	60	2,6	60	2,6	60	2,6	60	2,6	90	2,6	90	2,6	90	2,6	120	3,2	120	3,2	120	3,2
40	90		90		90		90		90		120		120		120		150		150		150	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

8.2.3. Configuration design - Soil type Sand-Gravel

WT.Grid | TT.Slope 20° | ST.Sand-Gravel

Geogrid wall, inclined / Slope 20° α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	-
480																	60	-	60	-	60	4,0
440															60	-	60	-	60	4,0	60	4,0
400													60	-	60	-	60	4,0	60	4,0	60	4,0
360											60	-	60	-	60	3,1	60	4,0	60	4,0	60	4,0
320									60	-	60	-	60	3,1	60	3,1	60	4,0	60	4,0	60	4,0
280							60	-	60	-	60	3,1	60	3,1	60	3,1	60	3,4	60	3,4	60	3,4
240					60	-	60	-	60	2,3	60	3,1	60	3,1	60	3,1	60	3,4	60	3,4	60	3,4
200			60	-	60	-	60	2,3	60	2,3	60	3,1	60	3,1	60	3,1	60	3,4	60	3,4	60	3,4
160	60	-	60	-	60	2,6	60	2,3	60	2,3	60	2,2	60	2,2	60	2,2	60	2,6	60	2,6	60	2,6
120	60	-	60	2,3	60	2,6	60	2,3	60	2,3	60	2,2	60	2,2	60	2,2	90	2,6	90	2,6	90	2,6
80	60	2,3	60	2,3	60	2,6	60	2,3	60	2,3	60	2,2	60	2,2	60	2,2	120	2,6	120	2,6	120	2,6
40	90		90		90		90		90		90		90		90		150		150		150	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

8.2.4. Configuration design - Soil type Gravel

WT.Grid | TT.Slope 20° | ST.Gravel

Geogrid wall, inclined / Slope 20° α = 3,6°, ß = 20°, q_k = 4.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	-
480																	60	-	60	-	60	3,5
440															60	-	60	-	60	3,5	60	3,5
400													60	-	60	-	60	3,5	60	3,5	60	3,5
360											60	-	60	-	60	3,1	60	3,5	60	3,5	60	3,5
320									60	-	60	-	60	3,1	60	3,1	60	3,5	60	3,5	60	3,5
280							60	-	60	-	60	3,1	60	3,1	60	3,1	60	3,0	60	3,0	60	3,0
240					60	-	60	-	60	2,0	60	3,1	60	3,1	60	3,1	60	3,0	60	3,0	60	3,0
200			60	-	60	-	60	2,0	60	2,0	60	3,1	60	3,1	60	3,1	60	3,0	60	3,0	60	3,0
160	60	-	60	-	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,4	60	2,4	60	2,4
120	60	-	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,4	60	2,4	60	2,4
80	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	90	2,4	90	2,4	90	2,4
40	90		90		90		90		90		90		90		90		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

Wall type

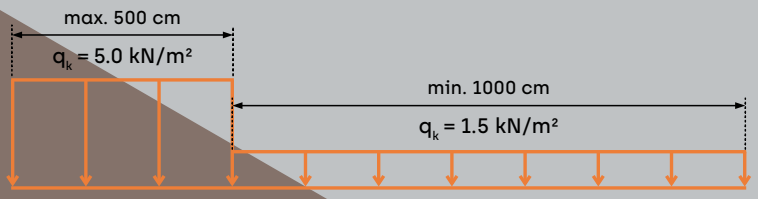
WT.Grid

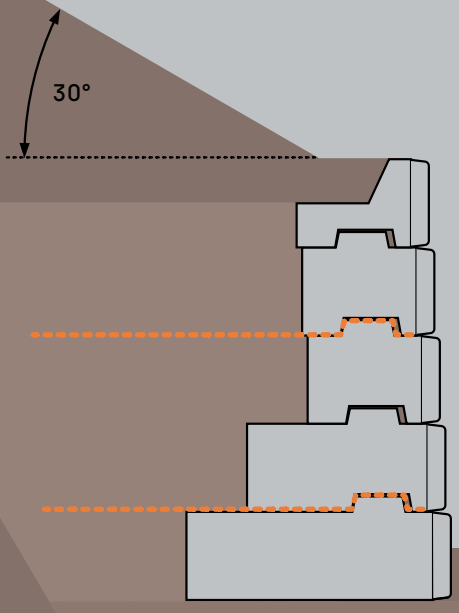
Geogrid wall Inclined

Terrain type

8.3 Slope 30°

TT.Slope 30° Load case α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²





ST.Silt

ST.Sand-Gravel

ST.Gravel

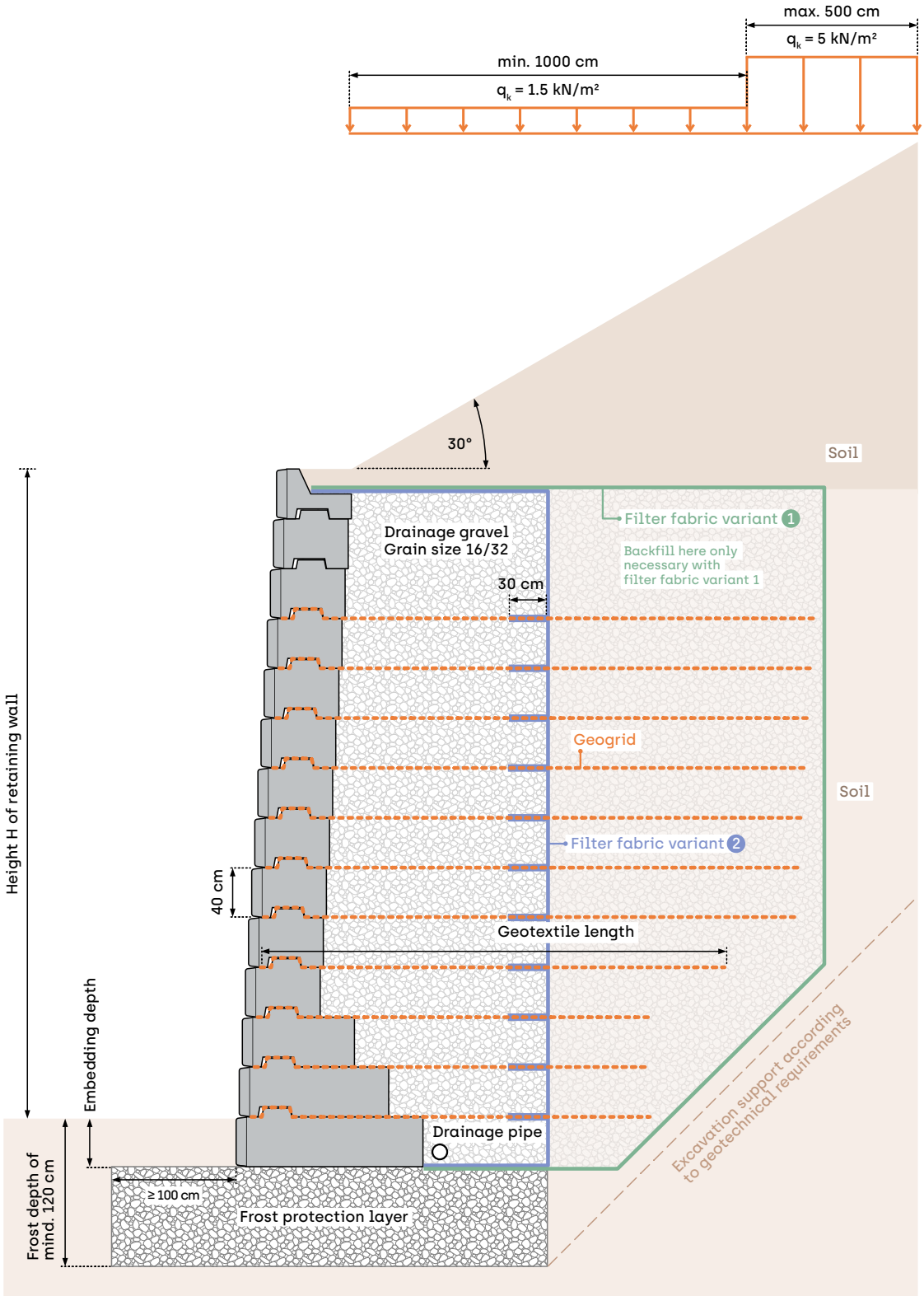
To achieve a wall height of 5.6 m for the **30° slope terrain** type and ensure stability, a foundation is required for certain soil types.

Therefore, two standard sections are provided, one without a foundation and one with a foundation.

Standard sections are shown on the following two pages.

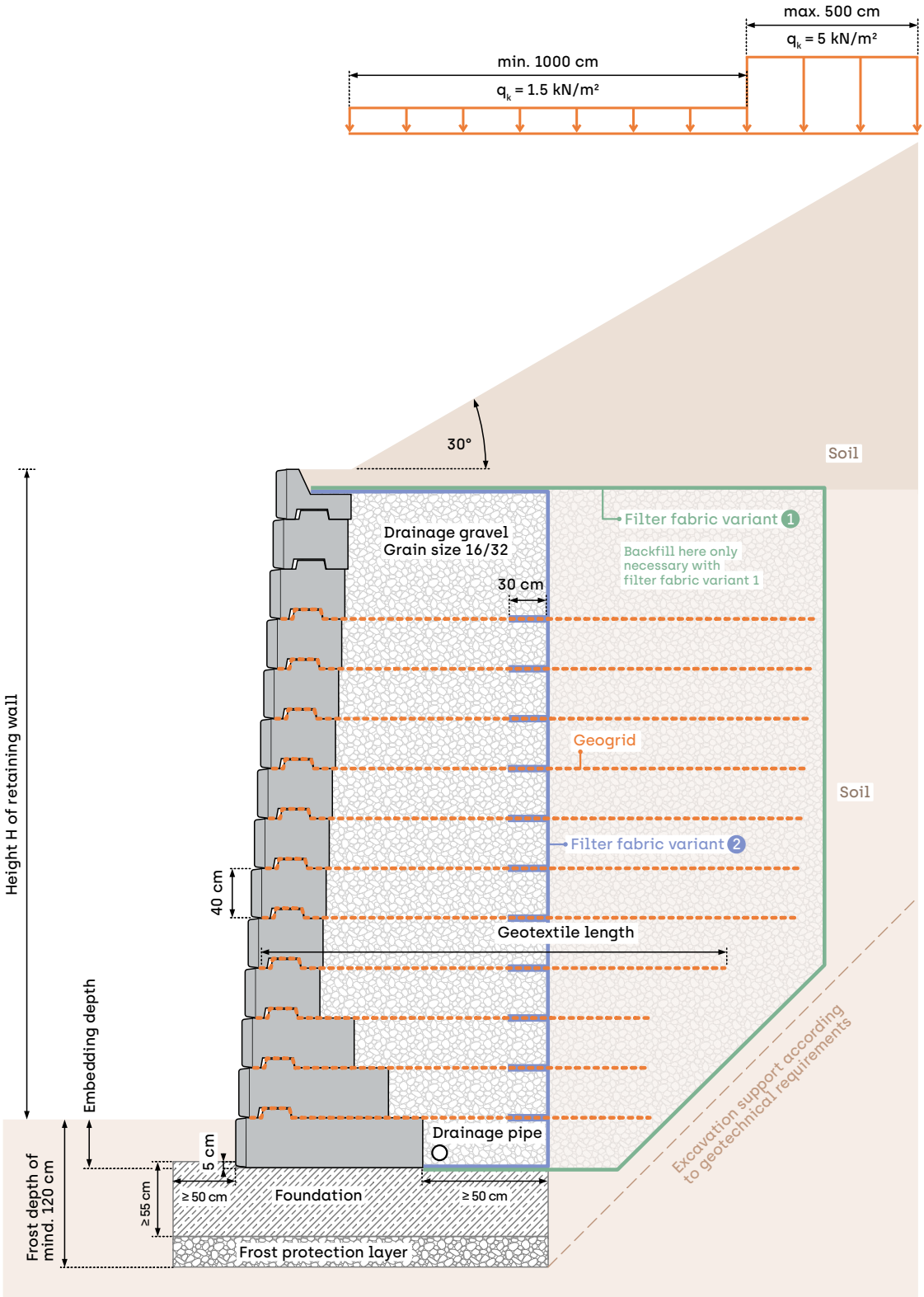
8.3.1. Standard section - Slope 30°

Geogrid wall, inclined



Standard section without foundation

WT.Grid | TT.Slope 30° | without foundation



Standard section with foundation

WT.Grid | TT.Slope 30° | with foundation

Configuration design - Slope 30°

Geogrid wall, inclined / Load case α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Key

B Block type

GL Length of the geogrid in metres.
The geogrid of a row is placed under the block type of the same row.

ED The minimum required embedment depth for the blocks is 40 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

8.3.2. Configuration design - Soil type Silt

WT.Grid TT.Slope 30° ST.Silt

Geogrid wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
360											60	-
320									60	-	60	4,0
280							60	-	60	4,0	60	4,0
240					60	-	60	3,3	60	4,0	60	4,0
200			60	-	60	2,6	60	3,3	60	4,0	60	4,0
160	60	-	60	2,6	60	2,6	60	3,3	60	4,0	60	4,0
120	60	2,6	60	-	60	-	60	-	60	-	60	-
80	60	-	60	2,6	60	2,6	60	3,3	60	3,7	90	4,0
40	90		90		90		90		90		120	
ED	40		40		40		40		40		40	
H	120		160		200		240		280		320	

8.3.3. Configuration design - Soil type Sand-Gravel

WT.Grid TT.Slope 30° ST.Sand-Gravel

Geogrid wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13F		14F	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	4,0
480																	60	-	60	4,0	60	4,0
440															60	-	60	4,0	60	4,0	60	4,0
400													60	-	60	4,0	60	4,0	60	4,0	60	4,0
360											60	-	60	3,4	60	4,0	60	4,0	60	4,0	60	4,0
320									60	-	60	3,4	60	3,4	60	4,0	60	4,0	60	4,0	60	3,4
280							60	-	60	2,4	60	3,4	60	3,4	60	3,4	60	3,4	60	3,4	60	3,4
240					60	-	60	2,4	60	2,4	60	3,4	60	3,4	60	3,4	60	3,4	60	3,4	60	3,4
200			60	-	60	2,4	60	2,4	60	2,4	60	2,7	60	2,7	60	2,7	60	2,7	60	2,7	60	2,7
160	60	-	60	2,4	60	2,4	60	2,4	60	2,4	60	2,7	60	2,7	60	2,7	60	2,7	60	2,7	60	2,7
120	60	2,4	60	-	60	-	60	-	60	-	60	-	60	-	60	-	90	-	90	-	90	-
80	60	-	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4	60	2,6	60	2,6	120	2,6	120	2,6	120	2,6
40	90		90		90		90		90		90		90		90		150		150		150	
F																			F		F	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

8.3.4. Configuration design - Soil type Gravel

WT.Grid TT.Slope 30° ST.Gravel

Geogrid wall, inclined / Slope 30° α = 3,6°, ß = 30°, q_k = 1.5 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14F	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	4,0
480																	60	-	60	4,0	60	4,0
440															60	-	60	3,5	60	3,5	60	3,5
400													60	-	60	3,5	60	3,5	60	3,5	60	3,5
360											60	-	60	3,5	60	3,5	60	3,5	60	3,5	60	3,5
320									60	-	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0
280							60	-	60	2,4	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0
240					60	-	60	2,2	60	2,4	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0	60	3,0
200			60	-	60	2,2	60	2,2	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4
160	60	-	60	2,2	60	2,2	60	2,2	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4	60	2,4
120	60	-	60	-	60	-	60	-	60	-	60	-	60	-	60	-	60	-	60	-	60	-
80	60	2,1	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	60	2,0	90	2,4	90	2,4	90	2,4
40	90		90		90		90		90		90		90		90		120		120		120	
F																					F	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

Wall type

WT.Grid

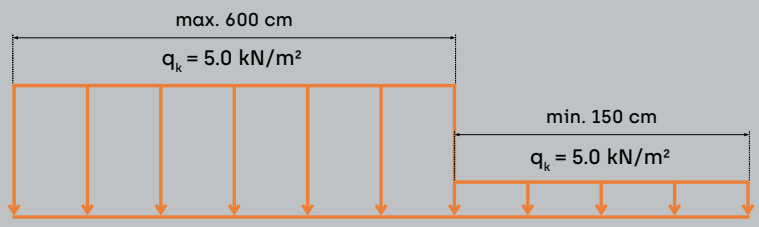
Geogrid wall Inclined

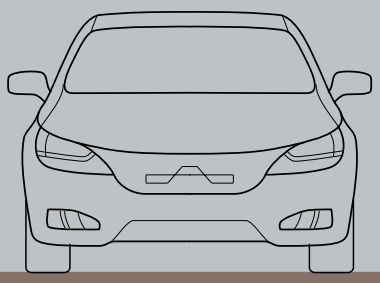
Terrain type

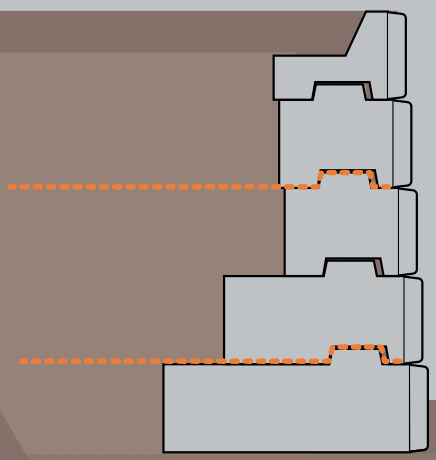
8.4 Road 16,7 kN

S16

TT.Road 16,7 kN Load case α = 0,0°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²







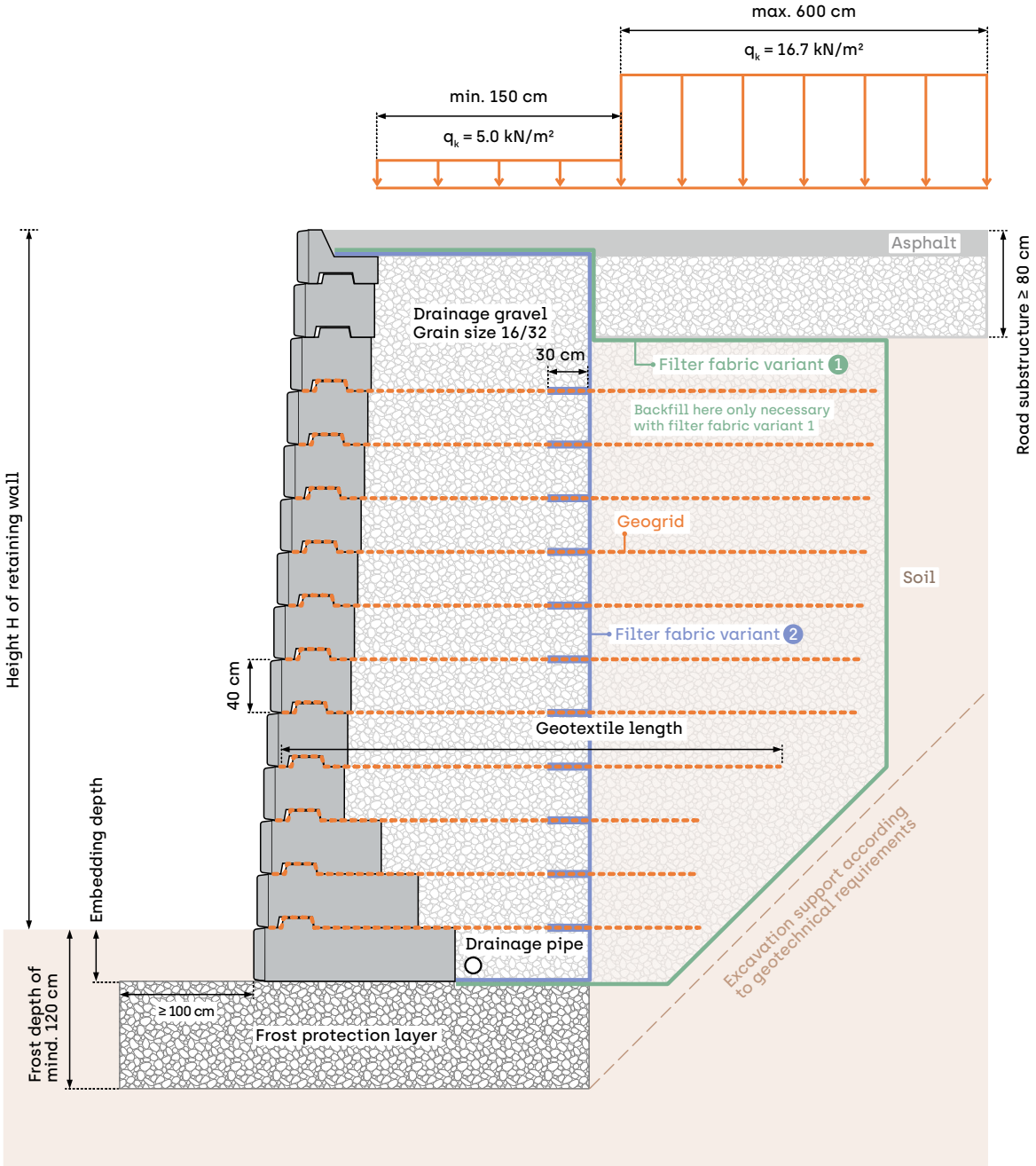
ST.Silt

ST.Sand-Gravel

ST.Gravel

8.4.1. Standard section - Road 16,7 kN

Geogrid wall, inclined



Standard section without foundation

WT.Grid | TT.Road 16,7 kN | without foundation

Configuration design - Road 16,7 kN

S16

Geogrid wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Key

B Block type

GL Length of the geogrid in metres.
The geogrid of a row is placed under the block type of the same row.

ED The minimum required embedment depth for the blocks is 40 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

8.4.2. Configuration design - Soil type Silt

WT.Grid TT.Road 16,7 kN ST.Silt

Geogrid wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	90	-
480																	60	-	90	-	90	4,9
440															60	-	90	-	90	4,9	90	4,9
400													60	-	90	-	90	4,9	90	4,9	90	4,9
360											60	-	90	-	90	4,0	90	4,9	90	4,9	90	4,9
320									60	-	90	-	90	4,0	90	4,0	90	4,9	90	4,9	90	4,9
280							60	-	60	-	90	4,0	90	4,0	90	4,0	90	4,9	90	4,9	90	4,2
240					60	-	60	-	90	3,1	90	4,0	90	4,0	90	4,0	90	4,2	90	4,2	90	4,2
200			60	-	60	-	90	3,1	90	3,1	90	4,0	90	4,0	90	4,0	90	4,2	90	4,2	90	4,2
160	60	-	60	-	90	3,1	90	3,1	90	3,1	90	3,0	90	3,0	90	3,0	90	3,4	90	3,4	90	3,4
120	60	-	90	3,1	90	3,1	90	3,1	90	3,1	90	3,0	90	3,0	90	3,0	90	3,4	90	3,4	90	3,4
80	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,0	90	3,0	90	3,0	120	3,4	120	3,4	120	3,4
40	90		90		90		90		90		120		120		120		150		150		150	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

8.4.3. Configuration design - Soil type Sand-Gravel

WT.Grid TT.Road 16,7 kN ST.Sand-Gravel

Geogrid wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	-
480																	60	-	60	-	90	4,2
440															60	-	60	-	90	4,2	90	4,2
400													60	-	60	-	90	4,2	90	4,2	90	4,2
360											60	-	60	-	90	3,4	90	4,2	90	4,2	90	4,2
320									60	-	60	-	90	3,4	90	3,4	90	4,2	90	4,2	90	4,2
280							60	-	60	-	90	3,4	90	3,4	90	3,4	90	3,6	90	3,6	90	3,6
240					60	-	60	-	90	2,6	90	3,4	90	3,4	90	3,4	90	3,6	90	3,6	90	3,6
200			60	-	60	-	90	2,6	90	2,6	90	3,4	90	3,4	90	3,4	90	3,6	90	3,6	90	3,6
160	60	-	60	-	90	2,6	90	2,6	90	2,6	90	2,4	90	2,4	90	2,4	90	2,6	90	2,6	90	2,6
120	60	-	90	2,6	90	2,6	90	2,6	90	2,6	90	2,4	90	2,4	90	2,4	90	2,6	90	2,6	90	2,6
80	90	2,6	90	2,6	90	2,6	90	2,6	90	2,6	90	2,4	90	2,4	90	2,4	120	2,6	120	2,6	120	2,6
40	90		90		90		90		90		120		120		120		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

8.4.4. Configuration design - Soil type Gravel

WT.Grid TT.Road 16,7 kN ST.Gravel

Geogrid wall, inclined / Road 16,7 kN α = 3,6°, ß = 0°, q_k = 5.0 kN/m² und 16.7 kN/m²

Number of block rows

Height in cm	4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																					60	-
520																			60	-	60	-
480																	60	-	60	-	90	3,8
440															60	-	60	-	90	3,8	90	3,8
400													60	-	60	-	90	3,8	90	3,8	90	3,8
360											60	-	60	-	90	3,1	90	3,8	90	3,8	90	3,8
320									60	-	60	-	90	3,1	90	3,1	90	3,8	90	3,8	90	3,8
280							60	-	60	-	90	3,1	90	3,1	90	3,1	90	3,2	90	3,2	90	3,2
240					60	-	60	-	90	2,3	90	3,1	90	3,1	90	3,1	90	3,2	90	3,2	90	3,2
200			60	-	60	-	90	2,3	90	2,3	90	3,1	90	3,1	90	3,1	90	3,2	90	3,2	90	3,2
160	60	-	60	-	90	2,3	90	2,3	90	2,3	90	2,2	90	2,2	90	2,2	90	2,4	90	2,4	90	2,4
120	60	-	90	2,3	90	2,3	90	2,3	90	2,3	90	2,2	90	2,2	90	2,2	90	2,4	90	2,4	90	2,4
80	90	2,3	90	2,3	90	2,3	90	2,3	90	2,3	90	2,2	90	2,2	90	2,2	90	2,4	90	2,4	90	2,4
40	90		90		90		90		90		120		120		120		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40		40	
H	120		160		200		240		280		320		360		400		440		480		520	

Wall type

WT.Grid

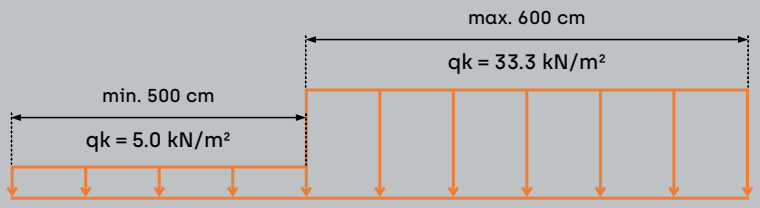
Geogrid wall Inclined

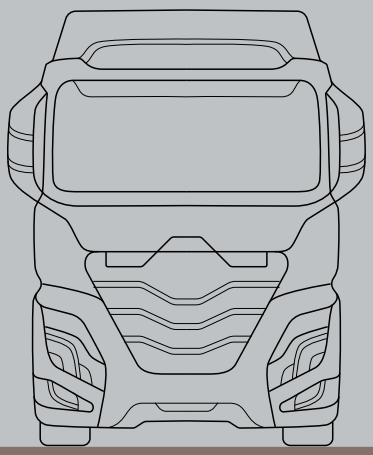
Terrain type

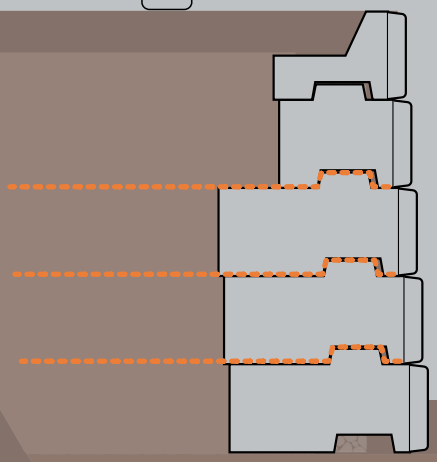
8.5 Road 33,3 kN

S33

TT.Road 33,3 kN Load case α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²







ST.Silt

ST.Sand-Gravel

ST.Gravel

To achieve a wall height of 5.6 m for the **Road 33.3 kN** terrain type and ensure stability, a foundation is required for certain soil types.

Therefore, two standard sections are provided, one without a foundation and one with a foundation.

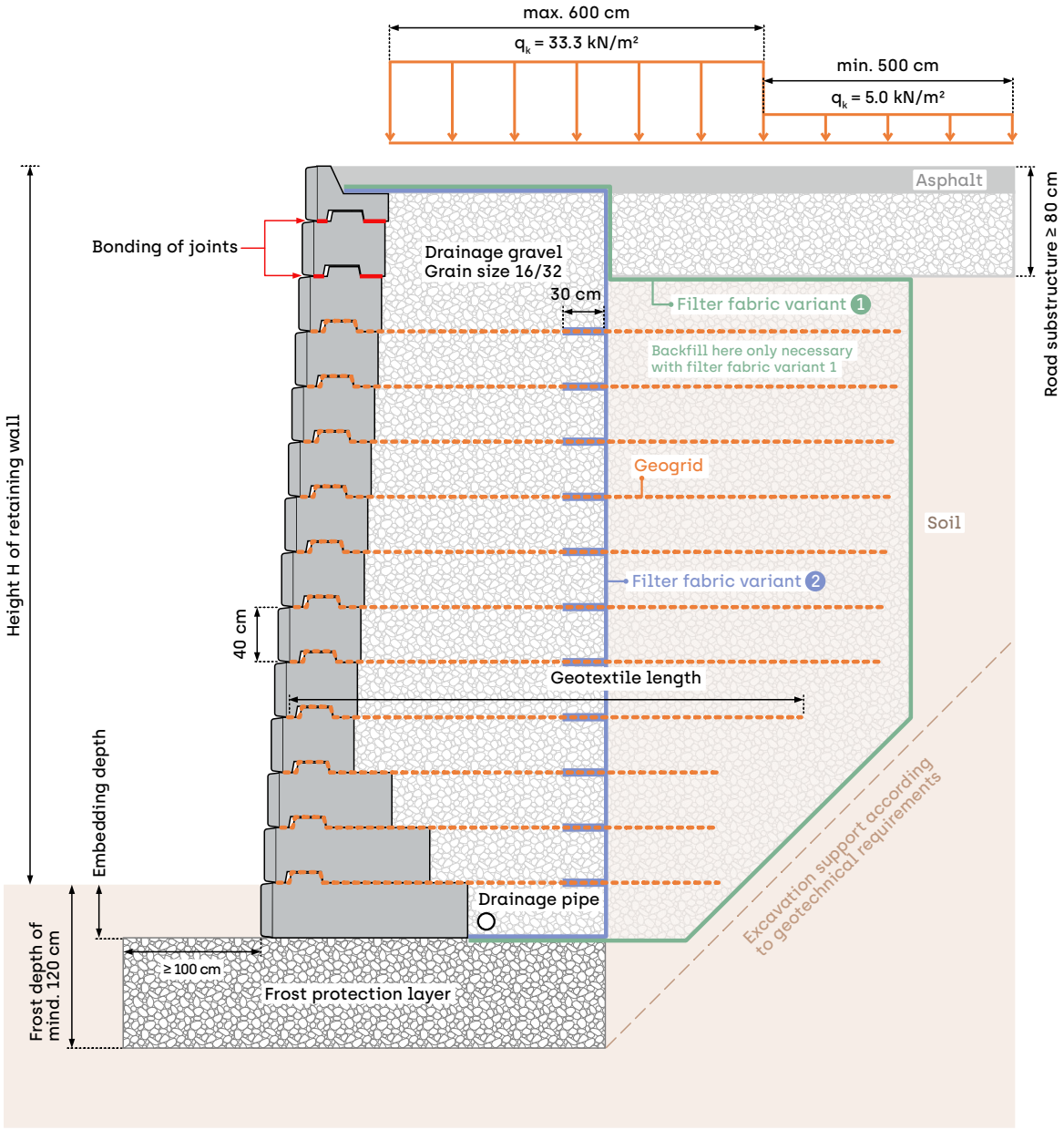
For this terrain type, Road 33,3 kN, the two joints between the top three block courses must be permanently bonded using a suitable method to ensure structural load transfer. When using an adhesive or bonding mortar, it must be ensured that the tensile bond strength of the adhesive exceeds the tensile strength of the concrete.

Standard sections are shown on the following two pages.

8.5.1. Standard section - Road 33,3 kN

Geogrid wall, inclined

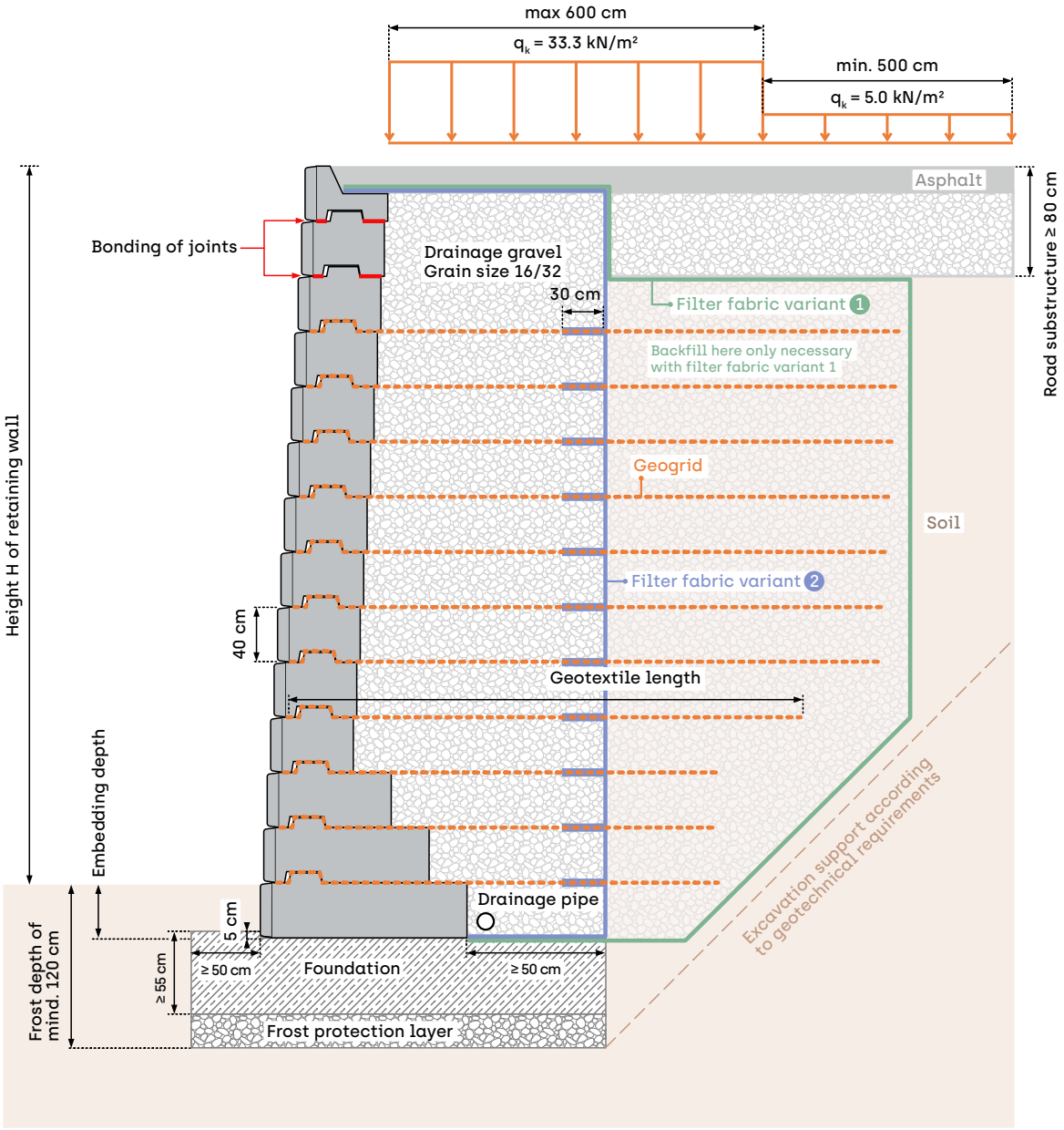
The two joints between the top three block courses must be permanently bonded using a suitable method to ensure structural load transfer. When using an adhesive or bonding mortar, it must be ensured that the tensile bond strength of the adhesive exceeds the tensile strength of the concrete.



Standard section without foundation

WT.Grid | TT.Road 33,3 kN | without foundation

The two joints between the top three block courses must be permanently bonded using a suitable method to ensure structural load transfer. When using an adhesive or bonding mortar, it must be ensured that the tensile bond strength of the adhesive exceeds the tensile strength of the concrete.



Standard section with foundation

WT.Grid | TT.Road 33,3 kN | with foundation

Configuration design - Road 33,3 kN

S33

Geogrid wall, inclined / Load case α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Key

B Block type

GL Length of the geogrid in metres.
The geogrid of a row is placed under the block type of the same row.

ED The minimum required embedment depth for the blocks is 40 cm

H Height of the retaining wall, taking into account the minimum embedment depth

F Foundation required (component thickness at least 40 cm)

60 **90** **120** **150**

The figures 60, 90, 120 and 150 in the tables below indicate the required block depth in centimetres.

8.5.2. Configuration design - Soil type Silt

WT.Grid TT.Road 33,3 kN ST.Silt

Geogrid wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	3		4		5		6		7		8		9		10		11		12F		13F		14F	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																							60	4,8
520																					60	4,8	90	4,8
480																			60	4,3	90	4,8	90	4,8
440																	60	4,3	90	4,3	90	4,8	90	4,8
400															60	3,9	90	4,3	90	4,3	90	4,8	90	4,8
360													60	3,9	90	3,9	90	4,3	90	4,3	90	4,8	90	4,8
320											60	3,9	90	3,9	90	3,9	90	4,3	90	4,3	90	4,1	90	4,1
280									60	3,7	60	3,9	90	3,9	90	3,9	90	3,9	90	3,9	90	4,1	90	4,1
240							60	3,1	60	3,7	90	3,9	90	3,9	90	3,9	90	3,9	90	3,9	90	4,1	90	4,1
200					60	3,1	60	3,1	90	3,1	90	3,0	90	3,0	90	3,0	90	3,3	90	3,3	90	3,5	90	3,5
160			60	-	60	3,1	90	3,1	90	3,1	90	3,0	90	3,0	90	3,0	90	3,3	90	3,3	90	3,5	90	3,5
120	60	-	60	3,1	90	3,1	90	3,1	90	3,1	90	3,0	90	3,0	90	3,0	90	3,3	90	3,3	90	3,5	90	3,5
80	60	3,1	90	3,1	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	3,5	90	3,5
40	90		90		90		90		90		90		120		120		120		120		120		120	
F																			F		F		F	
ED	40		40		40		40		40		40		40		40		40		40		40		40	
H	80		120		160		200		240		280		320		360		400		440		480		520	

8.5.3. Configuration design - Soil type Sand-Gravel

WT.Grid | TT.Road 33,3 kN | ST.Sand-Gravel

Geogrid wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	3		4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																							60	4,7
520																					60	4,7	90	4,7
480																			60	4,7	90	4,7	90	4,7
440																	60	4,7	90	4,7	90	4,7	90	4,7
400															60	3,7	90	4,7	90	4,7	90	4,7	90	4,7
360													60	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7
320											60	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7
280									60	3,7	60	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7
240							60	3,1	60	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7	90	3,7
200					60	3,1	60	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1
160			60	3,1	60	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1
120	60	3,1	60	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1	90	3,1
80	60	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	120	-	120	-	120	-
40	90		90		90		90		90		90		120		120		120		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40		40		40	
H	80		120		160		200		240		280		320		360		400		440		480		520	

8.5.4. Configuration design - Soil type Gravel

WT.Grid | TT.Road 33,3 kN | ST.Gravel

Geogrid wall, inclined / Road 33,3 kN α = 3,6°, ß = 0°, q_k = 33,3 kN/m² und 5.0 kN/m²

Number of block rows

Height in cm	3		4		5		6		7		8		9		10		11		12		13		14	
	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL	B	GL
560																							60	4,5
520																					60	4,5	90	4,5
480																			60	4,5	90	4,5	90	4,5
440																	60	4,5	60	4,5	90	4,5	90	4,5
400															60	3,5	60	4,5	90	4,5	90	4,5	90	4,5
360													60	3,5	60	3,5	90	3,5	90	3,5	90	3,5	90	3,5
320											60	3,5	60	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5
280									60	3,5	60	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5
240							60	2,9	60	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5	90	3,5
200					60	2,9	60	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9
160			60	2,9	60	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9
120	60	2,9	60	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9	90	2,9
80	60	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-
40	90		90		90		90		90		90		120		120		120		120		120		120	
ED	40		40		40		40		40		40		40		40		40		40		40		40	
H	80		120		160		200		240		280		320		360		400		440		480		520	

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