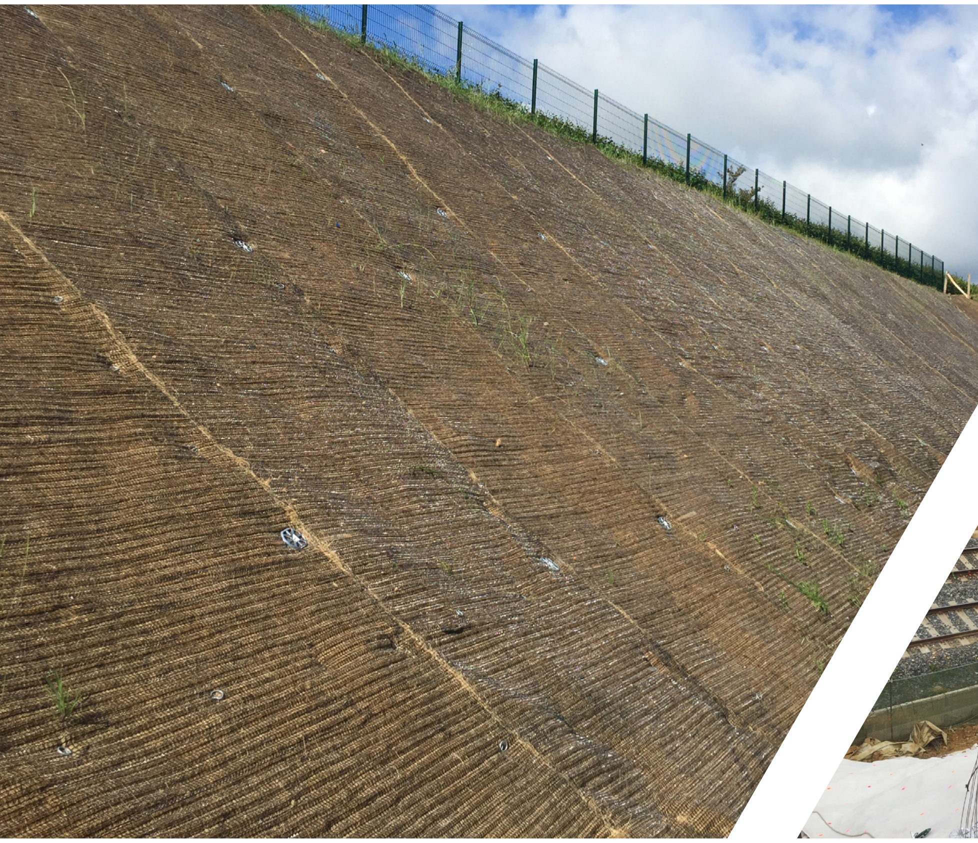
Technical Recommendations

CUSTOMER : Skyraikes Ltd

Project : Former Quarry off Low Lane



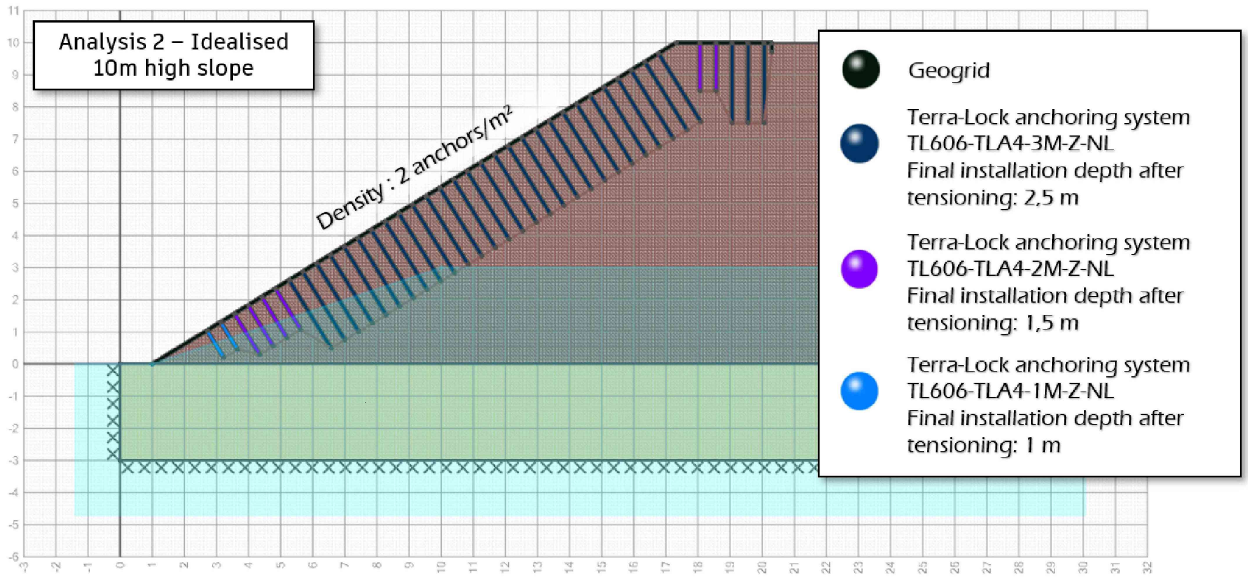
Reference : CTR-11822

Studied by : PH

Date : 07/20/23

SECTIONS

Indicative installation layout



Considered materials

Mohr-Coulomb Material(s)

Key	Name	Unit Weight (Saturated Unit Weight)	Drainage Behaviour	c' (ϕ')	c_u (datum) (gradient) (grid)
(brown)	Gravelly clay	18 (18)	Drained/undrained	0* (35*)	0 (0) (0) (-)
(beige)	Rock	23 (23)	Drained/undrained	0* (50*)	0 (0) (0) (-)

Results

(EC7DA1/2)

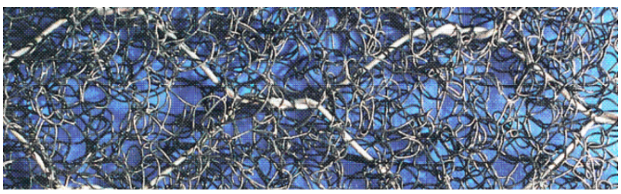
Adequacy factor without protection : 0.90
Adequacy factor with protection : 1.00

Notes

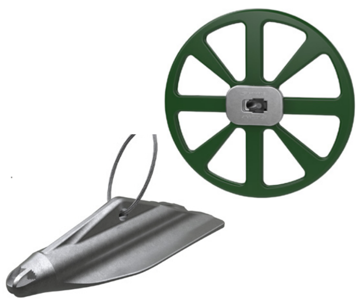
Occasional cobbles and boulders of limestone may be encountered in the slopes.
These could prevent proper installation of the anchoring systems and thus compromise stability.

Tests on site are mandatory to confirm feasibility and considered hypothesis.

Products



Double twist hexagonal woven steel wire mesh onto which a 3D geomat matrix is extruded



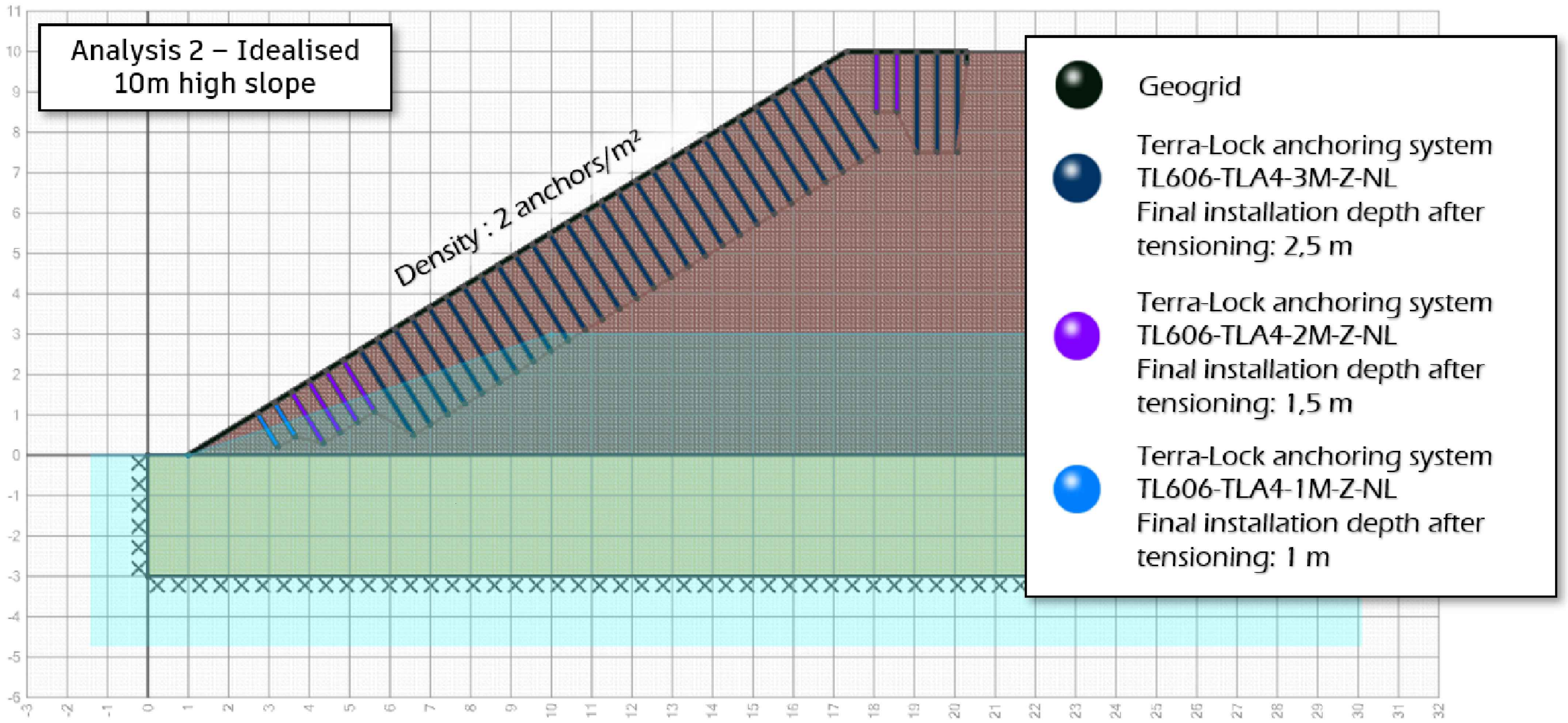
TL606-TLA4-1M-Z-NL
2M
3M

TL-P4

TECHNICAL

DRAWINGS

Indicative Terra-Lock™ System Slope Installation Detail

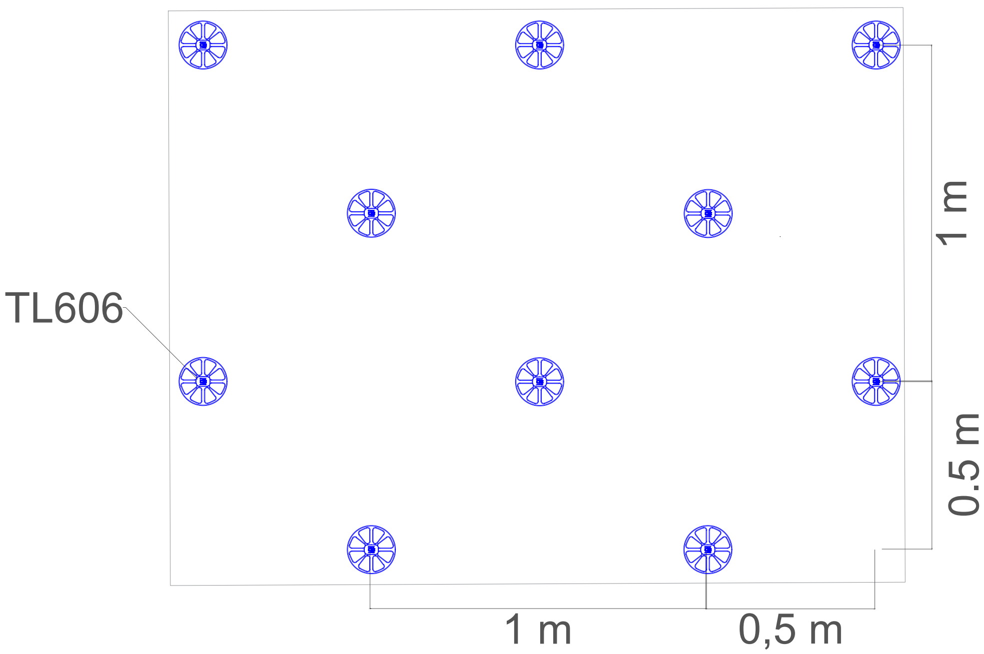


Installation Instructions

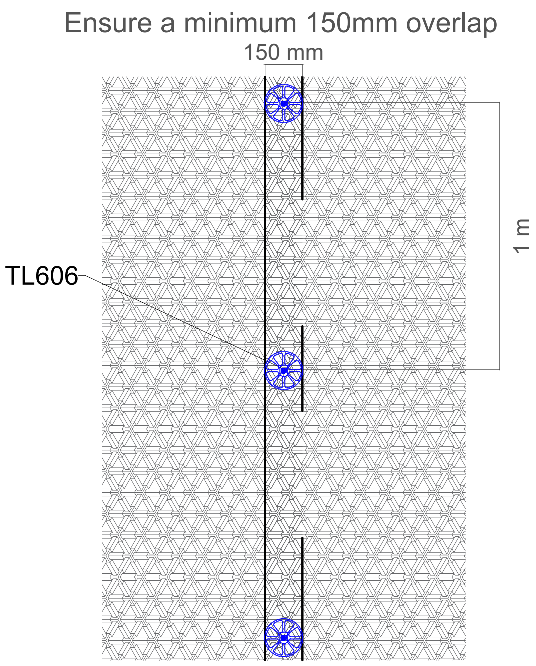
1. Prepare the soil surface, removing large rocks, vegetation & sharp objects to allow the mat to have intimate contact with the surface.
2. Dig a trench at the crest. Dig a trench at the toe .
3. Start with the mat at the crest of the slope. Roll the mat away from the slope down into the crest trench, anchoring with the specified Terra-Lock™ system every 1 m. Fill the trench with compacted backfill.
4. Roll the mat down parallel to the slope, ensuring intimate contact with the soil surface removing any creases.
5. Measure and mark the proper pattern and positions of the Terra-Lock™ anchor system and refer to 'Installation Pattern Detail' for further details.
6. Install anchors using the appropriate drive tools as supplied by Gripple, to drive the anchor system into the soil surface. The anchor should be driven to a depth such that after the anchor is load locked, it resides at the minimum design depth.
7. Remove the drive rod from the anchor head. Using the manufacturer's appropriate tool, load-lock the anchor into its full working position by applying a load to the wire tendon.
8. Roll the mat in the trench at the slope toe, anchoring with the specified Terra-Lock™system every 1 m along the bottom of the trench. Fill the trench with compacted backfill .
9. Follow 'Overlap Installation Detail' for further details on overlap procedure.
10. When the mat is secured, spread a light 10 mm of top soil and seed over the mat, or do a hydroseeding or hydromulching process, to promote fast vegetation establishment

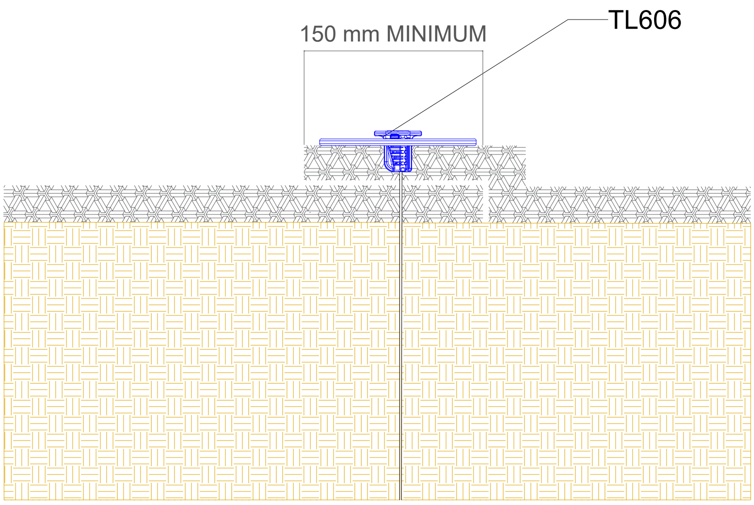
Pattern Details

2 anchors per m^2



Overlap details





Quantities

GRIPPLE

Linear length (m)	Slope length (m)	Toe securing length (m)	Top securing length (m)
20	19,2	0	3,3

Slope surface (m²)	Surface for top and toe securing (m²)	Total secured surface (m²)	Extra surface for overlaps (m²)	Total geotextile surface (m²)
384	66	450	45	495

TL606-TLA4-1M-Z-NL	# anchors/m²	# anchors on slope	**Total # anchors**		
	2	40	**40**		
TL606-TLA4-2M-Z-NL	# anchors/m²	# anchors on slope	# anchors at top	**Total # anchors**	
	2	80	40	**120**	
TL606-TLA4-3M-Z-NL	# anchors/m²	# anchors on slope	# anchors at top	**Total # anchors**	
	2	560	60	**620**	
TL-P4	# TL-P on slope	# TL-P at bottom	# TL-P at top	Extra for overlaps	**Total # TL-P**
	136	20	20	14	**190**
G-MAT-DTN-60X80-220-PP-25X2M	Roll surface (m²)	**Total # rolls**			
	50	**10**			

PRODUCT

INFORMATION

SHEETS

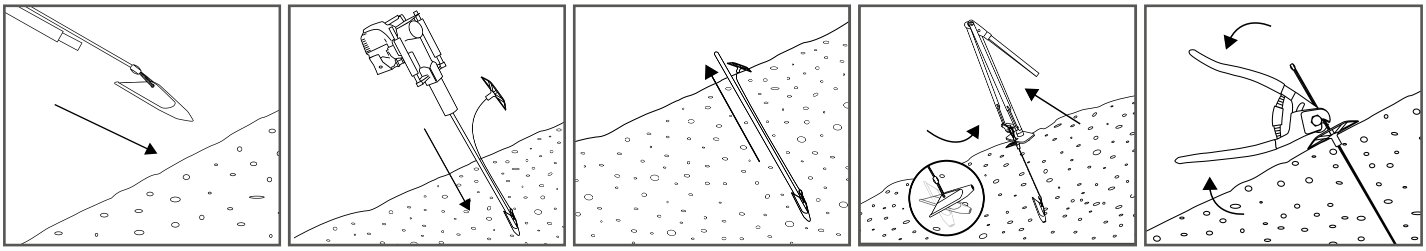
TL-606

The Terra-Lock™ TL-606 is ideal for high performance security of soil stabilising geotextiles whilst aiding vegetation growth.

FEATURES / BENEFITS

- Heavy duty kit components designed for high level security
- For use with 6 mm wire rope diameter construction 7x19
- Lightweight & flexible system in comparison to traditional methods
- Engineered for corrosion resistance
- Pre-assembled kit requires no crimping, ensuring significant time and labour savings delivered by easy and efficient installation
- Open face aids vegetation growth whilst maintaining strength

INSTALLATION



For more information on how to install the Terra-Lock™ system visit our YouTube channel - GrippleTV. Alternatively see Installation Guidelines & Procedures.

SPECIFICATION

Component	Type	Material	Specifications
Top Bearing Plate	TL-606	Mild Steel Zinc Plastisol Coated Zinc-Aluminium Alloy - ZA 2 & Ceramic	Head Size: 150 mm Diameter Working temperature: -40 °C to +60 °C UV stabilised PP end cap
Anchor Head	TL-A3	Zinc-Aluminium Alloy - ZA 2	Surface Area: 3,870 mm^2
	TL-A4		Surface Area: 7,740 mm^2
Wire Rope Tendon	6MM-Z	Zinc-Aluminium Zn-AL Coated Carbon Steel	Diameter: 6 mm, 7x19 Strand (1,770 N / mm tensile strength to DIN 3053)
Lower Termination	Ferrule	Aluminium	Length: 26 mm Wall thickness: 2.7 mm

"The longevity depends on location factors and soil, water & climate conditions as well as the local risk of erosion on site. PP materials are UV protected, designed for a long life." For load capacity please refer to the SPT technical sheet information.

INSTALLATION TOOLS

Gripple Petrol Driver (GPD)

JackJaw™

Drive Tool

Wire Cutters

For more information contact us or visit our website - **www.gripple.com**

PI-TL606-ENG-EU
Published 06/2019

www.gripple.com

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Tel +33 (0)3 88 95 44 95 Fax +33 (0)3 88 95 08 78 Email info@gripple.com

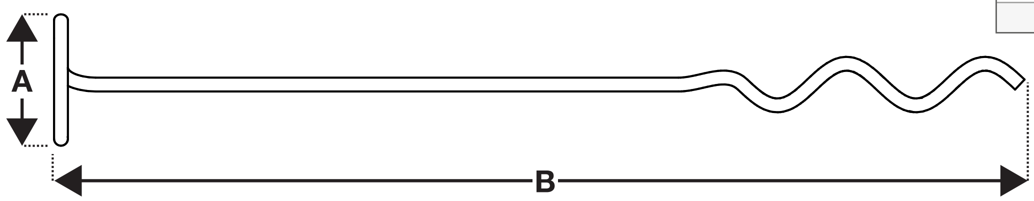
TL-P4

The TL-P4 holds all types of erosion control and soil stabilisation blanket matting securely in place

FEATURES / BENEFITS

- Quick and easy to install with a standard electric drill
- Superior performance when compared to traditional straight pins
- Eliminates time & labour associated with replacing or reworking pins that have become loose or pulled out altogether
- The patent pending innovative design of the installation chuck allows the TL-P4 to be installed to full depth without damaging the mat
- Integrated top coil form eliminates the need for a washer, spreads the load and helps secure the matting in place
- Extended tip allows faster placement and enhanced interaction with matting on install
- Specifically designed for use in tougher soils

SPECIFICATION

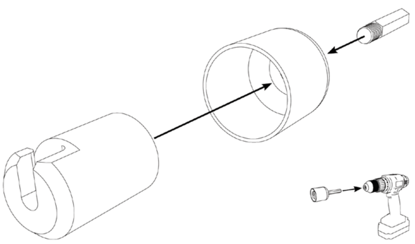


Dimension	Length (mm)
A	35
B	300

INSTALLATION TOOLS

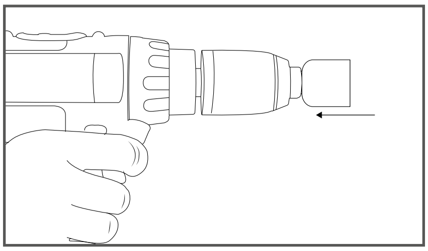
For more information contact us or visit our website - **www.gripple.com**

CHUCK ASSEMBLY



INSTALLATION

1.



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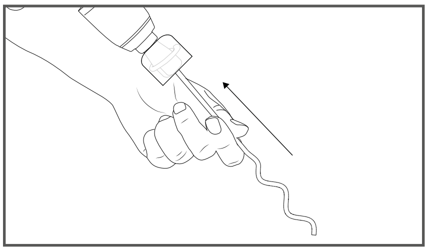

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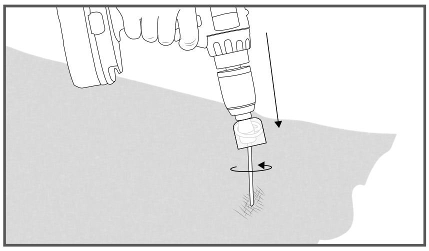
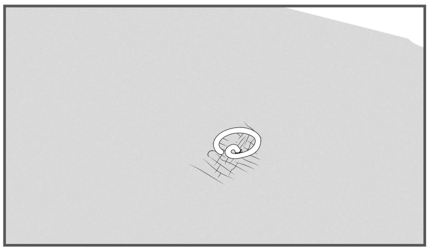


4.



For more information on how to install the TL-P4 visit our Youtube channel - GrippleTV.
Alternatively see Installation Guidelines & Procedures.

Proper considerations should be given to underground services before installing.

PI-TLP4-ENG-EU
Published 06/2019

www.gripple.com

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Tel +33 (0)3 88 95 44 95 Fax +33 (0)3 88 95 08 78 Email info@gripple.com

CALCULATION

WITHOUT PROTECTION

This report was generated by LimitState:GEO3.6.1.26217 - limitstate.com

About this Report

This report has been generated using LimitState:GEO, a software application capable of directly identifying the critical collapse mechanism for a wide variety of geotechnical stability problems, including those involving slopes, retaining walls, footings etc.

The software utilizes the Discontinuity Layout Optimization (DLO) procedure to obtain a solution (Smith and Gilbert 2007). The main steps involved are: (i) distribution of nodes across the problem domain; (ii) connection of every node to every other node with potential discontinuities (e.g. slip-lines); (iii) application of rigorous optimization techniques to identify the critical subset of potential discontinuities, and hence also the critical failure mechanism and margin of safety.

The accuracy of the DLO solution is controlled by the specified nodal density. Within the set of all possible discontinuities linking pairs of nodes, all potential translational failure mechanisms are considered, whether anticipated or not by the engineer. Failure mechanisms involving rotations along the edges of solid bodies in the problem can also be identified. Thus in this case the solution identified by the DLO procedure is guaranteed to be the most critical solution for the problem posed. This means that there is no need to prescribe any aspect of the collapse mechanism prior to an analysis, or to separately consider different failure modes. The critical mechanism and collapse load factor are determined according to the well established upper bound theorem of plasticity.

LimitState:GEO reports the solution to a problem both visually as a collapse mechanism and numerically in terms of an Adequacy Factor, which is defined as the factor by which specified loads must be increased, or material strengths decreased, in order for the system under consideration to reach a collapse state.

REFERENCE

Smith, C.C. and Gilbert, M. (2007) Application of discontinuity layout optimization to plane plasticity problems, Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, Vol. 463, 2086, pp 2461-2484.

Summary

Name	Date of Analysis	Name of Engineer	Organization
Analysis 2 - Without protection	mer. juil. 19 2023		

Reference #	Location	Map Reference	Tags

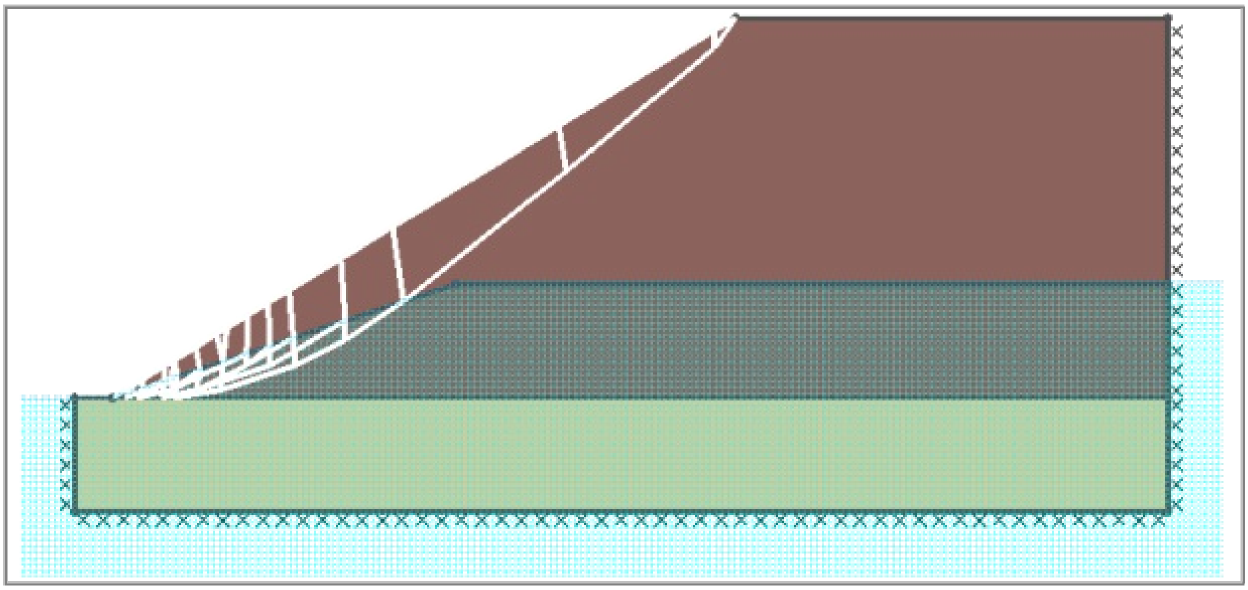
Comments

Target Nodal Density	Nodal Spacing Scale Factor	Water	Model Translational Failures?	Model Rotational Failures?	Seismic Accelerations: Horiz. / Vert. (g)
Fine (1000 nodes)	1,54656	Enabled	True	Along edges	None

Scenario	Partial Factor Set	Short / Long Term? **	Analysis Type	Adequacy Factor
1	Unity	Long Term	Factor Strength(s)	1,129
2*	**EC7 DA1/2**	**Long Term**	**Factor Strength(s)**	**0,9023**

**This report provides details of this scenario, which has been identified as the most critical. **For Mohr Coulomb materials with Drainage Behaviour specified as 'drained/undrained', undrained properties are used in a short term analysis, and drained properties are used in a long term analysis.*

Failure Mechanism (Scenario 2)



Analysis Options

Factor Strength(s)

Solution Tolerance (%)	Automatic Adequacy on Load(s)	Factor on Load(s)	Artificial Cohesion (kN/m² (kPa))
1	True	1	0,1

Water Table *(all distances in m)*

Water Table Status	Vertices (x, y)
Enabled	(1; 0) (10; 3)

Water Regimes *(potentials in m, pressures in kN/m² (kPa))*
(No water regime defined)

Materials *(unit weights (weight densities) in kN/m³, strengths in kN/m² (kPa), angles in degrees, datum level in m, undrained strength gradient in kN/m² (kPa)/m)*

Mohr-Coulomb Material(s)

Key	Name	Unit Weight (Saturated Unit Weight)	Drainage Behaviour	c' (ϕ')	c_u (datum) (gradient) (grid)
	Gravelly clay	18 (18)	Drained/undrained	0* (35*)	0 (0) (0) (-)
	Rock	23 (23)	Drained/undrained	0* (50*)	0 (0) (0) (-)

**Property used in Scenario 2 (described in this report).*

Partial Factors

Factor	Unity	EC7 DA1/2*		
Unfavourable: permanent	1	1		
Unfavourable: variable	1	1,3		
Unfavourable: accidental	1	1		
Favourable: permanent	1	1		
Favourable: variable	1	0		
Favourable: accidental	1	0		
c'	1	1,25		
tanϕ'	1	1,25		
c_u	1	1,4		

**These partial factors were used in Scenario 2 (described in this report).*

Loads *(normal and shear loads in kN/m² (kPa))*

Solid Objects

Loaded Object	Type	Loading Type	Adequacy?
S9	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S10	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S11	Permanent (unfactored self weight: 23 kN/m³)	neutral	true

limitstate
analysis & design software for engineers

CALCULATION

WITH PROTECTION

This report was generated by LimitState:GEO3.5.g.24265 - limitstate.com

About this Report

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REFERENCE

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Summary

Name	Date of Analysis	Name of Engineer	Organization
Analysis 2 - With protection	mer. juil. 19 2023	PH	Gripple

Reference #	Location	Map Reference	Tags

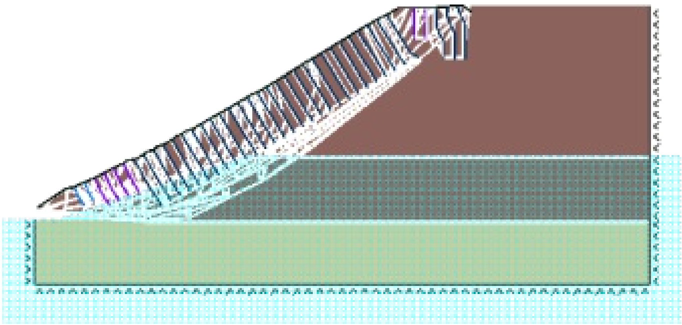
Comments

Target Nodal Density	Nodal Spacing Scale Factor	Water	Model Translational Failures?	Model Rotational Failures?	Seismic Accelerations: Horiz. / Vert. (g)
Fine (1000 nodes)	1,19499	Enabled	True	Along edges	None

Scenario	Partial Factor Set	Short / Long Term? **	Analysis Type	Adequacy Factor
1	Unity	Long Term	Factor Strength(s)	1,254
2*	**EC7 DA1/2**	**Long Term**	**Factor Strength(s)**	**1,005**

**This report provides details of this scenario, which has been identified as the most critical. **For Mohr Coulomb materials with Drainage Behaviour specified as 'drained/undrained', undrained properties are used in a short term analysis, and drained properties are used in a long term analysis.*

Failure Mechanism (Scenario 2)



Analysis Options

Factor Strength(s)

Solution Tolerance (%)	Automatic Adequacy on Load(s)	Factor on Load(s)	Artificial Cohesion (kN/m² (kPa))
1	True	1	0,1

Water Table *(all distances in m)*

Water Table Status	Vertices (x, y)
Enabled	(1; 0) (10; 3)

Water Regimes *(potentials in m, pressures in kN/m² (kPa))*
(No water regime defined)

Materials *(unit weights (weight densities) in kN/m³, strengths in kN/m² (kPa), angles in degrees, datum level in m, undrained strength gradient in kN/m² (kPa)/m)*

Mohr-Coulomb Material(s)

Key	Name	Unit Weight (Saturated Unit Weight)	Drainage Behaviour	c' (ϕ')	c_u (datum) (gradient) (grid)
	Gravelly clay	18 (18)	Drained/undrained	0* (35*)	0 (0) (0) (-)
	Rock	23 (23)	Drained/undrained	0* (50*)	0 (0) (0) (-)

**Property used in Scenario 2 (described in this report).*

Engineered Element Material(s)

Key	Name	Pullout Factors: Tc (Tq)	Lateral Factors: Nc (Nq)	Mp	Rupture Strength	Compression Strength	Subdivide at Nodes?
	TL606-TLA4-3m	4,44(0)	0,1(0)	0	12,7	0	True
	TL606-TLA4-2 m	7,4(0)	0,1(0)	0	12,7	0	True
	Geogrid	1e+30(0)	1e+30(0)	0,1	50	0,1	True

	TL606-TLA4-1 m	6,53(0)	0,1(0)	0	12,7	0	True

Partial Factors

Factor	Unity	EC7 DA1/2*		
Unfavourable: permanent	1	1		
Unfavourable: variable	1	1,3		
Unfavourable: accidental	1	1		
Favourable: permanent	1	1		
Favourable: variable	1	0		
Favourable: accidental	1	0		
c'	1	1,25		
tanϕ'	1	1,25		
c_u	1	1,4		

**These partial factors were used in Scenario 2 (described in this report).*

Loads *(normal and shear loads in kN/m² (kPa))*

Solid Objects

Loaded Object	Type	Loading Type	Adequacy?
S11	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S16	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S17	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S18	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S19	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S20	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S21	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S22	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S23	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S24	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S25	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S26	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S27	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S28	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S29	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S30	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S33	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S34	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S39	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S117	Permanent (unfactored	neutral	true

	self weight: 18 kN/m^3)		
S345	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S347	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S385	Permanent (unfactored self weight: 23 kN/m^3)	neutral	true
S386	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S387	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S388	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S389	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S390	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S391	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S392	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S393	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S394	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S395	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S396	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
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S408	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S409	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
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S414	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S415	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true
S416	Permanent (unfactored self weight: 18 kN/m^3)	neutral	true

S417	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S418	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S419	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S420	Permanent (unfactored self weight: 18 kN/m³)	neutral	true

ANNEX

Analysis 1
Most onerous slope
(i.e. slope immediately south of Plot 2)

Conclusions:

Due to insufficient space to install anchors at the top of the slope, the geogrid cannot be properly maintained. In that configuration, no stable solution can be found.

This report was generated by LimitState:GEO3.6.1.26217 - limitstate.com

About this Report

This report has been generated using LimitState:GEO, a software application capable of directly identifying the critical collapse mechanism for a wide variety of geotechnical stability problems, including those involving slopes, retaining walls, footings etc.

The software utilizes the Discontinuity Layout Optimization (DLO) procedure to obtain a solution (Smith and Gilbert 2007). The main steps involved are: (i) distribution of nodes across the problem domain; (ii) connection of every node to every other node with potential discontinuities (e.g. slip-lines); (iii) application of rigorous optimization techniques to identify the critical subset of potential discontinuities, and hence also the critical failure mechanism and margin of safety.

The accuracy of the DLO solution is controlled by the specified nodal density. Within the set of all possible discontinuities linking pairs of nodes, all potential translational failure mechanisms are considered, whether anticipated or not by the engineer. Failure mechanisms involving rotations along the edges of solid bodies in the problem can also be identified. Thus in this case the solution identified by the DLO procedure is guaranteed to be the most critical solution for the problem posed. This means that there is no need to prescribe any aspect of the collapse mechanism prior to an analysis, or to separately consider different failure modes. The critical mechanism and collapse load factor are determined according to the well established upper bound theorem of plasticity.

LimitState:GEO reports the solution to a problem both visually as a collapse mechanism and numerically in terms of an Adequacy Factor, which is defined as the factor by which specified loads must be increased, or material strengths decreased, in order for the system under consideration to reach a collapse state.

REFERENCE

Smith, C.C. and Gilbert, M. (2007) Application of discontinuity layout optimization to plane plasticity problems, Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, Vol. 463, 2086, pp 2461-2484.

Summary

Name	Date of Analysis	Name of Engineer	Organization
Analysis 1 - Without protection	mer. juil. 19 2023		

Reference #	Location	Map Reference	Tags

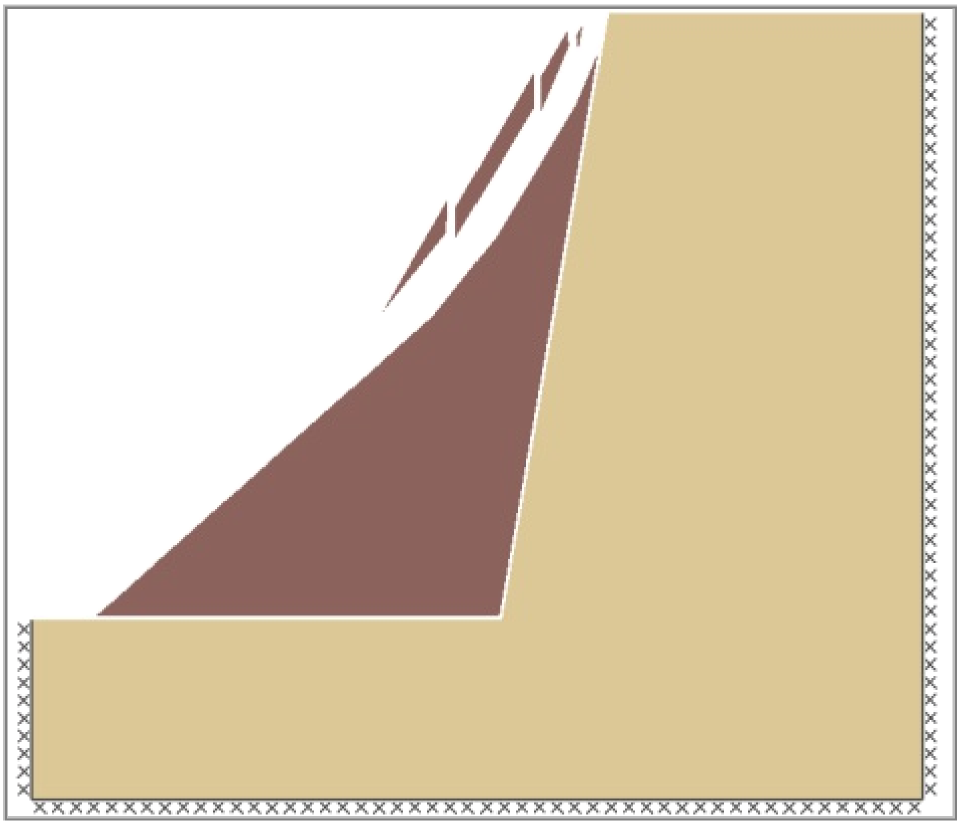
Comments

Target Nodal Density	Nodal Spacing Scale Factor	Water	Model Translational Failures?	Model Rotational Failures?	Seismic Accelerations: Horiz. / Vert. (g)
Fine (1000 nodes)	2,28785	Enabled	True	Along edges	None

Scenario	Partial Factor Set	Short / Long Term? **	Analysis Type	Adequacy Factor
1	Unity	Long Term	Factor Strength(s)	0,4681
2*	**EC7 DA1/2**	**Long Term**	**Factor Strength(s)**	**0,3809**

**This report provides details of this scenario, which has been identified as the most critical. **For Mohr Coulomb materials with Drainage Behaviour specified as 'drained/undrained', undrained properties are used in a short term analysis, and drained properties are used in a long term analysis.*

Failure Mechanism (Scenario 2)



Analysis Options

Factor Strength(s)

Solution Tolerance (%)	Automatic Adequacy on Load(s)	Factor on Load(s)	Artificial Cohesion (kN/m² (kPa))
1	True	1	0,1

Water Table *(all distances in m)*

Water Table Status	Vertices (x, y)
Enabled	(No water table points defined)

Water Regimes *(potentials in m, pressures in kN/m² (kPa))*

(No water regime defined)

Materials *(unit weights (weight densities) in kN/m³, strengths in kN/m² (kPa), angles in degrees, datum level in m, undrained strength gradient in kN/m² (kPa)/m)*

Mohr-Coulomb Material(s)

Key	Name	Unit Weight (Saturated Unit Weight)	Drainage Behaviour	c' (ϕ')	c_u (datum) (gradient) (grid)
	Gravelly clay	18 (18)	Drained/undrained	0* (35*)	0 (0) (0) (-)
	Rock	23 (23)	Drained/undrained	0* (50*)	0 (0) (0) (-)

**Property used in Scenario 2 (described in this report).*

Partial Factors

Factor	Unity	EC7 DA1/2*		
Unfavourable: permanent	1	1		
Unfavourable: variable	1	1,3		
Unfavourable: accidental	1	1		

Favourable: permanent	1	1		
Favourable: variable	1	0		
Favourable: accidental	1	0		
c'	1	1,25		
tanϕ'	1	1,25		
c_u	1	1,4		

**These partial factors were used in Scenario 2 (described in this report).*

Loads *(normal and shear loads in kN/m² (kPa))*

Solid Objects

Loaded Object	Type	Loading Type	Adequacy?
S1	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S2	Permanent (unfactored self weight: 23 kN/m³)	neutral	true

analysis & design software for engineers

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Summary

Name	Date of Analysis	Name of Engineer	Organization
Analysis 1_With protection	mer. juil. 19 2023	PH	Gripple

Reference #	Location	Map Reference	Tags

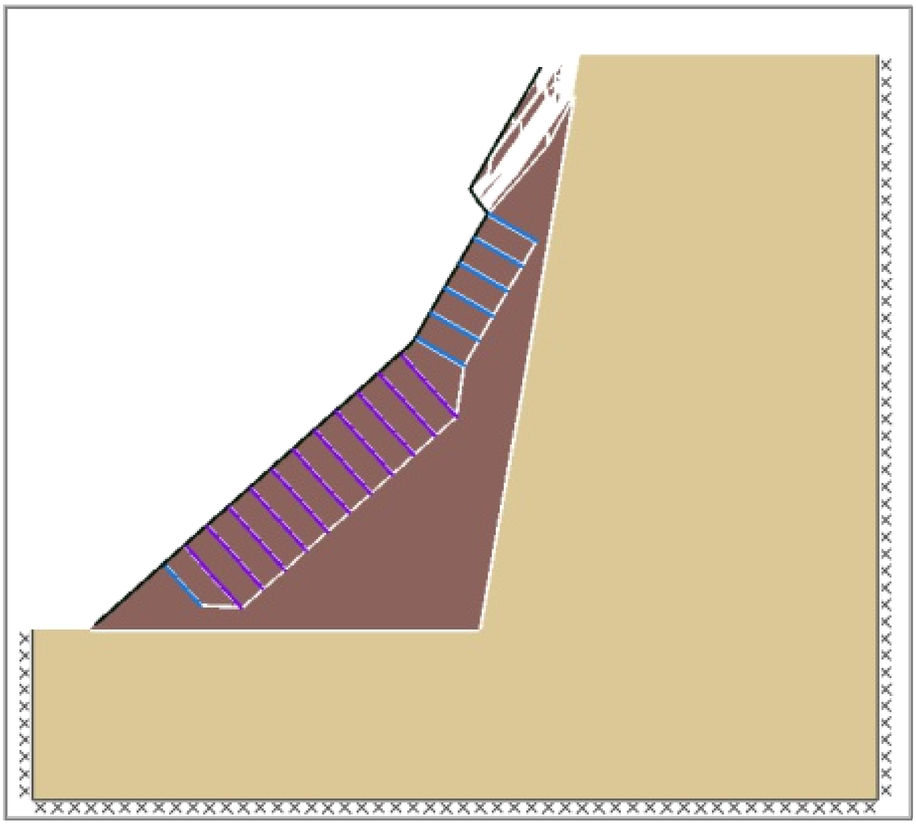
Comments

Target Nodal Density	Nodal Spacing Scale Factor	Water	Model Translational Failures?	Model Rotational Failures?	Seismic Accelerations: Horiz. / Vert. (g)
Fine (1000 nodes)	2,04512	Enabled	True	Along edges	None

Scenario	Partial Factor Set	Short / Long Term? **	Analysis Type	Adequacy Factor
1	Unity	Long Term	Factor Strength(s)	0,5684
2*	**EC7 DA1/2**	**Long Term**	**Factor Strength(s)**	**0,4668**

**This report provides details of this scenario, which has been identified as the most critical. **For Mohr Coulomb materials with Drainage Behaviour specified as 'drained/undrained', undrained properties are used in a short term analysis, and drained properties are used in a long term analysis.*

Failure Mechanism (Scenario 2)



Analysis Options

Factor Strength(s)

Solution Tolerance (%)	Automatic Adequacy on Load(s)	Factor on Load(s)	Artificial Cohesion (kN/m² (kPa))
1	True	1	0,1

Water Table *(all distances in m)*

Water Table Status	Vertices (x, y)
Enabled	(No water table points defined)

Water Regimes *(potentials in m, pressures in kN/m² (kPa))*

(No water regime defined)

Materials *(unit weights (weight densities) in kN/m³, strengths in kN/m² (kPa), angles in degrees, datum level in m, undrained strength gradient in kN/m² (kPa)/m)*

Mohr-Coulomb Material(s)

Key	Name	Unit Weight (Saturated Unit Weight)	Drainage Behaviour	c' (ϕ')	c_u (datum) (gradient) (grid)
● (brown)	Gravelly clay	18 (18)	Drained/undrained	0* (35*)	0 (0) (0) (-)
● (beige)	Rock	23 (23)	Drained/undrained	0* (50*)	0 (0) (0) (-)

Property used in Scenario 2 (described in this report).

Engineered Element Material(s)

Key	Name	Pullout Factors: Tc (Tq)	Lateral Factors: Nc (Nq)	Mp	Rupture Strength	Compression Strength	Subdivide at Nodes?
● (purple)	TL606-TLA4-2 m	7,4(0)	0,1(0)	0	12,7	0	True
● (blue)	TL606-TLA4-1 m	6,53(0)	0,1(0)	0	12,7	0	True
● (black)	Geogrille	1e+30(0)	1e+30(0)	0,1	50	0,1	True

Partial Factors

Factor	Unity	EC7 DA1/2*		
Unfavourable: permanent	1	1		
Unfavourable: variable	1	1,3		
Unfavourable: accidental	1	1		
Favourable: permanent	1	1		
Favourable: variable	1	0		
Favourable: accidental	1	0		
c'	1	1,25		
tanϕ'	1	1,25		
c_u	1	1,4		

**These partial factors were used in Scenario 2 (described in this report).*

Loads *(normal and shear loads in kN/m² (kPa))*

Solid Objects

Loaded Object	Type	Loading Type	Adequacy?
S1	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S2	Permanent (unfactored self weight: 23 kN/m³)	neutral	true
S3	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S4	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S5	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S6	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S7	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S8	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S9	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S10	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S11	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S12	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S13	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S14	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S15	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S16	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S17	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S18	Permanent (unfactored self weight: 18 kN/m³)	neutral	true
S19	Permanent (unfactored self weight: 18 kN/m³)	neutral	true

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