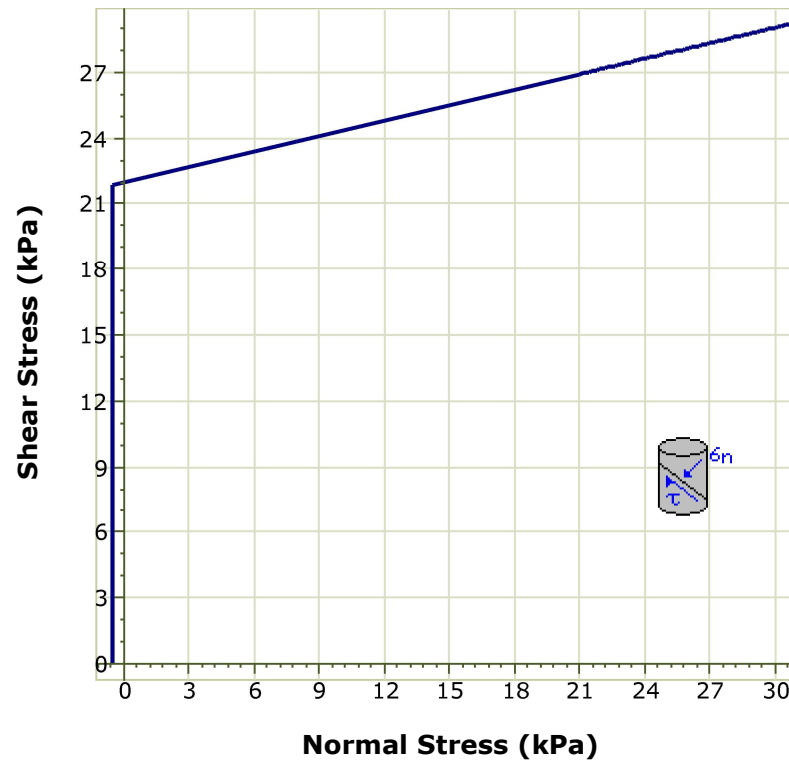


Minor Principal Stress (kPa)



Normal Stress (kPa)

— CL - Principal Stress Envelope
 — CL - Shear vs. Normal Stress Envelope

CL	
Mohr Coulomb Criterion	
cohesion	22 kPa
friction angle	13.2 deg
tensile strength	-0.5 kPa
uniaxial compressive strength	55.514 kPa
alpha	57.863 deg



Project ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

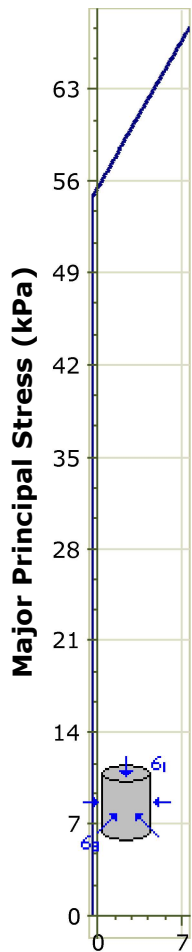
Analysis Description PROPIEDADES GEOMECANICAS

Drawn By BACH. MILDOR R. EUGENIO CARRANZA

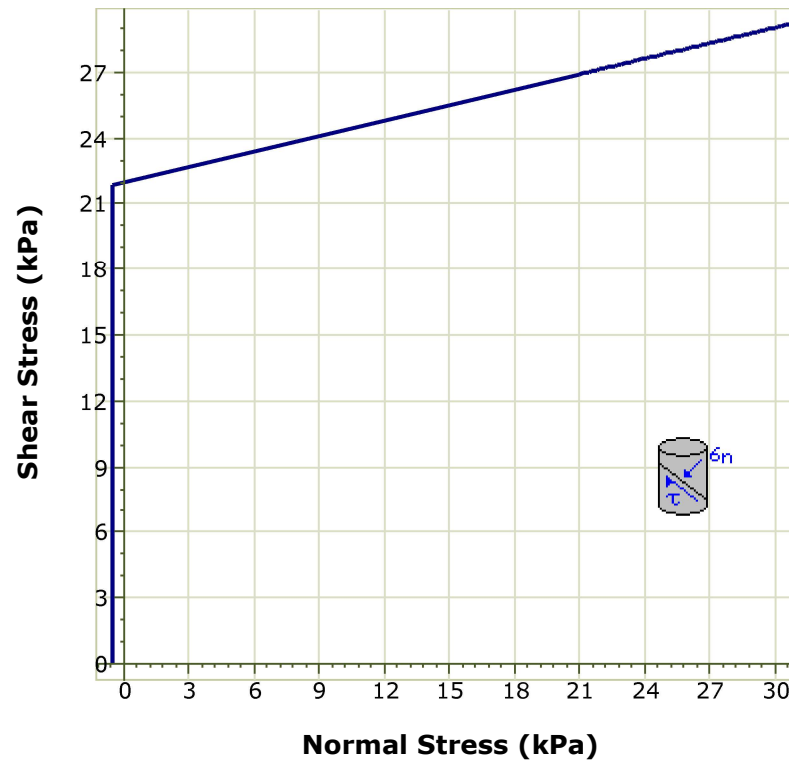
Company UNIVERSIDAD NACIONAL DE CAJAMARCA

Date 12/01/2017, 13:11:15

File Name TALUD 01.roc5



Minor Principal Stress (kPa)



Normal Stress (kPa)

- CL - Principal Stress Envelope
- CL - Shear vs. Normal Stress Envelope

CL	
Mohr Coulomb Criterion	
cohesion	22 kPa
friction angle	13.2 deg
tensile strength	-0.5 kPa
uniaxial compressive strength	55.514 kPa
alpha	57.863 deg



Project ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

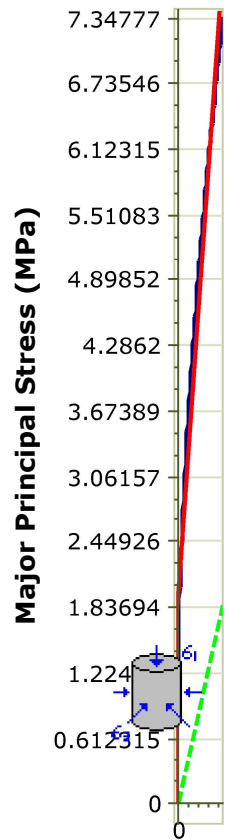
Analysis Description PROPIEDADES GEOMECANICAS

Drawn By BACH. MILDOR R. EUGENIO CARRANZA

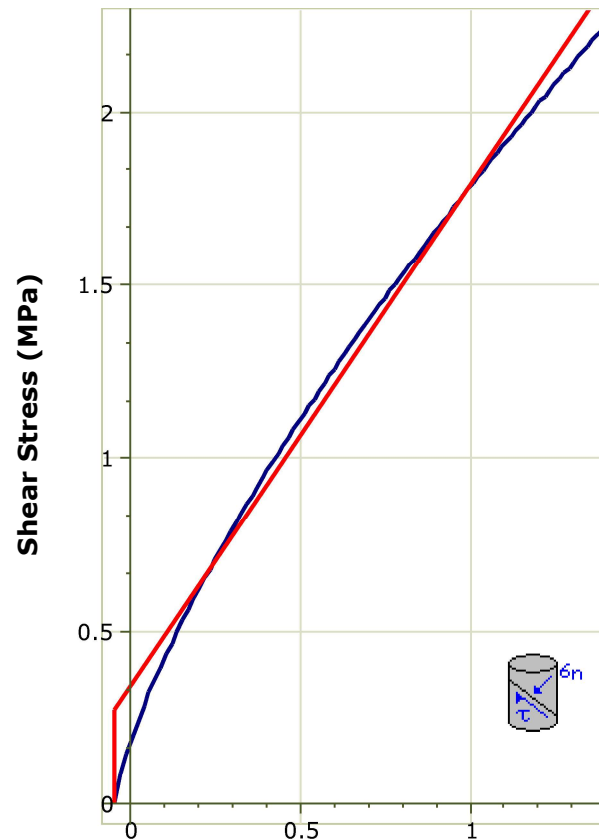
Company UNIVERSIDAD NACIONAL DE CAJAMARCA

Date 12/01/2017, 13:11:15

File Name TALUD 02.roc5



Minor Principal Stress (MPa)



Normal Stress (MPa)

- ARENISCA - Principal Stress Envelope
- Mogi
- ARENISCA - Mohr-Coulomb Envelope
- ARENISCA - Shear vs. Normal Stress Envelope
- ARENISCA - Mohr-Coulomb Envelope

ARENISCA	
Hoek Brown Classification	
intact uniaxial compressive strength	75 MPa
GSI	50
mi	17
disturbance factor	0.7
intact modulus	20625 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	1.09
s	7.128e-004
a	0.506
Failure Envelope Range	
application	slopes
sig3max	0.534 MPa
unit weight	0.026 MN/m3
slope height	22 m
Mohr Coulomb Fit	
cohesion	0.346 MPa
friction angle	55.331 deg
Rock Mass Parameters	
tensile strength	-0.049 MPa
uniaxial compressive strength	1.921 MPa
global strength	10.276 MPa
modulus of deformation	2212.688 MPa



Project: ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

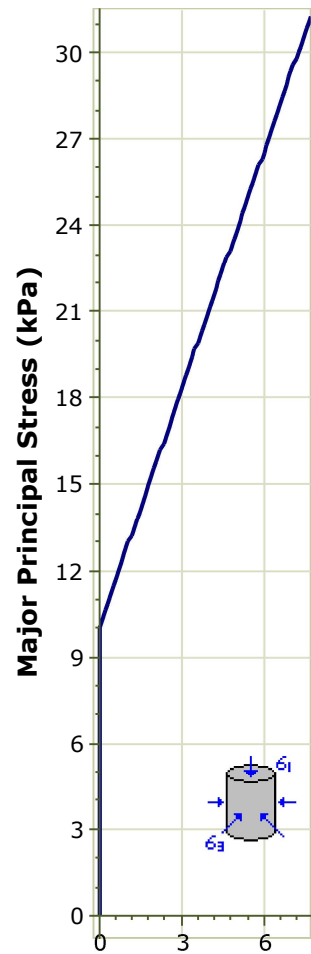
Analysis Description: PROPIEDADES GEOMECANICAS

Drawn By: BACH. MILDOR R. EUGENIO CARRANZA

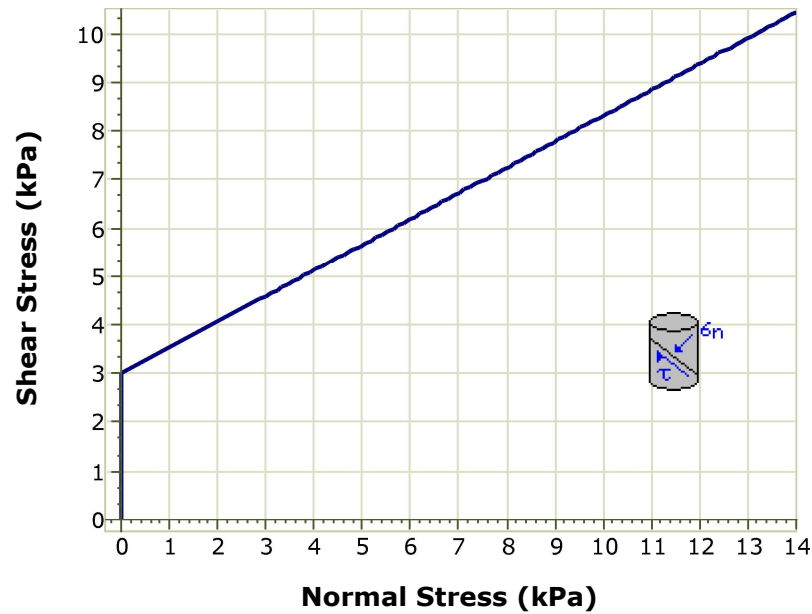
Company: UNIVERSIDAD NACIONAL DE CAJAMARCA

Date: 12/01/2017, 13:11:15

File Name: TALUD 03.roc5



Minor Principal Stress (kPa)



Normal Stress (kPa)

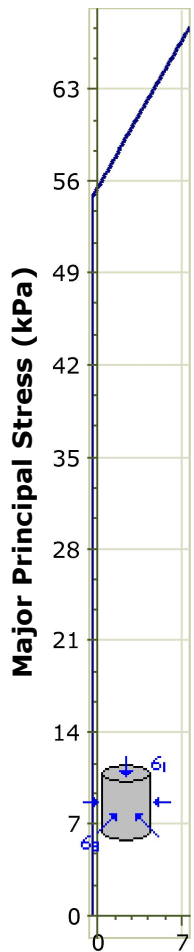
SP	
Mohr Coulomb Criterion	
cohesion	3 kPa
friction angle	28 deg
tensile strength	0 kPa
uniaxial compressive strength	9.986 kPa
alpha	70.149 deg

— SP - Principal Stress Envelope
 — SP - Shear vs. Normal Stress Envelope

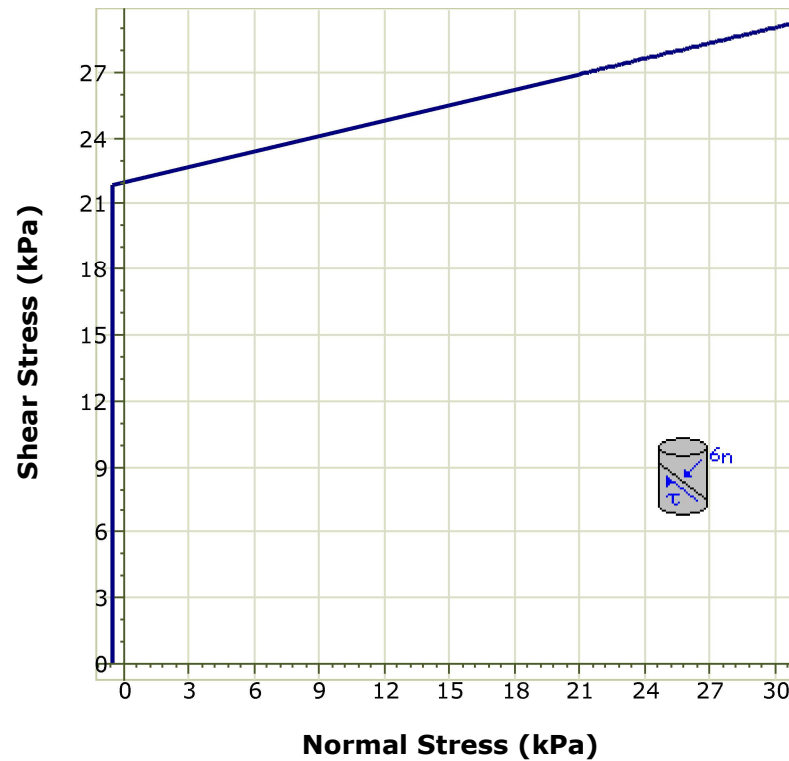


ROCDATA 5.006

<i>Project</i>		ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO	
<i>Analysis Description</i>		PROPIEDADES GEOMECANICAS	
<i>Drawn By</i>	BACH. MILDOR R. EUGENIO CARRANZA	<i>Company</i>	UNIVERSIDAD NACIONAL DE CAJAMARCA
<i>Date</i>	12/01/2017, 13:11:15	<i>File Name</i>	TALUD 03.roc5



Minor Principal Stress (kPa)



— ARENISCA - Principal Stress Envelope
 — ARENISCA - Shear vs. Normal Stress Envelope

CL	
Mohr Coulomb Criterion	
cohesion	22 kPa
friction angle	13.2 deg
tensile strength	-0.5 kPa
uniaxial compressive strength	55.514 kPa
alpha	57.863 deg



Project ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

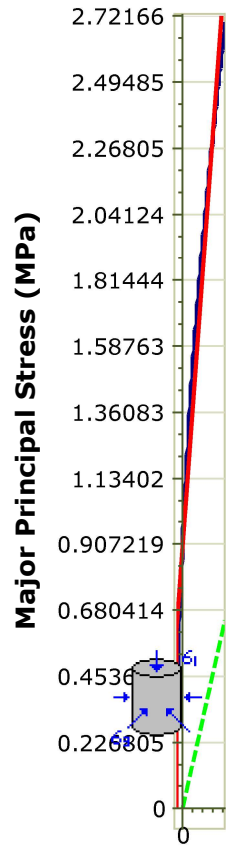
Analysis Description PROPIEDADES GEOMECANICAS

Drawn By BACH. MILDOR R. EUGENIO CARRANZA

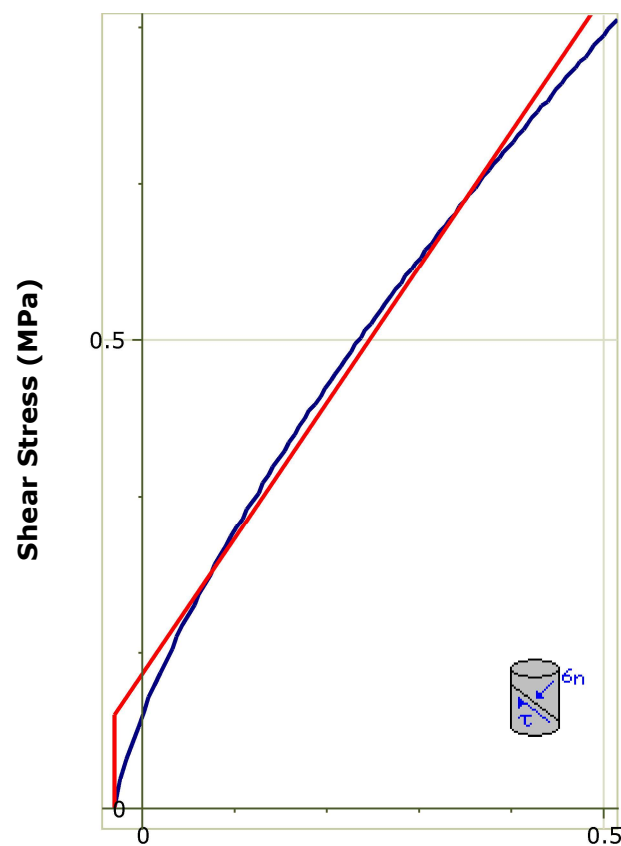
Company UNIVERSIDAD NACIONAL DE CAJAMARCA

Date 12/01/2017, 13:11:15

File Name TALUD 04.roc5



Minor Principal Stress (MPa)



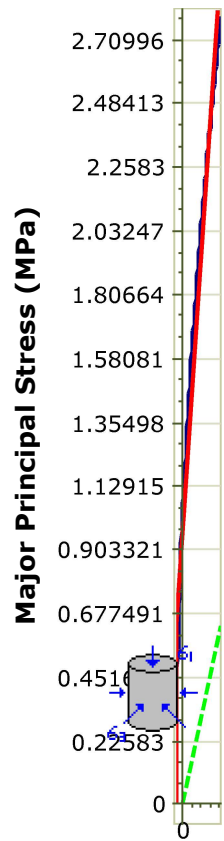
Normal Stress (MPa)

- ARENISCA - Principal Stress Envelope
- Mogi
- ARENISCA - Mohr-Coulomb Envelope
- ARENISCA - Shear vs. Normal Stress Envelope
- ARENISCA - Mohr-Coulomb Envelope

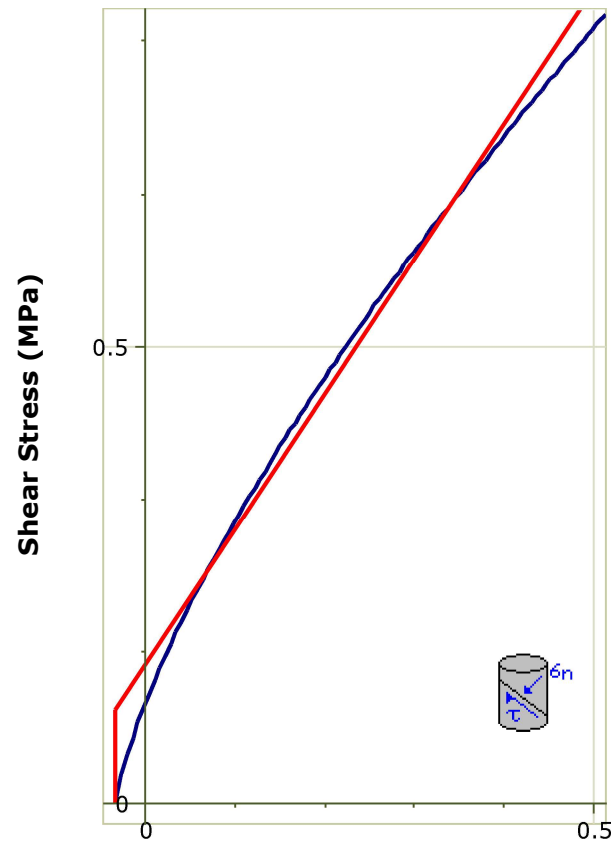
ARENISCA	
Hoek Brown Classification	
intact uniaxial compressive strength	75 MPa
GSI	48
mi	17
disturbance factor	1
intact modulus	20625 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	0.414
s	1.722e-004
a	0.507
Failure Envelope Range	
application	slopes
sig3max	0.185 MPa
unit weight	0.026 MN/m3
slope height	7.2 m
Mohr Coulomb Fit	
cohesion	0.146 MPa
friction angle	55.285 deg
Rock Mass Parameters	
tensile strength	-0.031 MPa
uniaxial compressive strength	0.93 MPa
global strength	6.251 MPa
modulus of deformation	1228.289 MPa



Project		ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO	
Analysis Description		PROPIEDADES GEOMECANICAS	
Drawn By	BACH. MILDOR R. EUGENIO CARRANZA	Company	UNIVERSIDAD NACIONAL DE CAJAMARCA
Date	12/01/2017, 13:11:15	File Name	TALUD 05.roc5



Minor Principal Stress (MPa)



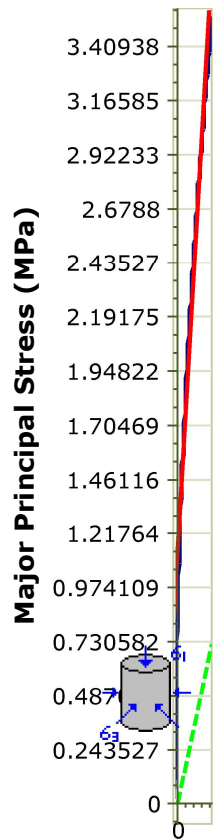
Normal Stress (MPa)

- ARENISCA - Principal Stress Envelope
- Mogi
- ARENISCA - Mohr-Coulomb Envelope
- ARENISCA - Shear vs. Normal Stress Envelope
- ARENISCA - Mohr-Coulomb Envelope

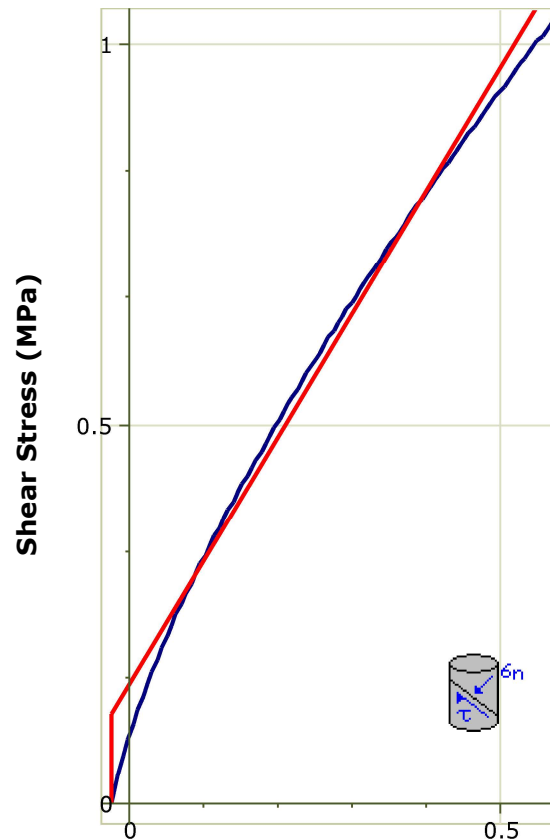
ARENISCA	
Hoek Brown Classification	
intact uniaxial compressive strength	75 MPa
GSI	49
mi	17
disturbance factor	1
intact modulus	20625 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	0.445
s	2.035e-004
a	0.506
Failure Envelope Range	
application	slopes
sig3max	0.181 MPa
unit weight	0.026 MN/m3
slope height	7 m
Mohr Coulomb Fit	
cohesion	0.154 MPa
friction angle	55.883 deg
Rock Mass Parameters	
tensile strength	-0.034 MPa
uniaxial compressive strength	1.015 MPa
global strength	6.501 MPa
modulus of deformation	1299.251 MPa



Project: ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO		
Analysis Description: PROPIEDADES GEOMECANICAS		
Drawn By: BACH. MILDOR R. EUGENIO CARRANZA	Company: UNIVERSIDAD NACIONAL DE CAJAMARCA	
Date: 12/01/2017, 13:11:15	File Name: TALUD 06.roc5	



Minor Principal Stress (MPa)



Normal Stress (MPa)

- ARENISCA - Principal Stress Envelope
- Mogi
- ARENISCA - Mohr-Coulomb Envelope
- ARENISCA - Shear vs. Normal Stress Envelope
- ARENISCA - Mohr-Coulomb Envelope

ARENISCA	
Hoek Brown Classification	
intact uniaxial compressive strength	75 MPa
GSI	42
mi	17
disturbance factor	0.7
intact modulus	20625 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	0.702
s	2.236e-004
a	0.51
Failure Envelope Range	
application	slopes
sig3max	0.208 MPa
unit weight	0.026 MN/m3
slope height	8 m
Mohr Coulomb Fit	
cohesion	0.159 MPa
friction angle	58.35 deg
Rock Mass Parameters	
tensile strength	-0.024 MPa
uniaxial compressive strength	1.032 MPa
global strength	8.025 MPa
modulus of deformation	1347.261 MPa



Project: ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

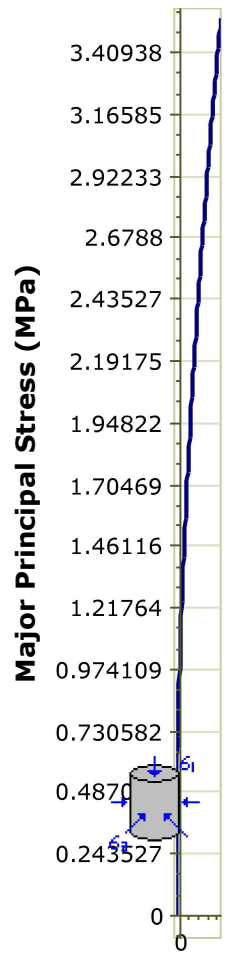
Analysis Description: PROPIEDADES GEOMECANICAS

Drawn By: BACH. MILDOR R. EUGENIO CARRANZA

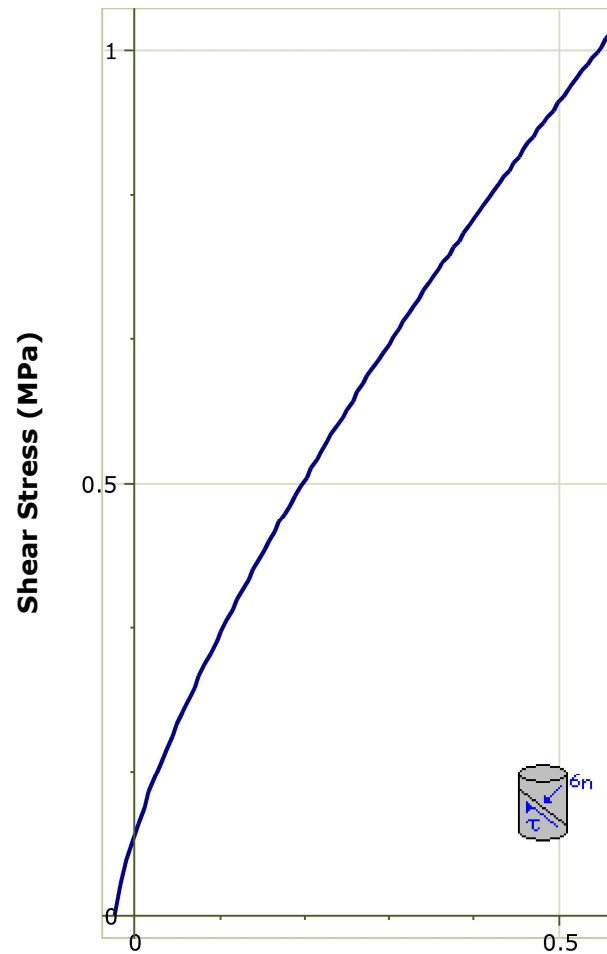
Company: UNIVERSIDAD NACIONAL DE CAJAMARCA

Date: 12/01/2017, 13:11:15

File Name: TALUD 07.roc5



Minor Principal Stress (MPa)



Normal Stress (MPa)

— ARENISCA Y LUTITA - Principal Stress Envelope
 — ARENISCA Y LUTITA - Shear vs. Normal Stress Envelope

ARENISCA Y LUTITA

Hoek Brown Classification

intact uniaxial compressive strength	75 MPa
GSI	42
mi	17
disturbance factor	0.7
intact modulus	20625 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	0.702
s	2.236e-004
a	0.51
Failure Envelope Range	
application	slopes
sig3max	0.208 MPa
unit weight	0.026 MN/m3
slope height	8 m
Mohr Coulomb Fit	
cohesion	0.159 MPa
friction angle	58.35 deg
Rock Mass Parameters	
tensile strength	-0.024 MPa
uniaxial compressive strength	1.032 MPa
global strength	8.025 MPa
modulus of deformation	1347.261 MPa



Project ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO

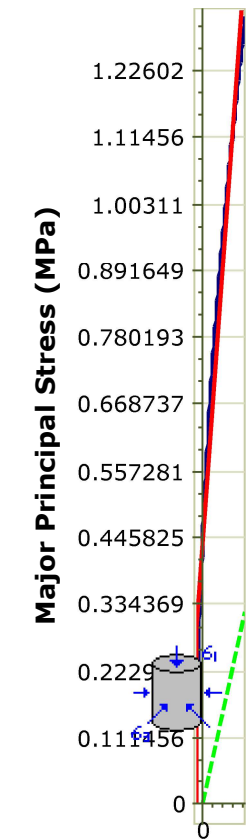
Analysis Description PROPIEDADES GEOMECANICAS

Drawn By BACH. MILDOR R. EUGENIO CARRANZA

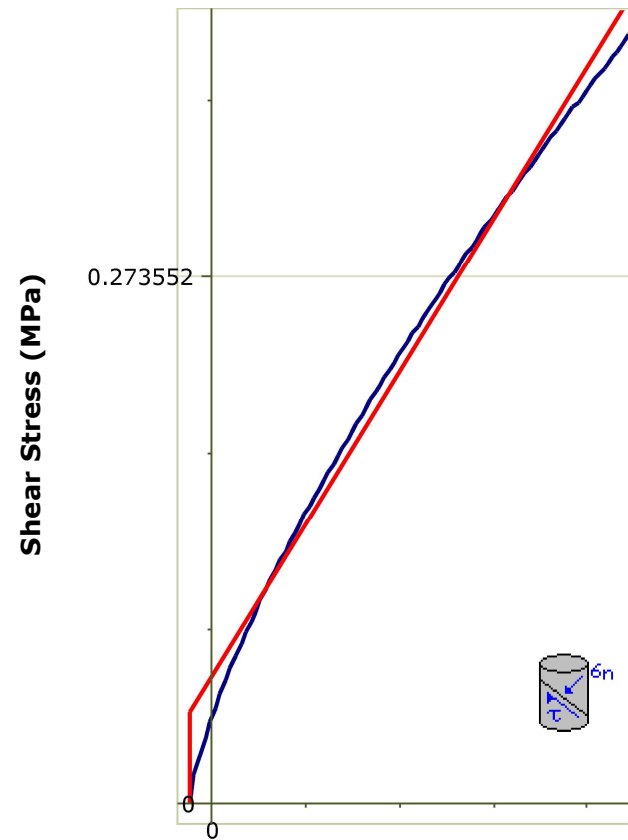
Company UNIVERSIDAD NACIONAL DE CAJAMARCA

Date 12/01/2017, 13:11:15

File Name TALUD 08.roc5



Minor Principal Stress (MPa)



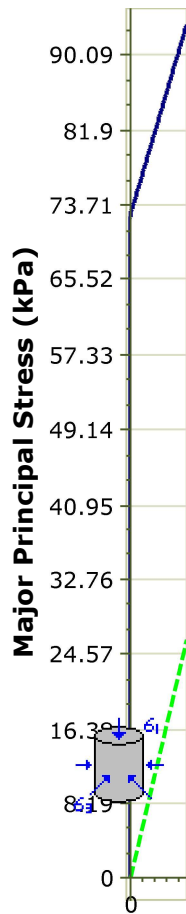
Normal Stress (MPa)

- ARENISCA - Principal Stress Envelope
- Mogi
- ARENISCA - Mohr-Coulomb Envelope
- ARENISCA - Shear vs. Normal Stress Envelope
- ARENISCA - Mohr-Coulomb Envelope

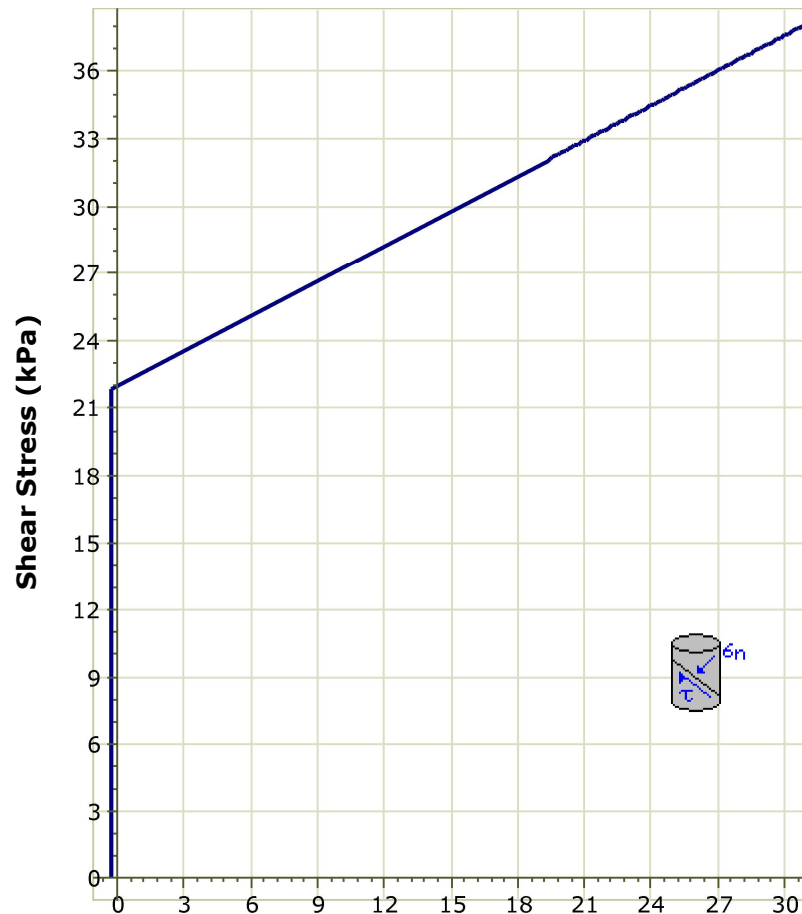
ARENISCA	
Hoek Brown Classification	
intact uniaxial compressive strength	70 MPa
GSI	40
mi	17
disturbance factor	1
intact modulus	19250 MPa
modulus ratio	275
Hoek Brown Criterion	
mb	0.234
s	4.54e-005
a	0.511
Failure Envelope Range	
application	slopes
sig3max	0.093 MPa
unit weight	0.026 MN/m3
slope height	3.5 m
Mohr Coulomb Fit	
cohesion	0.068 MPa
friction angle	55.187 deg
Rock Mass Parameters	
tensile strength	-0.014 MPa
uniaxial compressive strength	0.421 MPa
global strength	4.233 MPa
modulus of deformation	768.611 MPa



<i>Project</i>		ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO	
<i>Analysis Description</i>		PROPIEDADES GEOMECANICAS	
<i>Drawn By</i>	BACH. MILDOR R. EUGENIO CARRANZA	<i>Company</i>	UNIVERSIDAD NACIONAL DE CAJAMARCA
<i>Date</i>	12/01/2017, 13:11:15	<i>File Name</i>	TALUD 09.roc5



Minor Principal Stress (kPa)



Normal Stress (kPa)

- ML - Principal Stress Envelope
- Mogi
- ML - Shear vs. Normal Stress Envelope

ML	
Mohr Coulomb Criterion	
cohesion	22 kPa
friction angle	27.5 deg
tensile strength	-0.3 kPa
uniaxial compressive strength	72.51 kPa
alpha	69.785 deg



<i>Project</i> ANALISIS DE INESTABILIDAD DE TALUDES MEDIANTE EQUILIBRIO LIMITE Y ELEMENTOS FINITOS, TRAMO SANTA ROSA-TUCO BAJO CARRETERA BAMBAMARCA – CENTRO POBLADO TUCO		
<i>Analysis Description</i> PROPIEDADES GEOMECAICAS		
<i>Drawn By</i>	BACH. MILDOR R. EUGENIO CARRANZA	<i>Company</i> UNIVERSIDAD NACIONAL DE CAJAMARCA
<i>Date</i>	12/01/2017, 13:11:15	<i>File Name</i> TALUD 09-SUELO.roc5