GRUPPO FS ITALIANE

Direzione Progettazione e Realizzazione Lavori

S.S. n.130 "Iglesiente"

Eliminazione degli incroci a raso da Cagliari a Decimomannu da km 3+000 a 15+600

PROGETTO DEFINITIVO

COD. CA316 CA351

PROGETTAZIONE: ATI VIA - LOTTI - SERING - VDP - BRENG

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Responsabile Idraulica, Geotecnica e Impianti: *Dott. Ing. Sergio Di Maio (Ord. Ing. Prov. Palermo 2872)*
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RESPONSABILE SIA:
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Dott. Ing. Francesco Corrias

GRUPPO DI PROGETTAZIONE
MANDATARIA:
VIA INGEGNERIA

MANDANTI:
LOTTI S.p.A. ingegneria
SERING INGEGNERIA
VDP
BRENG BRIDGE ENGINEERING

OPERE D'ARTE MAGGIORI

VIADOTTI E PONTI

Opere provvisionali

Relazione di calcolo

Dott. Ing. FRANCESCO NICCHIARELLI — ORDINE INGEGNERI ROMA N° 14711

CODICE PROGETTO				NOME FILE	REVISIONE	SCALA:
PROGETTO	LIV. PROG.	ANNO		CA316351_P00VI00STRRE01_A		
CA316351	D	19	CODICE ELAB.	P00VI00STRRE01	A	–

REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO
D		–	–	–	–
C		–	–	–	–
B		–	–	–	–
A	EMISSIONE	MAR.2020	F.SALUTE	G.PIAZZA	F. NICCHIARELLI

I N D I C E

1 GENERALITA’

1.1 Oggetto

La presente relazione illustra l’analisi e le verifiche strutturali e geotecniche effettuate per la progettazione delle opere provvissionali previsto nell’ambito dei lavori di realizzazione della “*S.S. n.130* – Eliminazione degli incroci a raso da Cagliari a Decimomannu da km 3+000 a 15+600”.

I calcoli e le verifiche strutturali di resistenza relative alle sezioni più sollecitate sono stati elaborati utilizzando lo schema statico bidimensionale nel rispetto del metodo semiprobabilistico agli stati limite. Gli stati limite di tipo geotecnico vengono verificati secondo l’equilibrio limite.

Le analisi e le verifiche statiche sono condotte conformemente al livello di Progettazione Definitiva di cui trattasi e mirano al dimensionamento degli elementi principali per consentirne una piena definizione dal punto di vista prestazionale ed economico (§art. 26 e 29 D.P.R. 5/10/2010, n°207).

Le analisi e le verifiche degli aspetti di dettaglio, saranno sviluppate nella successiva fase di Progettazione Esecutiva.

1.2 Descrizione delle opere

Le opere oggetto della presente relazione sono i palancolati e le paratie di micropali da realizzarsi come opere di sostegno a carattere provvisionale durante l’esecuzione dei lavori in oggetto.

Le tipologie analizzate sono le seguenti:

1) PARATIE DI MICROPALI: per la fasistica di realizzazione del PO01, posizionate come mostrato nella figura successiva.

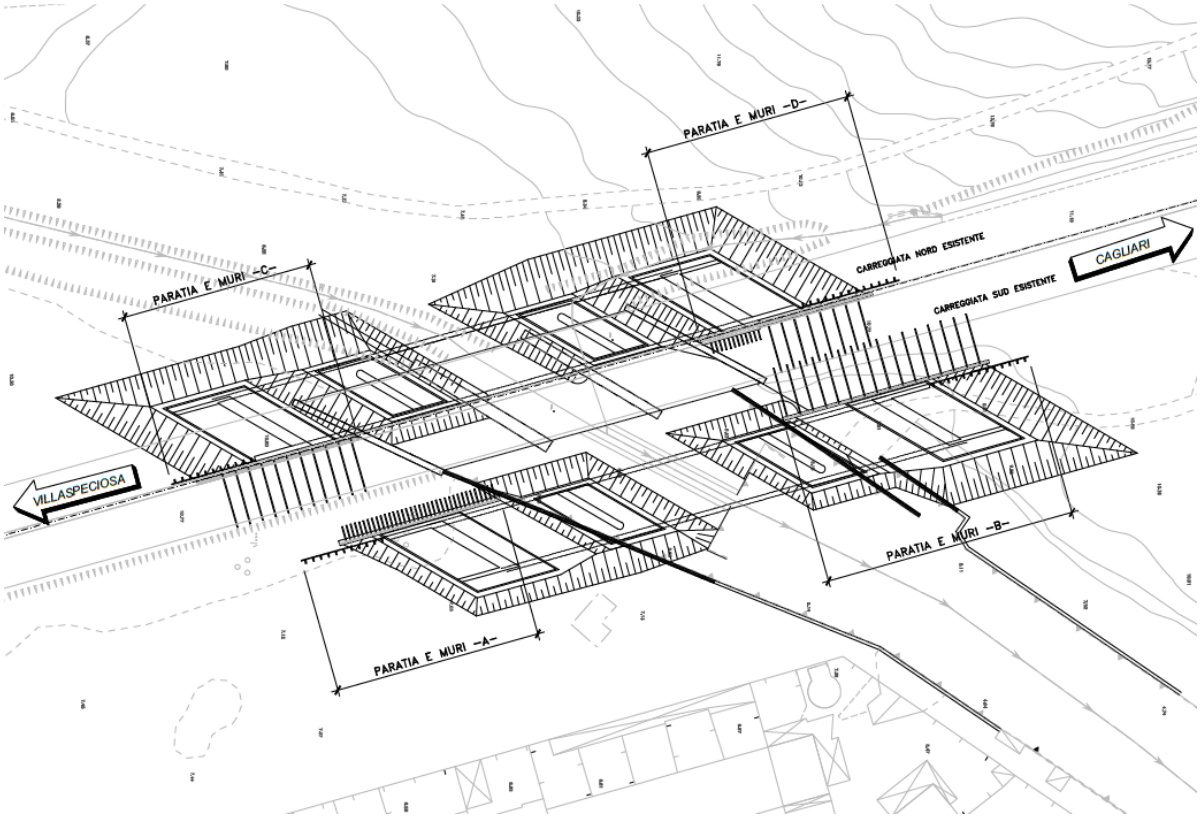


Figura 1.1 Pianta paratie PO01

Nello specifico:

- **TIPO A:** paratia di micropali con tiranti costituiti da micropali inclinati a cavalletto.

  La paratia è costituita da micropali Φ240 mm di lunghezza Lm=8.6 m e armati con tubolare in acciaio Φ168.3mm spessore 10 mm e lunghezza Lt=9.0 m. I micropali verticali sono posti ad un interasse i = 0.35 m, mentre quelli inclinati ad un interasse di 0.70 m. L’inclinazione dei tiranti rispetto alla verticale è di 15°.

  È presente un cordolo in c.a. di larghezza 0.8 m e di altezza 0.6 m.

  L’altezza di scavo massima, misurata da testa cordolo, è di 3.10 m.

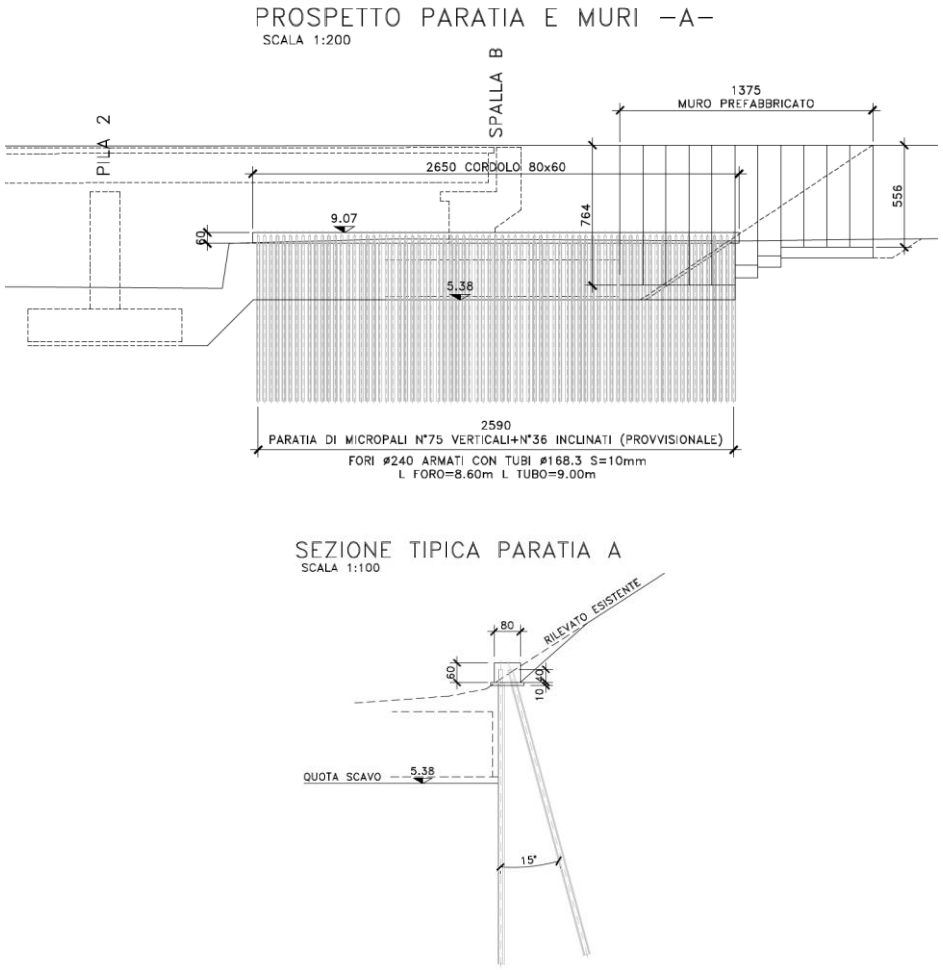


Figura 1.2 Prospetto e Sezione Paratia tipo A

- **TIPO B:** paratia di micropali con un ordine di tiranti attivi.

  La paratia è costituita da micropali Φ240 mm di lunghezza variabile da Lm=5.6 m a 13.6 m, armati con tubolare in acciaio Φ168.3mm spessore 10 mm e lunghezza variabile da Lt=6.0 a 14.0 m. I micropali verticali sono posti ad un interasse i = 0.35 m.

  I tiranti attivi a trefoli con Φ200mm, sono inclinati di 25° e posti ad un interasse it=2.10m. Ogni tirante con quattro trefoli, da 0.6”, di lunghezza 15.00 m (e bulbo da 9.0 m) è posto ad una distanza di 2.0 m da intradosso cordolo. I tiranti sono contrastiti con 2 profili HEA180.

  È presente un cordolo in c.a. di larghezza 0.5 m e di altezza 0.6 m.

  L’altezza di scavo massima, misurata da testa cordolo, è di 5.60 m.

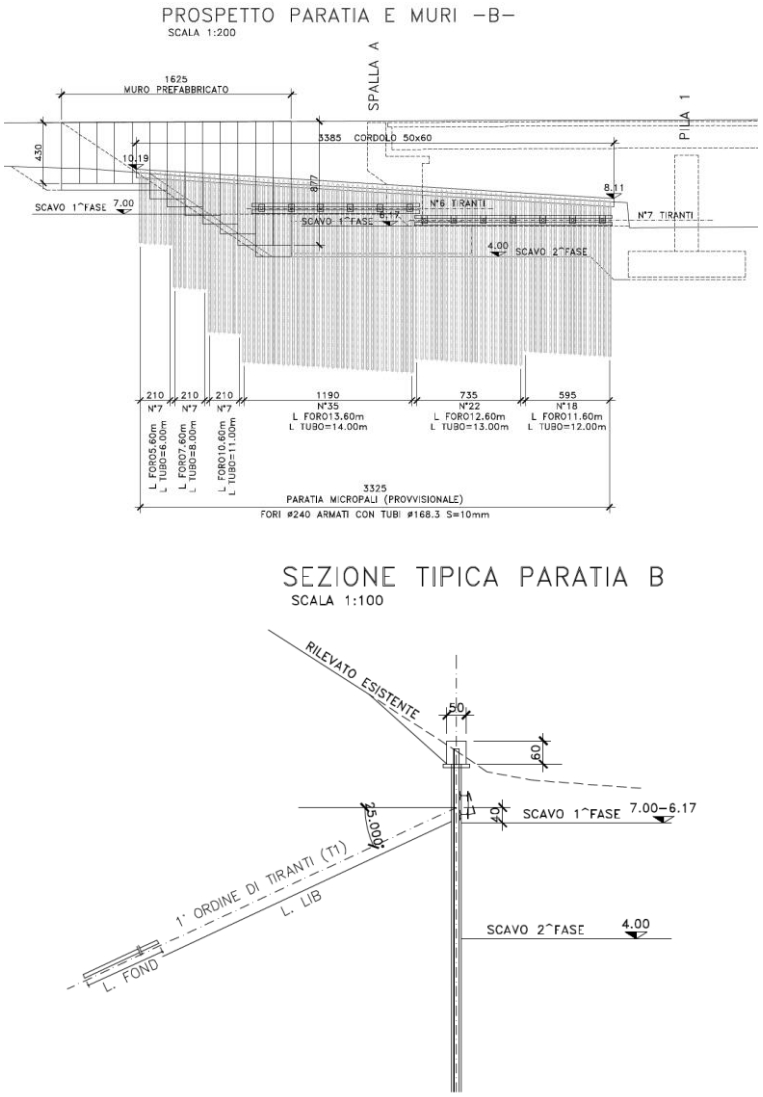


Figura 1.3 Prospetto e Sezione Paratia tipo B

- **TIPO C:** paratia di micropali con due ordini di tiranti attivi.

  La paratia è costituita da micropali Φ240 mm di lunghezza variabile da Lm=5.6 m a 11.6 m, armati con tubolare in acciaio Φ168.3mm spessore 10 mm e lunghezza variabile da Lt=6.0 a 12.0 m. I micropali verticali sono posti ad un interasse i = 0.35 m.

  I tiranti attivi a trefoli con Φ200mm, sono inclinati di 25° e posti ad un interasse it=2.10m. Ogni tirante con quattro trefoli, da 0.6”, di lunghezza 15.00 m (e bulbo da 9.0 m). Il primo ordine di tiranti è posto ad una distanza di 1.4 m da intradosso cordolo, mentre il secondo ordine ad una distanza di 3.90 m. I tiranti sono contrastiti con 2 profili HEA180.

  È presente un cordolo in c.a. di larghezza 0.5 m e di altezza 0.6 m.

  L’altezza di scavo massima, misurata da testa cordolo, è di 5.60 m.

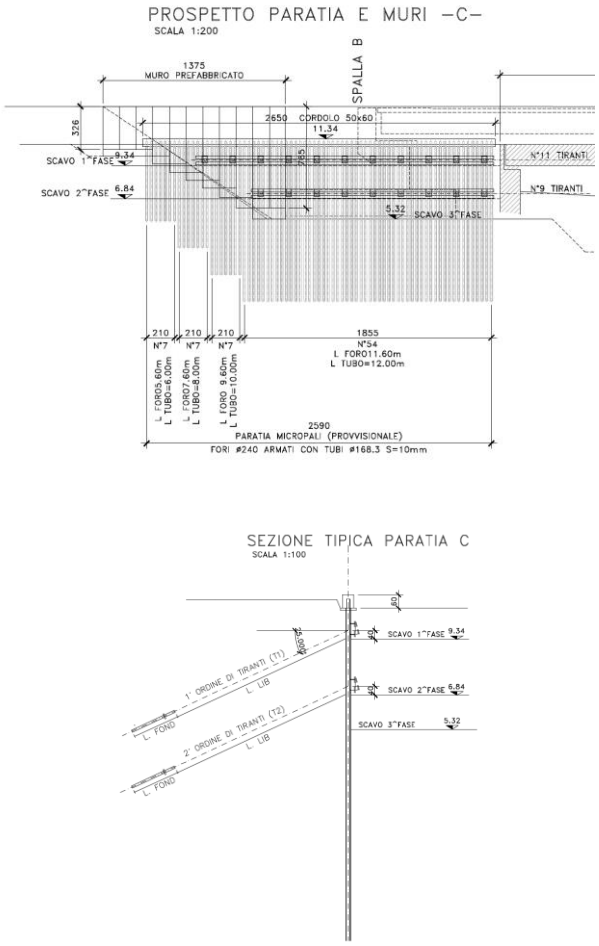


Figura 1.4 Prospetto e Sezione Paratia tipo C

- **TIPO D1:** paratia di micropali con due ordini di tiranti attivi.

  La paratia è costituita da micropali Φ240 mm di lunghezza variabile da Lm=5.6 m a 11.6 m, armati con tubolare in acciaio Φ168.3mm spessore 10 mm e lunghezza variabile da Lt=6.0 a 12.0 m. I micropali verticali sono posti ad un interasse i = 0.35 m.

  I tiranti attivi a trefoli con Φ200mm, sono inclinati di 25° e posti ad un interasse it=2.10m. Ogni tirante con quattro trefoli, da 0.6”, di lunghezza 15.00 m (e bulbo da 9.0 m). Il primo ordine di tiranti è posto ad una distanza di 1.4 m da intradosso cordolo, mentre il secondo ordine ad una distanza di 3.90 m. I tiranti sono contrastiti con 2 profili HEA180.

  È presente un cordolo in c.a. di larghezza 0.5 m e di altezza 0.6 m.

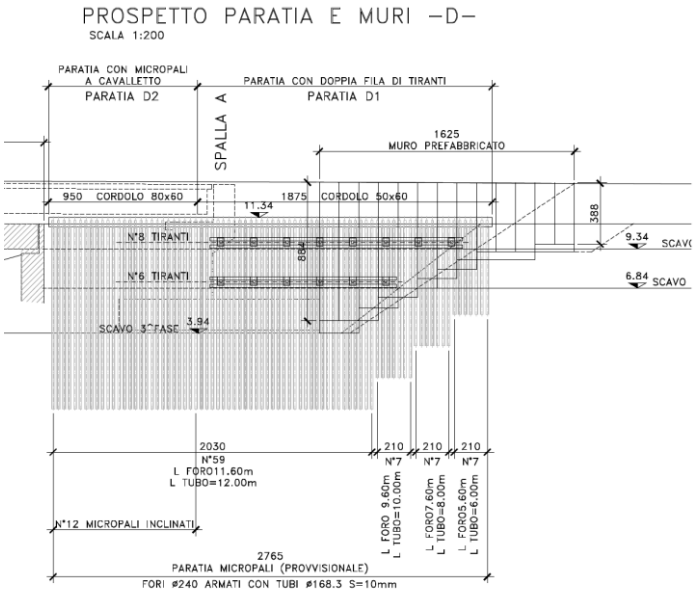
  L’altezza di scavo massima, misurata da testa cordolo, è di 7.40 m.

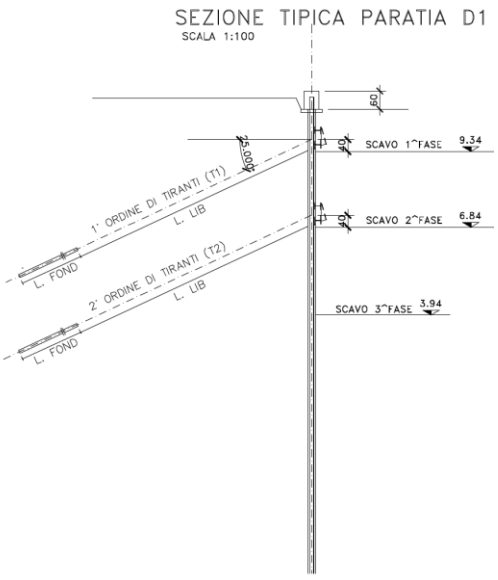
- **TIPO D2:** paratia di micropali con tiranti costituiti da micropali inclinati a cavalletto.

La paratia è costituita da micropali Φ240 mm di lunghezza Lm=11.6 m e armati con tubolare in acciaio Φ168.3mm spessore 10 mm e lunghezza Lt=12.0 m. I micropali verticali sono posti ad un interasse i = 0.35 m, mentre quelli inclinati ad un interasse di 0.70 m. L’inclinazione dei tiranti rispetto alla verticale è di 15°.

È presente un cordolo in c.a. di larghezza 0.8 m e di altezza 0.6 m.

L’altezza di scavo massima è di 6.80 m.





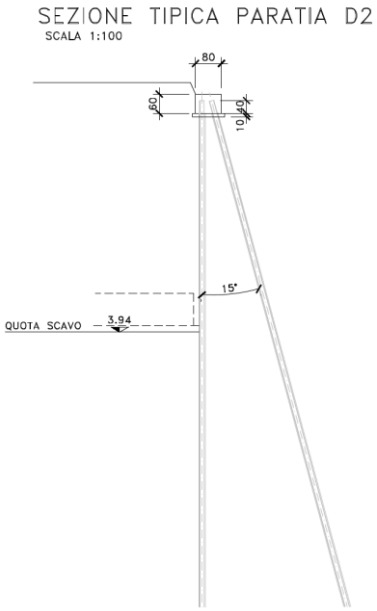


Figura 1.5 Prospetto e Sezione Paratia tipo D1 E D2

2) PALANCOLATI: a sbalzo posti a sostegno del terreno e della strada esistente e a protezione degli scavi da realizzare per la costruzione del plinto di fondazione della pila P2 del cavalcavia CV01 (estensione pari a 20.60 m) e delle spalle del PO02 (due tratti di estensione pari a 13 m).

   Le palancole sono del tipo PU28 in acciaio S240GP con lunghezza H=9.00 m.

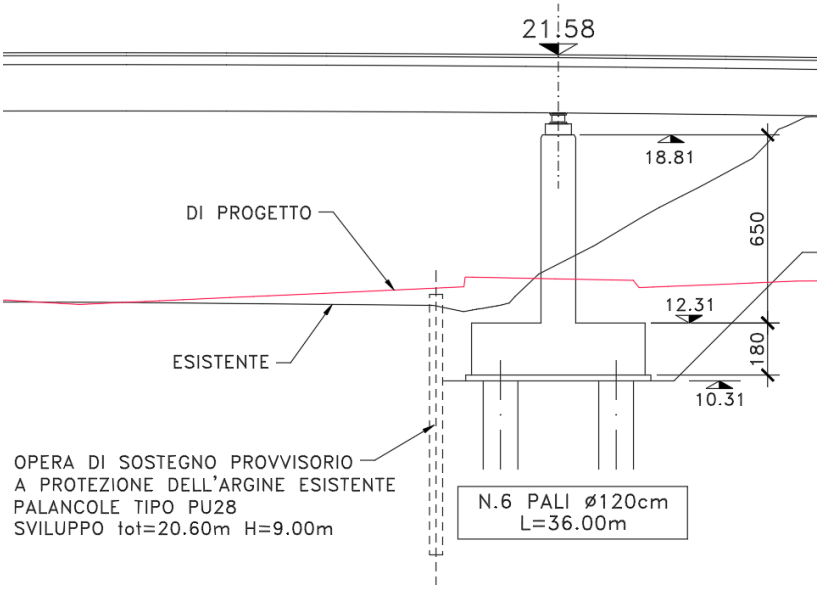


Figura 1.6 Sezione Palancolato CV01

1.3 Descrizione delle sezioni di calcolo

Sono state analizzate 5 sezioni di calcolo avente le seguenti caratteristiche:

Paratie di micropali con cavalletto:

Dati generali		**TIPO A**	**TIPO D2**
ø micropalo	m	0.24	0.24
ø tubo	mm	168.3	168.3
sp tubo	mm	10	10
int	mm	0.35	0.35
L micropalo	m	8.6	11.6
H cordolo	m	0.6	0.6
$H_{tubo\ nel\ cord}$	m	0.4	0.4
L tubo	m	9	12
$H_{da\ intr\ cord}$	m	3.1	6.8
$H_{da\ estr\ cord}$	m	3.7	7.4
H infissione	m	5.5	4.8
L tot	m	9.2	12.2
As	mm^2	4973.1	4973.1
I	m^4	0.0000156	0.0000156
Wel	mm^3	185856.67	185856.67
E	N/mm^2	210000	210000
f_{yk}	MPa	355	355
Cls		C25/30	C25/30

Tipologia di ancoraggio		CAVALLETTO	CAVALLETTO
ø micropalo	m	0.24	0.24
ø tubo	mm	168.3	168.3
sp tubo	mm	10	10
int	m	0.7	0.7
As	mm^2	4973.1	4973.1
α sulla vert	°	15	15
L tot	m	9	12
L libera	m	4	6
L bulbo	m	5	6
E	N/mm^2	210000	210000
f_{yk}	MPa	355	355
Cls		C25/30	C25/30

Paratie di micropali con tiranti attivi a trefoli:

Dati generali		TIPO B	TIPO D1
ø micropalo	m	0.24	0.24
ø tubo	mm	168.3	168.3
sp tubo	mm	10	10
int	mm	0.35	0.35
L micropalo	m	13.6	11.6
H cordolo	m	0.6	0.6
$H_{tubo\ nel\ cord}$	m	0.4	0.4
L tubo	m	14	12
$H_{da\ intr\ cord}$	m	5	6.8
$H_{da\ estr\ cord}$	m	5.6	7.4
H infissione	m	8.6	4.8
L tot	m	14.2	12.2
As	mm^2	4973.1	4973.1
I	m^4	0.0000156	0.0000156
Wel	mm^3	185856.67	185856.67
E	N/mm^2	210000	210000
f_{yk}	MPa	355	355
Cls		C25/30	C25/30

Tipologia di ancoraggio		TIRANTI ATTIVI	TIRANTI ATTIVI
n° ordini	-	1	2
ø bulbo	m	0.2	0.2
ø trefoli	"	0.6	0.6
n°trefoli	-	4	4
A tot trefoli	m^2	0.00056	0.00056
int	m	2.1	2.1
α sull'oriz	°	25	25
L tot	m	15	15
L libera	m	6	6
L bulbo	m	9	9
fptk	Mpa	1860	1860
fp(1)k	Mpa	1670	1670

I risultati ottenuti per la tipologia D1 saranno estesi alla tipologia C avente le medesime caratteristiche ma uno scavo inferiore.

Palancolato:

Tipologia		PU28
L palancola	m	9
H scavo	m	2.50
H infissione	m	6.00
Wel	cm^3/m	2800
f_{yk}	MPa	240

2 NORMATIVE E RIFERIMENTI

Le analisi e le verifiche delle strutture sono state effettuate nel rispetto della seguente normativa vigente:

[D_1]. DM 17 gennaio 2018: Aggiornamento delle <<Norme tecniche per le costruzioni>> (nel seguito indicate come NTC18).

[D_2]. Circolare 21 gennaio 2019 n.7: Istruzioni per l’applicazione dell’ “Aggiornamento delle Norme tecniche per le costruzioni” di cui al DM 17 gennaio 2018, supplemento ordinario n° 5 alla G. U. n° 35 del 11/02/2019 (nel seguito indicate come CNTC18).

[D_3]. Norma Europea UNI EN 206: Calcestruzzo – Specificazione, prestazione, produzione e conformità (Dicembre 2016).

[D_4]. Norma Italiana UNI 11104: Calcestruzzo – Specificazione, prestazione, produzione e conformità – Specificazioni complementari per l’applicazione della EN 206 (luglio 2016).

3 NORME TECNICHE

Il metodo di calcolo adottato è quello semiprobabilistico agli stati limite, con applicazione di coefficienti parziali per le azioni o per l’effetto delle azioni, variabili in ragione dello stato limite indagato.

4 CARATTERISTICHE DEI MATERIALI E RESISTENZE DI PROGETTO

4.1 Calcestruzzi

4.1.1 Caratteristiche ai fini della durabilità

Al fine di valutare le caratteristiche vincolanti delle miscele di calcestruzzo nei confronti della durabilità viene fatto riferimento alle norme [D_3] e [D_4] .

Relativamente alla scelta delle classi di esposizione tenuto conto che il tracciato si sviluppa oltre 2 km dalla linea di costa è stato esclusa l’applicazione della classe XS (Corrosione indotta dai cloruri contenuti nell’acqua di mare).

Analogamente, in accordo alla “Classificazione del livello di rischio di attacco del gelo per aree climatiche del territorio italiano” contenuta nell’appendice A alla norma [D_4], che attribuisce alla Sardegna un livello di rischio Nullo, è stata esclusa l’applicazione della classe XF (Attacco dei cicli gelo/disgelo con o senza disgelanti), e conseguentemente della classe XD (corrosione indotta da cloruri esclusi quelli provenienti dall’acqua di mare).

Relativamente all’applicazione della classe XA (Attacco chimico da parte del terreno naturale e delle acque contenbute nel terreno), le analisi chimiche eseguite su campioni di terreno e su acqua di falda ai sensi della norma UNI EN 206, hanno evidenziato concentrazioni di solfati (SO^2_4) nelle acque di falda, tali da da rientrare nei range illustrati nel prospetto 2 della norma [D_3].

Di seguito, per ciascun elemento viene riportata la classe di esposizione che risulta vincolante ai fini delle caratteristiche della miscela. Inoltre, sono riportati la classe di resistenza, i range previsti per le dimensioni massime degli aggregati, la classe di consistenza, il valore massimo del rapporto acqua/cemento, il tipo di cemento da impiegare in funzione della parte d’opera e il contenuto minimo di cemento:

4.2 Acciaio in barre per cemento armato e Reti Elettrosaldate

4.2.1 Qualità dell’acciaio

Acciaio in barre B450C in accordo a DM 17/01/2018 (Capitolo 11).

Le Reti Elettrosaldate (RES), potranno essere realizzate impiegando acciaio B450A con le limitazioni all’impiego previste nel capitolo 11 delle NTC2018.

4.2.2 Resistenze di progetto

Caratteristiche Acciaio per Calcestruzzo armato	**Var**	**unità**		
Qualità dell'acciaio			B450C	B450A
Tensione caratteristica di snervamento nominale	f_{yk}	Mpa	450	450
Tensione caratteristica a carico ultimo nominale	f_{tk}	Mpa	540	450
Modulo elastico	Es	Mpa	210000	210000
diametro minimo della barra impiegabile	ϕ_{min}	mm	6	5
diametro massimo della barra impiegabile	ϕ_{max}	mm	40	10
STATI LIMITE ULTIMI	**Var**	**unità**		
coefficiente γ_s	γ_s		1.15	1.15
Resistenza di calcolo	$f_{yd}=f_{yk}/\gamma_s$	Mpa	391.3	391.3
STATI LIMITE DI ESERCIZIO	**Var**	**unità**		
$\sigma_{s,max}$ - combinazione di carico caratteristica	$\sigma_{s,max}=0.8\ f_{yk}$	Mpa	360.0	360.0

4.3 Acciaio per carpenteria metallica

4.3.1 Acciaio per palancole

Le palancole saranno in acciaio Tipo S240 GP.

4.3.2 Acciaio per micropali, travi di ripartizione

Acciaio tipo S355

Caratteristiche Acciaio da carpenteria metallica		**Var**	**unità**	UNI EN 10025
Qualità dell'acciaio				S355 W
Tensione caratteristica di snervamento	t ≤ 40 mm	f_{yk}	Mpa	355
Tensione caratteristica di rottura	t ≤ 40 mm	f_{tk}	Mpa	510
Tensione caratteristica di snervamento	40 mm < t ≤ 80 mm	f_{yk}	Mpa	335
Tensione caratteristica di rottura	40 mm < t ≤ 80 mm	f_{tk}	Mpa	490
Modulo elastico		Es	Mpa	210000

STATI LIMITE ULTIMI		**Var**	**unità**	
coeff. di sicurezza per resistenza delle sezioni γ_{m0}		γ_{m0}		1.05
coeff. di sicurezza per resistenza all'instabilità dellle membrature γ_{m1}		γ_{m1}		1.05
coeff. di sicurezza per resistenza all'instabilità dellle membrature dei ponti γ_{m1}		γ_{m1}		1.10
coeff. di sicurezza per resistenza alla frattura, delle sez. Tese indebolite dai fori γ_{m2}		γ_{m2}		1.25
Resistenza plastica di calcolo	t ≤ 40 mm	$f_{yd}=f_{yk}/\gamma_{m0}$	Mpa	338.1
Resistenza all'instabilità delle membrature	t ≤ 40 mm	$f_{yd}=f_{yk}/\gamma_{m1}$	Mpa	338.1
Resistenza all'instabilità delle membrature dei ponti	t ≤ 40 mm	$f_{yd}=f_{yk}/\gamma_{m1}$	Mpa	322.7
Resistenza alla frattura delle sez. Tese (indebolite dai fori)	t ≤ 40 mm	$f_{yd}=0.9\ f_{tk}/\gamma_{m2}$	Mpa	367.2
Resistenza plastica di calcolo	40 mm < t ≤ 80 mm	$f_{yd}=f_{yk}/\gamma_{m0}$	Mpa	319.0
Resistenza all'instabilità delle membrature	40 mm < t ≤ 80 mm	$f_{yd}=f_{yk}/\gamma_{m1}$	Mpa	319.0
Resistenza all'instabilità delle membrature dei ponti	40 mm < t ≤ 80 mm	$f_{yd}=f_{yk}/\gamma_{m1}$	Mpa	304.5
Resistenza alla frattura delle sez. Tese (indebolite dai fori)	40 mm < t ≤ 80 mm	$f_{yd}=0.9\ f_{tk}/\gamma_{m2}$	Mpa	392.0

4.3.3 Acciaio per trefoli

Caratteristiche Acciaio da precompressione	**Var**	**unità**	
Tipologia di armatura			Trefoli
Tensione caratteristica a carico ultimo	f_{ptk}	Mpa	1860
Tensione caratteristica di snervamento	f_{pyk} $f_{p(0.1)k}$ $f_{p(1)k}$ *	Mpa	1670
Modulo elastico	Es	Mpa	195000

** f_{pyk} per acciaio in barre $f_{p(0.1)k}$ per acciaio in fili $f_{p(1)k}$ per acciaio in trefoli e trecce*

STATI LIMITE ULTIMI	**Var**	**unità**	
coefficiente γ_s	γ_s		1.15
Resistenza di calcolo	fyd=fyk/gs	Mpa	1452

5 INQUADRAMENTO GEOTECNICO

5.1 Stratigrafie di calcolo

Per le paratie sono stati adottati i seguenti parametri geotecnici:

Paratie PO01 Tipo B-C-D1-D2 — Numero delle verticali indagate spinte a profondità utile al dimensionamento dei pali: 2

Profondità falda da piano di campagna zw m 5.0

STRATIGRAFIA E PARAMETRI GEOTECNICI DI PROGETTO

				PARAMETRI DI RESISTENZA										PARAMETRI DI DEFORMABILITA'	
				VALORI MEDI					VALORI MINIMI						
Strato n.	Da [m]	A [m]	Unità	γ_{med} [kPa]	cu_{med} [kPa]	c'_{med} [kPa]	ϕ'_{med} [°]	NSPT	γ_{min} [kPa]	cu_{min} [kPa]	c'_{min} [kPa]	ϕ'_{min} [°]	NSPT	G0 [MPa]	Eoperativo [MPa]
1	0.00	5.00	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
2	5.00	8.00	SL	19.6		27.0	33.0	21	16.4		13.0	27	7	347	87
3	8.00	15.00	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
4	15.00	50.00	A-SAM	19.5	144	35.0	28.0	25	17.1	100.0	21.0	23	8	497	124

Paratie PO01 Tipo A — Numero delle verticali indagate spinte a profondità utile al dimensionamento dei pali: 2

Profondità falda da piano di campagna zw m 3.0

STRATIGRAFIA E PARAMETRI GEOTECNICI DI PROGETTO

				PARAMETRI DI RESISTENZA										PARAMETRI DI DEFORMABILITA'	
				VALORI MEDI					VALORI MINIMI						
Strato n.	Da [m]	A [m]	Unità	γ_{med} [kPa]	cu_{med} [kPa]	c'_{med} [kPa]	ϕ'_{med} [°]	NSPT	γ_{min} [kPa]	cu_{min} [kPa]	c'_{min} [kPa]	ϕ'_{min} [°]	NSPT	G0 [MPa]	Eoperativo [MPa]
1	0.00	3.00	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
2	3.00	6.00	SL	19.6		27.0	33.0	21	16.4		13.0	27	7	347	87
3	6.00	13.00	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
4	13.00	50.00	A-SAM	19.5	144	35.0	28.0	25	17.1	100.0	21.0	23	8	497	124

Palancole CV01 — Numero delle verticali indagate spinte a profondità utile al dimensionamento dei pali: 2

Profondità falda da piano di campagna zw m 6.0

STRATIGRAFIA E PARAMETRI GEOTECNICI DI PROGETTO

				PARAMETRI DI RESISTENZA										PARAMETRI DI DEFORMABILITA'	
				VALORI MEDI					VALORI MINIMI						
Strato n.	Da [m]	A [m]	Unità	γ_{med} [kPa]	cu_{med} [kPa]	c'_{med} [kPa]	ϕ'_{med} [°]	NSPT	γ_{min} [kPa]	cu_{min} [kPa]	c'_{min} [kPa]	ϕ'_{min} [°]	NSPT	G0 [MPa]	Eoperativo [MPa]
1	0.00	7.00	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
2	7.00	13.00	A-SAM	19.5	144	35.0	28.0	25	17.1	100.0	21.0	23.0	8	497	124
3	13.00	18.00	SL	19.6		27.0	33.0	21	16.4		13.0	27.0	7	347	87
4	18.00	50.00	A-SAM	19.5	144	35.0	28.0	25	17.1	100.0	21.0	23.0	8	497	124

Palancole PO02 — Numero delle verticali indagate spinte a profondità utile al dimensionamento dei pali: 3

Profondità falda da piano di campagna zw m 5.0

STRATIGRAFIA E PARAMETRI GEOTECNICI DI PROGETTO

				PARAMETRI DI RESISTENZA										PARAMETRI DI DEFORMABILITA'	
				VALORI MEDI					VALORI MINIMI						
Strato n.	Da [m]	A [m]	Unità	γ_{med} [kPa]	cu_{med} [kPa]	c'_{med} [kPa]	ϕ'_{med} [°]	NSPT	γ_{min} [kPa]	cu_{min} [kPa]	c'_{min} [kPa]	ϕ'_{min} [°]	NSPT	G0 [MPa]	Eoperativo [MPa]
1	0.00	8.70	G	18.2		14.0	37.0	34	17.0		10.0	28.0	15	343	86
2	8.70	17.70	SL	19.6		21.0	33.0	21	16.4		13.0	27.0	7	347	87
3	17.70	50.00	A-SAM	19.5	144.0	35.0	28.0	25.0	17.1	100.0	21.0	23.0	8	497	124

Cautelativamente ed a favore di sicurezza, tenuto conto del peso della coesione nei problemi geotecnici di scarico tensionale, e per tenere conto di una possibile riduzione di questo parametro a lungo termine, sono stati adottati valori di c’ dimezzati rispetto a quelli indicati nella Relazione Geotecnica per i litotipi più superficiali.

Relativamente ai moduli elastici del terreno sono stati adottati valori “operativi”, che tengono conto del livello di deformazione tipico del problema esaminato, sono pari a 1/10 dei moduli a piccolissimi livelli di deformazione E_0.

Per il dimensionamento delle palancole è stato implementato un unico modello che tiene conto della stratigrafia del CV01, più cautelativa rispetto a quella del PO02.

6 CRITERI DI VERIFICA DELLE PARATIE

6.1 Modello di calcolo

Le analisi di stabilità locale delle opere di sostegno e quelle per la valutazione delle sollecitazioni negli elementi resistenti (micropali e tiranti) sono state condotte mediante l’ausilio del codice di calcolo Paratie Plus prodotto da CeAS.

In tale codice la schematizzazione dell’interazione tra paratia e terreno avviene considerando:

- la paratia come una serie di elementi il cui comportamento è caratterizzato dalla rigidezza flessionale EJ;
- il terreno come una serie di molle di tipo elasto-plastico connesse ai nodi della paratia.

Il problema è risolto con una schematizzazione a modello piano in cui viene analizzata una “fetta” di parete di larghezza unitaria.

La modellazione numerica dell’interazione terreno-struttura è del tipo “trave su suolo elastico”: le pareti di sostegno vengono rappresentate con elementi finiti trave il cui comportamento è definito dalla rigidezza flessionale EJ, mentre il terreno viene simulato attraverso elementi elastoplastici monodimensionali (molle) connessi ai nodi delle paratie: ad ogni nodo convergono uno o al massimo due elementi terreno.

Il limite di questo schema sta nell’ammettere che ogni porzione di terreno, schematizzata da una “molla”, abbia comportamento del tutto indipendente dalle porzioni adiacenti; l'interazione fra le varie regioni di terreno è affidata alla rigidezza flessionale della parete.

La realizzazione dello scavo sostenuto da una o due paratie puntonate/tirantate viene seguita in tutte le varie fasi attraverso un'analisi statica incrementale: ogni passo di carico coincide con una ben precisa configurazione caratterizzata da una certa quota di scavo, da un insieme di puntoni/tiranti applicati, da una precisa disposizione di carichi.

Poiché il comportamento degli elementi finiti è di tipo elasto-plastico, ogni configurazione dipende in generale dalle configurazioni precedenti e lo sviluppo di deformazioni plastiche ad un certo passo condiziona la risposta della struttura nei passi successivi. La soluzione ad ogni nuova configurazione (step) viene raggiunta attraverso un calcolo iterativo alla Newton-Raphson.

L'analisi ha lo scopo di indagare la risposta strutturale in termini di deformazioni laterali subite dalla parete durante le varie fasi di scavo e di conseguenza la variazione delle pressioni orizzontali nel terreno. Per far questo, in corrispondenza di ogni nodo è necessario

definire due soli gradi di libertà, cioè lo spostamento orizzontale e la rotazione attorno all’asse X ortogonale al piano della struttura (positiva se antioraria).

In questa impostazione particolare, inoltre, gli sforzi verticali nel terreno non sono per ipotesi influenzati dal comportamento deformativo orizzontale, ma sono una variabile del tutto indipendente, legata ad un calcolo basato sulle classiche ipotesi di distribuzione geostatica.

Nei modelli di calcolo implementati, l’esecuzione dello scavo è schematizzata mediante una successione di step. Il calcolo della pressione dell’acqua nei pori è, per ipotesi, del tutto indipendente da qualsiasi deformazione e conseguente stato di sforzo nello scheletro solido del terreno.

La legge costitutiva, rappresentativa del comportamento elasto–plastico del terreno, è identificata dai parametri di spinta e di deformabilità del terreno.

6.2 Coefficienti di spinta

Nel modello di calcolo impiegato dal software di calcolo Paratie Plus, la spinta del terreno viene determinata investigando l’interazione statica tra terreno e la struttura deformabile a partire da uno stato di spinta del terreno sulla paratia.

I parametri che identificano il tipo di legge costitutiva possono essere distinti in due sottoclassi: parametri di spinta e parametri di deformabilità del terreno.

I parametri di spinta sono il coefficiente di spinta a riposo K_0, il coefficiente di spinta attiva K_a ed il coefficiente di spinta passiva K_p.

Il coefficiente di spinta a riposo fornisce lo stato tensionale presente in sito prima delle operazioni di scavo. Esso lega la tensione orizzontale efficace σ'_h a quella verticale σ'_v attraverso la relazione:

$$\sigma'_h = K_0 \cdot \sigma'_v$$

K_0 dipende dalla resistenza del terreno, attraverso il suo angolo di attrito efficace ϕ' e dalla sua storia geologica. Si può assumere che:

$$K_0 = K_0^{NC} \cdot (OCR)^m$$

Dove

$$K_0^{NC} = 1 - \text{sen}\,\phi'$$

è il coefficiente di spinta a riposo per un terreno normalconsolidato (OCR=1). OCR è il grado di sovraconsolidazione e m è un parametro empirico, di solito compreso tra 0.4 e 0.7.

Per tener conto dell'angolo di attrito δ tra paratia e terreno il software PARATIE impiega per Ka e Kp la formulazione rispettivamente di Coulomb e Caquot – Kerisel.

Secondo la formulazione di Coulomb il coefficiente di spinta attiva Ka vale:

$$k_a = \frac{\cos^2(\varphi' - \beta)}{\cos^2\beta \cdot \cos(\beta+\delta)\cdot\left[1+\sqrt{\frac{sen(\delta+\varphi')\cdot sen(\varphi'-i)}{\cos(\beta+\delta)\cdot\cos(\beta-i)}}\right]^2}$$

dove:

φ’ è l’angolo di attrito del terreno

β è l’angolo d’inclinazione del diaframma rispetto alla verticale

δ è l’angolo di attrito paratia-terreno posto pari a 2/3 φ’.

i è l’angolo d’inclinazione del terreno a monte della paratia rispetto all’orizzontale

Secondo la formulazione di Caquot – Kerisel il coefficiente di spinta passiva Kp viene calcolato secondo la seguente figura:

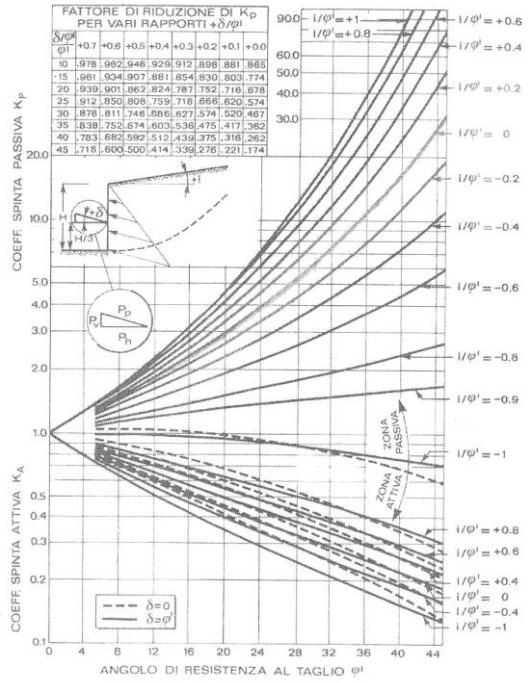


Figura 6.1: Formulazione di Caquot – Kerisel per Kp che considera superfici di rottura curvilinee

Il valore limite della tensione orizzontale sarà dato da:

$$\sigma'_h = K_a \cdot \sigma'_v - 2\cdot c'\cdot\sqrt{K_a}$$

$$\sigma'_h = K_p \cdot \sigma'_v + 2 \cdot c' \cdot \sqrt{K_p}$$

a seconda che il collasso avvenga in spinta attiva o passiva rispettivamente.

I parametri di deformabilità del terreno compaiono nella definizione della rigidezza delle molle. Per un letto di molle distribuite la rigidezza di ciascuna di esse, k, è data da:

$$K = E / L$$

ove E è un modulo di rigidezza del terreno mentre L è una grandezza geometrica caratteristica.

Poiché nel programma PARATIE le molle sono posizionate a distanze finite Δ, la rigidezza di ogni molla è:

$$K = (E \cdot \Delta) / L$$

Il valore di Δ è fornito dalla schematizzazione ad elementi finiti. Il valore di L è fissato automaticamente dal programma. Esso rappresenta una grandezza caratteristica che è diversa a valle e a monte della paratia perché diversa è la zona di terreno coinvolta dal movimento in zona attiva e passiva.

in zona attiva (uphill) $L_A = 2/3 \cdot l_a \cdot \tan(45° - \phi'/2)$

in zona Passiva (downhill) $L_P = 2/3 \cdot l_p \cdot \tan(45° + \phi'/2)$

con l_a e l_p rispettivamente:

$l_a = \min (l, 2H)$

$l_p = \min (l - H, H)$

dove l = altezza totale della paratia e H = altezza corrente dello scavo

Per i coefficienti di spinta attiva e passiva, tenuto conto che le corrispondenti forze risultano inclinate sul piano orizzontale, si considerano le componenti in direzione orizzontale.

6.3 Storie di carico

Tenendo conto delle verifiche da effettuare agli SLE ed agli SLU sono state considerate le seguenti storie di carico:

- **Configurazione A1+M1 (STATICA):** Una prima storia di carico in cui i parametri del terreno sono considerati con riferimento ai loro valori caratteristici ed le azioni sono considerate con fattore parziale unitario. Questa storia fornisce le sollecitazioni sugli elementi strutturali e gli spostamenti orizzontali delle paratie per le successive verifiche agli SLE. Inoltre, le sollecitazioni per la verifica SLU

combinazione A1 + M1, sono ottenute da questa storia di carico applicando il fattore moltiplicativo γ_F.

- **Configurazione A2+M2 (STATICA):** Una terza storia di carico in cui i parametri del terreno sono considerati con riferimento ai coefficienti parziali M2, e le azioni sono considerate con i fattori parziali A2. Questa storia permette di valutare le condizioni di stabilità geotecnica della paratia.

6.4 Metodologia di calcolo

6.4.1 Verifiche nei confronti degli stati limite ultimi (SLU)

Deve essere rispettata la condizione:

$$E_d \leq R_d$$

Dove E_d è il valore di progetto dell'azione o degli effetti delle azioni e R_d è il valore di progetto della resistenza del terreno.

La resistenza R_d è stata determinata nei casi in oggetto con riferimento al valore caratteristico dei parametri geotecnici di resistenza, divisi per il coefficiente parziale γ_m specificato nella tabella 6.2.II delle suddette norme:

Tab. 6.2.II – *Coefficienti parziali per i parametri geotecnici del terreno*

Parametro	Grandezza alla quale applicare il coefficiente parziale	Coefficiente parziale γ_M	(M1)	(M2)
Tangente dell'angolo di resistenza al taglio	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
Coesione efficace	c'_k	$\gamma_{c'}$	1,0	1,25
Resistenza non drenata	c_{uk}	γ_{cu}	1,0	1,4
Peso dell'unità di volume	γ_γ	γ_γ	1,0	1,0

Le Azioni e i relativi coefficienti parziali γ_f sono indicate nella tabella 6.2.I delle norme.

Le verifiche agli SLU strutturali sono state condotte per le combinazioni A1 + M1, mentre le verifiche agli SLU geotecniche con le combinazioni A2 + M2.

6.4.2 Verifiche dei tiranti

L'armatura e la lunghezza delle fondazioni dei tiranti sono state dimensionate in base ai criteri nel seguito esposti tenendo conto del loro massimo carico di esercizio, della loro inclinazione rispetto all'orizzontale e del loro interasse.

Devono essere soddisfate le seguenti verifiche:

- Raggiungimento della resistenza degli elementi strutturali;
- Verifica allo sfilamento della fondazione dell’ancoraggio.

Raggiungimento della resistenza degli elementi strutturali

Le sollecitazioni di output del codice di calcolo per i tiranti sono fornite per metro lineare per cui, nelle verifiche di resistenza, è necessario moltiplicare tali sollecitazioni per l’interasse dei tiranti. La verifica a rottura dei tiranti di ancoraggio risulta soddisfatta quando:

$$T_{Ed} \le T_{Rd}$$

Con:

$$T_{Ed} = T_{Ed,ml} \cdot i_{tiranti} \cdot \cos(\theta)$$

Dove:

$T_{Ed,ml}$ è il tiro massimo al metro lineare ottenuto dall’analisi SLU;

$i_{tiranti}$ è l’interasse tra i tiranti;

θ è l’angolo di inclinazione dei tiranti nel piano orizzontale;

T_{Ed} è il tiro massimo sul singolo tirante ottenuto dall’analisi SLU;

T_{Rd} è il tiro resistente del singolo tirante allo stato limite ultimo.

Il tiro resistente allo SLU dei tiranti a trefoli è calcolato come segue:

$$T_{Rd} = 0.9 \cdot \frac{f_{pt(1)k} \cdot n_t \cdot A_t}{\gamma_S}$$

Dove:

$f_{pt(1)k}$ è la tensione caratteristica all'1% della deformazione totale;

γ_S è il coefficiente di sicurezza dell'acciaio e vale 1,15;

n_t è il numero di trefoli che compongono il tirante;

A_t è l'area di ciascun trefolo.

Da cui: $N_{ys} = f_{p(1)k} / 1.15 = 1670 / 1.15 = 1452$ Mpa

Per i micropali a cavalletto si considera la seguente relazione:

$N_{ys} = f_{yk} / 1.05 = 355 / 1.05 = 338.1$ Mpa

Verifica allo sfilamento della fondazione

La verifica allo sfilamento della fondazione dell'ancoraggio si esegue confrontando la massima azione Tmax,d considerando tutti i possibili SLU con la resistenza di progetto R_{ad} determinata applicando alla resistenza caratteristica i seguenti fattori parziali:

$$R_{ad} = R_{ak} / \gamma_R$$

	Simbolo	Coefficiente parziale
Temporanei	$\gamma_{Ra,t}$	1,1
Permanenti	$\gamma_{Ra,p}$	1,2

Il valore caratteristico Rak è stato determinato analiticamente in funzione dei parametri geotecnici:

$$Rak = Ra,c / \xi$$

dove ξ è un fattore di correlazione che dipende dal numero di profili di indagine. Avendo a disposizione 2 verticali d’indagine per ogni opera in oggetto, si assume ξ = 1.65. Il valore di Ra,c è stato stimato con l’approccio di Bustamante e Doix:

$$R_{a,c} = \pi \cdot D_e \cdot \tau_{lim} \cdot L_{anc}$$

ove:

- D_e = diametro efficace della fondazione dopo l'iniezione;
- τ_{lim} = adesione unitaria limite fondazione - terreno.

Il valore di De non dipende oltre che dal diametro di perforazione dal tipo di terreno e dalla modalità di iniezione ed è calcolato come:

De = α·D, con D = diametro di perforazione.

Con riferimento alle indicazioni di Bustamante e Doix (1985) e tenendo conto del tipo d’iniezione del bulbo d’ancoraggio (IRS) sono stati assunti i seguenti valori:

- α = 1.6
- τ_{lim} = 120 KPa

6.4.3 Verifiche della trave porta tiranti

La verifica di questo elemento strutturale è eseguita come una trave continua su più appoggi, con luce pari all’interasse tra i tiranti, sottoposta ad un carico ripartito (p). La sezione risulta verificata se vale:

$$M_{Ed} \leq M_{Rd}$$

Con:

$$M_{Ed} = T_{Ed,ml} \cdot \frac{i_{tiranti}^2}{10}$$

Avendo posto:

$T_{Ed,ml}$ è il tiro massimo al metro lineare ottenuto dall’analisi SLU;

$i_{tiranti}$ è l’interasse orizzontale tra i tiranti

$M_{Rd,}$ è il momento resistente ultimo della sezione delle travi porta-tiranti.

7 ANALISI DEI CARICHI

Si descrivono nel seguito le verifiche eseguite per le tipologie di opere in oggetto ed i carichi considerati. Data la natura provvisionale delle opere si trascura la presenza del sisma.

7.1 Analisi eseguite

Sono stati analizzati tutti i casi di verifica, secondo i criteri esposti al Cap. 6, come segue:

SLE	STR
SLU (A1+M1)	STR
SLU (A2+M2)	GEO

7.2 Carichi permanenti strutturali

Per quanto riguarda la struttura il peso proprio degli elementi strutturali é automaticamente valutato dal programma di calcolo utilizzato per l’analisi.

7.3 Spinta delle terre

Il peso del terreno a tergo della paratia determina una spinta laterale sulla stessa avente distribuzione triangolare.

7.4 Carichi accidentali

A tergo delle paratie è stato considerato un carico accidentale distribuito pari a 10 kPa.

In corrispondenza del palancolato è stato considerato un carico accidentale distribuito pari a 20 kPa per modellare la presenza della strada esistente.

7.5 Combinazioni delle azioni

In accordo al par. 2.5.3 delle NTC2018 ai fini delle verifiche degli stati limite sono state considerate le seguenti combinazioni delle azioni:

- *Combinazione fondamentale*, impiegata per le verifiche agli stati limite ultimi (SLU):

$$\gamma_{G1}\cdot G_1 + \gamma_{G2}\cdot G_2 + \gamma_P\cdot P + \gamma_{Q1}\cdot Q_{k1} + \gamma_{Q2}\cdot\psi_{02}\cdot Q_{k2} + \gamma_{Q3}\cdot\psi_{03}\cdot Q_{k3} + \ldots \qquad (2.5.1)$$

- *Combinazione rara*, impiegata per le verifiche agli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + P + Q_{k1} + \psi_{02}\cdot Q_{k2} + \psi_{03}\cdot Q_{k3} + \ldots \qquad (2.5.2)$$

Di seguito si riportano le tabelle che esplicitano i coefficienti parziali sopra illustrati:

Tabella 5.1.V – *Coefficienti parziali di sicurezza per le combinazioni di carico agli SLU*

		Coefficiente	EQU[1]	A1 STR	A2 GEO
Carichi permanenti	favorevoli sfavorevoli	γ_{G1}	0,90 1,10	1,00 1,35	1,00 1,00
Carichi permanenti non strutturali[2]	favorevoli sfavorevoli	γ_{G2}	0,00 1,50	0,00 1,50	0,00 1,30
Carichi variabili da traffico	favorevoli sfavorevoli	γ_{Q}	0,00 1,35	0,00 1,35	0,00 1,15
Carichi variabili	favorevoli sfavorevoli	γ_{Qi}	0,00 1,50	0,00 1,50	0,00 1,30
Distorsioni e presollecitazioni di progetto	favorevoli sfavorevoli	$\gamma_{\varepsilon 1}$	0,90 1,00[3]	1,00 1,00[4]	1,00 1,00
Ritiro e viscosità, Variazioni termiche, Cedimenti vincolari	favorevoli sfavorevoli	$\gamma_{\varepsilon 2}$, $\gamma_{\varepsilon 3}$, $\gamma_{\varepsilon 4}$	0,00 1,20	0,00 1,20	0,00 1,00

[1] Equilibrio che non coinvolga i parametri di deformabilità e resistenza del terreno; altrimenti si applicano i valori di GEO.
[2] Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti si potranno adottare gli stessi coefficienti validi per le azioni permanenti.
[3] 1,30 per instabilità in strutture con precompressione esterna
[4] 1,20 per effetti locali

Tabella 5.1.VI - *Coefficienti ψ per le azioni variabili per ponti stradali e pedonali*

Azioni	*Gruppo di azioni (Tabella 5.1.IV)*	*Coefficiente ψ_0 di combinazione*	*Coefficiente ψ_1 (valori frequenti)*	*Coefficiente ψ_2 (valori quasi permanenti)*
Azioni da traffico (Tabella 5.1.IV)	Schema 1 (Carichi tandem)	0,75	0,75	0,0
	Schemi 1, 5 e 6 (Carichi distribuiti	0,40	0,40	0,0
	Schemi 3 e 4 (carichi concentrati)	0,40	0,40	0,0
	Schema 2	0,0	0,75	0,0
	2	0,0	0,0	0,0
	3	0,0	0,0	0,0
	4 (folla)	----	0,75	0,0
	5	0,0	0,0	0,0
Vento q_5	Vento a ponte scarico SLU e SLE Esecuzione	 0,6 0,8	 0,2 ----	 0,0 0,0
	Vento a ponte carico	0,6		
Neve q_5	SLU e SLE	0,0	0,0	0,0
	esecuzione	0,8	0,6	0,5
Temperatura	T_k	0,6	0,6	0,5

8 RISULTATI DELLE ANALISI E VERIFICHE

8.1 Risultati del calcolo

Si rimanda agli output di calcolo per la visione completa dei risultati.

8.2 Verifiche micropali e palancole

8.2.1 Verifiche strutturali (A1+M1)

La verifiche, tutte ampliamente soddisfatte, sono riporatte in allegato.

8.2.2 Verifiche geotecniche del grado di mobilitazione della spinta passiva (A2+M2)

La sicurezza nei confronti dello stato limite d’equilibrio geotecnico è calcolata confrontando la spinta passiva mobilitata con la spinta passiva disponibile:

Tipo A:

Verifiche geotecniche (comb A2+M2+R1)

Spinta reale efficace (kN/m)	194.0
Max spinta ammissib (kN/m)	792.4
c.u.	24%

Tipo B:

Verifiche geotecniche (comb A2+M2+R1)

Spinta reale efficace (kN/m)	506.9
Max spinta ammissib (kN/m)	1748.7
c.u.	29%

Tipo D1:

Verifiche geotecniche (comb A2+M2+R1)

Spinta reale efficace (kN/m)	256.2
Max spinta ammissib (kN/m)	561.7
c.u.	46%

Tipo D2:

Verifiche geotecniche (comb A2+M2+R1)

Spinta reale efficace (kN/m)	322.3
Max spinta ammissib (kN/m)	561.7
c.u.	57%

Palancolato:

Verifiche geotecniche (comb A2+M2+R1)

Spinta reale efficace (kN/m)	212.7
Max spinta ammissib (kN/m)	1346.0
c.u.	16%

La sicurezza nei confronti della mobilitazione della resistenza limite del terreno è garantita per ogni tipologia di opera provvisionale prevista.

8.2.3 Verifiche SLE

Di seguito si riporta lo spostamento massimo delle paratie calcolato nella fase di raggiungimento del fondo scavo:

Tipo A:

H fuori terra (m)	3.70
δsle (mm)	0.36
δsle/H	0.01%

Tipo B:

H fuori terra (m)	5.60
δsle (mm)	0.94
δsle/H	0.02%

Tipo D1:

H fuori terra (m)	7.40
δsle (mm)	1.5
δsle/H	0.02%

Tipo D2:

H fuori terra (m)	7.40
δsle (mm)	20.2
δsle/H	0.27%

Palancolato:

H fuori terra (m)	2.50
δsle (mm)	0.14
δsle/H	0.01%

Il rapporto fra spostamento massimo e altezza totale fuori terra è inferiore all’ 1%. Pertanto, tenuto conto dell’assenza di strutture a tergo delle opere e della natura provvisionale delle paratie stesse, si ritiene che i requisiti prestazionali in termini di deformabilità risultino soddisfatti.

8.3 Verifiche degli elementi ancoraggio e contrasto

8.3.1 Verifiche strutturali (A1+M1) e geotecniche (A2+M2) di cavalletti e tiranti

Tipo A:

Tirante	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Sfruttamento GEO	Sfruttamento STR	
Cavalletto	4.6365		1534.2		0%	A1+M1
Cavalletto	12.076	406.58		3%		A2+M2

Tipo B:

Tirante	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Sfruttamento GEO	Sfruttamento STR	
Tiranti	520.07		807.41		64%	A1+M1
Tiranti	400.31	563.08		71%		A2+M2

Tipo D1:

Tirante	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Sfruttamento GEO	Sfruttamento STR	
1° ordine di tiranti	520.07		807.41		64%	A1+M1
2° ordine di tiranti	520.07		807.41		64%	A1+M1
1° ordine di tiranti	400.05	590.6		68%		A2+M2
2° ordine di tiranti	400.05	607.81		66%		A2+M2

Tipo D2:

Tirante	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Sfruttamento GEO	Sfruttamento STR	
Cavalletto	50.01		1534.2		3%	A1+M1
Cavalletto	83.9	498.01		17%		A2+M2

Come è possibile evincere dalle precedenti tabelle, tutte le verifiche risultano ampliamente soddisfatte.

8.3.2 Verifiche strutturali travi di contrasto

Ogni ordine di tiranti sarà contrastato tramite due travi HEA180. Di seguito si riportano le verifiche strutturali a flessione e taglio delle suddette travi.

Tipo B:

Ntirante (kN/m)	247.40
Med (kNm)	109.10
Ved (kNm)	259.77
Wrd (cm^3)	293.6
Mrd (kNm)	198.53
c.u.	55%
Vrd (kNm)	564.91
c.u.	46%

Tipo D1:

Ntirante (kN/m)	247.50
Med (kNm)	109.15
Ved (kNm)	259.88
Wrd (cm^3)	293.6
Mrd (kNm)	198.53
c.u.	55%
Vrd (kNm)	564.91
c.u.	46%

Come è possibile evincere dalle precedenti tabelle, tutte le verifiche risultano ampliamente soddisfatte.

8.3.3 Verifiche strutturali cordoli di coronamento

Di seguito si riportano le sollecitazioni di flessione e taglio sui cordoli di coronamento:

Tipo A:

SLU	Ntirante (kN/m)	6.64
	Q sul cordolo (kN/m)	1.72
	Ved (kN)	0.60
	Med (kNm)	0.11
SLE	Ntirante (kN/m)	5.10
	Q sul cordolo (kN/m)	1.32
	Med (kNm)	0.08

Tipo D2:

SLU	Ntirante (kN/m)	71.50
	Q sul cordolo (kN/m)	18.51
	Ved (kN)	6.48
	Med (kNm)	1.13
SLE	Ntirante (kN/m)	53.30
	Q sul cordolo (kN/m)	13.80
	Med (kNm)	0.84

I cordoli saranno armati con ø16/20 e staffe ø12/20. Data la bassa entità delle sollecitazioni si omettono le verifiche.

9 ALLEGATI

9.1 Paratia tipo A

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL
Quota : 20 m
OCR : 1

Tipo : HORIZONTAL
Quota : -3 m
OCR : 1

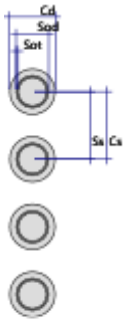
Tipo : HORIZONTAL
Quota : -6 m
OCR : 1

Tipo : HORIZONTAL
Quota : -13 m
OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ø'	øcv	øp	c'	Su	Modulo Elastico	Eu	Evc	Eur	Ah Av exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m³	kN/m³	°	°	°	kPa	kPa			kPa	kPa		kPa			kN/m³	kN/m³	kN/m³
1	G	18.2	18.2	37			7		Constant		86000	258000							
2	SL	19.6	19.6	33			13.5		Constant		87000	261000							
3	G	18.2	18.2	37			7		Constant		86000	258000							
4	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000							

Descrizione Pareti

X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -8.6 m
Muro di sinistra



Sezione : Micropali fi240 - fi168.3 sp10
Area equivalente : 0.0217658758055028 m
Inerzia equivalente : 0.0001 m^4/m
Materiale calcestruzzo : C25/30
Tipo sezione : Tangent
Spaziatura : 0.35 m
Diametro : 0.24 m

Efficacia : 0.5

Materiale acciaio : S355

Sezione : CHS168.3*10

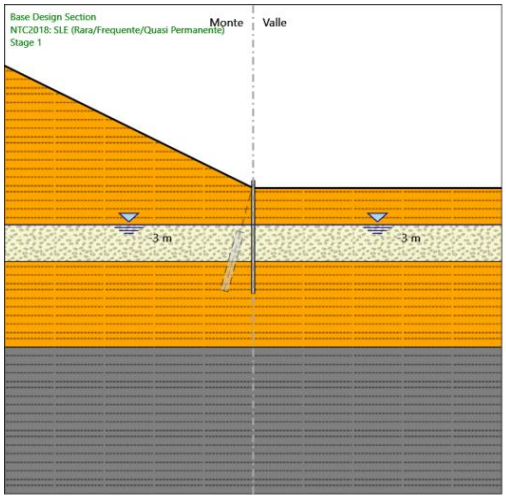
Tipo sezione : O

Spaziatura : 0.35 m

Spessore : 0.01 m

Diametro : 0.1683 m

Fasi di Calcolo



Stage 1

Stage 1

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : 0 m

Linea di scavo di sinistra (Irregolare)

(-20;10)

(0;0)

Linea di scavo di destra (Orizzontale)

0 m

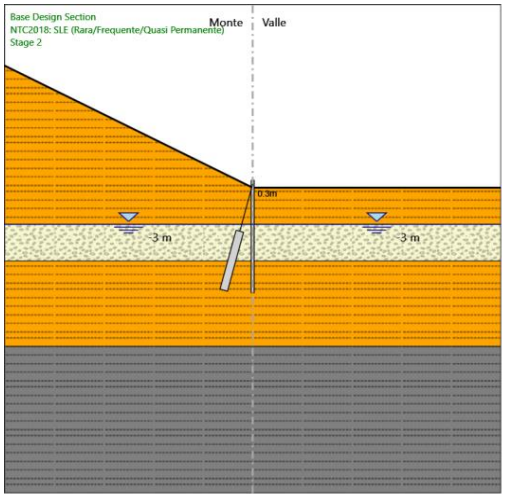
Falda acquifera

Falda di sinistra : -3 m

Falda di destra : -3 m

Elementi strutturali
Paratia : Sx
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -8.6 m
Sezione : Micropali fi240 - fi168.3 sp10

Stage 2



Stage 2

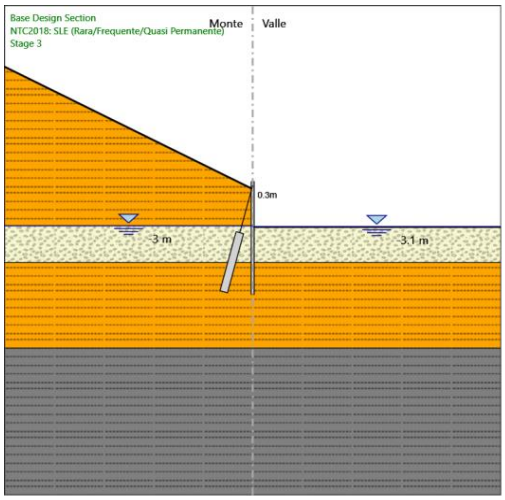
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Irregolare)
(-20;10)
(0;0)
Linea di scavo di destra (Orizzontale)
0 m
Falda acquifera
Falda di sinistra : -3 m
Falda di destra : -3 m

Elementi strutturali
Paratia : Sx
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -8.6 m
Sezione : Micropali fi240 - fi168.3 sp10
Tirante : Cavalletto

X : 0 m
Z : 0.3 m
Lunghezza bulbo : 5 m
Diametro bulbo : 0.24 m
Lunghezza libera : 4 m
Spaziatura orizzontale : 0.7 m
Precarico : 0 kN
Angolo : 75 °
Sezione : cavalletto L9m
Area : 0.00497 m^2

Stage 3



Stage 3

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -3.1 m

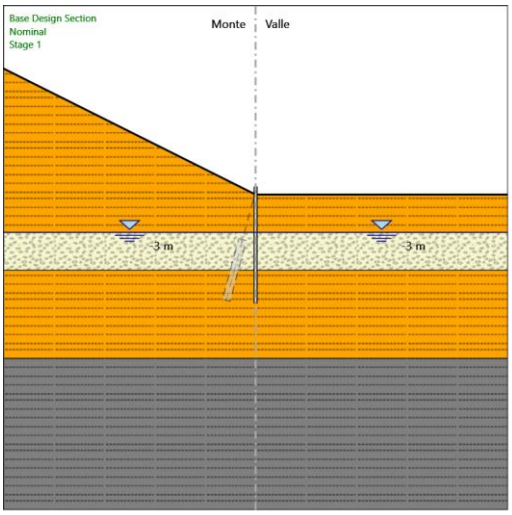
Linea di scavo di sinistra (Irregolare)
(-20;10)
(0;0)
Linea di scavo di destra (Orizzontale)
-3.1 m

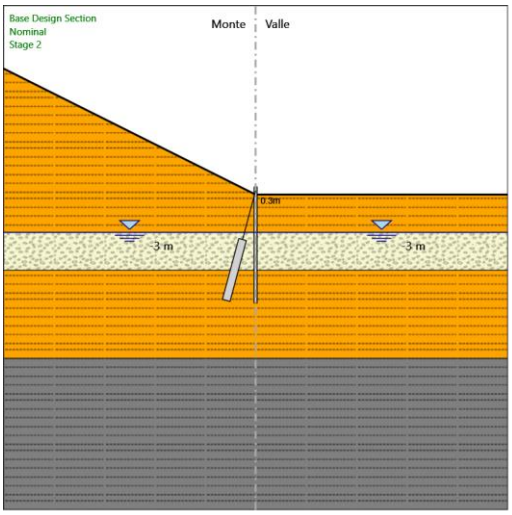
Falda acquifera
Falda di sinistra : -3 m
Falda di destra : -3.1 m

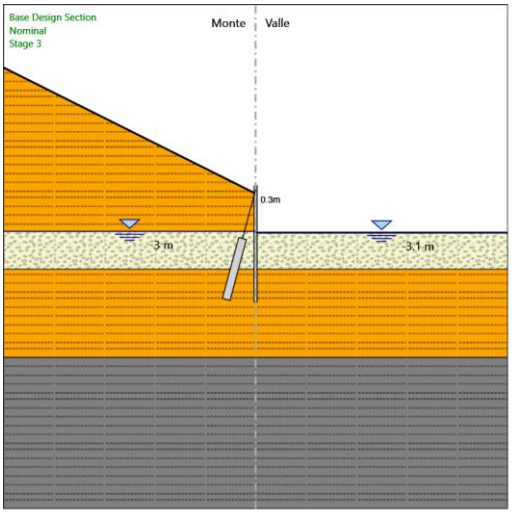
Elementi strutturali
Paratia : Sx
X : 0 m

Quota in alto : 0.6 m
Quota di fondo : -8.6 m
Sezione : Micropali fi240 - fi168.3 sp10
Tirante : Cavalletto
X : 0 m
Z : 0.3 m
Lunghezza bulbo : 5 m
Diametro bulbo : 0.24 m
Lunghezza libera : 4 m
Spaziatura orizzontale : 0.7 m
Precarico : 0 kN
Angolo : 75 °
Sezione : cavalletto L9m
Area : 0.00497 m^2

Tabella Configurazione Stage (Nominal)







Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load_unfavour)	Carichi Permanenti Favorevoli (F_dead_load_favour)	Carichi Variabili Sfavorevoli (F_live_load_unfavour)	Carichi Variabili Favorevoli (F_live_load_favour)	Carico Sismico (F_seism_load)	Pressioni Acqua Lato Monte (F_WaterDR)	Pressioni Acqua Lato Valle (F_WaterRes)	Carichi Permanenti Destabilizzanti (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabilizzanti (F_UPL_QDStab)	Carichi Permanenti Destabilizzanti (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabilizzanti (F_HYD_QDStab)
Simbolo	**γG**	**γG**	**γQ**	**γQ**	**γQE**	**γG**	**γG**	**γGdst**	**γGstb**	**γQdst**	**γGdst**	**γGstb**	**γQdst**
Nominal	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	0	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1.3	1	1.5	1	0	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	0	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø') (F_Fr)	Parziale su c' (F_eff_cohe)	Parziale su Su (F_Su)	Parziale su qu (F_qu)	Parziale su peso specifico (F_gamma)
Simbolo	**γϕ**	**γc**	**γcu**	**γqu**	**γγ**
Nominal	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp) (F_Soil_Res_walls)	Parziale resistenza Tiranti permanenti (F_Anch_P)	Parziale resistenza Tiranti temporanei (F_Anch_T)	Parziale elementi strutturali (F_wall)
Simbolo	**γRe**	**γap**	**γat**	
Nominal	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

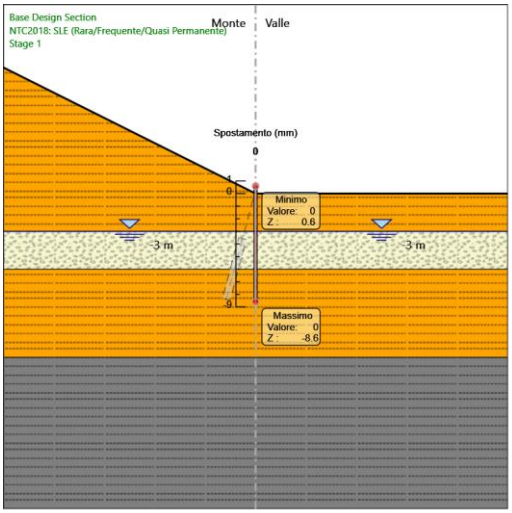
Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 3

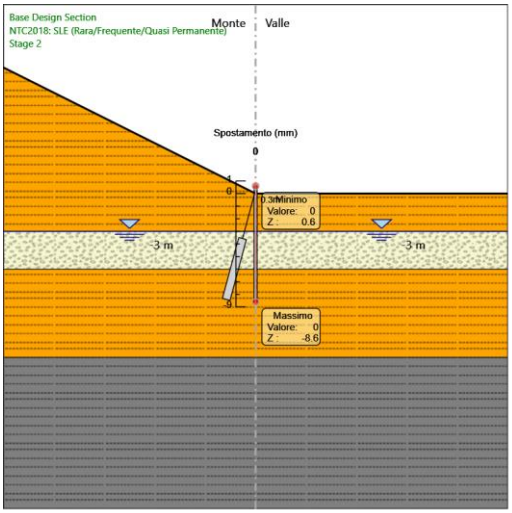
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	0.6	0.03
Stage 3	0.4	0.07
Stage 3	0.3	0.09
Stage 3	0.1	0.12
Stage 3	-0.1	0.16
Stage 3	-0.3	0.2
Stage 3	-0.5	0.23
Stage 3	-0.7	0.26
Stage 3	-0.9	0.29
Stage 3	-1.1	0.32
Stage 3	-1.3	0.34
Stage 3	-1.5	0.35
Stage 3	-1.7	0.36
Stage 3	-1.9	0.36
Stage 3	-2.1	0.35
Stage 3	-2.3	0.34
Stage 3	-2.5	0.32
Stage 3	-2.7	0.29
Stage 3	-2.9	0.26
Stage 3	-3.1	0.23
Stage 3	-3.3	0.19
Stage 3	-3.5	0.17
Stage 3	-3.7	0.14
Stage 3	-3.9	0.12
Stage 3	-4.1	0.11
Stage 3	-4.3	0.1
Stage 3	-4.5	0.1
Stage 3	-4.7	0.09
Stage 3	-4.9	0.09
Stage 3	-5.1	0.09
Stage 3	-5.3	0.09
Stage 3	-5.5	0.09
Stage 3	-5.7	0.09
Stage 3	-5.9	0.08
Stage 3	-6.1	0.08
Stage 3	-6.3	0.08
Stage 3	-6.5	0.08
Stage 3	-6.7	0.08
Stage 3	-6.9	0.08
Stage 3	-7.1	0.08
Stage 3	-7.3	0.08
Stage 3	-7.5	0.08
Stage 3	-7.7	0.08
Stage 3	-7.9	0.08
Stage 3	-8.1	0.07
Stage 3	-8.3	0.07
Stage 3	-8.5	0.07
Stage 3	-8.6	0.07

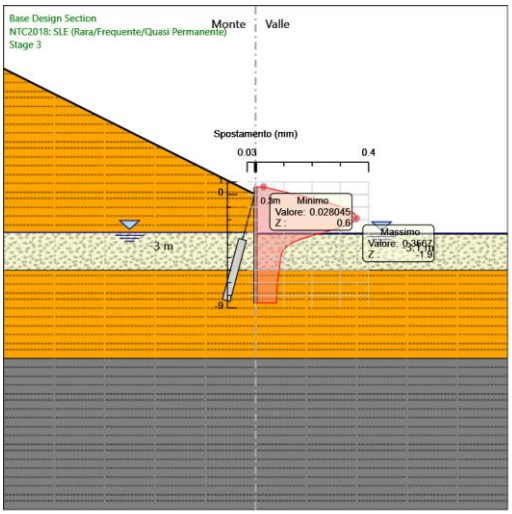
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 3

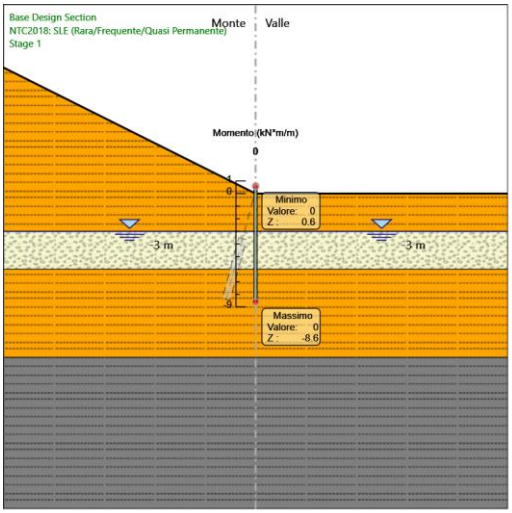
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	0.26	1.32
Stage 3	-0.1	0.53	1.32
Stage 3	-0.3	0.79	1.32
Stage 3	-0.5	1.05	1.32
Stage 3	-0.7	1.32	1.32
Stage 3	-0.9	1.58	1.32
Stage 3	-1.1	1.85	1.32
Stage 3	-1.3	2.11	1.32
Stage 3	-1.5	2.37	1.32
Stage 3	-1.7	2.61	1.16
Stage 3	-1.9	2.76	0.78
Stage 3	-2.1	2.8	0.16
Stage 3	-2.3	2.66	-0.68
Stage 3	-2.5	2.31	-1.76
Stage 3	-2.7	1.69	-3.07
Stage 3	-2.9	0.77	-4.61
Stage 3	-3.1	-0.5	-6.38
Stage 3	-3.3	-1.42	-4.56
Stage 3	-3.5	-1.89	-2.38
Stage 3	-3.7	-1.99	-0.47
Stage 3	-3.9	-1.84	0.74
Stage 3	-4.1	-1.56	1.4
Stage 3	-4.3	-1.23	1.66
Stage 3	-4.5	-0.9	1.66
Stage 3	-4.7	-0.6	1.49
Stage 3	-4.9	-0.35	1.25
Stage 3	-5.1	-0.15	0.97
Stage 3	-5.3	-0.01	0.69
Stage 3	-5.5	0.07	0.43
Stage 3	-5.7	0.1	0.16
Stage 3	-5.9	0.08	-0.1
Stage 3	-6.1	0.01	-0.37
Stage 3	-6.3	-0.04	-0.23
Stage 3	-6.5	-0.06	-0.12
Stage 3	-6.7	-0.07	-0.04
Stage 3	-6.9	-0.07	0.01
Stage 3	-7.1	-0.06	0.04
Stage 3	-7.3	-0.05	0.05
Stage 3	-7.5	-0.04	0.06
Stage 3	-7.7	-0.03	0.05
Stage 3	-7.9	-0.02	0.05
Stage 3	-8.1	-0.01	0.04
Stage 3	-8.3	0	0.03
Stage 3	-8.5	0	0.01
Stage 3	-8.6	0	0

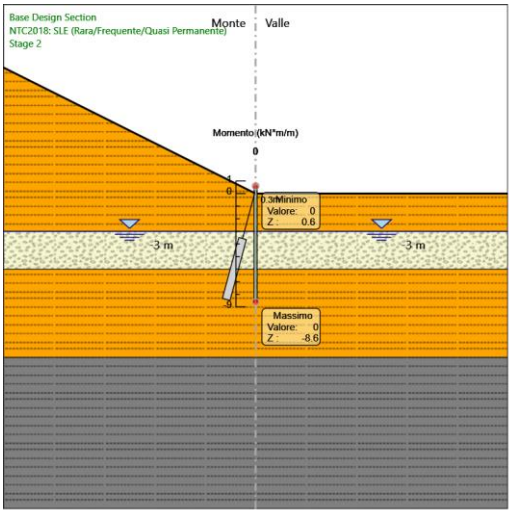
Tabella Grafici dei Risultati

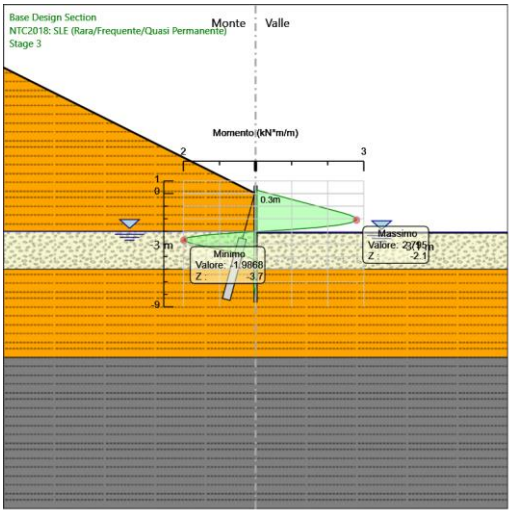


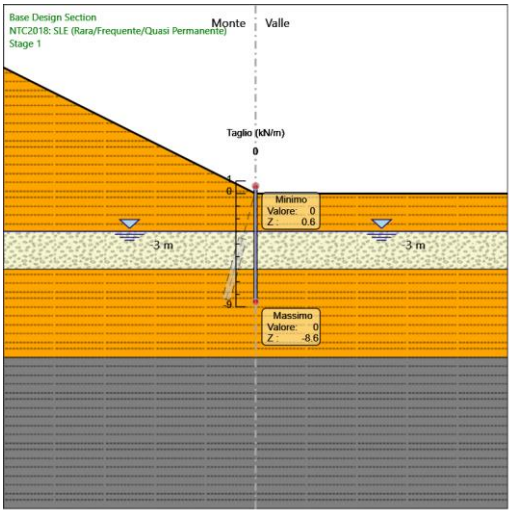


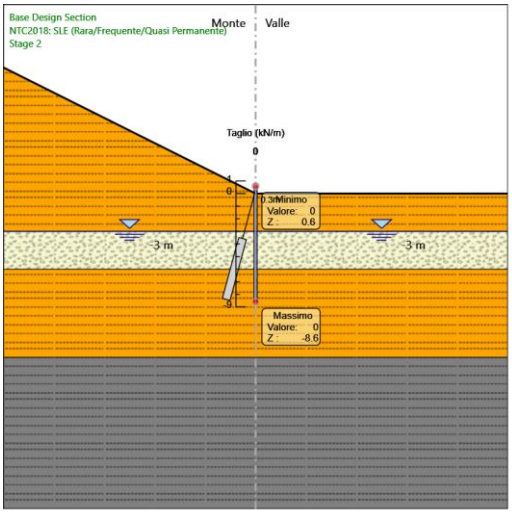


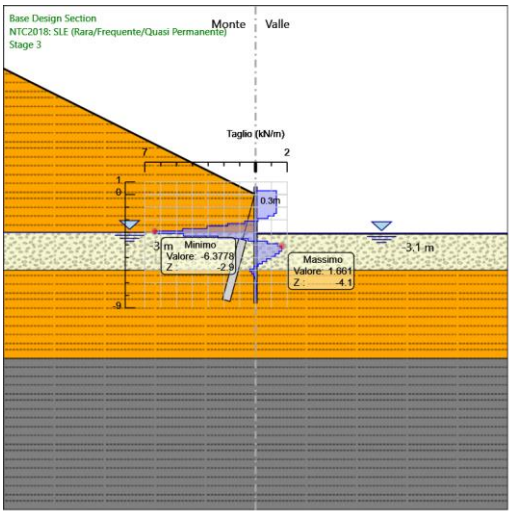


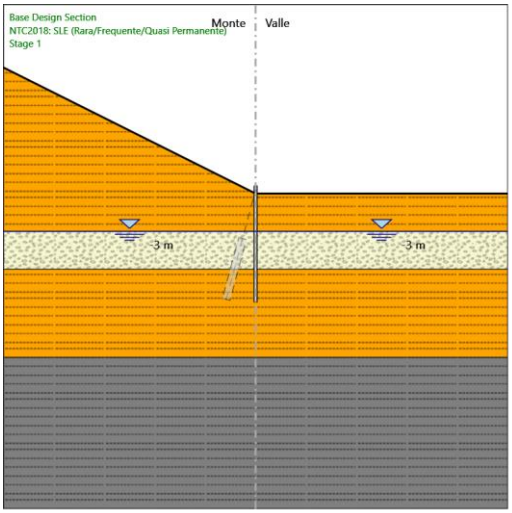


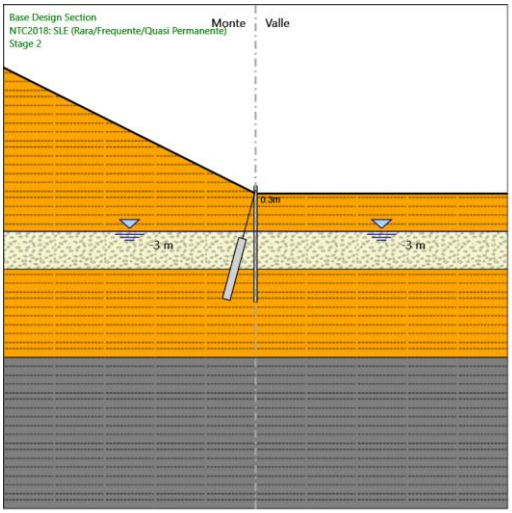

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
Momento (kN*m/m)
0.3m
3 m
Minimo
Massimo

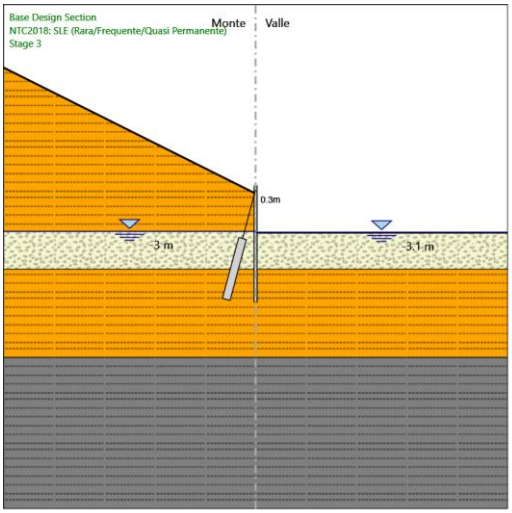

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
Taglio (kN/m)
3 m
Minimo
Massimo

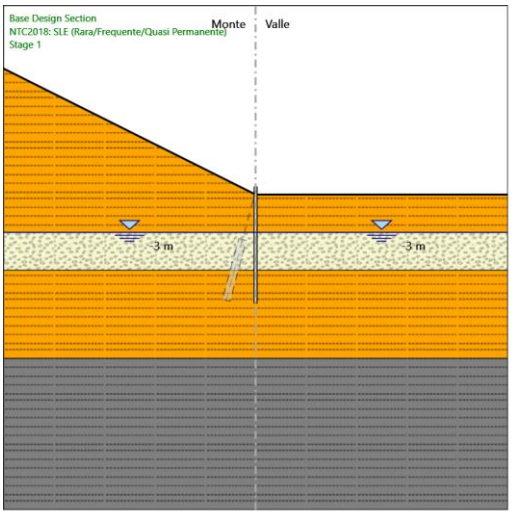

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
Taglio (kN/m)
3 m
Minimo
Massimo

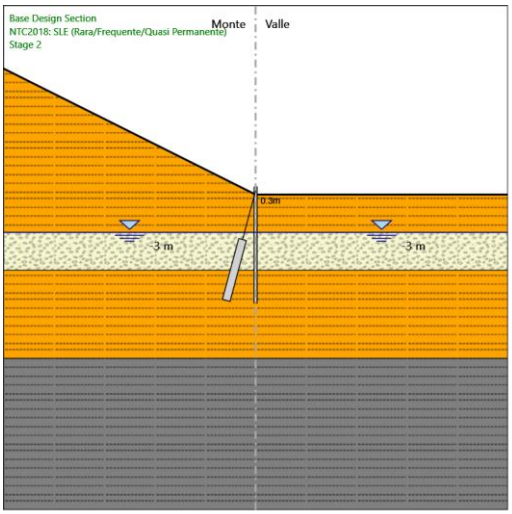

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
Taglio (kN/m)
0.3m
3 m
Minimo
Massimo

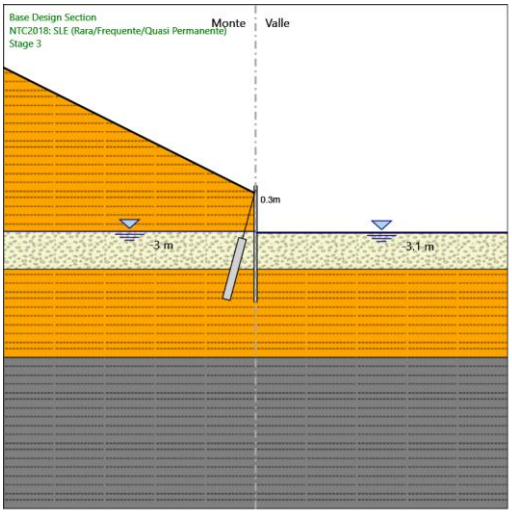

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
0.3m
3 m
3 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
0.3m
3 m
3.1 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
0.3m
3 m
3 m



Risultati Elementi strutturali - NTC2018: SLE (Rara/Frequente/Quasi Permanente)

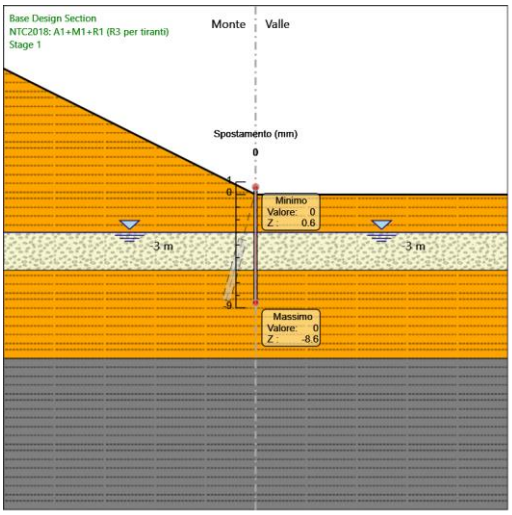
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Sollecitazione Cavalletto
Stage	**Forza (kN/m)**
Stage 2	0
Stage 3	5.095003

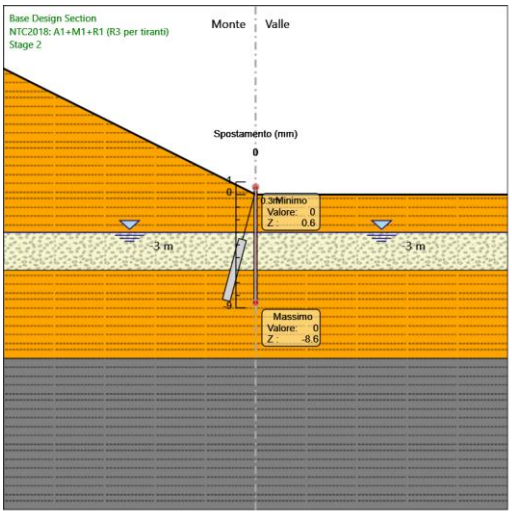
Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

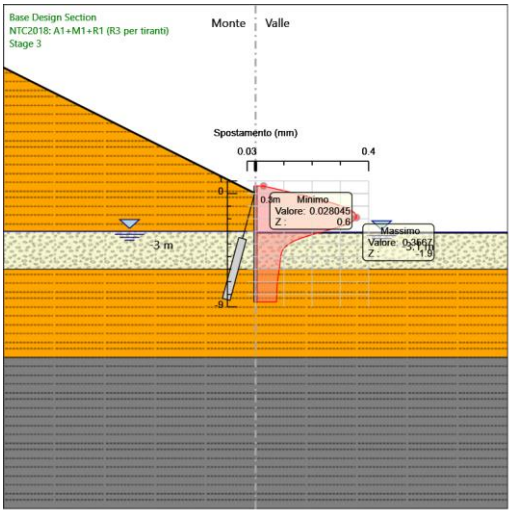
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 3

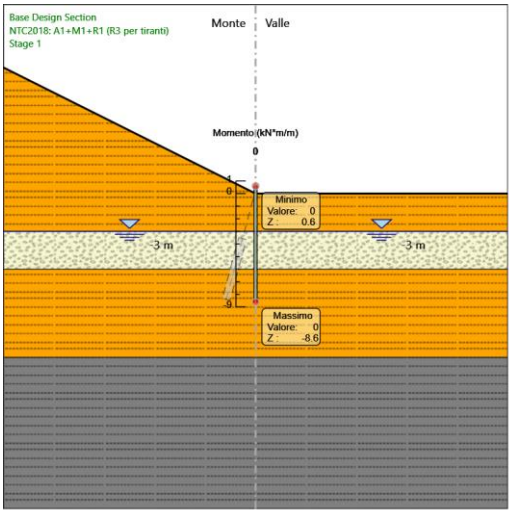
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	0.34	1.71
Stage 3	-0.1	0.69	1.71
Stage 3	-0.3	1.03	1.71
Stage 3	-0.5	1.37	1.71
Stage 3	-0.7	1.71	1.71
Stage 3	-0.9	2.06	1.71
Stage 3	-1.1	2.4	1.71
Stage 3	-1.3	2.74	1.71
Stage 3	-1.5	3.09	1.71
Stage 3	-1.7	3.39	1.51
Stage 3	-1.9	3.59	1.01
Stage 3	-2.1	3.63	0.21
Stage 3	-2.3	3.46	-0.89
Stage 3	-2.5	3	-2.29
Stage 3	-2.7	2.2	-3.99
Stage 3	-2.9	1	-5.99
Stage 3	-3.1	-0.66	-8.29
Stage 3	-3.3	-1.84	-5.93
Stage 3	-3.5	-2.46	-3.09
Stage 3	-3.7	-2.58	-0.61
Stage 3	-3.9	-2.39	0.96
Stage 3	-4.1	-2.03	1.82
Stage 3	-4.3	-1.59	2.16
Stage 3	-4.5	-1.16	2.15
Stage 3	-4.7	-0.78	1.94
Stage 3	-4.9	-0.45	1.62
Stage 3	-5.1	-0.2	1.26
Stage 3	-5.3	-0.02	0.9
Stage 3	-5.5	0.09	0.55
Stage 3	-5.7	0.13	0.21
Stage 3	-5.9	0.11	-0.13
Stage 3	-6.1	0.01	-0.49
Stage 3	-6.3	-0.05	-0.3
Stage 3	-6.5	-0.08	-0.16
Stage 3	-6.7	-0.09	-0.05
Stage 3	-6.9	-0.09	0.01
Stage 3	-7.1	-0.08	0.05
Stage 3	-7.3	-0.06	0.07
Stage 3	-7.5	-0.05	0.08
Stage 3	-7.7	-0.03	0.07
Stage 3	-7.9	-0.02	0.06
Stage 3	-8.1	-0.01	0.05
Stage 3	-8.3	0	0.03
Stage 3	-8.5	0	0.02
Stage 3	-8.6	0	0

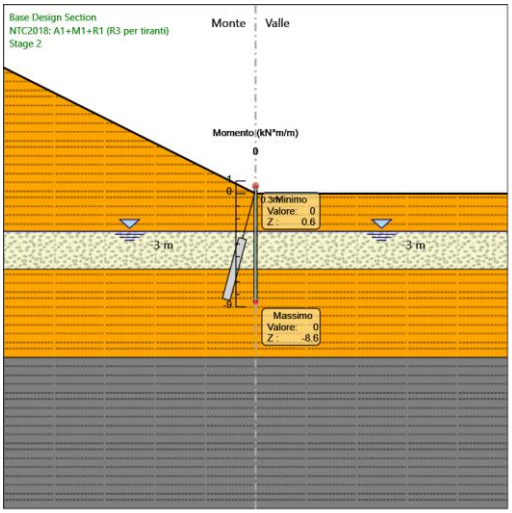
Tabella Grafici dei Risultati

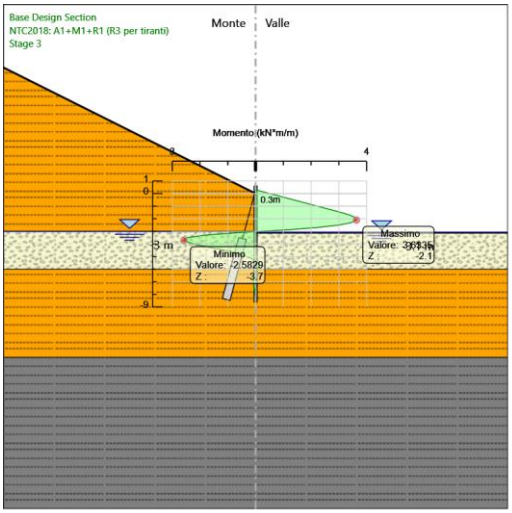


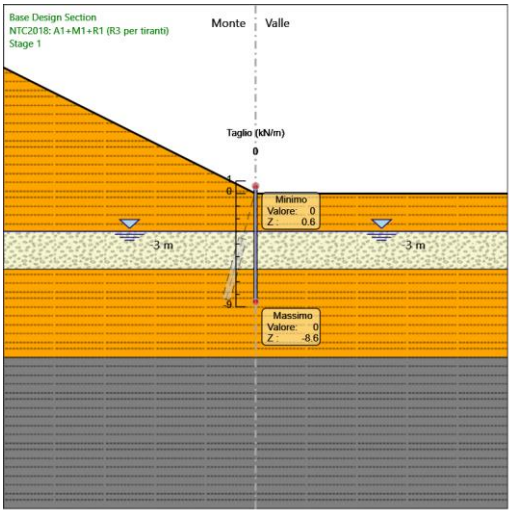


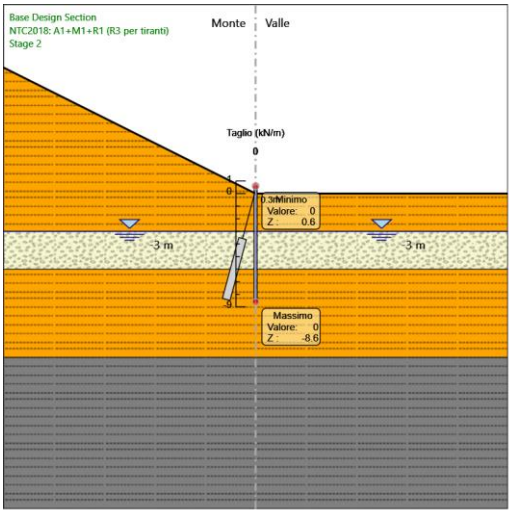


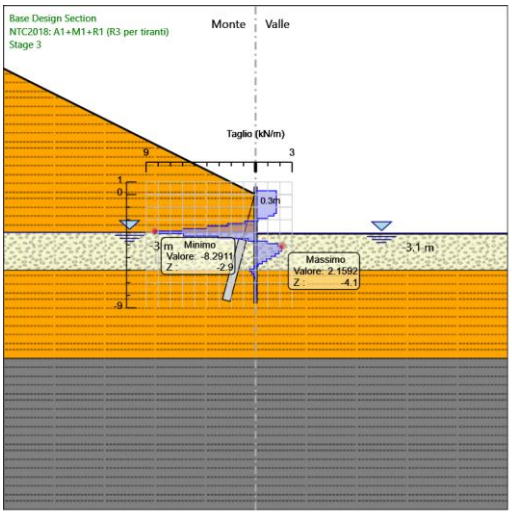


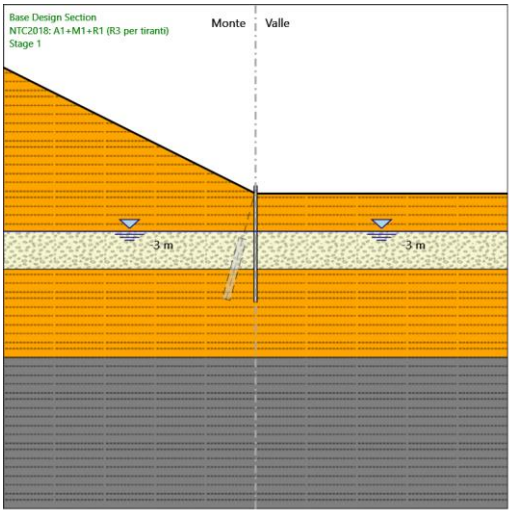


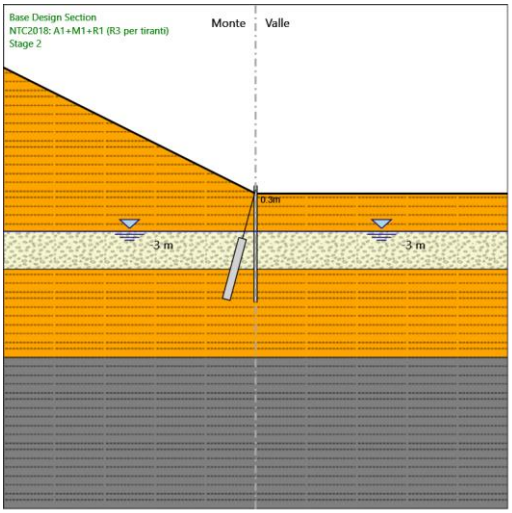

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
Momento (kN*m/m)
0.3m
3 m
Minimo
Massimo

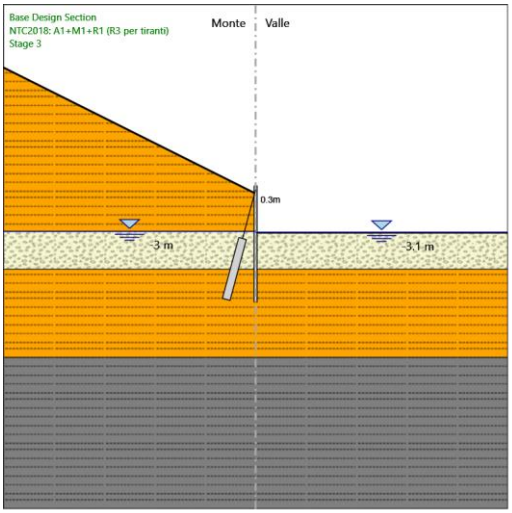

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
Taglio (kN/m)
3 m
3 m
Minimo
Massimo

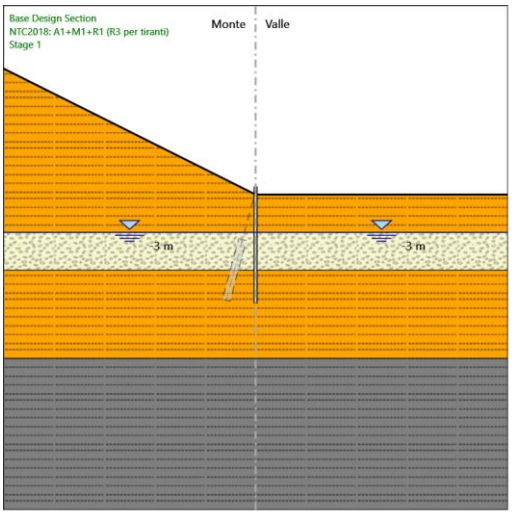

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
Taglio (kN/m)
3 m
3 m
Minimo
Massimo

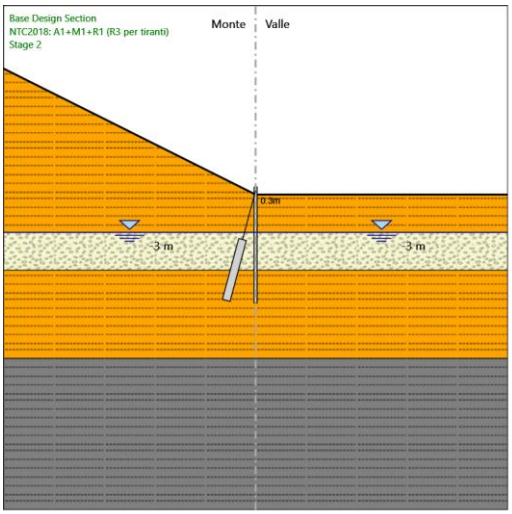

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
Taglio (kN/m)
0.3m
3 m
3.1 m
Minimo
Massimo

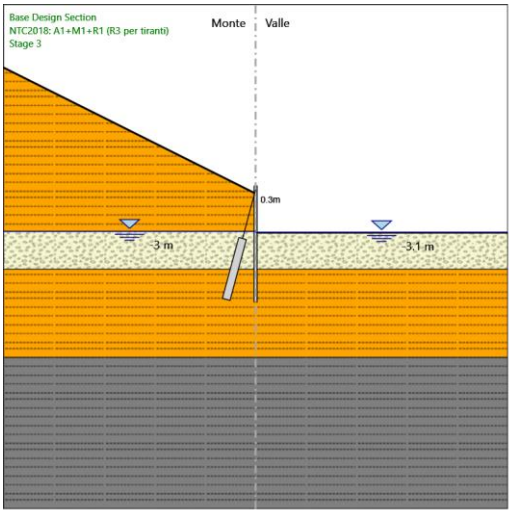

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
0.3m
3 m
3 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
0.3m
3 m
3.1 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
0.3m
3 m
3 m



Risultati Elementi strutturali - NTC2018: A1+M1+R1 (R3 per tiranti)

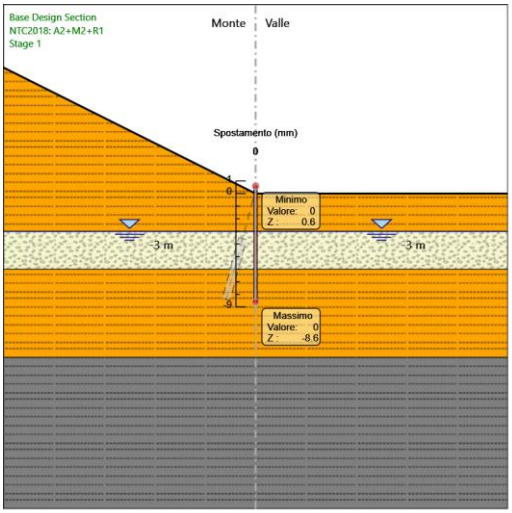
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Sollecitazione Cavalletto
Stage	**Forza (kN/m)**
Stage 2	0
Stage 3	6.6235039

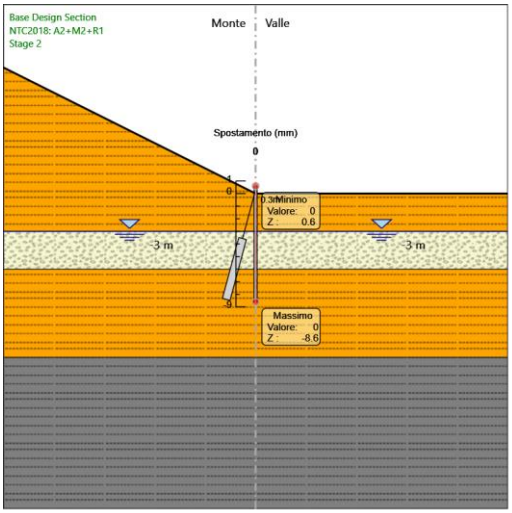
Risultati NTC2018: A2+M2+R1

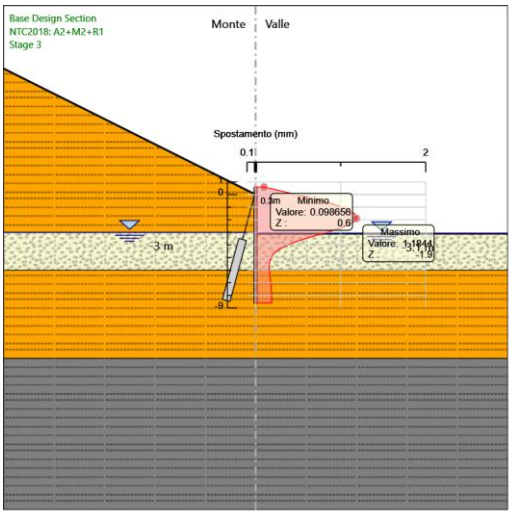
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 3

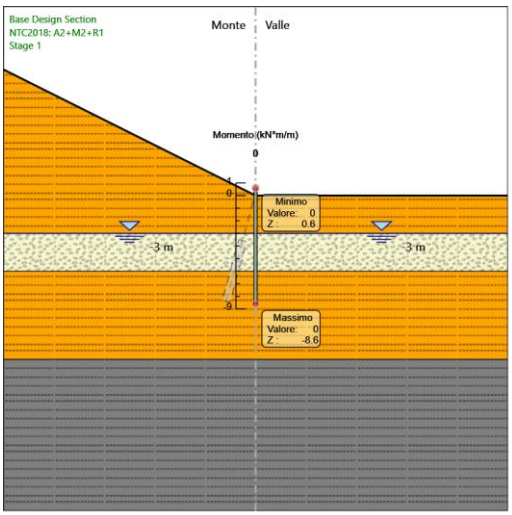
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	0.89	4.47
Stage 3	-0.1	1.79	4.47
Stage 3	-0.3	2.68	4.47
Stage 3	-0.5	3.57	4.47
Stage 3	-0.7	4.47	4.47
Stage 3	-0.9	5.36	4.47
Stage 3	-1.1	6.25	4.47
Stage 3	-1.3	7.08	4.13
Stage 3	-1.5	7.77	3.46
Stage 3	-1.7	8.26	2.46
Stage 3	-1.9	8.48	1.11
Stage 3	-2.1	8.37	-0.57
Stage 3	-2.3	7.85	-2.59
Stage 3	-2.5	6.86	-4.95
Stage 3	-2.7	5.33	-7.65
Stage 3	-2.9	3.19	-10.68
Stage 3	-3.1	0.38	-14.06
Stage 3	-3.3	-1.72	-10.53
Stage 3	-3.5	-3.19	-7.33
Stage 3	-3.7	-4.12	-4.63
Stage 3	-3.9	-4.6	-2.41
Stage 3	-4.1	-4.72	-0.63
Stage 3	-4.3	-4.57	0.77
Stage 3	-4.5	-4.2	1.84
Stage 3	-4.7	-3.67	2.64
Stage 3	-4.9	-3.05	3.11
Stage 3	-5.1	-2.41	3.21
Stage 3	-5.3	-1.8	3.04
Stage 3	-5.5	-1.26	2.7
Stage 3	-5.7	-0.81	2.26
Stage 3	-5.9	-0.46	1.74
Stage 3	-6.1	-0.23	1.15
Stage 3	-6.3	-0.06	0.83
Stage 3	-6.5	0.05	0.54
Stage 3	-6.7	0.11	0.3
Stage 3	-6.9	0.13	0.12
Stage 3	-7.1	0.13	-0.01
Stage 3	-7.3	0.11	-0.09
Stage 3	-7.5	0.08	-0.13
Stage 3	-7.7	0.06	-0.14
Stage 3	-7.9	0.03	-0.12
Stage 3	-8.1	0.01	-0.09
Stage 3	-8.3	0	-0.05
Stage 3	-8.5	0	-0.01
Stage 3	-8.6	0	0

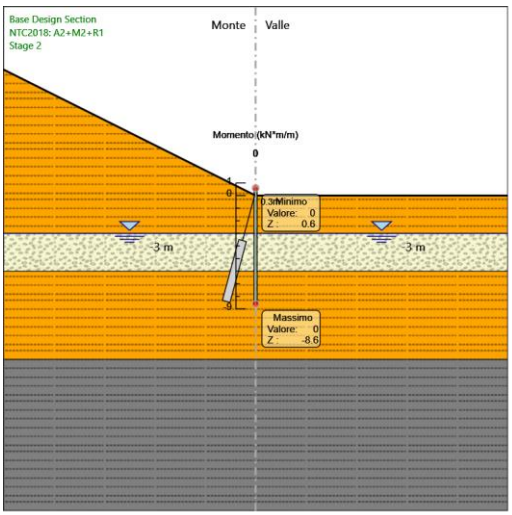
Tabella Grafici dei Risultati

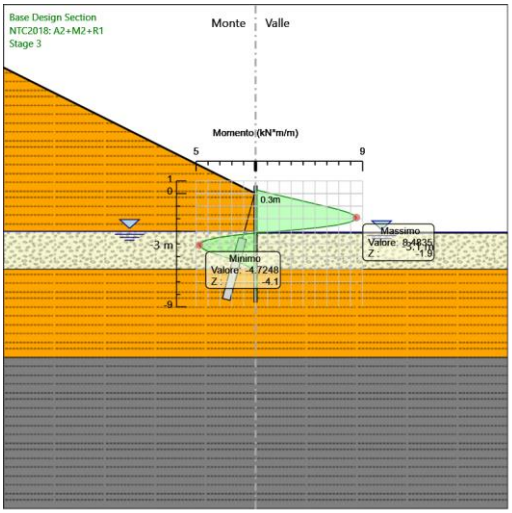


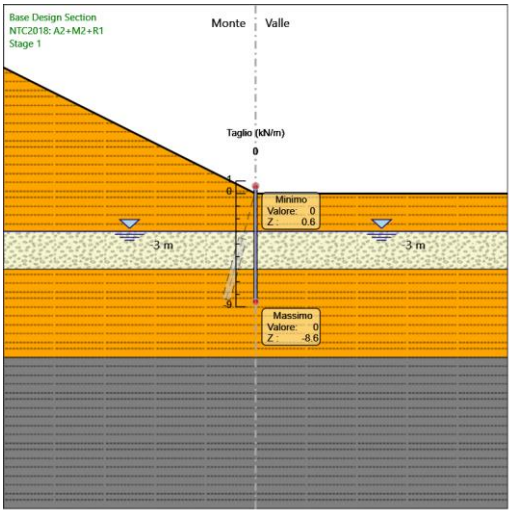


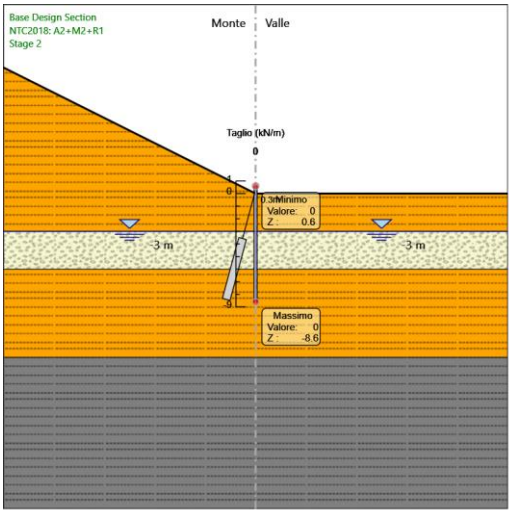


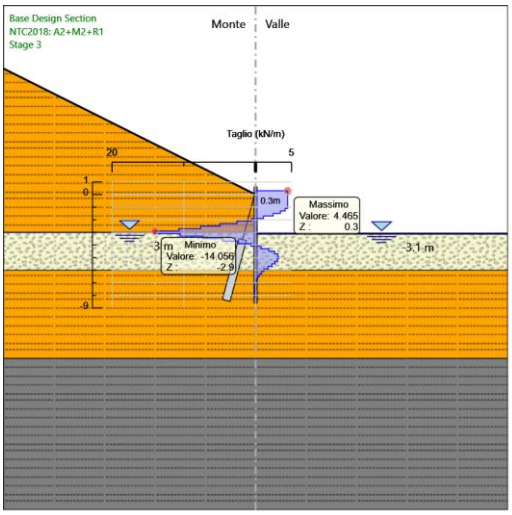


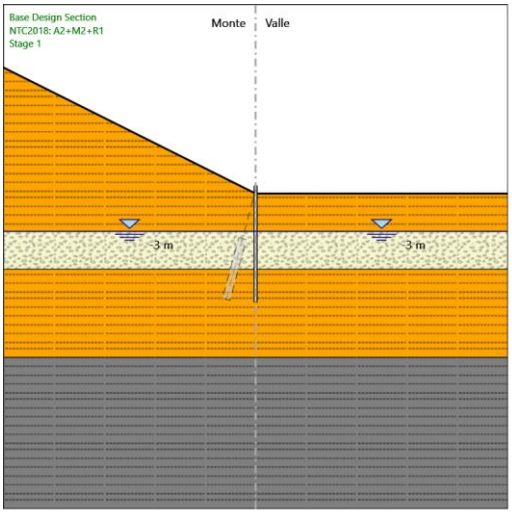


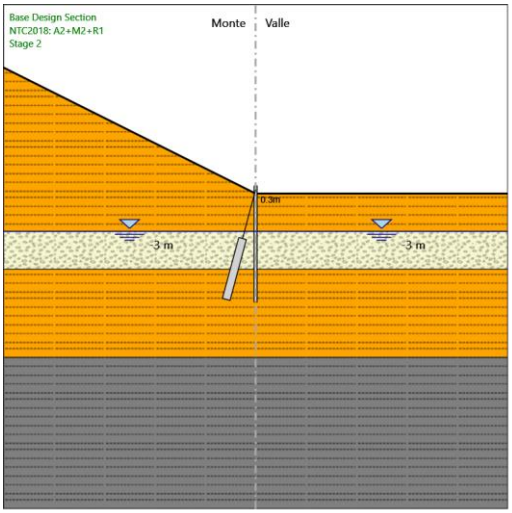

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
Momento (kN*m/m)
0.3m
Massimo
Minimo
3 m

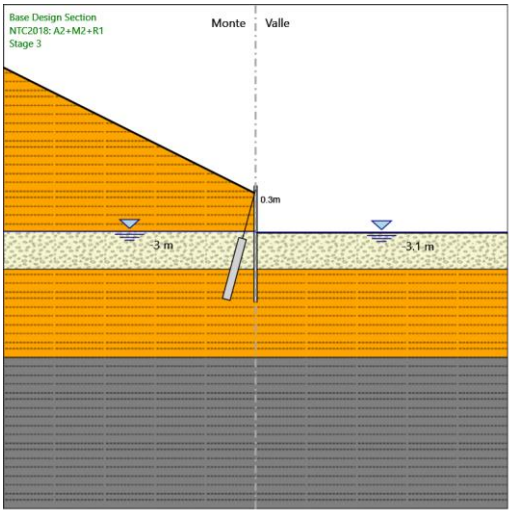

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
Taglio (kN/m)
Minimo
Massimo
3 m

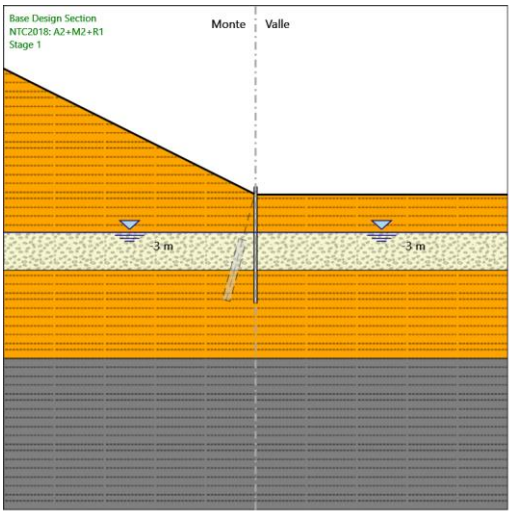

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
Taglio (kN/m)
Minimo
Massimo
3 m

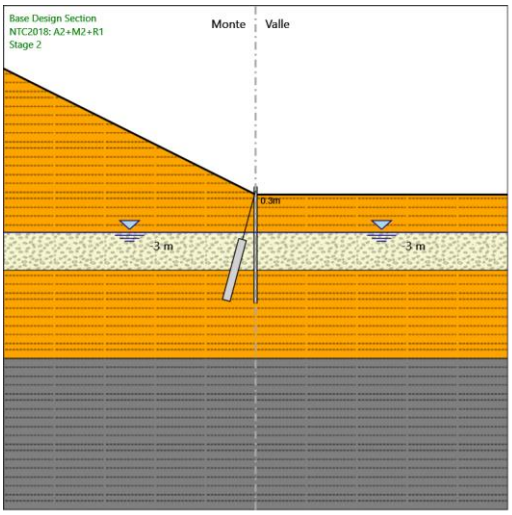

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
Taglio (kN/m)
0.3m
Massimo
Minimo
3 m
3.1 m

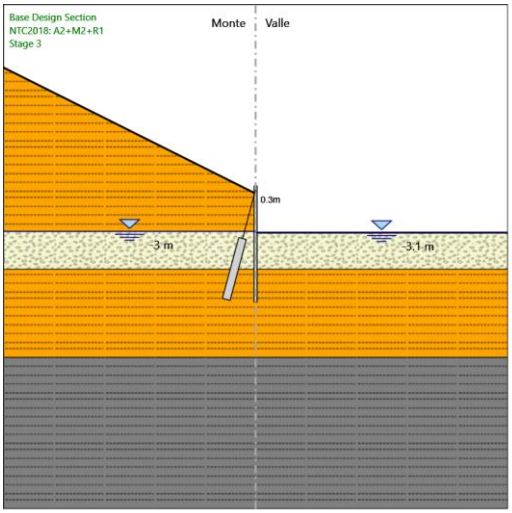

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
0.3m
3 m
3 m


Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
0.3m
3 m
3.1 m


Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
3 m
3 m


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
0.3m
3 m
3 m



Risultati Elementi strutturali - NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Sollecitazione Cavalletto
Stage	Forza (kN/m)
Stage 2	0
Stage 3	17.25161

Normative adottate per le verifiche degli Elementi Strutturali

Normative Verifiche	
Calcestruzzo	NTC
Acciaio	NTC
Tirante	NTC

Coefficienti per Verifica Tiranti	
GEO FS	1
ξa3	1.65
γs	1.15

Riepilogo Stage / Design Assumption per Inviluppo

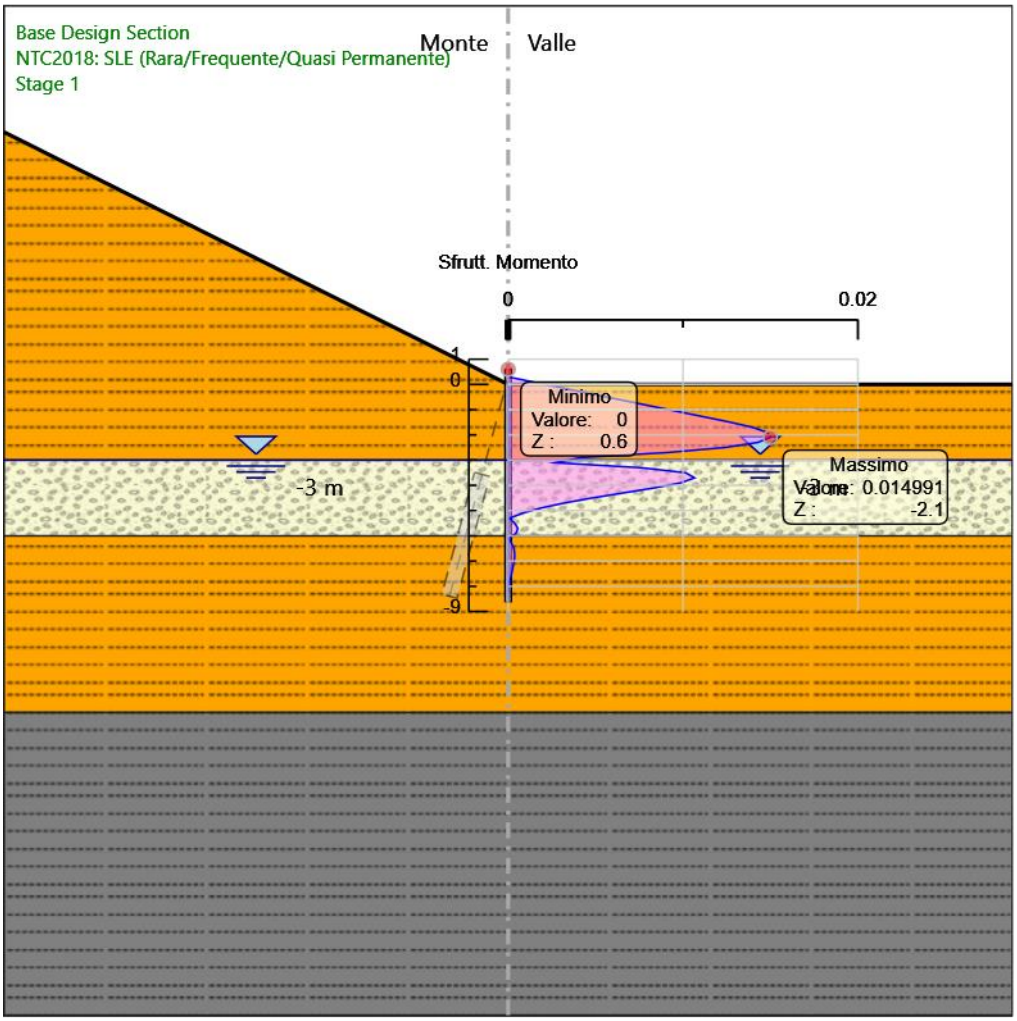
Design Assumption	Stage 1	Stage 2	Stage 3
NTC2018: SLE (Rara/Frequente/Quasi Permanente)			
NTC2018: A1+M1+R1 (R3 per tiranti)	V	V	V
NTC2018: A2+M2+R1			

Risultati SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Momento - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
0.6	0
0.4	0
0.3	0
0.1	0.001
-0.1	0.003
-0.3	0.004
-0.5	0.006
-0.7	0.007
-0.9	0.008
-1.1	0.01
-1.3	0.011
-1.5	0.013
-1.7	0.014
-1.9	0.015
-2.1	0.015
-2.3	0.014
-2.5	0.012
-2.7	0.009
-2.9	0.004
-3.1	0.003
-3.3	0.008
-3.5	0.01
-3.7	0.011
-3.9	0.01
-4.1	0.008
-4.3	0.007
-4.5	0.005
-4.7	0.003
-4.9	0.002
-5.1	0.001
-5.3	0
-5.5	0
-5.7	0.001
-5.9	0
-6.1	0
-6.3	0
-6.5	0
-6.7	0
-6.9	0
-7.1	0
-7.3	0
-7.5	0
-7.7	0
-7.9	0
-8.1	0
-8.3	0
-8.5	0
-8.6	0

Grafico Inviluppi Tasso di Sfruttamento a Momento - SteelWorld

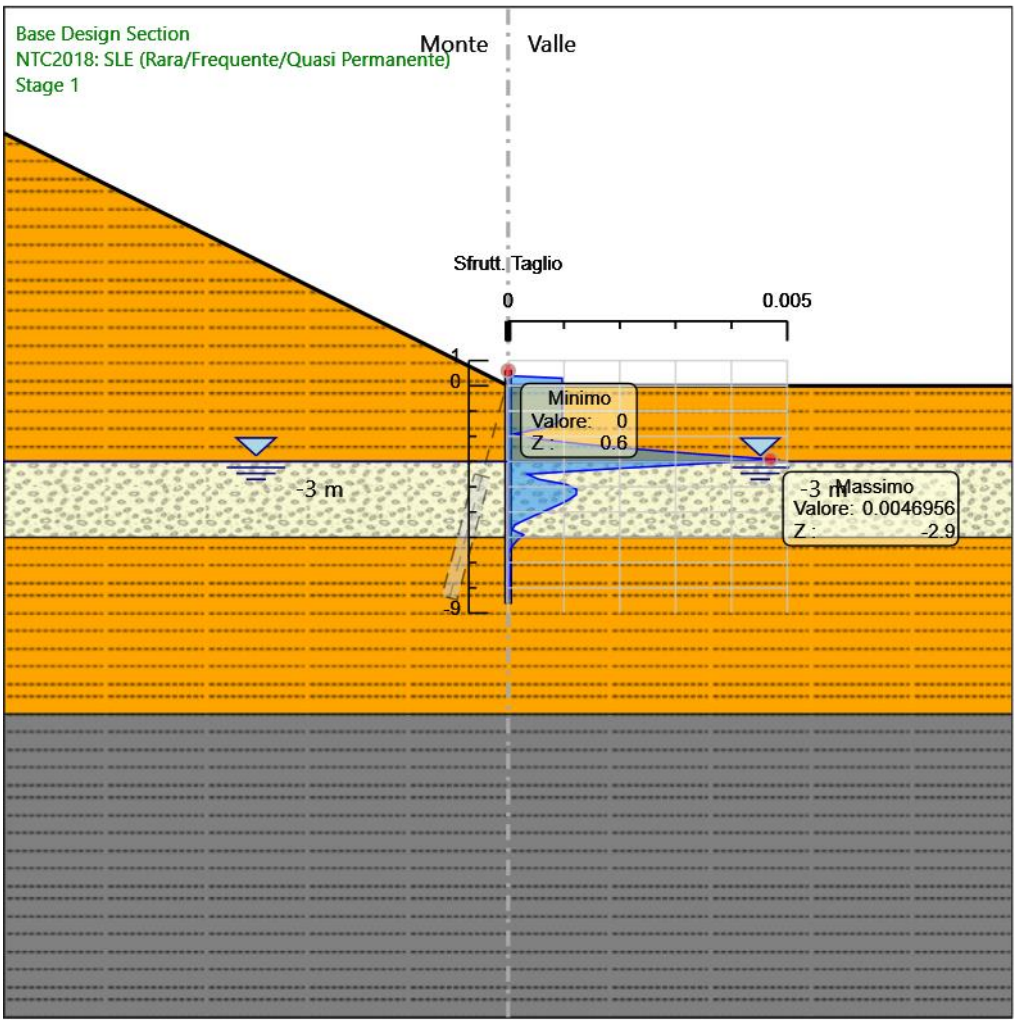


Inviluppi
Tasso di Sfruttamento a Momento - SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
0.6	0
0.4	0
0.3	0.001
0.1	0.001
-0.1	0.001
-0.3	0.001
-0.5	0.001
-0.7	0.001
-0.9	0.001
-1.1	0.001
-1.3	0.001
-1.5	0.001
-1.7	0.001
-1.9	0
-2.1	0.001
-2.3	0.001
-2.5	0.002
-2.7	0.003
-2.9	0.005
-3.1	0.003
-3.3	0.002
-3.5	0
-3.7	0.001
-3.9	0.001
-4.1	0.001
-4.3	0.001
-4.5	0.001
-4.7	0.001
-4.9	0.001
-5.1	0.001
-5.3	0
-5.5	0
-5.7	0
-5.9	0
-6.1	0
-6.3	0
-6.5	0
-6.7	0
-6.9	0
-7.1	0
-7.3	0
-7.5	0
-7.7	0
-7.9	0
-8.1	0
-8.3	0
-8.5	0
-8.6	0

Grafico Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld



Inviluppi
Tasso di Sfruttamento a Taglio - SteelWorld

Verifiche Tiranti NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	737.951	1534.217	0	0		
Cavalletto	Stage 3	3.567	737.951	1534.217	0.005	0.002		

Verifiche Tiranti NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	406.585	1534.217	0	0		
Cavalletto	Stage 3	4.636	406.585	1534.217	0.011	0.003		

Verifiche Tiranti NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	406.585	1534.217	0	0		
Cavalletto	Stage 3	12.076	406.585	1534.217	0.03	0.008		

Inviluppo Verifiche Tiranti (su tutte le D.A. attive)

	Tipo Risultato: Verifiche Tiranti								
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze	Design Assumption
Cavalletto	Stage 3	12.076	406.585	1534.217	0.03	0.008			NTC2018: A2+M2+R1

9.2 Paratia tipo B

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL
Quota : 20 m
OCR : 1

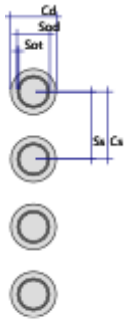
Tipo : HORIZONTAL
Quota : -5 m
OCR : 1

Tipo : HORIZONTAL
Quota : -8 m
OCR : 1

Tipo : HORIZONTAL
Quota : -15 m
OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ø'	øcv	øp	c'	Su	Modulo Elastico	Eu	Evc	Eur	Ah	Av	exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m³	kN/m³	°	°	°	kPa	kPa			kPa	kPa				kPa		kPa	kN/m³	kN/m³	kN/m³
1	G	18.2	18.2	37			7		Constant		86000	258000									
2	SL	19.6	19.6	33			13.5		Constant		87000	261000									
3	G	18.2	18.2	37			7		Constant		86000	258000									
4	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000									

Descrizione Pareti



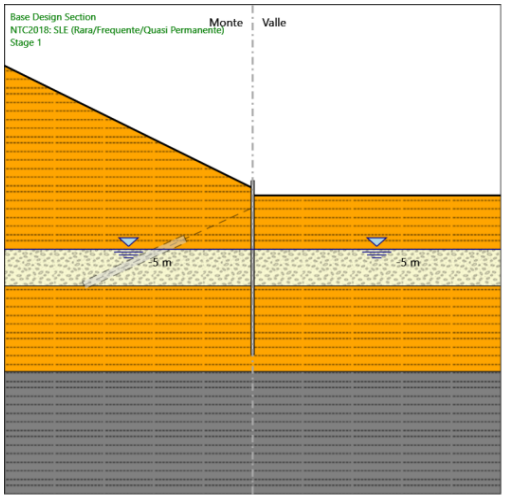
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -13.6 m
Muro di sinistra

Sezione : Micropali fi240 - fi168.3 sp10
Area equivalente : 0.0217658758055028 m
Inerzia equivalente : 0.0001 m^4/m
Materiale calcestruzzo : C25/30
Tipo sezione : Tangent
Spaziatura : 0.35 m
Diametro : 0.24 m
Efficacia : 0.5
Materiale acciaio : S355

Sezione : CHS168.3*10
Tipo sezione : O
Spaziatura : 0.35 m
Spessore : 0.01 m
Diametro : 0.1683 m

Fasi di Calcolo

Stage 1



Stage 1

Scavo

Muro di sinistra

Lato monte : 0 m
Lato valle : -0.6 m

Linea di scavo di sinistra (Irregolare)

(-20;10)
(0;0)

Linea di scavo di destra (Orizzontale)

-0.6 m

Falda acquifera

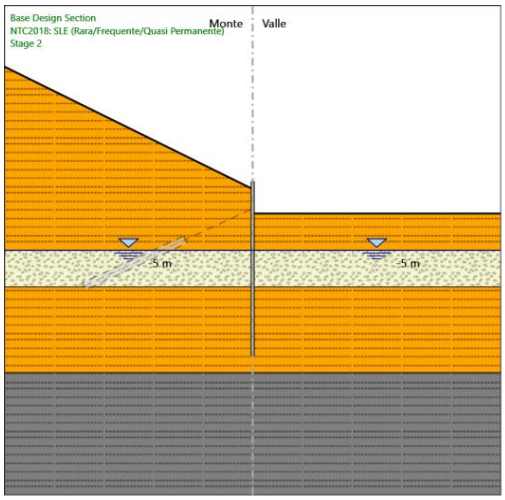
Falda di sinistra : -5 m
Falda di destra : -5 m

Elementi strutturali

Paratia : Sx

X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -13.6 m
Sezione : Micropali fi240 - fi168.3 sp10

Stage 2



Stage 2

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2 m

Linea di scavo di sinistra (Irregolare)

(-20;10)

(0;0)

Linea di scavo di destra (Orizzontale)

-2 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -5 m

Elementi strutturali

Paratia : Sx

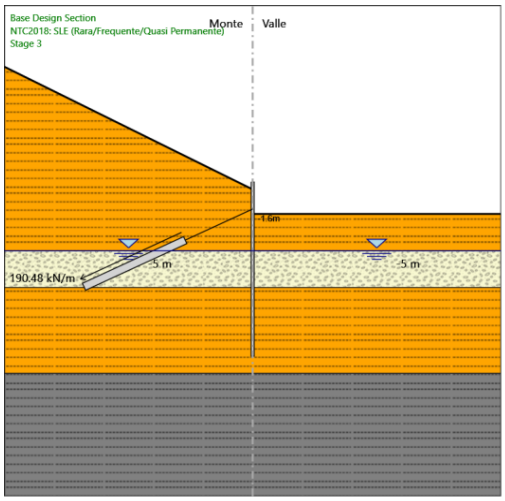
X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -13.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Stage 3



Stage 3

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2 m

Linea di scavo di sinistra (Irregolare)

(-20;10)

(0;0)

Linea di scavo di destra (Orizzontale)

-2 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -5 m

Elementi strutturali

Paratia : Sx

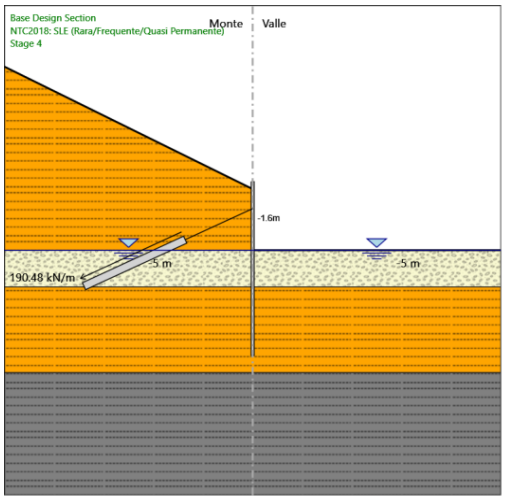
X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -13.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Stage 4



Stage 4

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -5 m

Linea di scavo di sinistra (Irregolare)

(-20;10)

(0;0)

Linea di scavo di destra (Orizzontale)

-5 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -5 m

Elementi strutturali

Paratia : Sx

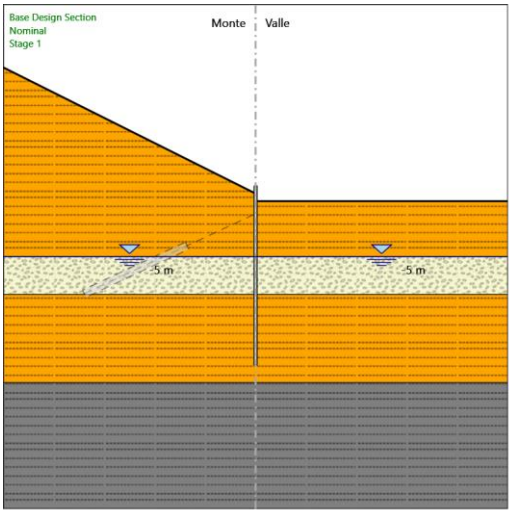
X : 0 m

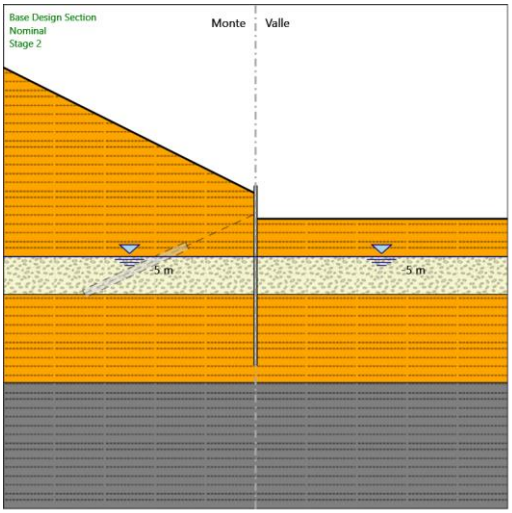
Quota in alto : 0.6 m

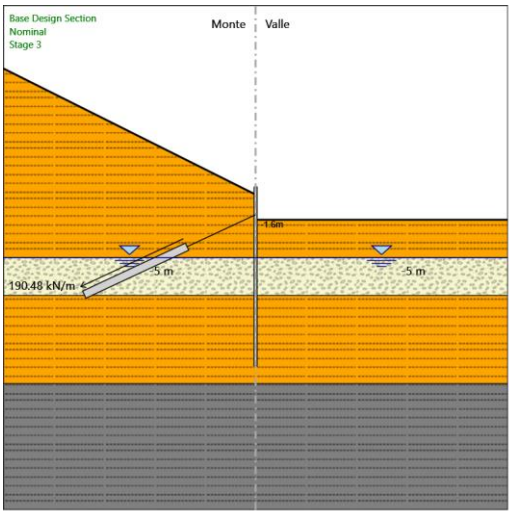
Quota di fondo : -13.6 m

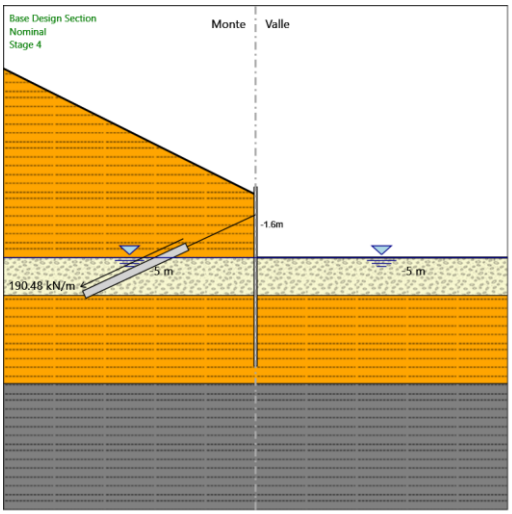
Sezione : Micropali fi240 - fi168.3 sp10

Tabella Configurazione Stage (Nominal)









Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load_unfavour)	Carichi Permanenti Favorevoli (F_dead_load_favour)	Carichi Variabili Sfavorevoli (F_live_load_unfavour)	Carichi Variabili Favorevoli (F_live_load_favour)	Carico Sismico (F_seism_load)	Pressioni Acqua Lato Monte (F_WaterDR)	Pressioni Acqua Lato Valle (F_WaterRes)	Carichi Permanenti Destabilizzanti (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabilizzanti (F_UPL_QDStab)	Carichi Permanenti Destabilizzanti (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabilizzanti (F_HYD_QDStab)
Simbolo	**γG**	**γG**	**γQ**	**γQ**	**γQE**	**γG**	**γG**	**γGdst**	**γGstb**	**γQdst**	**γGdst**	**γGstb**	**γQdst**
Nominal	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	0	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1.3	1	1.5	1	0	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	0	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø') (F_Fr)	Parziale su c' (F_eff_cohe)	Parziale su Su (F_Su)	Parziale su qu (F_qu)	Parziale su peso specifico (F_gamma)
Simbolo	**γϕ**	**γc**	**γcu**	**γqu**	**γγ**
Nominal	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp) (F_Soil_Res_walls)	Parziale resistenza Tiranti permanenti (F_Anch_P)	Parziale resistenza Tiranti temporanei (F_Anch_T)	Parziale elementi strutturali (F_wall)
Simbolo	**γRe**	**γap**	**γat**	
Nominal	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	0.6	0.01
Stage 1	0.4	0.01
Stage 1	0.2	0.01
Stage 1	0	0.01
Stage 1	-0.2	0.01
Stage 1	-0.4	0.01
Stage 1	-0.6	0.01
Stage 1	-0.8	0.01
Stage 1	-1	0.01
Stage 1	-1.2	0.01
Stage 1	-1.4	0.01
Stage 1	-1.6	0.01
Stage 1	-1.8	0.01
Stage 1	-2	0.01
Stage 1	-2.2	0.01
Stage 1	-2.4	0.01
Stage 1	-2.6	0.01
Stage 1	-2.8	0.01
Stage 1	-3	0.01
Stage 1	-3.2	0.01
Stage 1	-3.4	0.01
Stage 1	-3.6	0.01
Stage 1	-3.8	0.01
Stage 1	-4	0.01
Stage 1	-4.2	0.01
Stage 1	-4.4	0.01
Stage 1	-4.6	0.01
Stage 1	-4.8	0.01
Stage 1	-5	0.02
Stage 1	-5.2	0.02
Stage 1	-5.4	0.02
Stage 1	-5.6	0.02
Stage 1	-5.8	0.02
Stage 1	-6	0.02
Stage 1	-6.2	0.02
Stage 1	-6.4	0.02
Stage 1	-6.6	0.02
Stage 1	-6.8	0.02
Stage 1	-7	0.02
Stage 1	-7.2	0.02
Stage 1	-7.4	0.02
Stage 1	-7.6	0.02
Stage 1	-7.8	0.02
Stage 1	-8	0.02
Stage 1	-8.2	0.01
Stage 1	-8.4	0.01
Stage 1	-8.6	0.01
Stage 1	-8.8	0.01
Stage 1	-9	0.01
Stage 1	-9.2	0.01
Stage 1	-9.4	0.01
Stage 1	-9.6	0.01
Stage 1	-9.8	0.01
Stage 1	-10	0.01
Stage 1	-10.2	0.01
Stage 1	-10.4	0.01

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	-10.6	0.01
Stage 1	-10.8	0.01
Stage 1	-11	0.01
Stage 1	-11.2	0.01
Stage 1	-11.4	0.01
Stage 1	-11.6	0.01
Stage 1	-11.8	0.01
Stage 1	-12	0.01
Stage 1	-12.2	0.01
Stage 1	-12.4	0.01
Stage 1	-12.6	0.01
Stage 1	-12.8	0.01
Stage 1	-13	0.01
Stage 1	-13.2	0.01
Stage 1	-13.4	0.01
Stage 1	-13.6	0.01

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0
Stage 1	-1	0	0
Stage 1	-1.2	0	0
Stage 1	-1.4	0	0
Stage 1	-1.6	0	0
Stage 1	-1.8	0	0
Stage 1	-2	0	0
Stage 1	-2.2	0	0
Stage 1	-2.4	0	0
Stage 1	-2.6	0	0
Stage 1	-2.8	0	-0.01
Stage 1	-3	0	-0.01
Stage 1	-3.2	0	-0.01
Stage 1	-3.4	-0.01	-0.02
Stage 1	-3.6	-0.01	-0.02
Stage 1	-3.8	-0.02	-0.03
Stage 1	-4	-0.02	-0.03
Stage 1	-4.2	-0.03	-0.03
Stage 1	-4.4	-0.03	-0.01
Stage 1	-4.6	-0.03	0.02
Stage 1	-4.8	-0.02	0.06
Stage 1	-5	0.01	0.14
Stage 1	-5.2	0.03	0.07

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-5.4	0.03	0.02
Stage 1	-5.6	0.03	-0.01
Stage 1	-5.8	0.02	-0.02
Stage 1	-6	0.02	-0.02
Stage 1	-6.2	0.01	-0.02
Stage 1	-6.4	0.01	-0.01
Stage 1	-6.6	0.01	0
Stage 1	-6.8	0.01	0.01
Stage 1	-7	0.02	0.02
Stage 1	-7.2	0.02	0.02
Stage 1	-7.4	0.03	0.02
Stage 1	-7.6	0.03	0.01
Stage 1	-7.8	0.03	-0.02
Stage 1	-8	0.01	-0.07
Stage 1	-8.2	-0.02	-0.14
Stage 1	-8.4	-0.03	-0.06
Stage 1	-8.6	-0.03	-0.02
Stage 1	-8.8	-0.03	0.01
Stage 1	-9	-0.02	0.03
Stage 1	-9.2	-0.02	0.03
Stage 1	-9.4	-0.01	0.03
Stage 1	-9.6	-0.01	0.02
Stage 1	-9.8	0	0.02
Stage 1	-10	0	0.01
Stage 1	-10.2	0	0.01
Stage 1	-10.4	0	0
Stage 1	-10.6	0	0
Stage 1	-10.8	0	0
Stage 1	-11	0	0
Stage 1	-11.2	0	0
Stage 1	-11.4	0	0
Stage 1	-11.6	0	0
Stage 1	-11.8	0	0
Stage 1	-12	0	0
Stage 1	-12.2	0	0
Stage 1	-12.4	0	0
Stage 1	-12.6	0	0
Stage 1	-12.8	0	0
Stage 1	-13	0	0
Stage 1	-13.2	0	0
Stage 1	-13.4	0	0
Stage 1	-13.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	0.6	0.14
Stage 2	0.4	0.13
Stage 2	0.2	0.12
Stage 2	0	0.12
Stage 2	-0.2	0.11
Stage 2	-0.4	0.1
Stage 2	-0.6	0.1
Stage 2	-0.8	0.09
Stage 2	-1	0.08
Stage 2	-1.2	0.08
Stage 2	-1.4	0.07
Stage 2	-1.6	0.07

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	-1.8	0.06
Stage 2	-2	0.05
Stage 2	-2.2	0.05
Stage 2	-2.4	0.04
Stage 2	-2.6	0.04
Stage 2	-2.8	0.04
Stage 2	-3	0.03
Stage 2	-3.2	0.03
Stage 2	-3.4	0.03
Stage 2	-3.6	0.03
Stage 2	-3.8	0.03
Stage 2	-4	0.03
Stage 2	-4.2	0.03
Stage 2	-4.4	0.03
Stage 2	-4.6	0.03
Stage 2	-4.8	0.04
Stage 2	-5	0.04
Stage 2	-5.2	0.04
Stage 2	-5.4	0.04
Stage 2	-5.6	0.04
Stage 2	-5.8	0.04
Stage 2	-6	0.04
Stage 2	-6.2	0.04
Stage 2	-6.4	0.04
Stage 2	-6.6	0.04
Stage 2	-6.8	0.04
Stage 2	-7	0.04
Stage 2	-7.2	0.04
Stage 2	-7.4	0.04
Stage 2	-7.6	0.04
Stage 2	-7.8	0.04
Stage 2	-8	0.04
Stage 2	-8.2	0.03
Stage 2	-8.4	0.03
Stage 2	-8.6	0.03
Stage 2	-8.8	0.03
Stage 2	-9	0.03
Stage 2	-9.2	0.03
Stage 2	-9.4	0.03
Stage 2	-9.6	0.03
Stage 2	-9.8	0.03
Stage 2	-10	0.03
Stage 2	-10.2	0.03
Stage 2	-10.4	0.03
Stage 2	-10.6	0.03
Stage 2	-10.8	0.03
Stage 2	-11	0.03
Stage 2	-11.2	0.03
Stage 2	-11.4	0.03
Stage 2	-11.6	0.03
Stage 2	-11.8	0.03
Stage 2	-12	0.03
Stage 2	-12.2	0.03
Stage 2	-12.4	0.03
Stage 2	-12.6	0.03
Stage 2	-12.8	0.03
Stage 2	-13	0.03
Stage 2	-13.2	0.03
Stage 2	-13.4	0.03
Stage 2	-13.6	0.03

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	-0.01	-0.04
Stage 2	-1.8	-0.07	-0.31
Stage 2	-2	-0.23	-0.81
Stage 2	-2.2	-0.36	-0.66
Stage 2	-2.4	-0.4	-0.2
Stage 2	-2.6	-0.38	0.11
Stage 2	-2.8	-0.32	0.28
Stage 2	-3	-0.26	0.34
Stage 2	-3.2	-0.19	0.32
Stage 2	-3.4	-0.14	0.27
Stage 2	-3.6	-0.1	0.19
Stage 2	-3.8	-0.08	0.12
Stage 2	-4	-0.07	0.06
Stage 2	-4.2	-0.06	0.02
Stage 2	-4.4	-0.06	0.01
Stage 2	-4.6	-0.05	0.05
Stage 2	-4.8	-0.02	0.13
Stage 2	-5	0.03	0.27
Stage 2	-5.2	0.06	0.13
Stage 2	-5.4	0.06	0.03
Stage 2	-5.6	0.06	-0.03
Stage 2	-5.8	0.05	-0.05
Stage 2	-6	0.04	-0.05
Stage 2	-6.2	0.03	-0.04
Stage 2	-6.4	0.02	-0.02
Stage 2	-6.6	0.02	0
Stage 2	-6.8	0.03	0.02
Stage 2	-7	0.04	0.04
Stage 2	-7.2	0.05	0.05
Stage 2	-7.4	0.06	0.05
Stage 2	-7.6	0.06	0.02
Stage 2	-7.8	0.05	-0.04
Stage 2	-8	0.02	-0.13
Stage 2	-8.2	-0.03	-0.28
Stage 2	-8.4	-0.06	-0.13
Stage 2	-8.6	-0.06	-0.04
Stage 2	-8.8	-0.06	0.02

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-9	-0.05	0.05
Stage 2	-9.2	-0.04	0.06
Stage 2	-9.4	-0.03	0.06
Stage 2	-9.6	-0.02	0.05
Stage 2	-9.8	-0.01	0.04
Stage 2	-10	0	0.03
Stage 2	-10.2	0	0.02
Stage 2	-10.4	0	0.01
Stage 2	-10.6	0	0
Stage 2	-10.8	0	0
Stage 2	-11	0	0
Stage 2	-11.2	0	0
Stage 2	-11.4	0	0
Stage 2	-11.6	0	0
Stage 2	-11.8	0	0
Stage 2	-12	0	0
Stage 2	-12.2	0	0
Stage 2	-12.4	0	0
Stage 2	-12.6	0	0
Stage 2	-12.8	0	0
Stage 2	-13	0	0
Stage 2	-13.2	0	0
Stage 2	-13.4	0	0
Stage 2	-13.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	0.6	0.88
Stage 3	0.4	0.66
Stage 3	0.2	0.44
Stage 3	0	0.22
Stage 3	-0.2	-0.01
Stage 3	-0.4	-0.23
Stage 3	-0.6	-0.45
Stage 3	-0.8	-0.66
Stage 3	-1	-0.86
Stage 3	-1.2	-1.03
Stage 3	-1.4	-1.15
Stage 3	-1.6	-1.2
Stage 3	-1.8	-1.14
Stage 3	-2	-1.01
Stage 3	-2.2	-0.84
Stage 3	-2.4	-0.66
Stage 3	-2.6	-0.48
Stage 3	-2.8	-0.33
Stage 3	-3	-0.2
Stage 3	-3.2	-0.1
Stage 3	-3.4	-0.02
Stage 3	-3.6	0.02
Stage 3	-3.8	0.05
Stage 3	-4	0.07
Stage 3	-4.2	0.07
Stage 3	-4.4	0.07
Stage 3	-4.6	0.06
Stage 3	-4.8	0.06

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	-5	0.05
Stage 3	-5.2	0.05
Stage 3	-5.4	0.04
Stage 3	-5.6	0.04
Stage 3	-5.8	0.04
Stage 3	-6	0.04
Stage 3	-6.2	0.04
Stage 3	-6.4	0.04
Stage 3	-6.6	0.04
Stage 3	-6.8	0.04
Stage 3	-7	0.04
Stage 3	-7.2	0.04
Stage 3	-7.4	0.04
Stage 3	-7.6	0.04
Stage 3	-7.8	0.04
Stage 3	-8	0.04
Stage 3	-8.2	0.03
Stage 3	-8.4	0.03
Stage 3	-8.6	0.03
Stage 3	-8.8	0.03
Stage 3	-9	0.03
Stage 3	-9.2	0.03
Stage 3	-9.4	0.03
Stage 3	-9.6	0.03
Stage 3	-9.8	0.03
Stage 3	-10	0.03
Stage 3	-10.2	0.03
Stage 3	-10.4	0.03
Stage 3	-10.6	0.03
Stage 3	-10.8	0.03
Stage 3	-11	0.03
Stage 3	-11.2	0.03
Stage 3	-11.4	0.03
Stage 3	-11.6	0.03
Stage 3	-11.8	0.03
Stage 3	-12	0.03
Stage 3	-12.2	0.03
Stage 3	-12.4	0.03
Stage 3	-12.6	0.03
Stage 3	-12.8	0.03
Stage 3	-13	0.03
Stage 3	-13.2	0.03
Stage 3	-13.4	0.03
Stage 3	-13.6	0.03

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.63	-3.16

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-0.6	-2.2	-7.86
Stage 3	-0.8	-5.31	-15.51
Stage 3	-1	-10.51	-26.04
Stage 3	-1.2	-18.36	-39.25
Stage 3	-1.4	-29.32	-54.78
Stage 3	-1.6	-43.72	-72.01
Stage 3	-1.8	-27.19	82.68
Stage 3	-2	-14.13	65.28
Stage 3	-2.2	-4.26	49.37
Stage 3	-2.4	2.82	35.39
Stage 3	-2.6	7.51	23.46
Stage 3	-2.8	10.22	13.51
Stage 3	-3	11.27	5.28
Stage 3	-3.2	10.96	-1.56
Stage 3	-3.4	9.6	-6.83
Stage 3	-3.6	7.65	-9.73
Stage 3	-3.8	5.59	-10.3
Stage 3	-4	3.73	-9.3
Stage 3	-4.2	2.18	-7.73
Stage 3	-4.4	1.02	-5.84
Stage 3	-4.6	0.24	-3.89
Stage 3	-4.8	-0.21	-2.23
Stage 3	-5	-0.39	-0.91
Stage 3	-5.2	-0.44	-0.26
Stage 3	-5.4	-0.41	0.14
Stage 3	-5.6	-0.35	0.34
Stage 3	-5.8	-0.26	0.41
Stage 3	-6	-0.18	0.4
Stage 3	-6.2	-0.11	0.35
Stage 3	-6.4	-0.05	0.29
Stage 3	-6.6	-0.01	0.22
Stage 3	-6.8	0.02	0.17
Stage 3	-7	0.05	0.12
Stage 3	-7.2	0.07	0.09
Stage 3	-7.4	0.08	0.05
Stage 3	-7.6	0.08	0.01
Stage 3	-7.8	0.07	-0.06
Stage 3	-8	0.04	-0.16
Stage 3	-8.2	-0.02	-0.3
Stage 3	-8.4	-0.05	-0.15
Stage 3	-8.6	-0.06	-0.05
Stage 3	-8.8	-0.06	0.01
Stage 3	-9	-0.05	0.05
Stage 3	-9.2	-0.04	0.06
Stage 3	-9.4	-0.03	0.06
Stage 3	-9.6	-0.02	0.05
Stage 3	-9.8	-0.01	0.04
Stage 3	-10	0	0.03
Stage 3	-10.2	0	0.02
Stage 3	-10.4	0	0.01
Stage 3	-10.6	0	0
Stage 3	-10.8	0	0
Stage 3	-11	0	0
Stage 3	-11.2	0	0
Stage 3	-11.4	0	0
Stage 3	-11.6	0	0
Stage 3	-11.8	0	0
Stage 3	-12	0	0
Stage 3	-12.2	0	0
Stage 3	-12.4	0	0
Stage 3	-12.6	0	0
Stage 3	-12.8	0	0
Stage 3	-13	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-13.2	0	0
Stage 3	-13.4	0	0
Stage 3	-13.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 4

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 4	0.6	0.77
Stage 4	0.4	0.55
Stage 4	0.2	0.33
Stage 4	0	0.11
Stage 4	-0.2	-0.11
Stage 4	-0.4	-0.33
Stage 4	-0.6	-0.54
Stage 4	-0.8	-0.75
Stage 4	-1	-0.94
Stage 4	-1.2	-1.11
Stage 4	-1.4	-1.21
Stage 4	-1.6	-1.24
Stage 4	-1.8	-1.16
Stage 4	-2	-0.99
Stage 4	-2.2	-0.78
Stage 4	-2.4	-0.54
Stage 4	-2.6	-0.3
Stage 4	-2.8	-0.06
Stage 4	-3	0.17
Stage 4	-3.2	0.37
Stage 4	-3.4	0.55
Stage 4	-3.6	0.69
Stage 4	-3.8	0.81
Stage 4	-4	0.88
Stage 4	-4.2	0.93
Stage 4	-4.4	0.93
Stage 4	-4.6	0.91
Stage 4	-4.8	0.86
Stage 4	-5	0.79
Stage 4	-5.2	0.71
Stage 4	-5.4	0.63
Stage 4	-5.6	0.55
Stage 4	-5.8	0.47
Stage 4	-6	0.41
Stage 4	-6.2	0.35
Stage 4	-6.4	0.3
Stage 4	-6.6	0.26
Stage 4	-6.8	0.23
Stage 4	-7	0.21
Stage 4	-7.2	0.19
Stage 4	-7.4	0.18
Stage 4	-7.6	0.18
Stage 4	-7.8	0.17
Stage 4	-8	0.17
Stage 4	-8.2	0.17
Stage 4	-8.4	0.16
Stage 4	-8.6	0.16
Stage 4	-8.8	0.16
Stage 4	-9	0.16
Stage 4	-9.2	0.16
Stage 4	-9.4	0.16

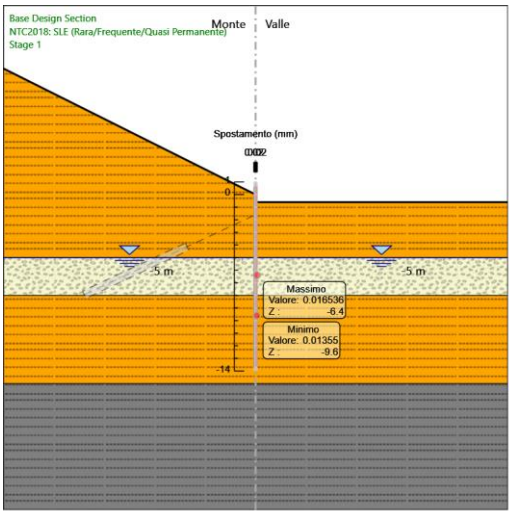
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 4	-9.6	0.16
Stage 4	-9.8	0.16
Stage 4	-10	0.16
Stage 4	-10.2	0.16
Stage 4	-10.4	0.16
Stage 4	-10.6	0.16
Stage 4	-10.8	0.15
Stage 4	-11	0.15
Stage 4	-11.2	0.15
Stage 4	-11.4	0.15
Stage 4	-11.6	0.15
Stage 4	-11.8	0.15
Stage 4	-12	0.15
Stage 4	-12.2	0.15
Stage 4	-12.4	0.15
Stage 4	-12.6	0.15
Stage 4	-12.8	0.15
Stage 4	-13	0.15
Stage 4	-13.2	0.15
Stage 4	-13.4	0.15
Stage 4	-13.6	0.15

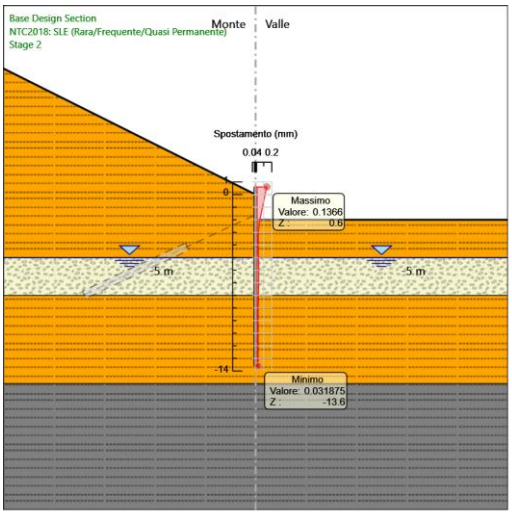
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 4

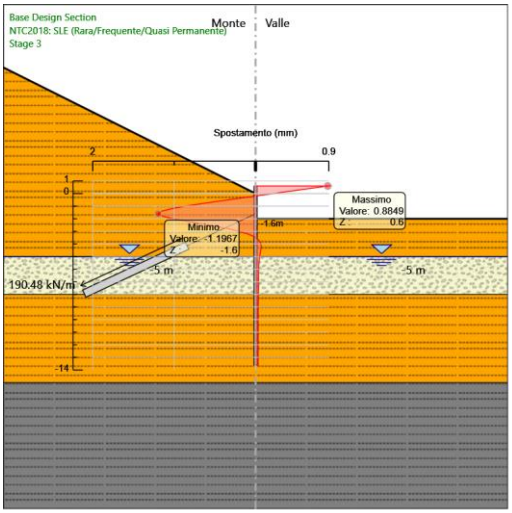
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.74	-3.69
Stage 4	-0.6	-2.51	-8.88
Stage 4	-0.8	-5.92	-17.02
Stage 4	-1	-11.52	-28
Stage 4	-1.2	-19.85	-41.64
Stage 4	-1.4	-31.36	-57.55
Stage 4	-1.6	-46.37	-75.08
Stage 4	-1.8	-30.52	79.25
Stage 4	-2	-18.15	61.88
Stage 4	-2.2	-8.89	46.3
Stage 4	-2.4	-2.23	33.29
Stage 4	-2.6	2.41	23.21
Stage 4	-2.8	5.65	16.18
Stage 4	-3	8.08	12.17
Stage 4	-3.2	10.14	10.28
Stage 4	-3.4	11.77	8.16
Stage 4	-3.6	12.94	5.82
Stage 4	-3.8	13.58	3.24
Stage 4	-4	13.67	0.43
Stage 4	-4.2	13.15	-2.61
Stage 4	-4.4	11.97	-5.88
Stage 4	-4.6	10.1	-9.38
Stage 4	-4.8	7.48	-13.11
Stage 4	-5	4.06	-17.07
Stage 4	-5.2	1.3	-13.82

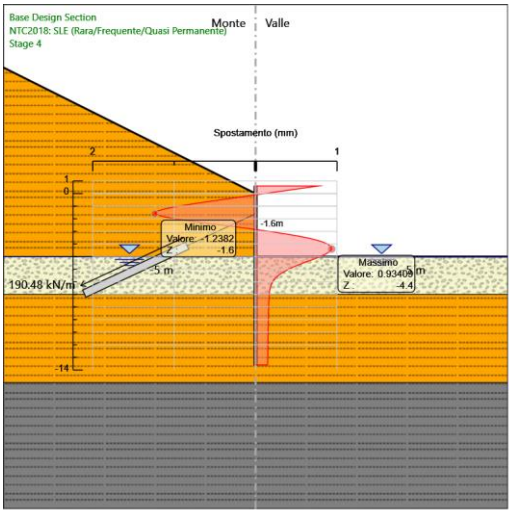
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-5.4	-0.77	-10.32
Stage 4	-5.6	-2.21	-7.24
Stage 4	-5.8	-3.14	-4.65
Stage 4	-6	-3.65	-2.53
Stage 4	-6.2	-3.82	-0.86
Stage 4	-6.4	-3.73	0.45
Stage 4	-6.6	-3.44	1.46
Stage 4	-6.8	-2.99	2.24
Stage 4	-7	-2.44	2.77
Stage 4	-7.2	-1.86	2.87
Stage 4	-7.4	-1.33	2.66
Stage 4	-7.6	-0.88	2.26
Stage 4	-7.8	-0.53	1.73
Stage 4	-8	-0.31	1.1
Stage 4	-8.2	-0.23	0.42
Stage 4	-8.4	-0.17	0.27
Stage 4	-8.6	-0.14	0.19
Stage 4	-8.8	-0.1	0.19
Stage 4	-9	-0.07	0.16
Stage 4	-9.2	-0.04	0.13
Stage 4	-9.4	-0.02	0.1
Stage 4	-9.6	-0.01	0.07
Stage 4	-9.8	0	0.04
Stage 4	-10	0.01	0.02
Stage 4	-10.2	0.01	0
Stage 4	-10.4	0	-0.01
Stage 4	-10.6	0	-0.01
Stage 4	-10.8	0	-0.01
Stage 4	-11	0	-0.01
Stage 4	-11.2	0	-0.01
Stage 4	-11.4	-0.01	-0.01
Stage 4	-11.6	-0.01	0
Stage 4	-11.8	-0.01	0
Stage 4	-12	-0.01	0
Stage 4	-12.2	-0.01	0
Stage 4	-12.4	-0.01	0
Stage 4	-12.6	0	0
Stage 4	-12.8	0	0.01
Stage 4	-13	0	0.01
Stage 4	-13.2	0	0.01
Stage 4	-13.4	0	0
Stage 4	-13.6	0	0

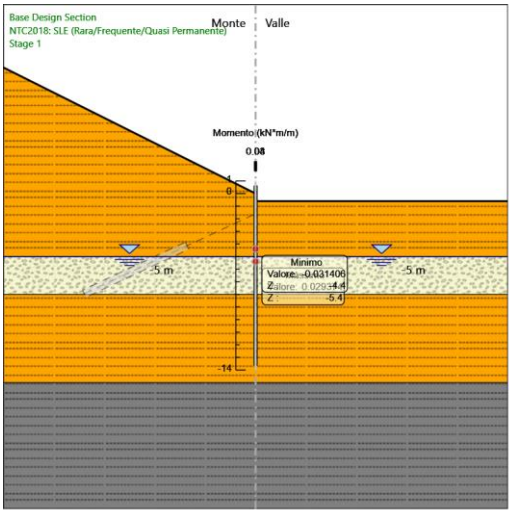
Tabella Grafici dei Risultati

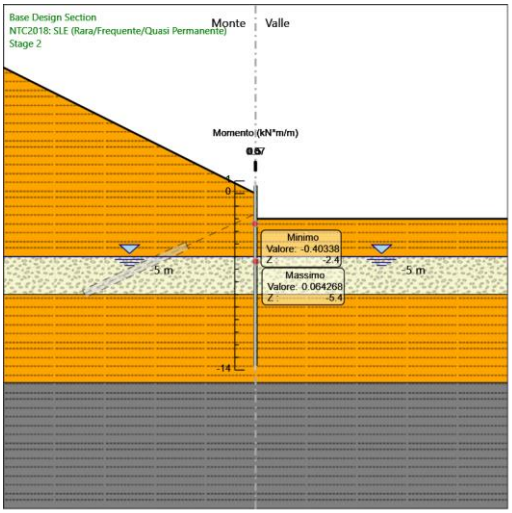


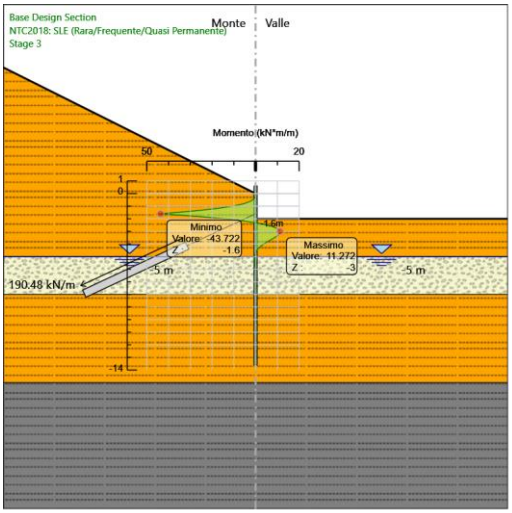


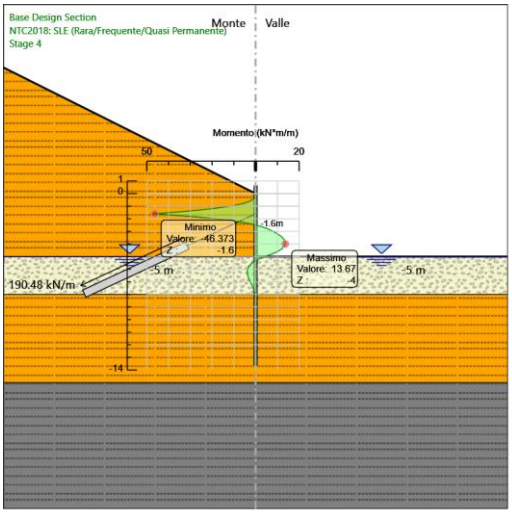


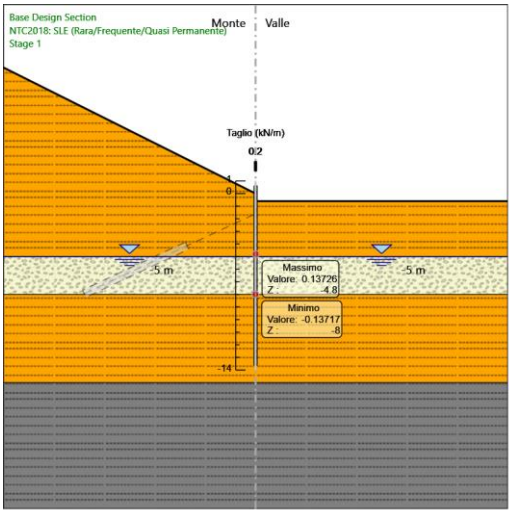


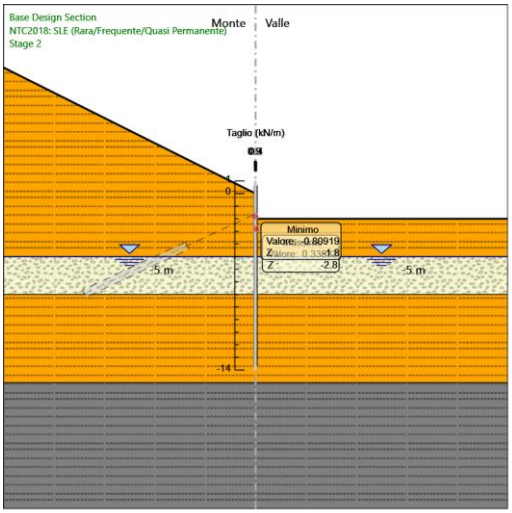


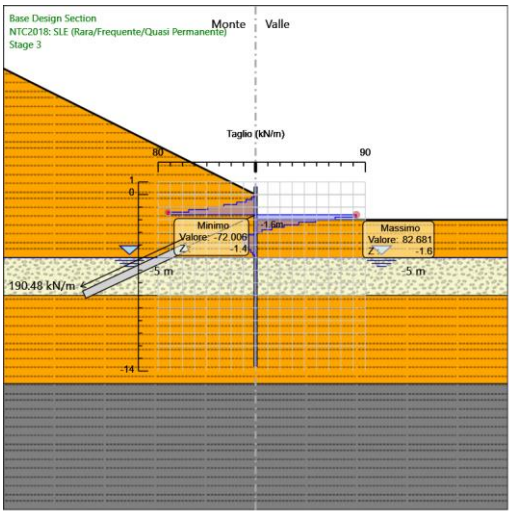


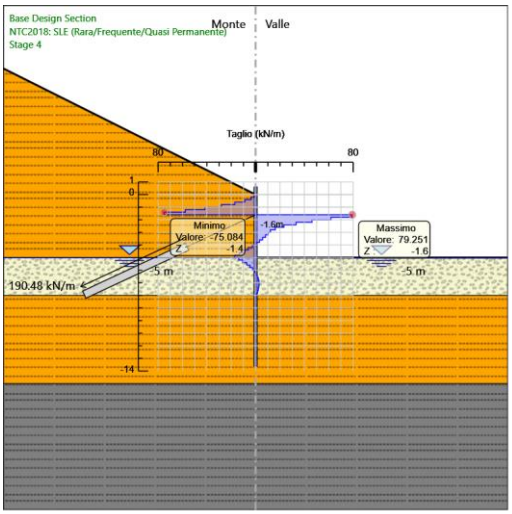

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -43.722
Massimo
Valore: 11.272
190.48 kN/m

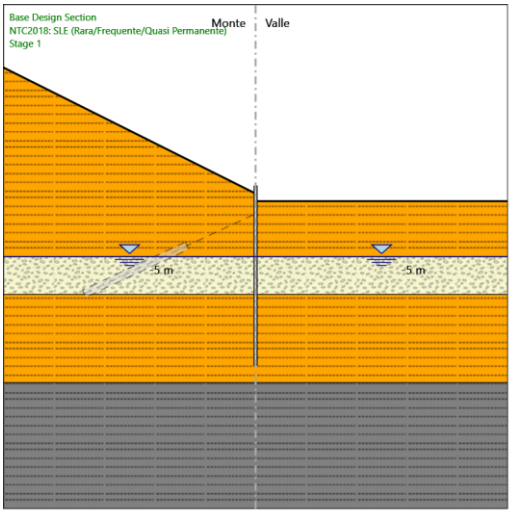

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -46.373
Massimo
Valore: 13.67
190.48 kN/m

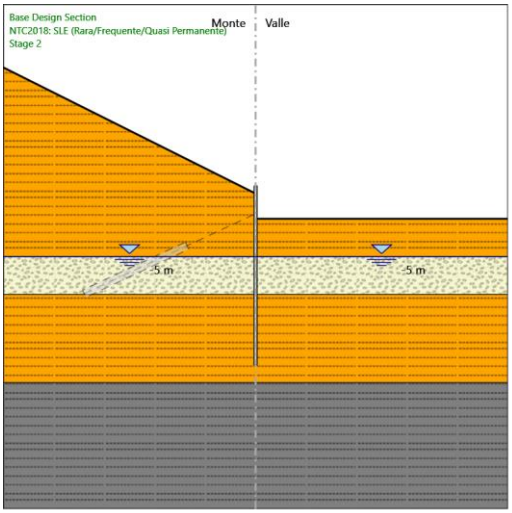

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
Taglio (kN/m)
Massimo
Valore: 0.13726
Minimo
Valore: -0.13717

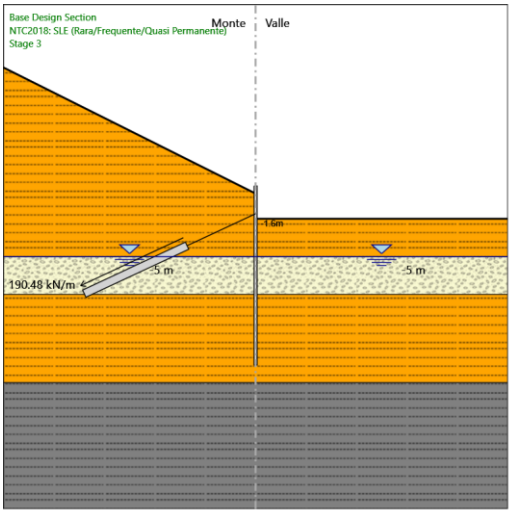

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
Taglio (kN/m)
Minimo

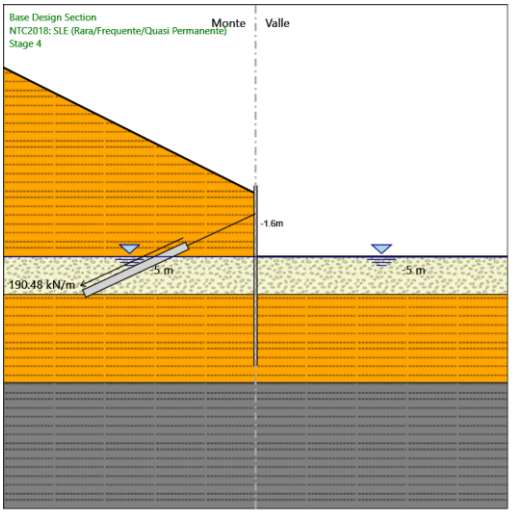

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -72.006
Massimo
Valore: 82.681
190.48 kN/m

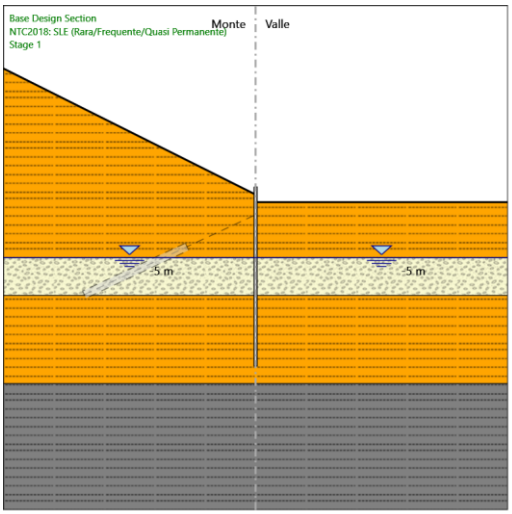

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -75.084
Massimo
Valore: 79.251
190.48 kN/m

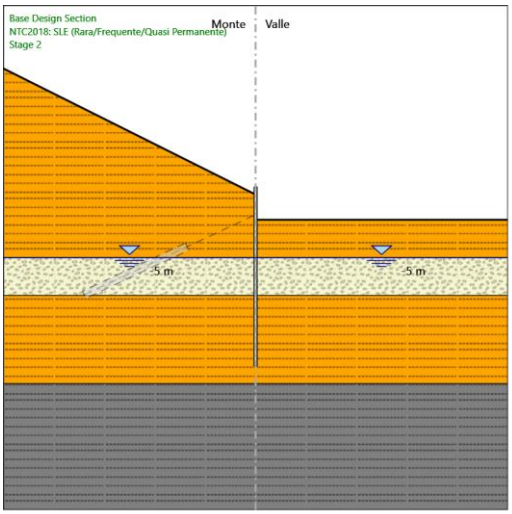

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
-5 m
-5 m

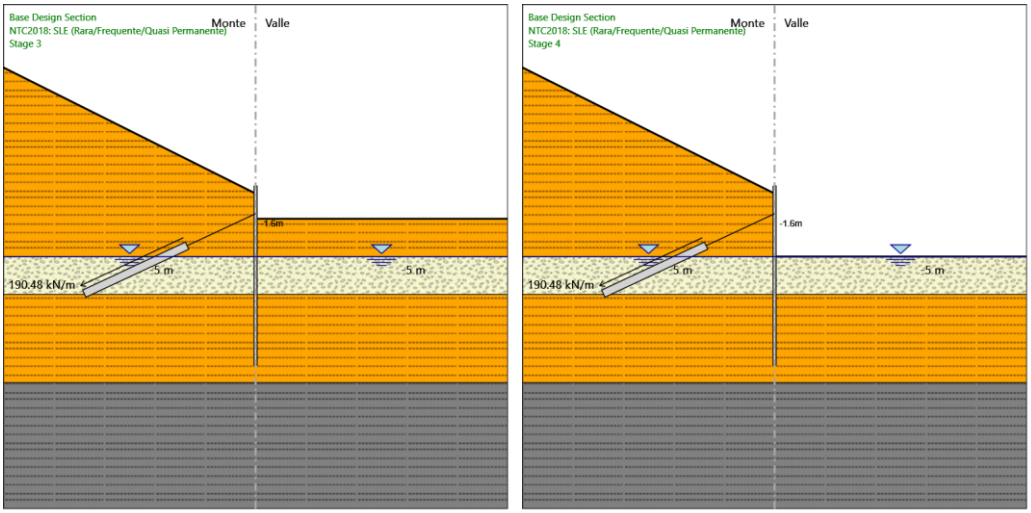

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
-1.6m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
-1.6m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
-5 m
-5 m



Risultati Elementi strutturali - NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Sollecitazione Tiranti
Stage	Forza (kN/m)
Stage 3	190.5
Stage 4	190.3102

Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0
Stage 1	-1	0	0
Stage 1	-1.2	0	0
Stage 1	-1.4	0	0
Stage 1	-1.6	0	0
Stage 1	-1.8	0	0
Stage 1	-2	0	0
Stage 1	-2.2	0	0
Stage 1	-2.4	0	0
Stage 1	-2.6	0	0
Stage 1	-2.8	0	-0.01
Stage 1	-3	0	-0.01
Stage 1	-3.2	-0.01	-0.02
Stage 1	-3.4	-0.01	-0.02
Stage 1	-3.6	-0.02	-0.03
Stage 1	-3.8	-0.02	-0.04
Stage 1	-4	-0.03	-0.04
Stage 1	-4.2	-0.04	-0.03
Stage 1	-4.4	-0.04	-0.02
Stage 1	-4.6	-0.04	0.02
Stage 1	-4.8	-0.02	0.08
Stage 1	-5	0.02	0.18
Stage 1	-5.2	0.03	0.09
Stage 1	-5.4	0.04	0.02
Stage 1	-5.6	0.04	-0.01
Stage 1	-5.8	0.03	-0.03
Stage 1	-6	0.02	-0.03
Stage 1	-6.2	0.02	-0.03
Stage 1	-6.4	0.02	-0.01
Stage 1	-6.6	0.02	0
Stage 1	-6.8	0.02	0.01
Stage 1	-7	0.02	0.03
Stage 1	-7.2	0.03	0.03
Stage 1	-7.4	0.04	0.03
Stage 1	-7.6	0.04	0.01
Stage 1	-7.8	0.03	-0.02
Stage 1	-8	0.02	-0.09
Stage 1	-8.2	-0.02	-0.18
Stage 1	-8.4	-0.04	-0.08
Stage 1	-8.6	-0.04	-0.02
Stage 1	-8.8	-0.04	0.02
Stage 1	-9	-0.03	0.03
Stage 1	-9.2	-0.02	0.04

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-9.4	-0.02	0.04
Stage 1	-9.6	-0.01	0.03
Stage 1	-9.8	0	0.02
Stage 1	-10	0	0.02
Stage 1	-10.2	0	0.01
Stage 1	-10.4	0	0.01
Stage 1	-10.6	0	0
Stage 1	-10.8	0	0
Stage 1	-11	0	0
Stage 1	-11.2	0	0
Stage 1	-11.4	0	0
Stage 1	-11.6	0	0
Stage 1	-11.8	0	0
Stage 1	-12	0	0
Stage 1	-12.2	0	0
Stage 1	-12.4	0	0
Stage 1	-12.6	0	0
Stage 1	-12.8	0	0
Stage 1	-13	0	0
Stage 1	-13.2	0	0
Stage 1	-13.4	0	0
Stage 1	-13.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	-0.01	-0.05
Stage 2	-1.8	-0.09	-0.4
Stage 2	-2	-0.3	-1.05
Stage 2	-2.2	-0.47	-0.86
Stage 2	-2.4	-0.52	-0.26
Stage 2	-2.6	-0.5	0.15
Stage 2	-2.8	-0.42	0.36
Stage 2	-3	-0.33	0.44
Stage 2	-3.2	-0.25	0.42

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-3.4	-0.18	0.35
Stage 2	-3.6	-0.13	0.25
Stage 2	-3.8	-0.1	0.15
Stage 2	-4	-0.09	0.07
Stage 2	-4.2	-0.08	0.03
Stage 2	-4.4	-0.08	0.02
Stage 2	-4.6	-0.06	0.06
Stage 2	-4.8	-0.03	0.17
Stage 2	-5	0.04	0.36
Stage 2	-5.2	0.08	0.17
Stage 2	-5.4	0.08	0.04
Stage 2	-5.6	0.08	-0.03
Stage 2	-5.8	0.06	-0.07
Stage 2	-6	0.05	-0.07
Stage 2	-6.2	0.04	-0.06
Stage 2	-6.4	0.03	-0.03
Stage 2	-6.6	0.03	0
Stage 2	-6.8	0.04	0.03
Stage 2	-7	0.05	0.05
Stage 2	-7.2	0.06	0.07
Stage 2	-7.4	0.07	0.06
Stage 2	-7.6	0.08	0.02
Stage 2	-7.8	0.07	-0.05
Stage 2	-8	0.03	-0.18
Stage 2	-8.2	-0.04	-0.36
Stage 2	-8.4	-0.07	-0.17
Stage 2	-8.6	-0.08	-0.05
Stage 2	-8.8	-0.08	0.03
Stage 2	-9	-0.06	0.07
Stage 2	-9.2	-0.05	0.08
Stage 2	-9.4	-0.03	0.08
Stage 2	-9.6	-0.02	0.06
Stage 2	-9.8	-0.01	0.05
Stage 2	-10	0	0.03
Stage 2	-10.2	0	0.02
Stage 2	-10.4	0	0.01
Stage 2	-10.6	0	0
Stage 2	-10.8	0	0
Stage 2	-11	0	0
Stage 2	-11.2	0	0
Stage 2	-11.4	0	0
Stage 2	-11.6	0	0
Stage 2	-11.8	0	0
Stage 2	-12	0	0
Stage 2	-12.2	0	0
Stage 2	-12.4	0	0
Stage 2	-12.6	0	0
Stage 2	-12.8	0	0
Stage 2	-13	0	0
Stage 2	-13.2	0	0
Stage 2	-13.4	0	0
Stage 2	-13.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.82	-4.11
Stage 3	-0.6	-2.87	-10.21
Stage 3	-0.8	-6.9	-20.16
Stage 3	-1	-13.67	-33.85
Stage 3	-1.2	-23.87	-51.03
Stage 3	-1.4	-38.12	-71.22
Stage 3	-1.6	-56.84	-93.61
Stage 3	-1.8	-35.34	107.49
Stage 3	-2	-18.37	84.86
Stage 3	-2.2	-5.53	64.18
Stage 3	-2.4	3.67	46.01
Stage 3	-2.6	9.77	30.5
Stage 3	-2.8	13.28	17.56
Stage 3	-3	14.65	6.86
Stage 3	-3.2	14.25	-2.02
Stage 3	-3.4	12.47	-8.88
Stage 3	-3.6	9.94	-12.65
Stage 3	-3.8	7.27	-13.39
Stage 3	-4	4.85	-12.09
Stage 3	-4.2	2.84	-10.04
Stage 3	-4.4	1.32	-7.59
Stage 3	-4.6	0.31	-5.06
Stage 3	-4.8	-0.27	-2.9
Stage 3	-5	-0.51	-1.18
Stage 3	-5.2	-0.57	-0.33
Stage 3	-5.4	-0.54	0.18
Stage 3	-5.6	-0.45	0.45
Stage 3	-5.8	-0.34	0.54
Stage 3	-6	-0.24	0.53
Stage 3	-6.2	-0.14	0.46
Stage 3	-6.4	-0.07	0.37
Stage 3	-6.6	-0.01	0.29
Stage 3	-6.8	0.03	0.22
Stage 3	-7	0.06	0.16
Stage 3	-7.2	0.09	0.12
Stage 3	-7.4	0.1	0.07
Stage 3	-7.6	0.1	0.01
Stage 3	-7.8	0.09	-0.07
Stage 3	-8	0.05	-0.2
Stage 3	-8.2	-0.03	-0.39
Stage 3	-8.4	-0.07	-0.19
Stage 3	-8.6	-0.08	-0.06
Stage 3	-8.8	-0.08	0.02
Stage 3	-9	-0.06	0.06
Stage 3	-9.2	-0.05	0.08
Stage 3	-9.4	-0.03	0.07
Stage 3	-9.6	-0.02	0.06
Stage 3	-9.8	-0.01	0.05
Stage 3	-10	0	0.03
Stage 3	-10.2	0	0.02
Stage 3	-10.4	0	0.01

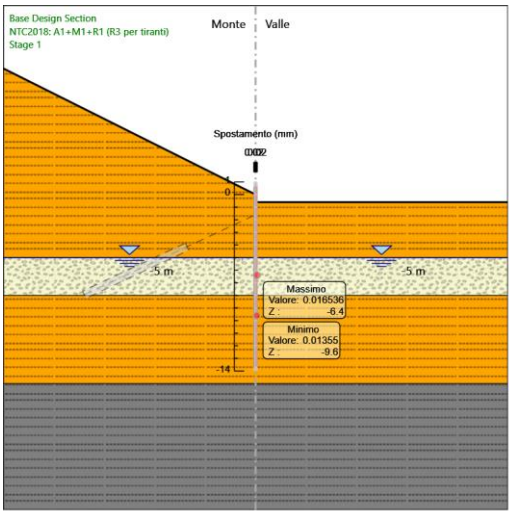
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-10.6	0	0.01
Stage 3	-10.8	0	0
Stage 3	-11	0	0
Stage 3	-11.2	0	0
Stage 3	-11.4	0	0
Stage 3	-11.6	0	0
Stage 3	-11.8	0	0
Stage 3	-12	0	0
Stage 3	-12.2	0	0
Stage 3	-12.4	0	0
Stage 3	-12.6	0	0
Stage 3	-12.8	0	0
Stage 3	-13	0	0
Stage 3	-13.2	0	0
Stage 3	-13.4	0	0
Stage 3	-13.6	0	0

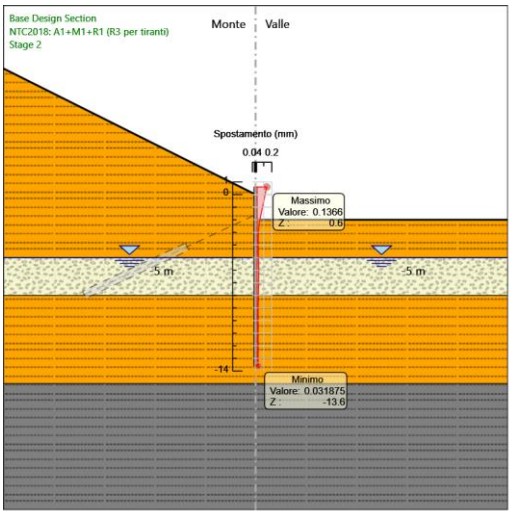
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 4

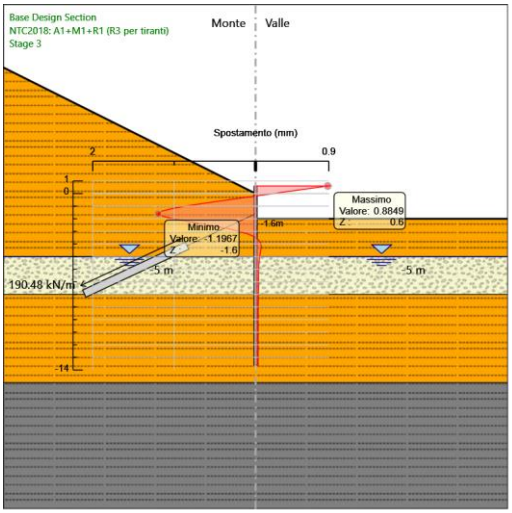
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.96	-4.79
Stage 4	-0.6	-3.27	-11.55
Stage 4	-0.8	-7.69	-22.12
Stage 4	-1	-14.97	-36.4
Stage 4	-1.2	-25.8	-54.14
Stage 4	-1.4	-40.76	-74.82
Stage 4	-1.6	-60.29	-97.61
Stage 4	-1.8	-39.68	103.03
Stage 4	-2	-23.59	80.45
Stage 4	-2.2	-11.55	60.19
Stage 4	-2.4	-2.9	43.28
Stage 4	-2.6	3.14	30.17
Stage 4	-2.8	7.34	21.04
Stage 4	-3	10.51	15.82
Stage 4	-3.2	13.18	13.36
Stage 4	-3.4	15.3	10.61
Stage 4	-3.6	16.82	7.56
Stage 4	-3.8	17.66	4.21
Stage 4	-4	17.77	0.56
Stage 4	-4.2	17.09	-3.39
Stage 4	-4.4	15.57	-7.64
Stage 4	-4.6	13.13	-12.19
Stage 4	-4.8	9.72	-17.04
Stage 4	-5	5.28	-22.19
Stage 4	-5.2	1.69	-17.97
Stage 4	-5.4	-1	-13.42
Stage 4	-5.6	-2.88	-9.41

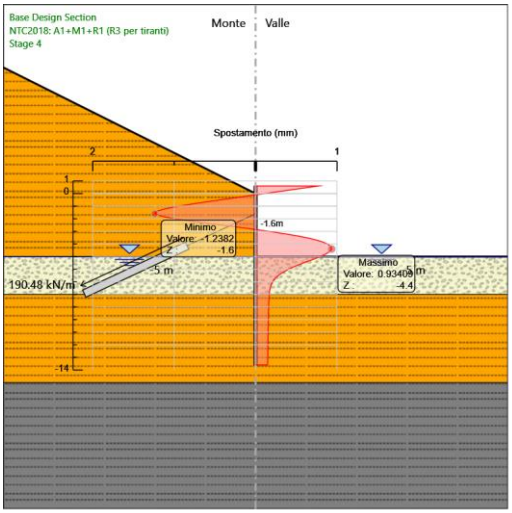
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-5.8	-4.08	-6.04
Stage 4	-6	-4.74	-3.29
Stage 4	-6.2	-4.97	-1.11
Stage 4	-6.4	-4.85	0.58
Stage 4	-6.6	-4.47	1.89
Stage 4	-6.8	-3.89	2.91
Stage 4	-7	-3.17	3.6
Stage 4	-7.2	-2.42	3.73
Stage 4	-7.4	-1.73	3.46
Stage 4	-7.6	-1.14	2.94
Stage 4	-7.8	-0.69	2.24
Stage 4	-8	-0.41	1.44
Stage 4	-8.2	-0.3	0.54
Stage 4	-8.4	-0.23	0.35
Stage 4	-8.6	-0.18	0.25
Stage 4	-8.8	-0.13	0.24
Stage 4	-9	-0.09	0.21
Stage 4	-9.2	-0.05	0.17
Stage 4	-9.4	-0.03	0.13
Stage 4	-9.6	-0.01	0.09
Stage 4	-9.8	0	0.05
Stage 4	-10	0.01	0.02
Stage 4	-10.2	0.01	0
Stage 4	-10.4	0.01	-0.01
Stage 4	-10.6	0	-0.01
Stage 4	-10.8	0	-0.02
Stage 4	-11	0	-0.02
Stage 4	-11.2	-0.01	-0.01
Stage 4	-11.4	-0.01	-0.01
Stage 4	-11.6	-0.01	-0.01
Stage 4	-11.8	-0.01	0
Stage 4	-12	-0.01	0
Stage 4	-12.2	-0.01	0
Stage 4	-12.4	-0.01	0
Stage 4	-12.6	-0.01	0.01
Stage 4	-12.8	0	0.01
Stage 4	-13	0	0.01
Stage 4	-13.2	0	0.01
Stage 4	-13.4	0	0.01
Stage 4	-13.6	0	0

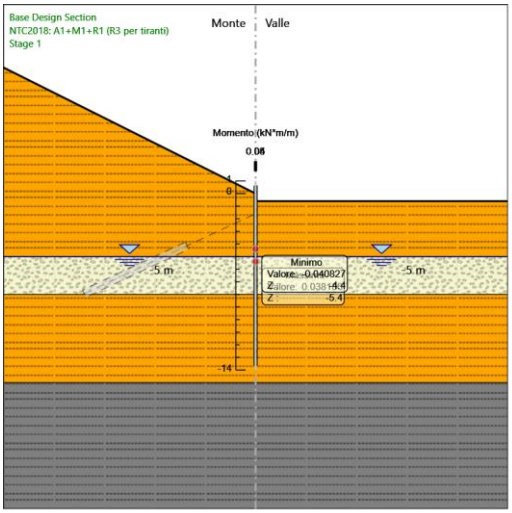
Tabella Grafici dei Risultati

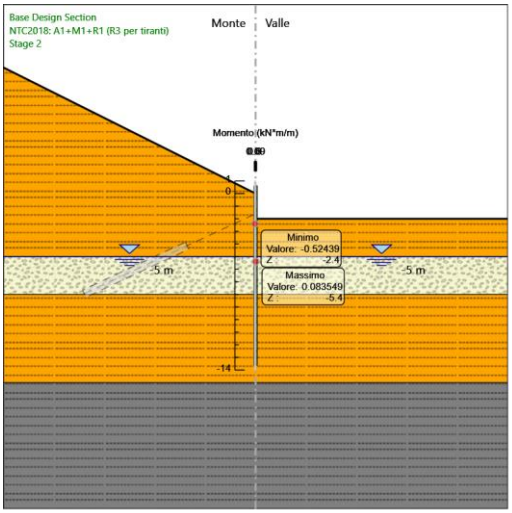


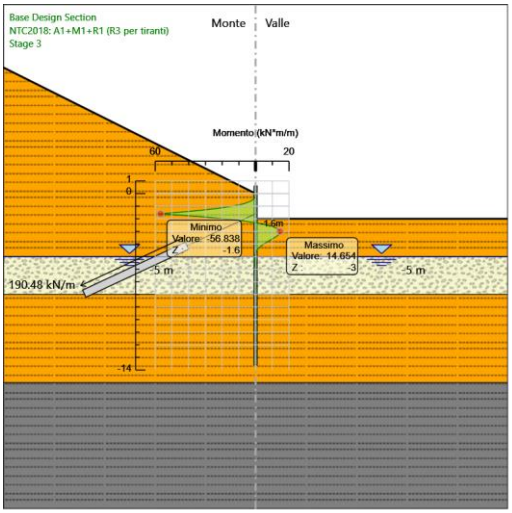


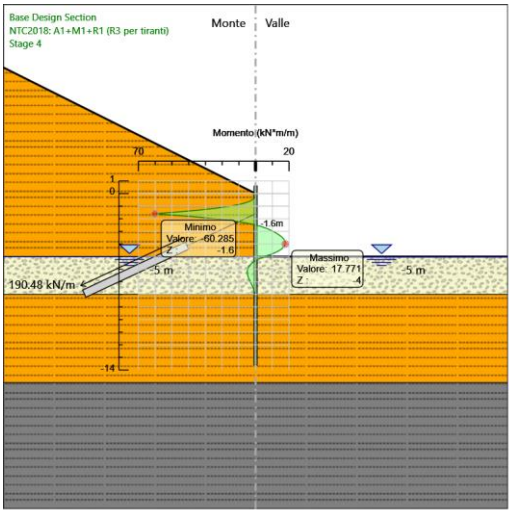


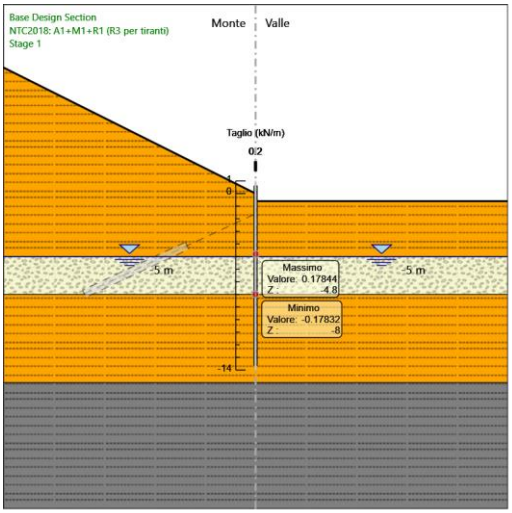


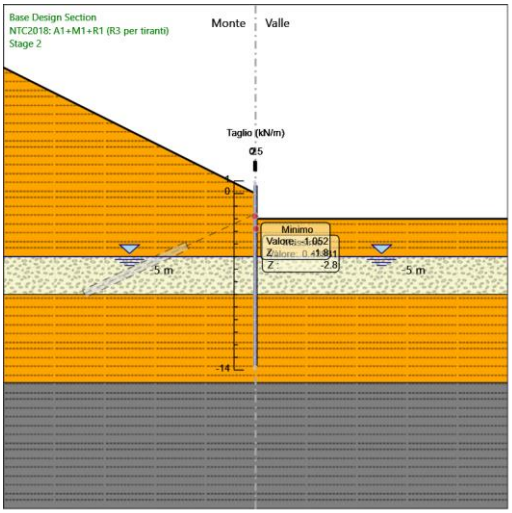


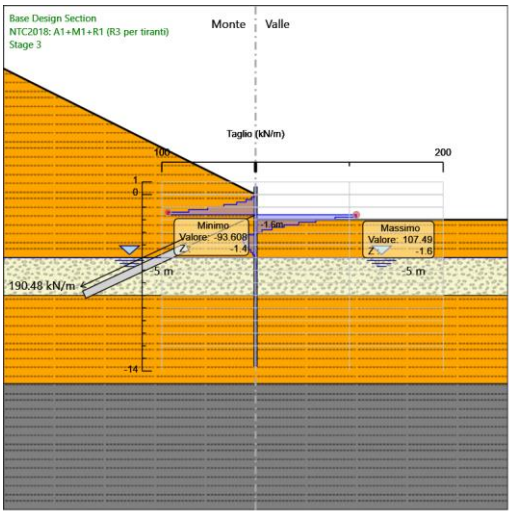


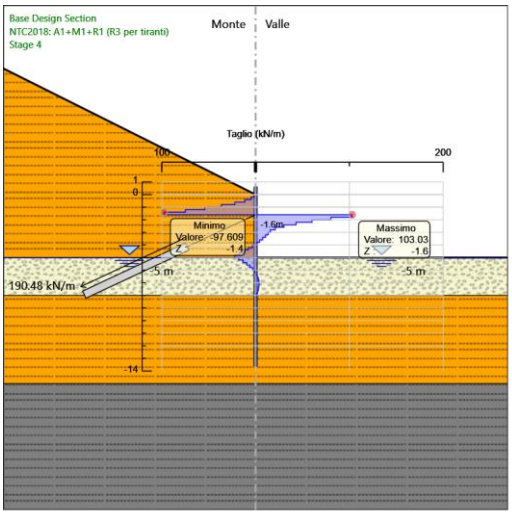

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
Momento (kN*m/m)
Minimo
Massimo
190.48 kN/m

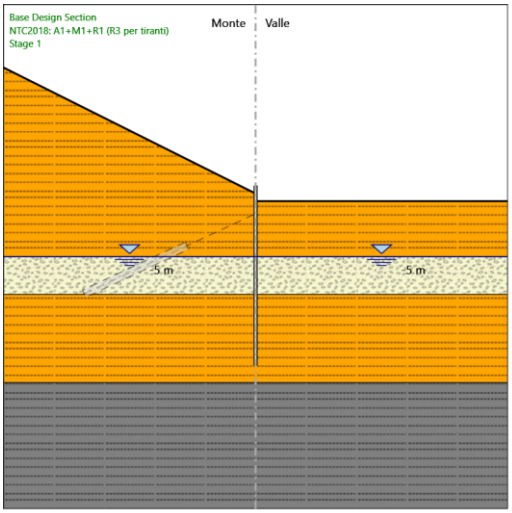

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
Momento (kN*m/m)
Minimo
Massimo
190.48 kN/m

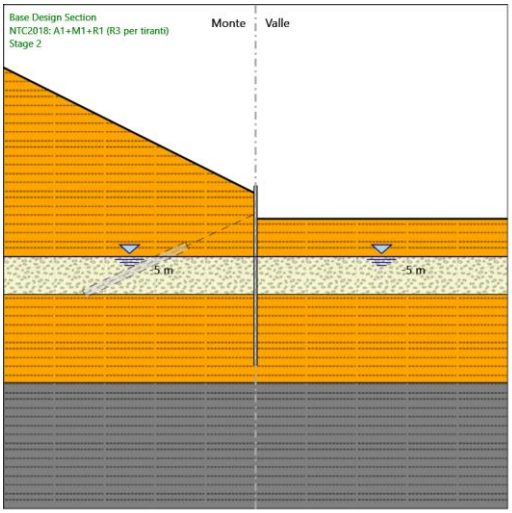

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
Taglio (kN/m)
Massimo
Minimo

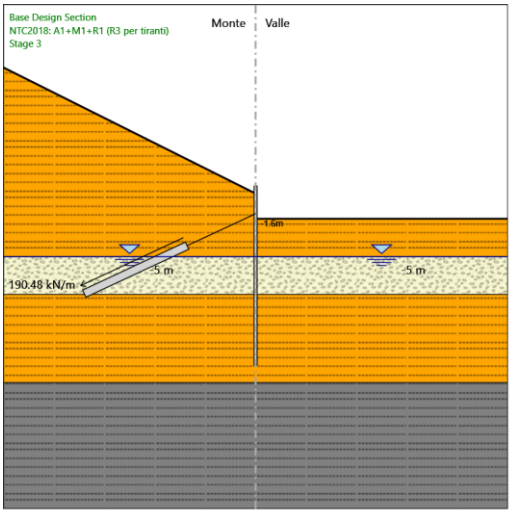

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
Taglio (kN/m)
Minimo

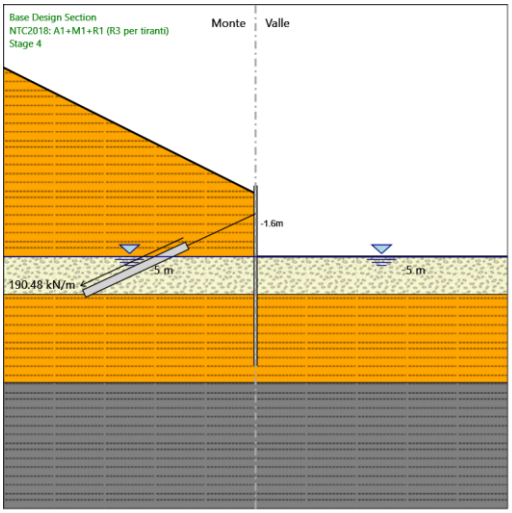

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
Taglio (kN/m)
Minimo
Massimo
190.48 kN/m

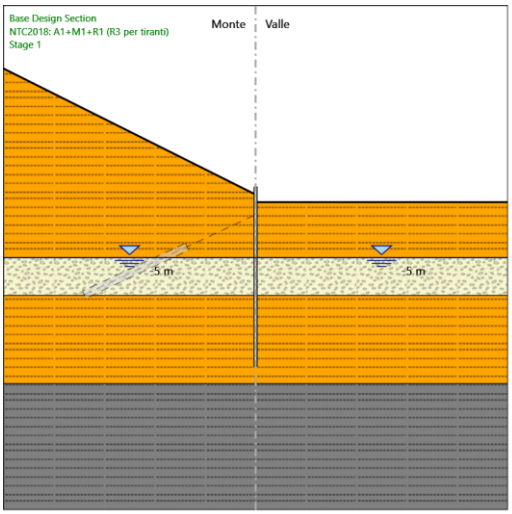

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
Taglio (kN/m)
Minimo
Massimo
190.48 kN/m

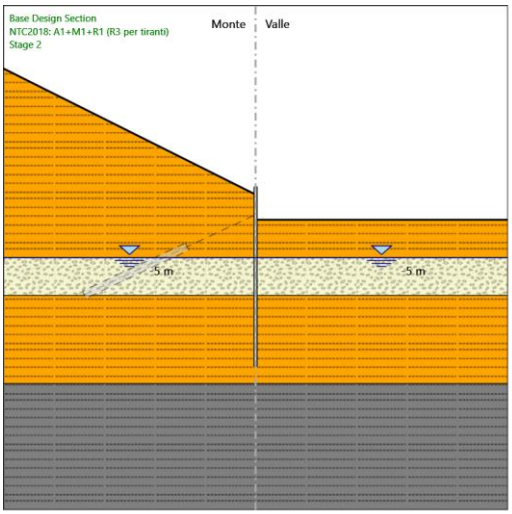

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
-5 m
-5 m

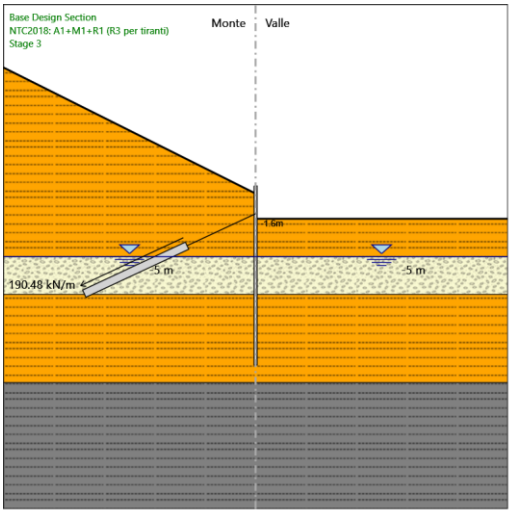

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
-5 m
-5 m

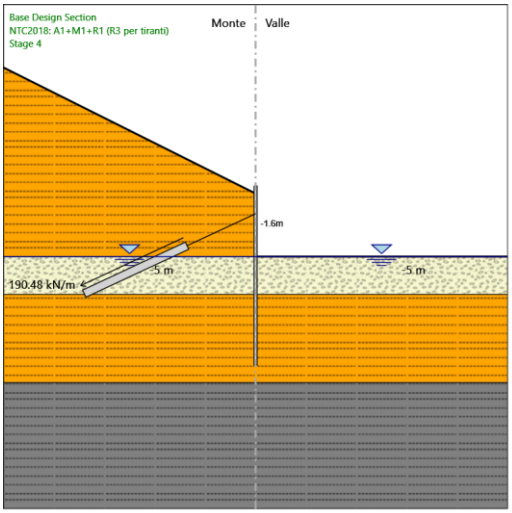

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
-1.6m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
-1.6m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
-5 m
-5 m





Risultati Elementi strutturali - NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Sollecitazione Tiranti
Stage	Forza (kN/m)
Stage 3	247.65
Stage 4	247.40326

Risultati NTC2018: A2+M2+R1

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0.01
Stage 1	-1	0	0.01
Stage 1	-1.2	0.01	0.01
Stage 1	-1.4	0.01	0.01
Stage 1	-1.6	0.01	-0.01
Stage 1	-1.8	0	-0.05
Stage 1	-2	-0.02	-0.1
Stage 1	-2.2	-0.05	-0.15
Stage 1	-2.4	-0.1	-0.22
Stage 1	-2.6	-0.15	-0.27
Stage 1	-2.8	-0.21	-0.3
Stage 1	-3	-0.27	-0.28
Stage 1	-3.2	-0.3	-0.19

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-3.4	-0.33	-0.11
Stage 1	-3.6	-0.34	-0.05
Stage 1	-3.8	-0.34	-0.01
Stage 1	-4	-0.33	0.04
Stage 1	-4.2	-0.31	0.09
Stage 1	-4.4	-0.28	0.15
Stage 1	-4.6	-0.23	0.24
Stage 1	-4.8	-0.16	0.37
Stage 1	-5	-0.06	0.53
Stage 1	-5.2	0.03	0.42
Stage 1	-5.4	0.1	0.34
Stage 1	-5.6	0.15	0.28
Stage 1	-5.8	0.2	0.26
Stage 1	-6	0.25	0.25
Stage 1	-6.2	0.3	0.25
Stage 1	-6.4	0.36	0.27
Stage 1	-6.6	0.41	0.28
Stage 1	-6.8	0.47	0.27
Stage 1	-7	0.52	0.25
Stage 1	-7.2	0.55	0.18
Stage 1	-7.4	0.57	0.06
Stage 1	-7.6	0.54	-0.13
Stage 1	-7.8	0.46	-0.4
Stage 1	-8	0.3	-0.78
Stage 1	-8.2	0.05	-1.27
Stage 1	-8.4	-0.13	-0.88
Stage 1	-8.6	-0.24	-0.56
Stage 1	-8.8	-0.3	-0.31
Stage 1	-9	-0.33	-0.12
Stage 1	-9.2	-0.32	0.02
Stage 1	-9.4	-0.3	0.11
Stage 1	-9.6	-0.27	0.17
Stage 1	-9.8	-0.23	0.19
Stage 1	-10	-0.19	0.2
Stage 1	-10.2	-0.15	0.19
Stage 1	-10.4	-0.11	0.18
Stage 1	-10.6	-0.08	0.16
Stage 1	-10.8	-0.06	0.13
Stage 1	-11	-0.04	0.11
Stage 1	-11.2	-0.02	0.08
Stage 1	-11.4	-0.01	0.06
Stage 1	-11.6	0	0.04
Stage 1	-11.8	0.01	0.03
Stage 1	-12	0.01	0.01
Stage 1	-12.2	0.01	0
Stage 1	-12.4	0.01	0
Stage 1	-12.6	0.01	-0.01
Stage 1	-12.8	0.01	-0.01
Stage 1	-13	0	-0.01
Stage 1	-13.2	0	-0.01
Stage 1	-13.4	0	-0.01
Stage 1	-13.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	-0.03	-0.16
Stage 2	-1.4	-0.17	-0.66
Stage 2	-1.6	-0.47	-1.5
Stage 2	-1.8	-1	-2.68
Stage 2	-2	-1.84	-4.19
Stage 2	-2.2	-2.37	-2.65
Stage 2	-2.4	-2.64	-1.32
Stage 2	-2.6	-2.7	-0.31
Stage 2	-2.8	-2.61	0.44
Stage 2	-3	-2.42	0.95
Stage 2	-3.2	-2.16	1.28
Stage 2	-3.4	-1.87	1.47
Stage 2	-3.6	-1.56	1.56
Stage 2	-3.8	-1.24	1.57
Stage 2	-4	-0.94	1.5
Stage 2	-4.2	-0.68	1.32
Stage 2	-4.4	-0.46	1.1
Stage 2	-4.6	-0.28	0.9
Stage 2	-4.8	-0.13	0.77
Stage 2	-5	0.02	0.72
Stage 2	-5.2	0.12	0.49
Stage 2	-5.4	0.19	0.35
Stage 2	-5.6	0.24	0.25
Stage 2	-5.8	0.28	0.2
Stage 2	-6	0.31	0.19
Stage 2	-6.2	0.35	0.19
Stage 2	-6.4	0.4	0.21
Stage 2	-6.6	0.44	0.23
Stage 2	-6.8	0.49	0.24
Stage 2	-7	0.53	0.22
Stage 2	-7.2	0.56	0.16
Stage 2	-7.4	0.57	0.05
Stage 2	-7.6	0.55	-0.14
Stage 2	-7.8	0.46	-0.41
Stage 2	-8	0.3	-0.8
Stage 2	-8.2	0.04	-1.3
Stage 2	-8.4	-0.14	-0.9
Stage 2	-8.6	-0.25	-0.57
Stage 2	-8.8	-0.32	-0.32
Stage 2	-9	-0.34	-0.12
Stage 2	-9.2	-0.34	0.02
Stage 2	-9.4	-0.31	0.11
Stage 2	-9.6	-0.28	0.17
Stage 2	-9.8	-0.24	0.2

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-10	-0.2	0.21
Stage 2	-10.2	-0.16	0.2
Stage 2	-10.4	-0.12	0.19
Stage 2	-10.6	-0.09	0.16
Stage 2	-10.8	-0.06	0.14
Stage 2	-11	-0.04	0.11
Stage 2	-11.2	-0.02	0.08
Stage 2	-11.4	-0.01	0.06
Stage 2	-11.6	0	0.04
Stage 2	-11.8	0.01	0.03
Stage 2	-12	0.01	0.01
Stage 2	-12.2	0.01	0
Stage 2	-12.4	0.01	0
Stage 2	-12.6	0.01	-0.01
Stage 2	-12.8	0.01	-0.01
Stage 2	-13	0	-0.01
Stage 2	-13.2	0	-0.01
Stage 2	-13.4	0	-0.01
Stage 2	-13.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.6	-3.02
Stage 3	-0.6	-2.23	-8.12
Stage 3	-0.8	-5.47	-16.23
Stage 3	-1	-10.91	-27.18
Stage 3	-1.2	-19.05	-40.68
Stage 3	-1.4	-30.33	-56.39
Stage 3	-1.6	-45.04	-73.55
Stage 3	-1.8	-28.76	81.4
Stage 3	-2	-15.89	64.33
Stage 3	-2.2	-6.14	48.73
Stage 3	-2.4	0.86	35.04
Stage 3	-2.6	5.54	23.38
Stage 3	-2.8	8.27	13.67
Stage 3	-3	9.41	5.67
Stage 3	-3.2	9.22	-0.93
Stage 3	-3.4	8.22	-4.98
Stage 3	-3.6	6.91	-6.56
Stage 3	-3.8	5.51	-6.98
Stage 3	-4	4.2	-6.58
Stage 3	-4.2	3.05	-5.75
Stage 3	-4.4	2.08	-4.84
Stage 3	-4.6	1.3	-3.9
Stage 3	-4.8	0.71	-2.97
Stage 3	-5	0.29	-2.08
Stage 3	-5.2	-0.01	-1.5
Stage 3	-5.4	-0.21	-1
Stage 3	-5.6	-0.32	-0.57
Stage 3	-5.8	-0.37	-0.22

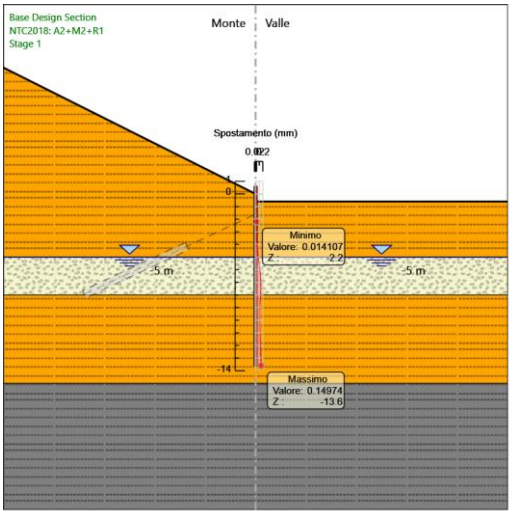
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-6	-0.35	0.07
Stage 3	-6.2	-0.29	0.29
Stage 3	-6.4	-0.2	0.46
Stage 3	-6.6	-0.09	0.57
Stage 3	-6.8	0.04	0.63
Stage 3	-7	0.17	0.64
Stage 3	-7.2	0.28	0.58
Stage 3	-7.4	0.37	0.44
Stage 3	-7.6	0.41	0.21
Stage 3	-7.8	0.39	-0.13
Stage 3	-8	0.27	-0.59
Stage 3	-8.2	0.04	-1.16
Stage 3	-8.4	-0.13	-0.81
Stage 3	-8.6	-0.23	-0.53
Stage 3	-8.8	-0.29	-0.3
Stage 3	-9	-0.32	-0.12
Stage 3	-9.2	-0.31	0.01
Stage 3	-9.4	-0.29	0.1
Stage 3	-9.6	-0.26	0.16
Stage 3	-9.8	-0.23	0.18
Stage 3	-10	-0.19	0.19
Stage 3	-10.2	-0.15	0.19
Stage 3	-10.4	-0.12	0.17
Stage 3	-10.6	-0.08	0.15
Stage 3	-10.8	-0.06	0.13
Stage 3	-11	-0.04	0.11
Stage 3	-11.2	-0.02	0.08
Stage 3	-11.4	-0.01	0.06
Stage 3	-11.6	0	0.04
Stage 3	-11.8	0	0.03
Stage 3	-12	0.01	0.02
Stage 3	-12.2	0.01	0.01
Stage 3	-12.4	0.01	0
Stage 3	-12.6	0.01	-0.01
Stage 3	-12.8	0.01	-0.01
Stage 3	-13	0	-0.01
Stage 3	-13.2	0	-0.01
Stage 3	-13.4	0	-0.01
Stage 3	-13.6	0	0

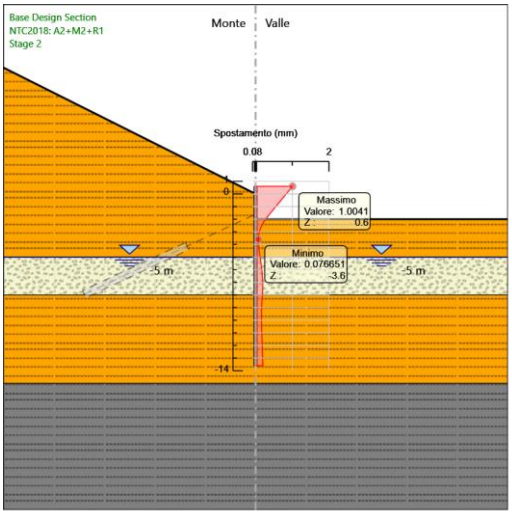
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 4

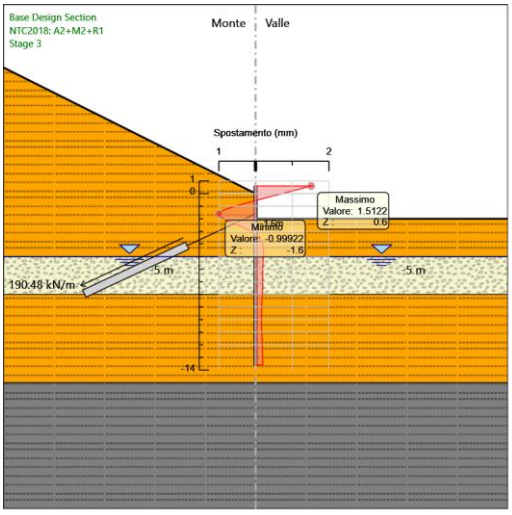
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-1.1	-5.51
Stage 4	-0.6	-3.65	-12.74
Stage 4	-0.8	-8.13	-22.42
Stage 4	-1	-15.02	-34.46
Stage 4	-1.2	-24.77	-48.72
Stage 4	-1.4	-37.74	-64.85
Stage 4	-1.6	-54.18	-82.2
Stage 4	-1.8	-39.47	73.55
Stage 4	-2	-27.8	58.35
Stage 4	-2.2	-18.58	46.12
Stage 4	-2.4	-11	37.88
Stage 4	-2.6	-4.15	34.22
Stage 4	-2.8	2.12	31.36
Stage 4	-3	7.75	28.15
Stage 4	-3.2	12.67	24.61
Stage 4	-3.4	16.82	20.73
Stage 4	-3.6	20.12	16.52
Stage 4	-3.8	22.51	11.96
Stage 4	-4	23.93	7.07
Stage 4	-4.2	24.3	1.84
Stage 4	-4.4	23.55	-3.73
Stage 4	-4.6	21.62	-9.63
Stage 4	-4.8	18.45	-15.88
Stage 4	-5	13.96	-22.46
Stage 4	-5.2	9.49	-22.36
Stage 4	-5.4	5.27	-21.09
Stage 4	-5.6	1.54	-18.65
Stage 4	-5.8	-1.47	-15.03
Stage 4	-6	-3.66	-10.95
Stage 4	-6.2	-5.15	-7.47
Stage 4	-6.4	-6.07	-4.58
Stage 4	-6.6	-6.52	-2.24
Stage 4	-6.8	-6.6	-0.4
Stage 4	-7	-6.4	0.98
Stage 4	-7.2	-6.01	1.96
Stage 4	-7.4	-5.5	2.57
Stage 4	-7.6	-4.93	2.85
Stage 4	-7.8	-4.36	2.85
Stage 4	-8	-3.84	2.59
Stage 4	-8.2	-3.42	2.07
Stage 4	-8.4	-2.95	2.39
Stage 4	-8.6	-2.45	2.47
Stage 4	-8.8	-1.97	2.39
Stage 4	-9	-1.53	2.21
Stage 4	-9.2	-1.14	1.96
Stage 4	-9.4	-0.8	1.68
Stage 4	-9.6	-0.53	1.38
Stage 4	-9.8	-0.31	1.1
Stage 4	-10	-0.14	0.83
Stage 4	-10.2	-0.02	0.6
Stage 4	-10.4	0.06	0.41

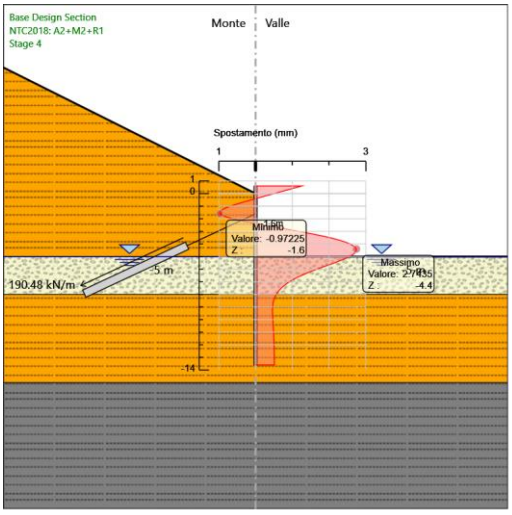
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-10.6	0.11	0.26
Stage 4	-10.8	0.14	0.14
Stage 4	-11	0.15	0.06
Stage 4	-11.2	0.16	0.01
Stage 4	-11.4	0.15	-0.02
Stage 4	-11.6	0.14	-0.05
Stage 4	-11.8	0.13	-0.07
Stage 4	-12	0.11	-0.09
Stage 4	-12.2	0.09	-0.1
Stage 4	-12.4	0.07	-0.1
Stage 4	-12.6	0.05	-0.1
Stage 4	-12.8	0.03	-0.09
Stage 4	-13	0.02	-0.07
Stage 4	-13.2	0.01	-0.05
Stage 4	-13.4	0	-0.03
Stage 4	-13.6	0	-0.01

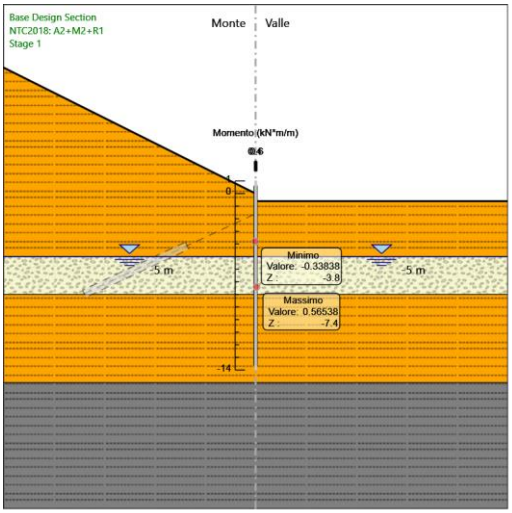
Tabella Grafici dei Risultati

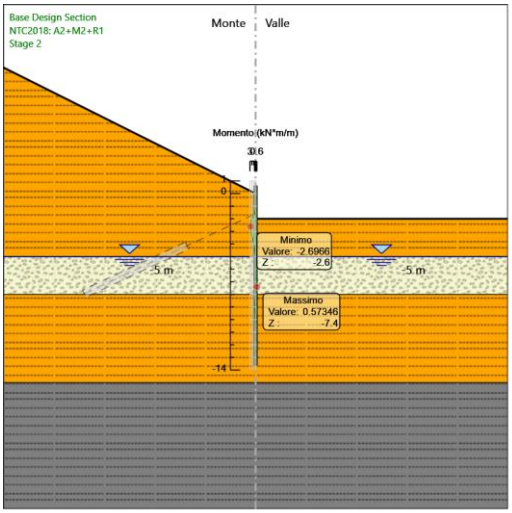


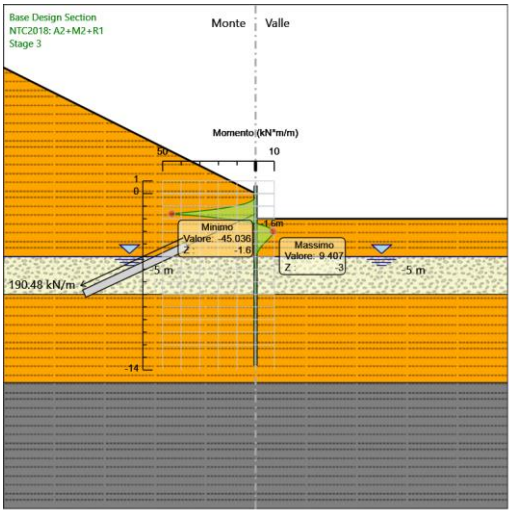


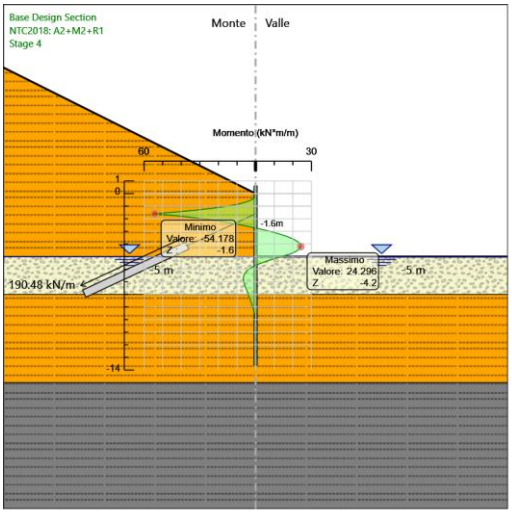


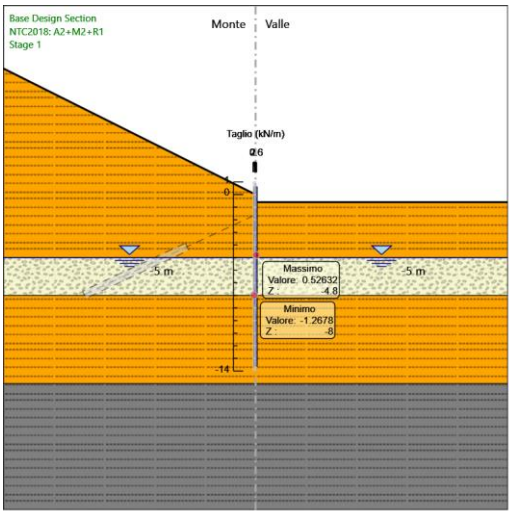


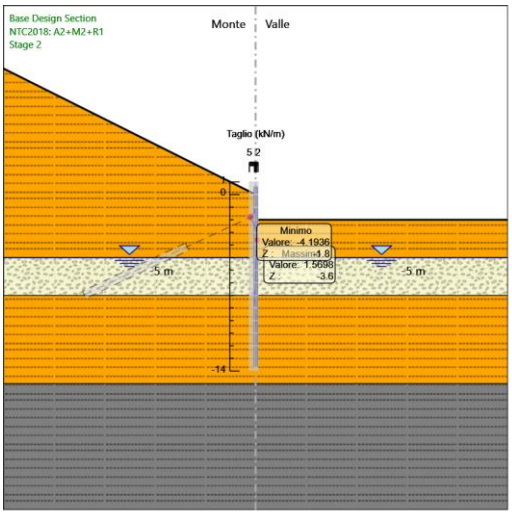

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -0.33838
Massimo
Valore: 0.56538
-5 m
-14

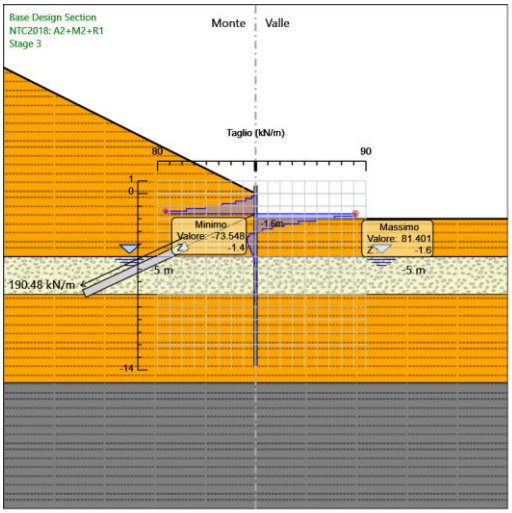

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -2.6966
Massimo
Valore: 0.57346
-5 m
-14

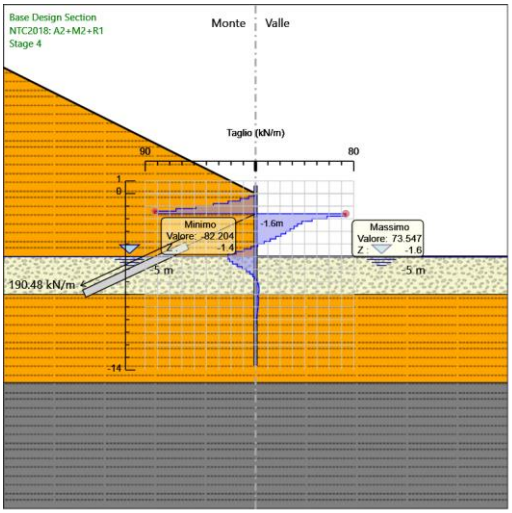

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -45.036
Massimo
Valore: 9.407
190.48 kN/m
-5 m
-14

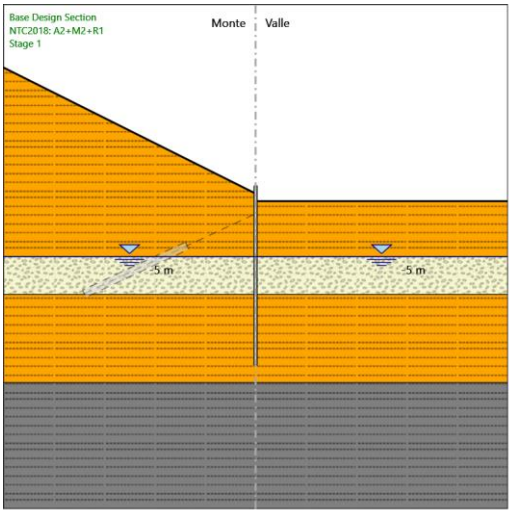

Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -54.178
Massimo
Valore: 24.296
190.48 kN/m
-5 m
-14

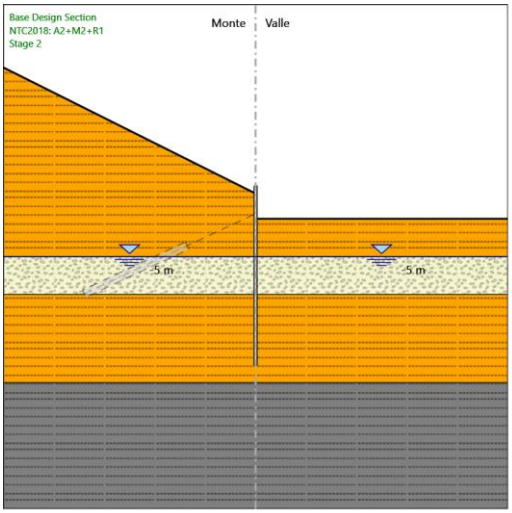

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
Taglio (kN/m)
Massimo
Valore: 0.52632
Minimo
Valore: -1.2678
-5 m
-14

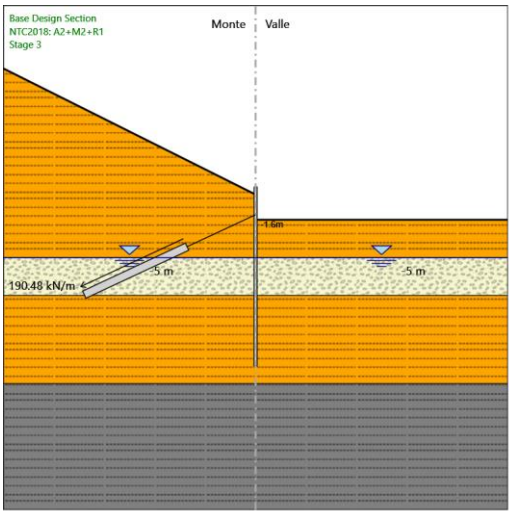

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -4.1936
Valore: 1.5698
-5 m
-14

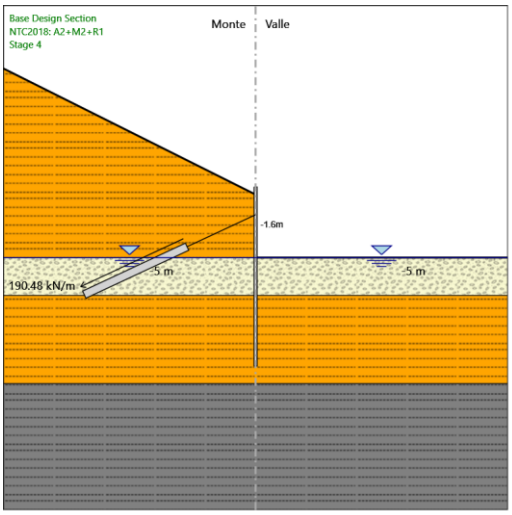

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -73.548
Massimo
Valore: 81.401
190.48 kN/m
-5 m
-14

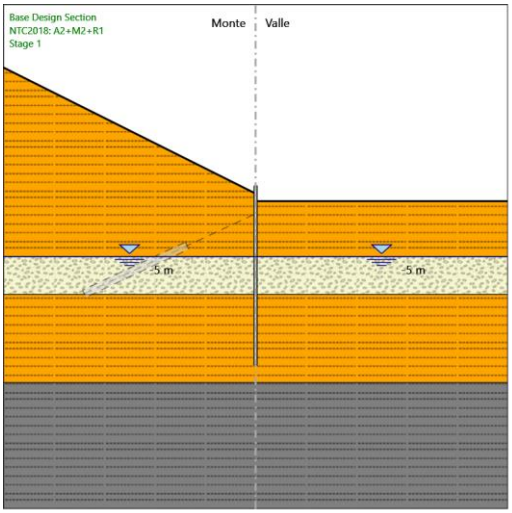

Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -82.204
Massimo
Valore: 73.547
-1.6m
190.48 kN/m
-5 m
-14

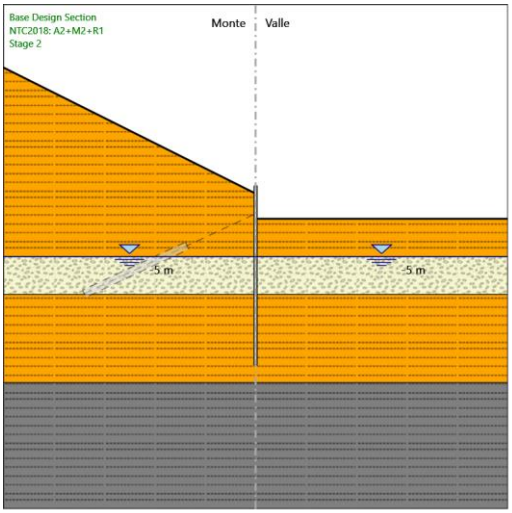

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
-5 m

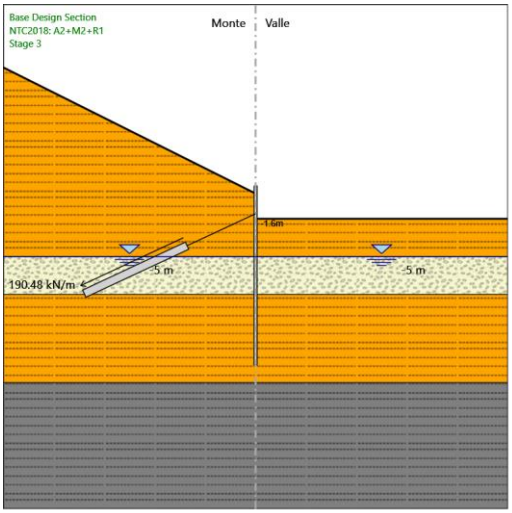

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
-5 m

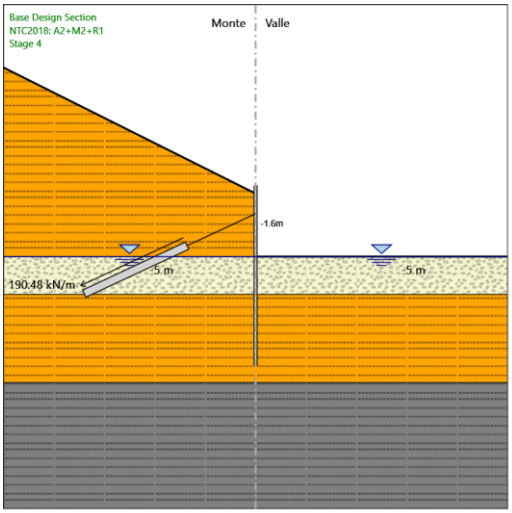

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
-1.6m
190.48 kN/m
-5 m


Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
-1.6m
190.48 kN/m
-5 m









Risultati Elementi strutturali - NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Sollecitazione Tiranti
Stage	Forza (kN/m)
Stage 3	190.5
Stage 4	190.6233

Normative adottate per le verifiche degli Elementi Strutturali

Normative Verifiche	
Calcestruzzo	NTC
Acciaio	NTC
Tirante	NTC

Coefficienti per Verifica Tiranti	
GEO FS	1
ξa3	1.65
γs	1.15

Riepilogo Stage / Design Assumption per Inviluppo

Design Assumption	Stage 1	Stage 2	Stage 3	Stage 4
NTC2018: SLE (Rara/Frequente/Quasi Permanente)				
NTC2018: A1+M1+R1 (R3 per tiranti)	V	V	V	V
NTC2018: A2+M2+R1				

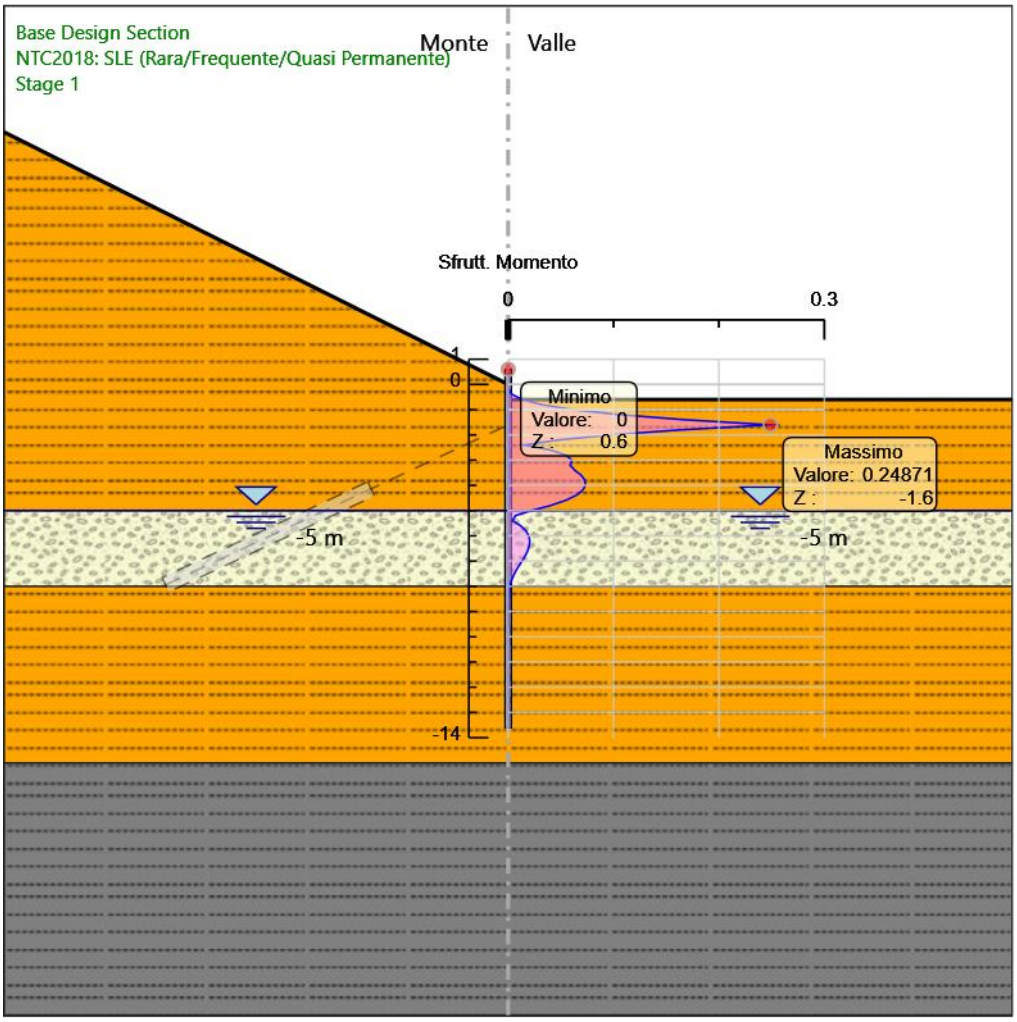
Risultati SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Momento - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
0.6	0
0.4	0
0.2	0
0	0
-0.2	0
-0.4	0.004
-0.6	0.013
-0.8	0.032
-1	0.062
-1.2	0.106
-1.4	0.168
-1.6	0.249
-1.8	0.164
-2	0.097
-2.2	0.048
-2.4	0.015
-2.6	0.04
-2.8	0.055
-3	0.06
-3.2	0.059
-3.4	0.063
-3.6	0.069
-3.8	0.073
-4	0.073
-4.2	0.071
-4.4	0.064
-4.6	0.054
-4.8	0.04
-5	0.022
-5.2	0.007
-5.4	0.004
-5.6	0.012
-5.8	0.017
-6	0.02
-6.2	0.02
-6.4	0.02
-6.6	0.018
-6.8	0.016
-7	0.013

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
-7.2	0.01
-7.4	0.007
-7.6	0.005
-7.8	0.003
-8	0.002
-8.2	0.001
-8.4	0.001
-8.6	0.001
-8.8	0.001
-9	0
-9.2	0
-9.4	0
-9.6	0
-9.8	0
-10	0
-10.2	0
-10.4	0
-10.6	0
-10.8	0
-11	0
-11.2	0
-11.4	0
-11.6	0
-11.8	0
-12	0
-12.2	0
-12.4	0
-12.6	0
-12.8	0
-13	0
-13.2	0
-13.4	0
-13.6	0

Grafico Inviluppi Tasso di Sfruttamento a Momento - SteelWorld



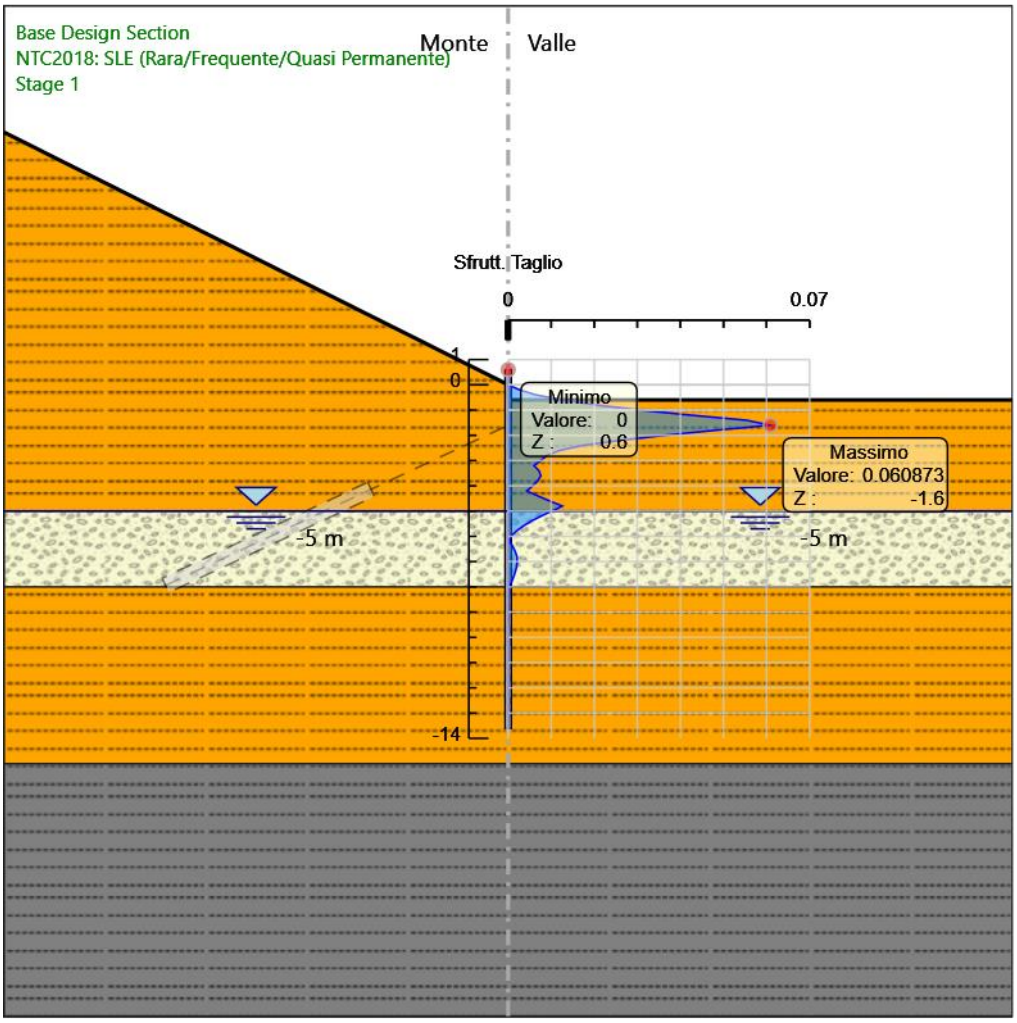
Inviluppi
Tasso di Sfruttamento a Momento - SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
0.6	0
0.4	0
0.2	0
0	0
-0.2	0.003
-0.4	0.007
-0.6	0.013
-0.8	0.021
-1	0.031
-1.2	0.042
-1.4	0.055
-1.6	0.061
-1.8	0.048
-2	0.036
-2.2	0.026
-2.4	0.017
-2.6	0.012
-2.8	0.009
-3	0.008
-3.2	0.006
-3.4	0.007
-3.6	0.008
-3.8	0.007
-4	0.006
-4.2	0.004
-4.4	0.007
-4.6	0.01
-4.8	0.013
-5	0.01
-5.2	0.008
-5.4	0.005
-5.6	0.003
-5.8	0.002
-6	0.001
-6.2	0
-6.4	0.001
-6.6	0.002
-6.8	0.002
-7	0.002
-7.2	0.002
-7.4	0.002
-7.6	0.001
-7.8	0.001
-8	0
-8.2	0
-8.4	0
-8.6	0
-8.8	0
-9	0
-9.2	0
-9.4	0
-9.6	0
-9.8	0
-10	0
-10.2	0
-10.4	0
-10.6	0
-10.8	0
-11	0
-11.2	0
-11.4	0

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
-11.6	0
-11.8	0
-12	0
-12.2	0
-12.4	0
-12.6	0
-12.8	0
-13	0
-13.2	0
-13.4	0
-13.6	0

Grafico Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld



Inviluppi
Tasso di Sfruttamento a Taglio - SteelWorld

Verifiche Tiranti NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Verifiche Tiranti			NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Tiranti	Stage 3	400.05	1021.984	807.409	0.391	0.495		NO
Tiranti	Stage 4	399.651	1021.984	807.409	0.391	0.495		NO

Verifiche Tiranti NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Tipo Risultato: Verifiche Tiranti			NTC2018 (ITA)				
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Tiranti	Stage 3	520.065	563.077	807.409	0.924	0.644		
Tiranti	Stage 4	519.547	563.077	807.409	0.923	0.643		

Verifiche Tiranti NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Tipo Risultato: Verifiche Tiranti			NTC2018 (ITA)				
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Tiranti	Stage 3	400.05	563.077	807.409	0.71	0.495		
Tiranti	Stage 4	400.309	563.077	807.409	0.711	0.496		

Inviluppo Verifiche Tiranti (su tutte le D.A. attive)

	Tipo Risultato: Verifiche Tiranti								
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze	Design Assumption
Tiranti	Stage 3	520.065	563.077	807.409	0.924	0.644			NTC2018: A1+M1+R1 (R3 per tiranti)

9.3 Paratia tipo D1

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL
Quota : 0 m
OCR : 1

Tipo : HORIZONTAL
Quota : -5 m
OCR : 1

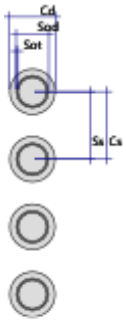
Tipo : HORIZONTAL
Quota : -8 m
OCR : 1

Tipo : HORIZONTAL
Quota : -15 m
OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ø'	øcv	øp	c'	Su	Modulo Elastico	Eu	Evc	Eur	Ah Av exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m³	kN/m³	°	°	°	kPa	kPa			kPa	kPa		kPa			kN/m³	kN/m³	kN/m³
1	G	18.2	18.2	37			7		Constant		86000	258000							
2	SL	19.6	19.6	33			13.5		Constant		87000	261000							
3	G	18.2	18.2	37			7		Constant		86000	258000							
4	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000							

Descrizione Pareti

X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Muro di sinistra

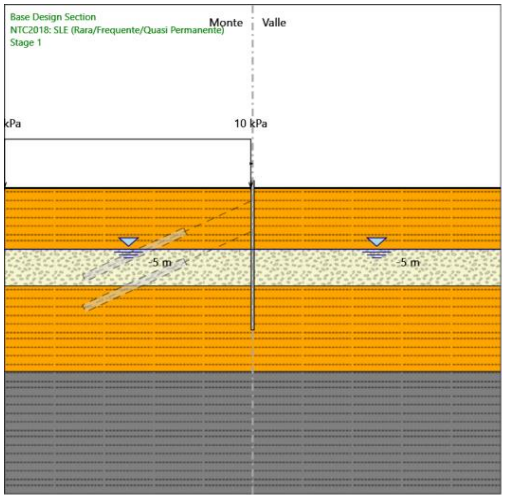


Sezione : Micropali fi240 - fi168.3 sp10
Area equivalente : 0.0217658758055028 m
Inerzia equivalente : 0.0001 m⁴/m
Materiale calcestruzzo : C25/30
Tipo sezione : Tangent
Spaziatura : 0.35 m
Diametro : 0.24 m
Efficacia : 0.5
Materiale acciaio : S355
Sezione : CHS168.3*10

Tipo sezione : O
Spaziatura : 0.35 m
Spessore : 0.01 m
Diametro : 0.1683 m

Fasi di Calcolo

Stage 1



Stage 1

Scavo

Muro di sinistra

Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

0 m

Falda acquifera

Falda di sinistra : -5 m
Falda di destra : -5 m

Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m
X finale : -0.15 m
Pressione iniziale : 10 kPa

Pressione finale : 10 kPa

Elementi strutturali

Paratia : Sx

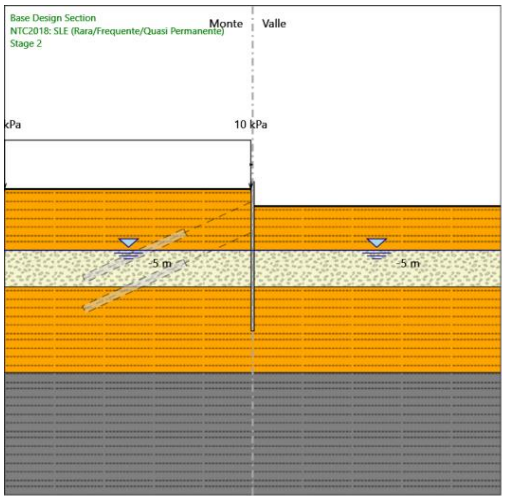
X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -11.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Stage 2



Stage 2

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -1.4 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-1.4 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -5 m

Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m

X finale : -0.15 m

Pressione iniziale : 10 kPa

Pressione finale : 10 kPa

Elementi strutturali

Paratia : Sx

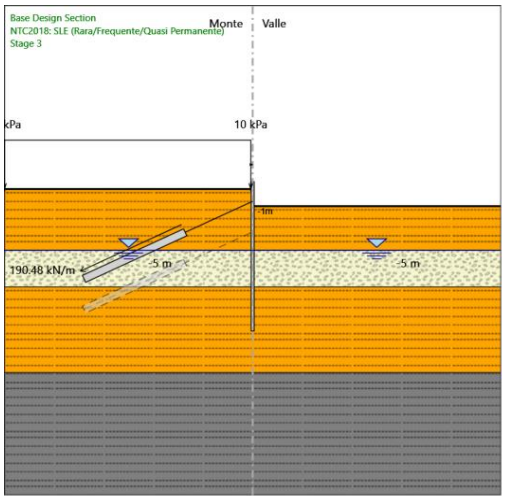
X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -11.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Stage 3



Stage 3

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -1.4 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

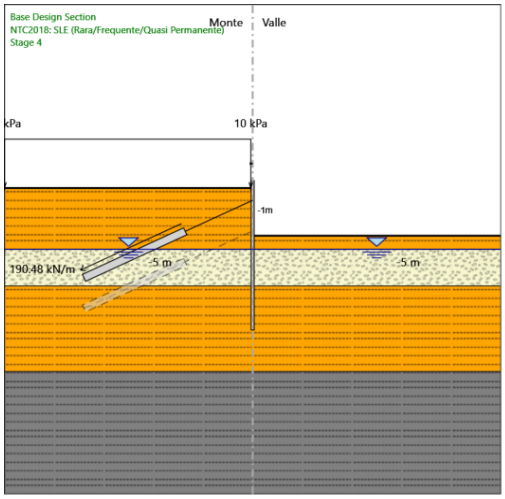
-1.4 m

Falda acquifera
- Falda di sinistra : -5 m
- Falda di destra : -5 m

Carichi
- Carico lineare in superficie : SurfaceSurcharge
  - X iniziale : -20 m
  - X finale : -0.15 m
  - Pressione iniziale : 10 kPa
  - Pressione finale : 10 kPa

Elementi strutturali
- Paratia : Sx
  - X : 0 m
  - Quota in alto : 0.6 m
  - Quota di fondo : -11.6 m
  - Sezione : Micropali fi240 - fi168.3 sp10
- Tirante : 1° ordine di tiranti
  - X : 0 m
  - Z : -1 m
  - Lunghezza bulbo : 9 m
  - Diametro bulbo : 0.2 m
  - Lunghezza libera : 6 m
  - Spaziatura orizzontale : 2.1 m
  - Precarico : 400 kN
  - Angolo : 25 °
  - Sezione : 4 trefoli
    - Tipo di barre : Barre trefoli
    - Numero di barre : 4
    - Diametro : 0.01331 m
    - Area : 0.000556 m^2

Stage 4



Stage 4

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -3.9 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-3.9 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -5 m

Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m

X finale : -0.15 m

Pressione iniziale : 10 kPa

Pressione finale : 10 kPa

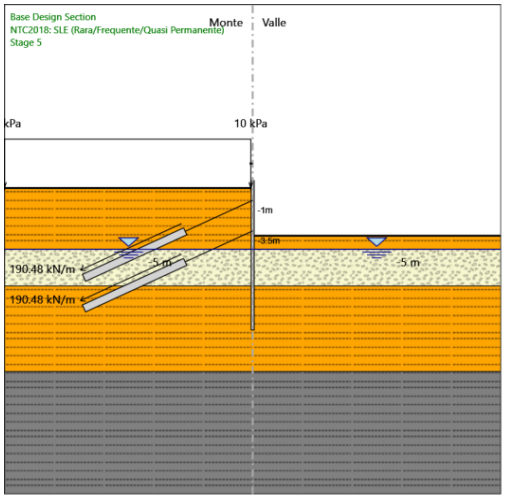
Elementi strutturali

Paratia : Sx

X : 0 m

Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Sezione : Micropali fi240 - fi168.3 sp10
Tirante : 1° ordine di tiranti
X : 0 m
Z : -1 m
Lunghezza bulbo : 9 m
Diametro bulbo : 0.2 m
Lunghezza libera : 6 m
Spaziatura orizzontale : 2.1 m
Precarico : 400 kN
Angolo : 25 °
Sezione : 4 trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m^2

Stage 5



Stage 5

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -3.9 m

Linea di scavo di sinistra (Orizzontale)
0 m

Linea di scavo di destra (Orizzontale)
-3.9 m

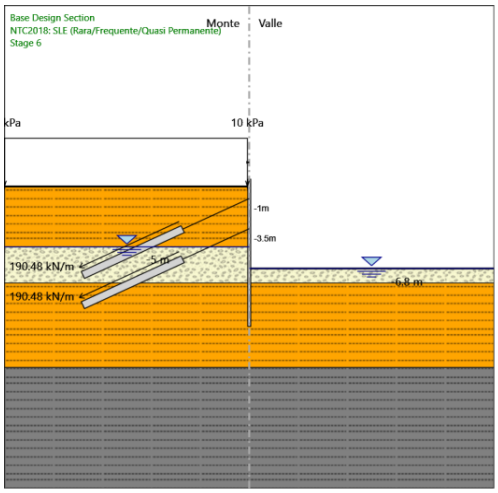
Falda acquifera
Falda di sinistra : -5 m
Falda di destra : -5 m

Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : -20 m
X finale : -0.15 m
Pressione iniziale : 10 kPa
Pressione finale : 10 kPa

Elementi strutturali
Paratia : Sx
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Sezione : Micropali fi240 - fi168.3 sp10
Tirante : 1° ordine di tiranti
X : 0 m
Z : -1 m
Lunghezza bulbo : 9 m
Diametro bulbo : 0.2 m
Lunghezza libera : 6 m
Spaziatura orizzontale : 2.1 m
Precarico : 400 kN
Angolo : 25 °
Sezione : 4 trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m^2
Tirante : 2° ordine di tiranti
X : 0 m
Z : -3.5 m
Lunghezza bulbo : 9 m
Diametro bulbo : 0.2 m
Lunghezza libera : 6 m
Spaziatura orizzontale : 2.1 m
Precarico : 400 kN
Angolo : 25 °

Sezione : 4 trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m^2

Stage 6



Stage 6

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -6.8 m

Linea di scavo di sinistra (Orizzontale)
0 m
Linea di scavo di destra (Orizzontale)
-6.8 m

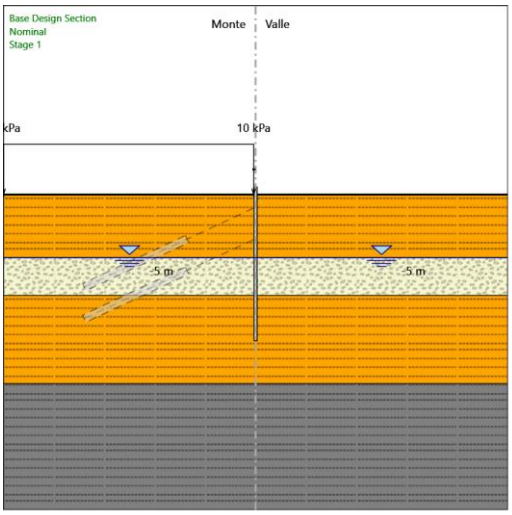
Falda acquifera
Falda di sinistra : -5 m
Falda di destra : -6.8 m

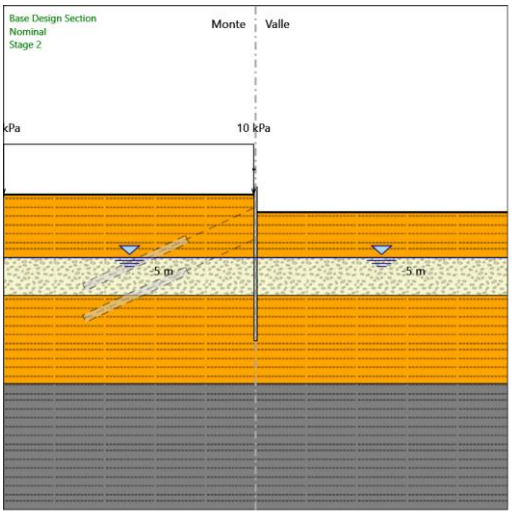
Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : -20 m
X finale : -0.15 m

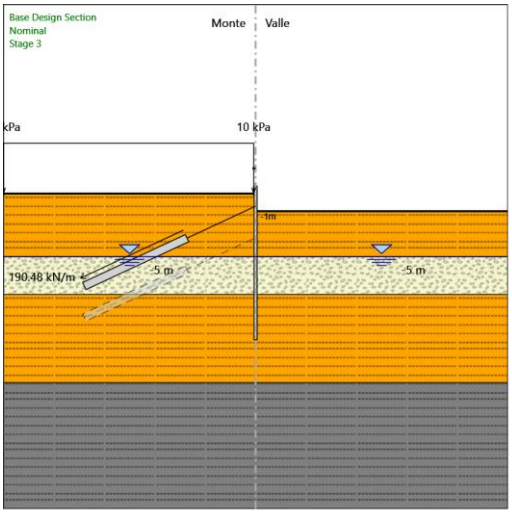
Pressione iniziale : 10 kPa
Pressione finale : 10 kPa

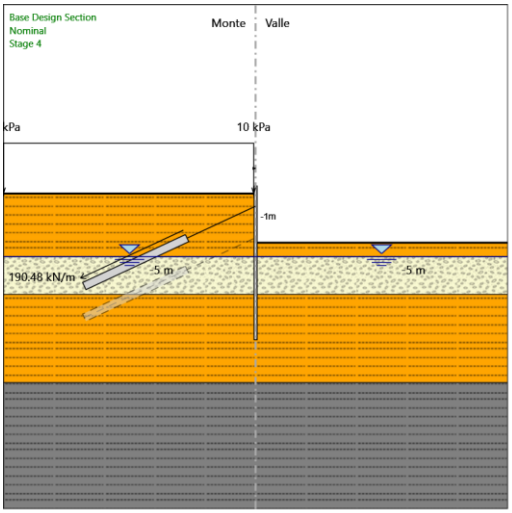
Elementi strutturali
Paratia : Sx
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Sezione : Micropali fi240 - fi168.3 sp10
Tirante : 1° ordine di tiranti
X : 0 m
Z : -1 m
Lunghezza bulbo : 9 m
Diametro bulbo : 0.2 m
Lunghezza libera : 6 m
Spaziatura orizzontale : 2.1 m
Precarico : 400 kN
Angolo : 25 °
Sezione : 4 trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m^2
Tirante : 2° ordine di tiranti
X : 0 m
Z : -3.5 m
Lunghezza bulbo : 9 m
Diametro bulbo : 0.2 m
Lunghezza libera : 6 m
Spaziatura orizzontale : 2.1 m
Precarico : 400 kN
Angolo : 25 °
Sezione : 4 trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m^2

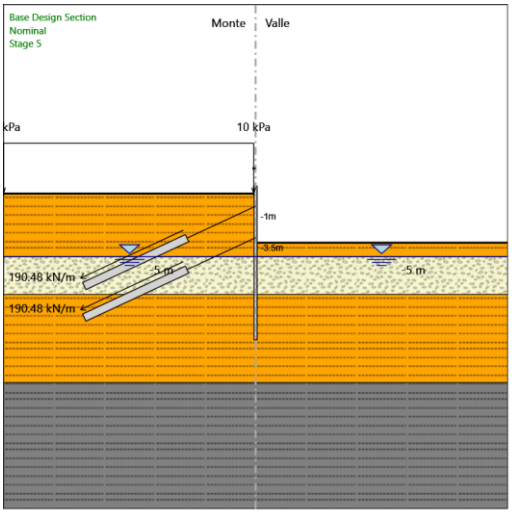
Tabella Configurazione Stage (Nominal)

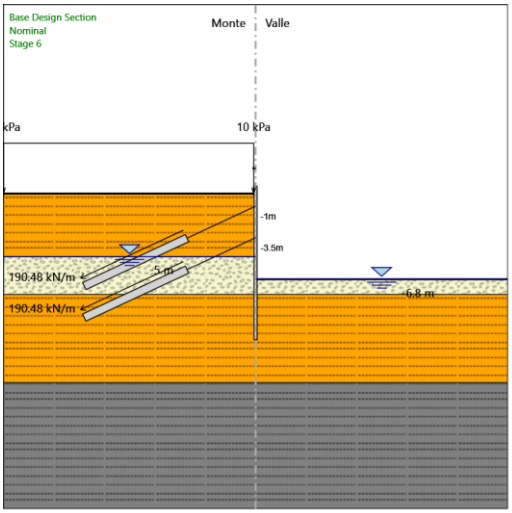












Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load_unfavour)	Carichi Permanenti Favorevoli (F_dead_load_favour)	Carichi Variabili Sfavorevoli (F_live_load_unfavour)	Carichi Variabili Favorevoli (F_live_load_favour)	Carico Sismico (F_seism_load)	Pressioni Acqua Lato Monte (F_WaterDR)	Pressioni Acqua Lato Valle (F_WaterRes)	Carichi Permanenti Destabilizzanti (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabilizzanti (F_UPL_QDStab)	Carichi Permanenti Destabilizzanti (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabilizzanti (F_HYD_QDStab)
Simbolo	**γG**	**γG**	**γQ**	**γQ**	**γQE**	**γG**	**γG**	**γGdst**	**γGstb**	**γQdst**	**γGdst**	**γGstb**	**γQdst**
Nominal	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	0	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1.3	1	1.5	1	0	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	0	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø') (F_Fr)	Parziale su c' (F_eff_cohe)	Parziale su Su (F_Su)	Parziale su qu (F_qu)	Parziale su peso specifico (F_gamma)
Simbolo	**γϕ**	**γc**	**γcu**	**γqu**	**γγ**
Nominal	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp) (F_Soil_Res_walls)	Parziale resistenza Tiranti permanenti (F_Anch_P)	Parziale resistenza Tiranti temporanei (F_Anch_T)	Parziale elementi strutturali (F_wall)
Simbolo	**γRe**	**γap**	**γat**	
Nominal	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	0.6	0
Stage 1	0.4	0
Stage 1	0.2	0
Stage 1	0	0
Stage 1	-0.2	0
Stage 1	-0.4	0
Stage 1	-0.6	0
Stage 1	-0.8	0
Stage 1	-1	0
Stage 1	-1.2	0
Stage 1	-1.4	0
Stage 1	-1.6	0
Stage 1	-1.8	0
Stage 1	-2	0
Stage 1	-2.2	0
Stage 1	-2.4	0
Stage 1	-2.6	0
Stage 1	-2.8	0
Stage 1	-3	0
Stage 1	-3.2	0
Stage 1	-3.4	0
Stage 1	-3.5	0
Stage 1	-3.7	0
Stage 1	-3.9	0
Stage 1	-4.1	0
Stage 1	-4.3	0
Stage 1	-4.5	0
Stage 1	-4.7	0
Stage 1	-4.9	0
Stage 1	-5.1	0
Stage 1	-5.3	0
Stage 1	-5.5	0
Stage 1	-5.7	0
Stage 1	-5.9	0
Stage 1	-6.1	0
Stage 1	-6.3	0
Stage 1	-6.5	0
Stage 1	-6.7	0
Stage 1	-6.9	0
Stage 1	-7.1	0
Stage 1	-7.3	0
Stage 1	-7.5	0
Stage 1	-7.7	0
Stage 1	-7.9	0
Stage 1	-8.1	0
Stage 1	-8.3	0
Stage 1	-8.5	0
Stage 1	-8.7	0
Stage 1	-8.9	0
Stage 1	-9.1	0
Stage 1	-9.3	0
Stage 1	-9.5	0
Stage 1	-9.7	0
Stage 1	-9.9	0
Stage 1	-10.1	0
Stage 1	-10.3	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	-10.5	0
Stage 1	-10.7	0
Stage 1	-10.9	0
Stage 1	-11.1	0
Stage 1	-11.3	0
Stage 1	-11.5	0
Stage 1	-11.6	0

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0
Stage 1	-1	0	0
Stage 1	-1.2	0	0
Stage 1	-1.4	0	0
Stage 1	-1.6	0	0
Stage 1	-1.8	0	0
Stage 1	-2	0	0
Stage 1	-2.2	0	0
Stage 1	-2.4	0	0
Stage 1	-2.6	0	0
Stage 1	-2.8	0	0
Stage 1	-3	0	0
Stage 1	-3.2	0	0
Stage 1	-3.4	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	0.6	0.08
Stage 2	0.4	0.08
Stage 2	0.2	0.07
Stage 2	0	0.07
Stage 2	-0.2	0.06
Stage 2	-0.4	0.06
Stage 2	-0.6	0.05
Stage 2	-0.8	0.04
Stage 2	-1	0.04
Stage 2	-1.2	0.03
Stage 2	-1.4	0.03
Stage 2	-1.6	0.02
Stage 2	-1.8	0.02
Stage 2	-2	0.02
Stage 2	-2.2	0.02
Stage 2	-2.4	0.01
Stage 2	-2.6	0.01
Stage 2	-2.8	0.01
Stage 2	-3	0.01
Stage 2	-3.2	0.01
Stage 2	-3.4	0.01
Stage 2	-3.5	0.01
Stage 2	-3.7	0.01
Stage 2	-3.9	0.01
Stage 2	-4.1	0.01
Stage 2	-4.3	0.01
Stage 2	-4.5	0.01
Stage 2	-4.7	0.01
Stage 2	-4.9	0.01
Stage 2	-5.1	0.01
Stage 2	-5.3	0.01
Stage 2	-5.5	0.01
Stage 2	-5.7	0.02
Stage 2	-5.9	0.02
Stage 2	-6.1	0.02
Stage 2	-6.3	0.02

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	-6.5	0.02
Stage 2	-6.7	0.02
Stage 2	-6.9	0.02
Stage 2	-7.1	0.02
Stage 2	-7.3	0.01
Stage 2	-7.5	0.01
Stage 2	-7.7	0.01
Stage 2	-7.9	0.01
Stage 2	-8.1	0.01
Stage 2	-8.3	0.01
Stage 2	-8.5	0.01
Stage 2	-8.7	0.01
Stage 2	-8.9	0.01
Stage 2	-9.1	0.01
Stage 2	-9.3	0.01
Stage 2	-9.5	0.01
Stage 2	-9.7	0.01
Stage 2	-9.9	0.01
Stage 2	-10.1	0.01
Stage 2	-10.3	0.01
Stage 2	-10.5	0.01
Stage 2	-10.7	0.01
Stage 2	-10.9	0.01
Stage 2	-11.1	0.01
Stage 2	-11.3	0.01
Stage 2	-11.5	0.01
Stage 2	-11.6	0.01

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	-0.04	-0.2
Stage 2	-1.4	-0.23	-0.97
Stage 2	-1.6	-0.36	-0.62
Stage 2	-1.8	-0.38	-0.11
Stage 2	-2	-0.34	0.2
Stage 2	-2.2	-0.27	0.34
Stage 2	-2.4	-0.2	0.37
Stage 2	-2.6	-0.13	0.34

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-2.8	-0.08	0.27
Stage 2	-3	-0.04	0.19
Stage 2	-3.2	-0.02	0.12
Stage 2	-3.4	0	0.06
Stage 2	-3.5	0	0.03
Stage 2	-3.7	0	0
Stage 2	-3.9	0	-0.02
Stage 2	-4.1	-0.01	-0.04
Stage 2	-4.3	-0.02	-0.04
Stage 2	-4.5	-0.03	-0.03
Stage 2	-4.7	-0.02	0
Stage 2	-4.9	-0.01	0.05
Stage 2	-5.1	0.01	0.13
Stage 2	-5.3	0.02	0.06
Stage 2	-5.5	0.02	0.01
Stage 2	-5.7	0.02	-0.01
Stage 2	-5.9	0.02	-0.02
Stage 2	-6.1	0.01	-0.02
Stage 2	-6.3	0.01	-0.02
Stage 2	-6.5	0.01	-0.01
Stage 2	-6.7	0.01	0.01
Stage 2	-6.9	0.01	0.02
Stage 2	-7.1	0.02	0.02
Stage 2	-7.3	0.02	0.02
Stage 2	-7.5	0.03	0.01
Stage 2	-7.7	0.02	-0.01
Stage 2	-7.9	0.01	-0.06
Stage 2	-8.1	-0.01	-0.13
Stage 2	-8.3	-0.03	-0.06
Stage 2	-8.5	-0.03	-0.01
Stage 2	-8.7	-0.02	0.02
Stage 2	-8.9	-0.02	0.03
Stage 2	-9.1	-0.01	0.03
Stage 2	-9.3	-0.01	0.02
Stage 2	-9.5	0	0.02
Stage 2	-9.7	0	0.01
Stage 2	-9.9	0	0.01
Stage 2	-10.1	0	0
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	0.6	-0.4
Stage 3	0.4	-0.49
Stage 3	0.2	-0.58
Stage 3	0	-0.67
Stage 3	-0.2	-0.77
Stage 3	-0.4	-0.85
Stage 3	-0.6	-0.93
Stage 3	-0.8	-0.99
Stage 3	-1	-0.98
Stage 3	-1.2	-0.9
Stage 3	-1.4	-0.76
Stage 3	-1.6	-0.61
Stage 3	-1.8	-0.45
Stage 3	-2	-0.31
Stage 3	-2.2	-0.19
Stage 3	-2.4	-0.1
Stage 3	-2.6	-0.03
Stage 3	-2.8	0.01
Stage 3	-3	0.03
Stage 3	-3.2	0.04
Stage 3	-3.4	0.04
Stage 3	-3.5	0.04
Stage 3	-3.7	0.03
Stage 3	-3.9	0.03
Stage 3	-4.1	0.02
Stage 3	-4.3	0.02
Stage 3	-4.5	0.02
Stage 3	-4.7	0.01
Stage 3	-4.9	0.01
Stage 3	-5.1	0.01
Stage 3	-5.3	0.01
Stage 3	-5.5	0.01
Stage 3	-5.7	0.01
Stage 3	-5.9	0.01
Stage 3	-6.1	0.01
Stage 3	-6.3	0.02
Stage 3	-6.5	0.02
Stage 3	-6.7	0.02
Stage 3	-6.9	0.02
Stage 3	-7.1	0.02
Stage 3	-7.3	0.01
Stage 3	-7.5	0.01
Stage 3	-7.7	0.01
Stage 3	-7.9	0.01
Stage 3	-8.1	0.01
Stage 3	-8.3	0.01
Stage 3	-8.5	0.01
Stage 3	-8.7	0.01
Stage 3	-8.9	0.01
Stage 3	-9.1	0.01
Stage 3	-9.3	0.01
Stage 3	-9.5	0.01
Stage 3	-9.7	0.01
Stage 3	-9.9	0.01
Stage 3	-10.1	0.01
Stage 3	-10.3	0.01
Stage 3	-10.5	0.01
Stage 3	-10.7	0.01

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	-10.9	0.01
Stage 3	-11.1	0.01
Stage 3	-11.3	0.01
Stage 3	-11.5	0.01
Stage 3	-11.6	0.01

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-3.18	-15.91
Stage 3	-0.6	-9.93	-33.76
Stage 3	-0.8	-20.57	-53.18
Stage 3	-1	-35.3	-73.64
Stage 3	-1.2	-19.6	78.47
Stage 3	-1.4	-7.77	59.17
Stage 3	-1.6	0.65	42.11
Stage 3	-1.8	6.18	27.66
Stage 3	-2	9.35	15.85
Stage 3	-2.2	10.63	6.39
Stage 3	-2.4	10.4	-1.17
Stage 3	-2.6	9.01	-6.96
Stage 3	-2.8	7.05	-9.77
Stage 3	-3	4.96	-10.44
Stage 3	-3.2	3.12	-9.21
Stage 3	-3.4	1.68	-7.22
Stage 3	-3.5	1.12	-5.61
Stage 3	-3.7	0.3	-4.07
Stage 3	-3.9	-0.17	-2.39
Stage 3	-4.1	-0.4	-1.15
Stage 3	-4.3	-0.47	-0.33
Stage 3	-4.5	-0.44	0.16
Stage 3	-4.7	-0.35	0.41
Stage 3	-4.9	-0.25	0.51
Stage 3	-5.1	-0.14	0.55
Stage 3	-5.3	-0.06	0.39
Stage 3	-5.5	-0.01	0.25
Stage 3	-5.7	0.02	0.14
Stage 3	-5.9	0.03	0.06
Stage 3	-6.1	0.03	0.02
Stage 3	-6.3	0.03	-0.01
Stage 3	-6.5	0.03	-0.02
Stage 3	-6.7	0.02	-0.01
Stage 3	-6.9	0.02	0
Stage 3	-7.1	0.02	0.01
Stage 3	-7.3	0.03	0.01
Stage 3	-7.5	0.03	0
Stage 3	-7.7	0.02	-0.02

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-7.9	0.01	-0.06
Stage 3	-8.1	-0.01	-0.13
Stage 3	-8.3	-0.03	-0.06
Stage 3	-8.5	-0.03	-0.01
Stage 3	-8.7	-0.03	0.02
Stage 3	-8.9	-0.02	0.03
Stage 3	-9.1	-0.01	0.03
Stage 3	-9.3	-0.01	0.03
Stage 3	-9.5	0	0.02
Stage 3	-9.7	0	0.01
Stage 3	-9.9	0	0.01
Stage 3	-10.1	0	0
Stage 3	-10.3	0	0
Stage 3	-10.5	0	0
Stage 3	-10.7	0	0
Stage 3	-10.9	0	0
Stage 3	-11.1	0	0
Stage 3	-11.3	0	0
Stage 3	-11.5	0	0
Stage 3	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 4

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 4	0.6	-0.49
Stage 4	0.4	-0.57
Stage 4	0.2	-0.66
Stage 4	0	-0.74
Stage 4	-0.2	-0.82
Stage 4	-0.4	-0.9
Stage 4	-0.6	-0.97
Stage 4	-0.8	-1.02
Stage 4	-1	-1
Stage 4	-1.2	-0.91
Stage 4	-1.4	-0.76
Stage 4	-1.6	-0.58
Stage 4	-1.8	-0.4
Stage 4	-2	-0.23
Stage 4	-2.2	-0.08
Stage 4	-2.4	0.05
Stage 4	-2.6	0.15
Stage 4	-2.8	0.22
Stage 4	-3	0.27
Stage 4	-3.2	0.3
Stage 4	-3.4	0.31
Stage 4	-3.5	0.31
Stage 4	-3.7	0.29
Stage 4	-3.9	0.27
Stage 4	-4.1	0.24
Stage 4	-4.3	0.21
Stage 4	-4.5	0.18
Stage 4	-4.7	0.16
Stage 4	-4.9	0.14
Stage 4	-5.1	0.13
Stage 4	-5.3	0.12
Stage 4	-5.5	0.11

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 4	-5.7	0.11
Stage 4	-5.9	0.11
Stage 4	-6.1	0.11
Stage 4	-6.3	0.11
Stage 4	-6.5	0.11
Stage 4	-6.7	0.11
Stage 4	-6.9	0.11
Stage 4	-7.1	0.11
Stage 4	-7.3	0.11
Stage 4	-7.5	0.11
Stage 4	-7.7	0.1
Stage 4	-7.9	0.1
Stage 4	-8.1	0.1
Stage 4	-8.3	0.1
Stage 4	-8.5	0.09
Stage 4	-8.7	0.09
Stage 4	-8.9	0.09
Stage 4	-9.1	0.09
Stage 4	-9.3	0.09
Stage 4	-9.5	0.09
Stage 4	-9.7	0.09
Stage 4	-9.9	0.09
Stage 4	-10.1	0.09
Stage 4	-10.3	0.09
Stage 4	-10.5	0.09
Stage 4	-10.7	0.09
Stage 4	-10.9	0.09
Stage 4	-11.1	0.09
Stage 4	-11.3	0.09
Stage 4	-11.5	0.09
Stage 4	-11.6	0.09

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 4

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-3.28	-16.42
Stage 4	-0.6	-10.2	-34.59
Stage 4	-0.8	-21.05	-54.26
Stage 4	-1	-36.04	-74.91
Stage 4	-1.2	-20.64	76.99
Stage 4	-1.4	-9.11	57.65
Stage 4	-1.6	-0.95	40.76
Stage 4	-1.8	4.42	26.87
Stage 4	-2	7.63	16.06
Stage 4	-2.2	9.26	8.13
Stage 4	-2.4	9.81	2.75
Stage 4	-2.6	9.7	-0.53
Stage 4	-2.8	9.27	-2.18
Stage 4	-3	8.6	-3.35
Stage 4	-3.2	7.66	-4.68

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-3.4	6.43	-6.17
Stage 4	-3.5	5.69	-7.4
Stage 4	-3.7	3.95	-8.69
Stage 4	-3.9	1.84	-10.56
Stage 4	-4.1	0.11	-8.66
Stage 4	-4.3	-1.09	-5.99
Stage 4	-4.5	-1.75	-3.28
Stage 4	-4.7	-1.96	-1.08
Stage 4	-4.9	-1.87	0.47
Stage 4	-5.1	-1.56	1.54
Stage 4	-5.3	-1.23	1.67
Stage 4	-5.5	-0.91	1.59
Stage 4	-5.7	-0.63	1.39
Stage 4	-5.9	-0.41	1.14
Stage 4	-6.1	-0.23	0.9
Stage 4	-6.3	-0.09	0.68
Stage 4	-6.5	0.01	0.5
Stage 4	-6.7	0.08	0.36
Stage 4	-6.9	0.13	0.24
Stage 4	-7.1	0.16	0.15
Stage 4	-7.3	0.17	0.07
Stage 4	-7.5	0.17	-0.03
Stage 4	-7.7	0.14	-0.15
Stage 4	-7.9	0.07	-0.32
Stage 4	-8.1	-0.04	-0.55
Stage 4	-8.3	-0.1	-0.3
Stage 4	-8.5	-0.12	-0.13
Stage 4	-8.7	-0.12	-0.01
Stage 4	-8.9	-0.11	0.06
Stage 4	-9.1	-0.1	0.09
Stage 4	-9.3	-0.08	0.1
Stage 4	-9.5	-0.06	0.1
Stage 4	-9.7	-0.04	0.08
Stage 4	-9.9	-0.03	0.07
Stage 4	-10.1	-0.02	0.05
Stage 4	-10.3	-0.01	0.04
Stage 4	-10.5	0	0.02
Stage 4	-10.7	0	0.01
Stage 4	-10.9	0	0.01
Stage 4	-11.1	0	0
Stage 4	-11.3	0	0
Stage 4	-11.5	0	0
Stage 4	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 5

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 5	0.6	-0.15
Stage 5	0.4	-0.28
Stage 5	0.2	-0.41
Stage 5	0	-0.54
Stage 5	-0.2	-0.66
Stage 5	-0.4	-0.79
Stage 5	-0.6	-0.91
Stage 5	-0.8	-1
Stage 5	-1	-1.05
Stage 5	-1.2	-1.02
Stage 5	-1.4	-0.96
Stage 5	-1.6	-0.89

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 5	-1.8	-0.83
Stage 5	-2	-0.8
Stage 5	-2.2	-0.82
Stage 5	-2.4	-0.87
Stage 5	-2.6	-0.95
Stage 5	-2.8	-1.06
Stage 5	-3	-1.18
Stage 5	-3.2	-1.27
Stage 5	-3.4	-1.32
Stage 5	-3.5	-1.31
Stage 5	-3.7	-1.23
Stage 5	-3.9	-1.08
Stage 5	-4.1	-0.89
Stage 5	-4.3	-0.68
Stage 5	-4.5	-0.49
Stage 5	-4.7	-0.32
Stage 5	-4.9	-0.17
Stage 5	-5.1	-0.05
Stage 5	-5.3	0.04
Stage 5	-5.5	0.1
Stage 5	-5.7	0.14
Stage 5	-5.9	0.16
Stage 5	-6.1	0.17
Stage 5	-6.3	0.17
Stage 5	-6.5	0.16
Stage 5	-6.7	0.15
Stage 5	-6.9	0.14
Stage 5	-7.1	0.13
Stage 5	-7.3	0.12
Stage 5	-7.5	0.12
Stage 5	-7.7	0.11
Stage 5	-7.9	0.1
Stage 5	-8.1	0.1
Stage 5	-8.3	0.1
Stage 5	-8.5	0.09
Stage 5	-8.7	0.09
Stage 5	-8.9	0.09
Stage 5	-9.1	0.09
Stage 5	-9.3	0.09
Stage 5	-9.5	0.09
Stage 5	-9.7	0.09
Stage 5	-9.9	0.09
Stage 5	-10.1	0.09
Stage 5	-10.3	0.09
Stage 5	-10.5	0.09
Stage 5	-10.7	0.09
Stage 5	-10.9	0.09
Stage 5	-11.1	0.09
Stage 5	-11.3	0.09
Stage 5	-11.5	0.09
Stage 5	-11.6	0.09

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 5

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	0.6	0	0
Stage 5	0.4	0	0
Stage 5	0.4	0	0
Stage 5	0.2	0	0
Stage 5	0.2	0	0
Stage 5	0	0	0
Stage 5	0	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-2.66	-13.31
Stage 5	-0.6	-8.51	-29.26
Stage 5	-0.8	-18.05	-47.66
Stage 5	-1	-31.66	-68.07
Stage 5	-1.2	-15	83.32
Stage 5	-1.4	-2.36	63.2
Stage 5	-1.6	6.61	44.84
Stage 5	-1.8	12.32	28.55
Stage 5	-2	15.16	14.21
Stage 5	-2.2	15.45	1.46
Stage 5	-2.4	13.4	-10.26
Stage 5	-2.6	9.1	-21.52
Stage 5	-2.8	2.53	-32.86
Stage 5	-3	-6.48	-45.02
Stage 5	-3.2	-18.18	-58.52
Stage 5	-3.4	-32.8	-73.09
Stage 5	-3.5	-41.24	-84.47
Stage 5	-3.7	-25.89	76.75
Stage 5	-3.9	-13.51	61.93
Stage 5	-4.1	-3.9	48.05
Stage 5	-4.3	3.18	35.39
Stage 5	-4.5	7.98	24.03
Stage 5	-4.7	10.73	13.74
Stage 5	-4.9	11.72	4.95
Stage 5	-5.1	11.46	-1.31
Stage 5	-5.3	10.23	-6.15
Stage 5	-5.5	8.49	-8.71
Stage 5	-5.7	6.61	-9.41
Stage 5	-5.9	4.82	-8.92
Stage 5	-6.1	3.27	-7.74
Stage 5	-6.3	2.02	-6.26
Stage 5	-6.5	1.07	-4.74
Stage 5	-6.7	0.4	-3.34
Stage 5	-6.9	-0.03	-2.16
Stage 5	-7.1	-0.27	-1.23
Stage 5	-7.3	-0.39	-0.56
Stage 5	-7.5	-0.42	-0.14
Stage 5	-7.7	-0.4	0.06
Stage 5	-7.9	-0.39	0.07
Stage 5	-8.1	-0.41	-0.09
Stage 5	-8.3	-0.37	0.16
Stage 5	-8.5	-0.32	0.29
Stage 5	-8.7	-0.25	0.33
Stage 5	-8.9	-0.19	0.33
Stage 5	-9.1	-0.13	0.29
Stage 5	-9.3	-0.08	0.24
Stage 5	-9.5	-0.04	0.18
Stage 5	-9.7	-0.02	0.13
Stage 5	-9.9	0	0.08

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-10.1	0.01	0.05
Stage 5	-10.3	0.01	0.02
Stage 5	-10.5	0.01	0
Stage 5	-10.7	0.01	-0.01
Stage 5	-10.9	0.01	-0.01
Stage 5	-11.1	0	-0.02
Stage 5	-11.3	0	-0.01
Stage 5	-11.5	0	-0.01
Stage 5	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 6

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 6	0.6	-0.1
Stage 6	0.4	-0.24
Stage 6	0.2	-0.37
Stage 6	0	-0.51
Stage 6	-0.2	-0.65
Stage 6	-0.4	-0.79
Stage 6	-0.6	-0.92
Stage 6	-0.8	-1.02
Stage 6	-1	-1.08
Stage 6	-1.2	-1.06
Stage 6	-1.4	-1.01
Stage 6	-1.6	-0.95
Stage 6	-1.8	-0.9
Stage 6	-2	-0.89
Stage 6	-2.2	-0.91
Stage 6	-2.4	-0.96
Stage 6	-2.6	-1.05
Stage 6	-2.8	-1.16
Stage 6	-3	-1.26
Stage 6	-3.2	-1.34
Stage 6	-3.4	-1.36
Stage 6	-3.5	-1.34
Stage 6	-3.7	-1.2
Stage 6	-3.9	-0.99
Stage 6	-4.1	-0.72
Stage 6	-4.3	-0.42
Stage 6	-4.5	-0.12
Stage 6	-4.7	0.19
Stage 6	-4.9	0.48
Stage 6	-5.1	0.75
Stage 6	-5.3	0.98
Stage 6	-5.5	1.18
Stage 6	-5.7	1.33
Stage 6	-5.9	1.43
Stage 6	-6.1	1.49
Stage 6	-6.3	1.5
Stage 6	-6.5	1.46
Stage 6	-6.7	1.39
Stage 6	-6.9	1.29
Stage 6	-7.1	1.17
Stage 6	-7.3	1.05
Stage 6	-7.5	0.93
Stage 6	-7.7	0.82

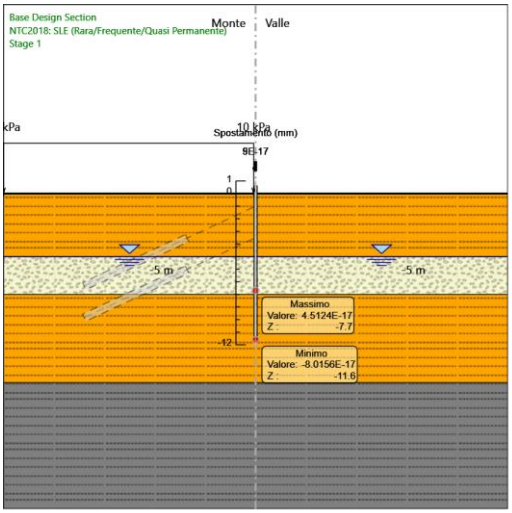
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 6	-7.9	0.72
Stage 6	-8.1	0.63
Stage 6	-8.3	0.56
Stage 6	-8.5	0.5
Stage 6	-8.7	0.45
Stage 6	-8.9	0.42
Stage 6	-9.1	0.39
Stage 6	-9.3	0.37
Stage 6	-9.5	0.36
Stage 6	-9.7	0.35
Stage 6	-9.9	0.35
Stage 6	-10.1	0.35
Stage 6	-10.3	0.35
Stage 6	-10.5	0.35
Stage 6	-10.7	0.35
Stage 6	-10.9	0.35
Stage 6	-11.1	0.35
Stage 6	-11.3	0.35
Stage 6	-11.5	0.35
Stage 6	-11.6	0.35

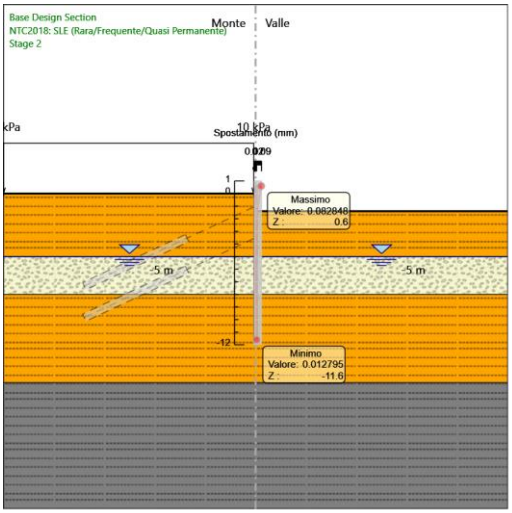
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 6

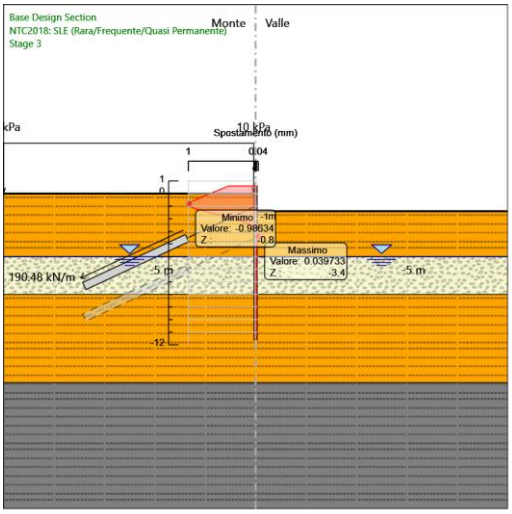
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0.6	0	0
Stage 6	0.4	0	0
Stage 6	0.4	0	0
Stage 6	0.2	0	0
Stage 6	0.2	0	0
Stage 6	0	0	0
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-2.63	-13.13
Stage 6	-0.6	-8.43	-29.03
Stage 6	-0.8	-17.93	-47.51
Stage 6	-1	-31.56	-68.15
Stage 6	-1.2	-14.96	83.01
Stage 6	-1.4	-2.42	62.72
Stage 6	-1.6	6.41	44.14
Stage 6	-1.8	11.93	27.59
Stage 6	-2	14.52	12.95
Stage 6	-2.2	14.49	-0.15
Stage 6	-2.4	12.04	-12.25
Stage 6	-2.6	7.26	-23.91
Stage 6	-2.8	0.12	-35.67
Stage 6	-3	-9.52	-48.23
Stage 6	-3.2	-21.94	-62.08
Stage 6	-3.4	-37.32	-76.93
Stage 6	-3.5	-46.17	-88.42
Stage 6	-3.7	-31.63	72.7
Stage 6	-3.9	-19.99	58.19
Stage 6	-4.1	-10.91	45.4
Stage 6	-4.3	-3.94	34.82
Stage 6	-4.5	1.41	26.76
Stage 6	-4.7	5.65	21.22

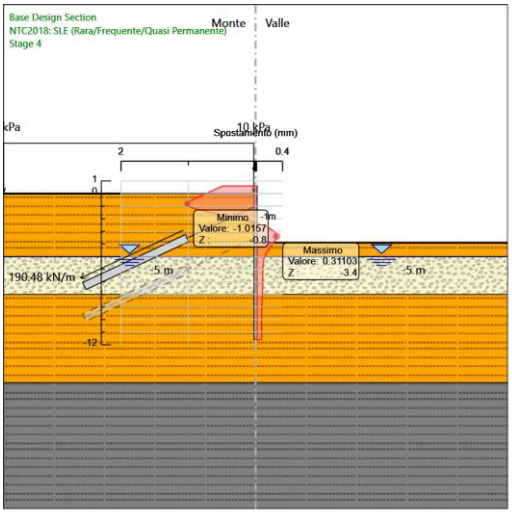
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-4.9	9.29	18.2
Stage 6	-5.1	12.37	15.38
Stage 6	-5.3	14.94	12.87
Stage 6	-5.5	16.92	9.89
Stage 6	-5.7	18.21	6.43
Stage 6	-5.9	18.7	2.49
Stage 6	-6.1	18.32	-1.93
Stage 6	-6.3	16.95	-6.84
Stage 6	-6.5	14.5	-12.22
Stage 6	-6.7	10.89	-18.08
Stage 6	-6.9	6	-24.42
Stage 6	-7.1	2.03	-19.89
Stage 6	-7.3	-1.05	-15.4
Stage 6	-7.5	-3.26	-11.03
Stage 6	-7.7	-4.62	-6.83
Stage 6	-7.9	-5.27	-3.25
Stage 6	-8.1	-5.32	-0.23
Stage 6	-8.3	-5.12	1.01
Stage 6	-8.5	-4.74	1.88
Stage 6	-8.7	-4.24	2.48
Stage 6	-8.9	-3.66	2.9
Stage 6	-9.1	-3.02	3.21
Stage 6	-9.3	-2.37	3.25
Stage 6	-9.5	-1.77	3
Stage 6	-9.7	-1.26	2.59
Stage 6	-9.9	-0.83	2.11
Stage 6	-10.1	-0.51	1.62
Stage 6	-10.3	-0.28	1.17
Stage 6	-10.5	-0.12	0.78
Stage 6	-10.7	-0.03	0.46
Stage 6	-10.9	0.01	0.21
Stage 6	-11.1	0.02	0.05
Stage 6	-11.3	0.01	-0.04
Stage 6	-11.5	0	-0.06
Stage 6	-11.6	0	-0.02

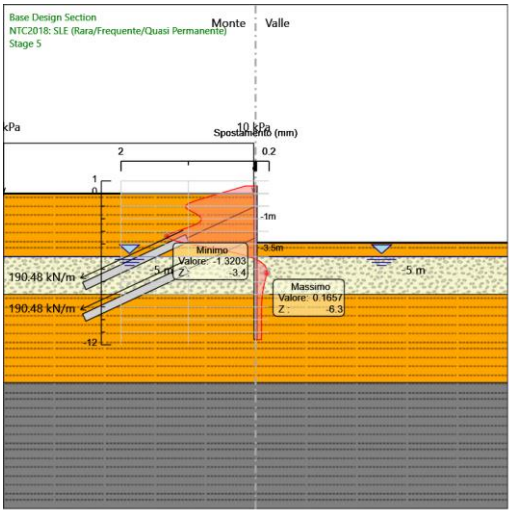
Tabella Grafici dei Risultati

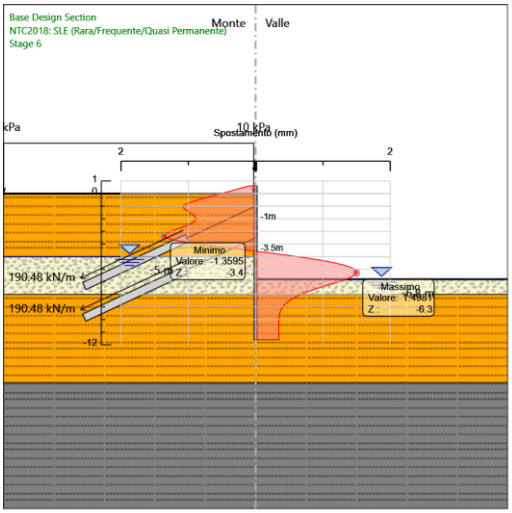


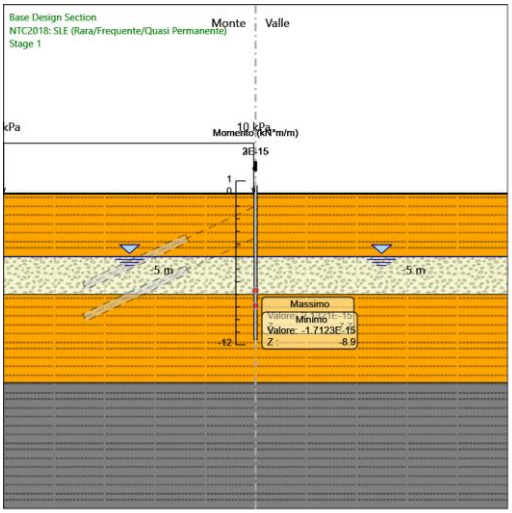


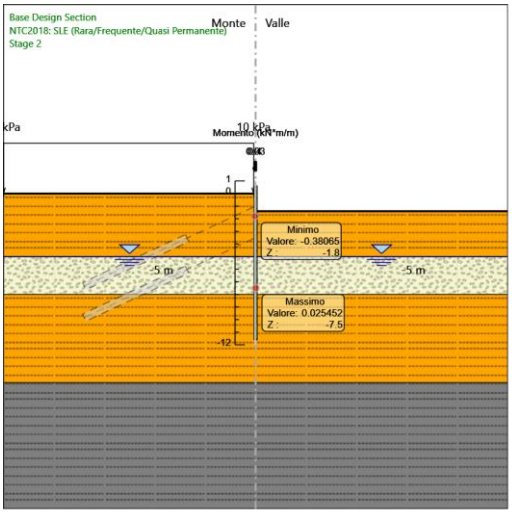


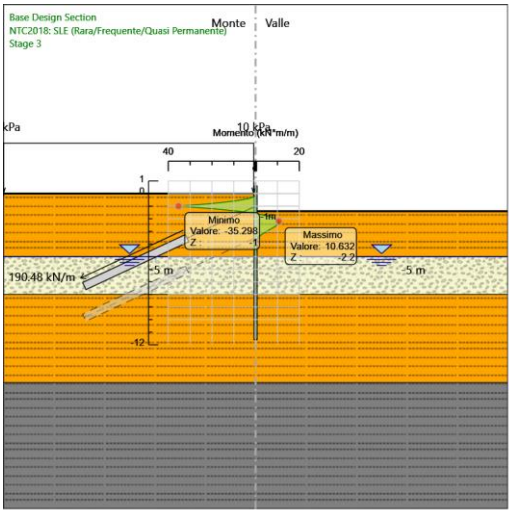


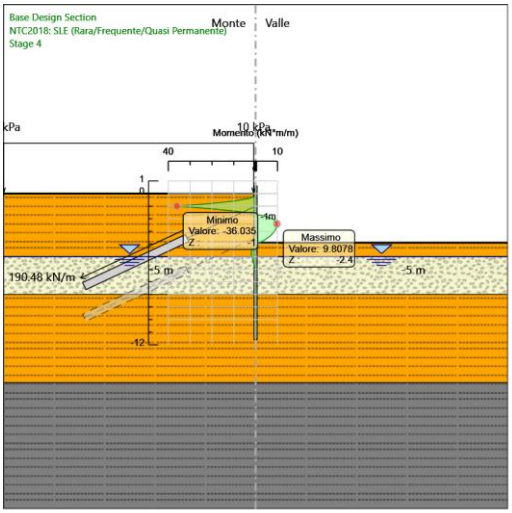


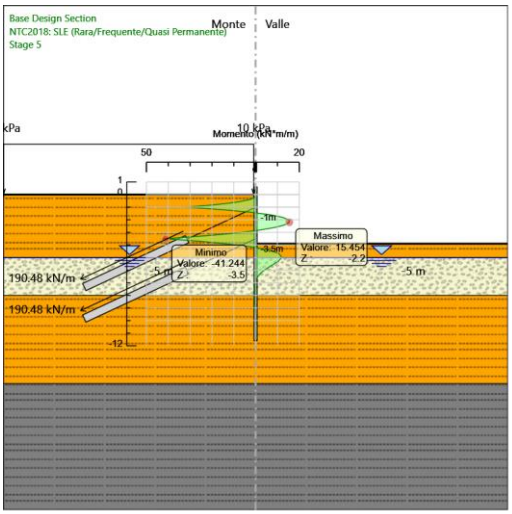


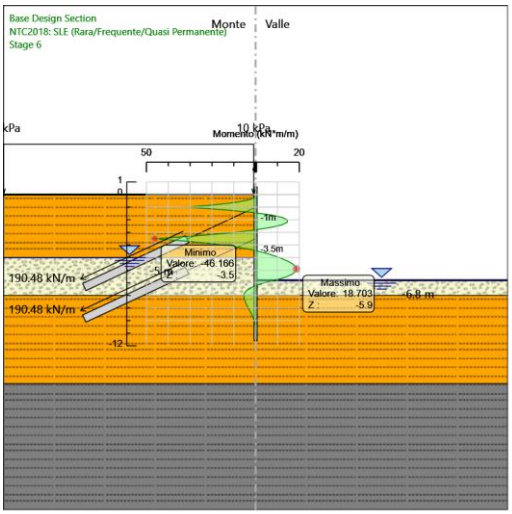

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
Momento (kN*m/m)
Massimo
Minimo
Valore: -1.7123E-15
Z: -8.9

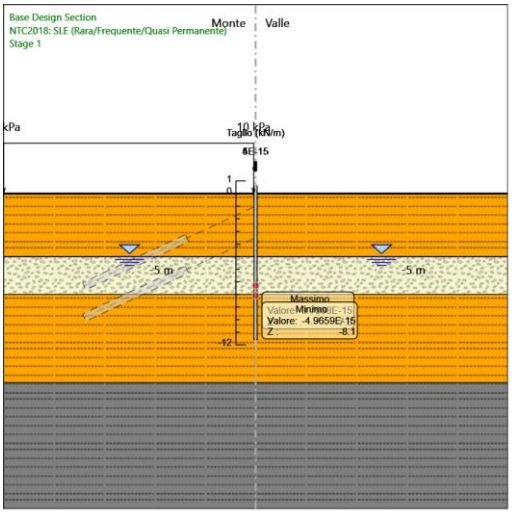

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -0.38065
Z: -1.8
Massimo
Valore: 0.025452
Z: -7.6

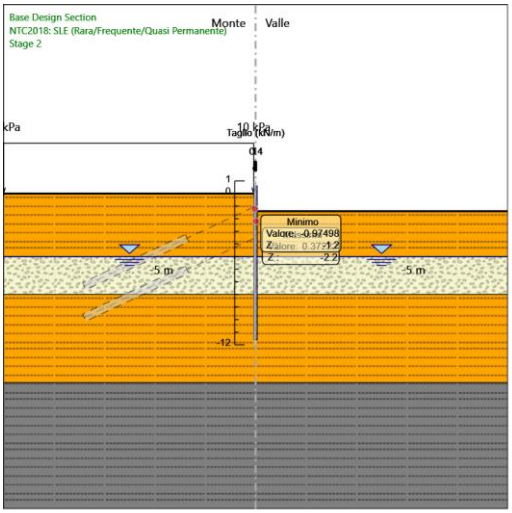

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -35.298
Z: -1
Massimo
Valore: 10.632
Z: -2.2
190.48 kN/m

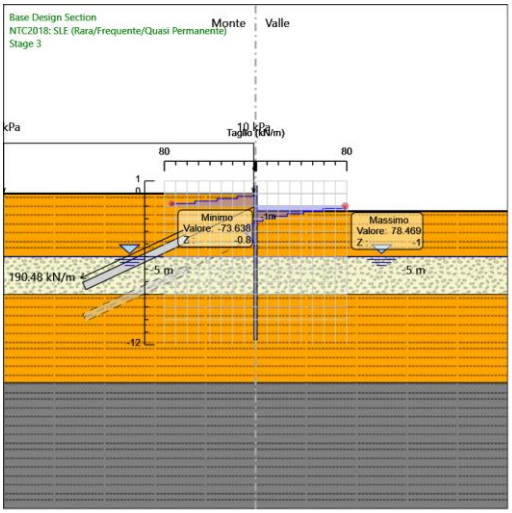

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -36.035
Z: -1
Massimo
Valore: 9.8078
Z: -2.4
190.48 kN/m

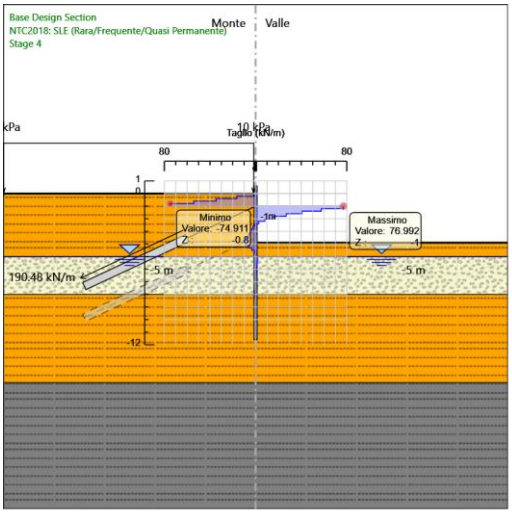

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 5
Monte
Valle
Momento (kN*m/m)
Massimo
Valore: 15.454
Z: -2.2
Minimo
Valore: -41.244
Z: -3.5
190.48 kN/m
190.48 kN/m

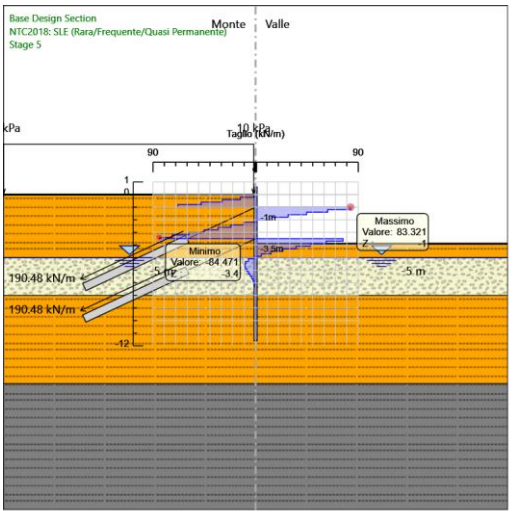

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 6
Monte
Valle
Momento (kN*m/m)
Minimo
Valore: -46.166
Z: -3.5
Massimo
Valore: 18.703
Z: -5.9
190.48 kN/m
190.48 kN/m

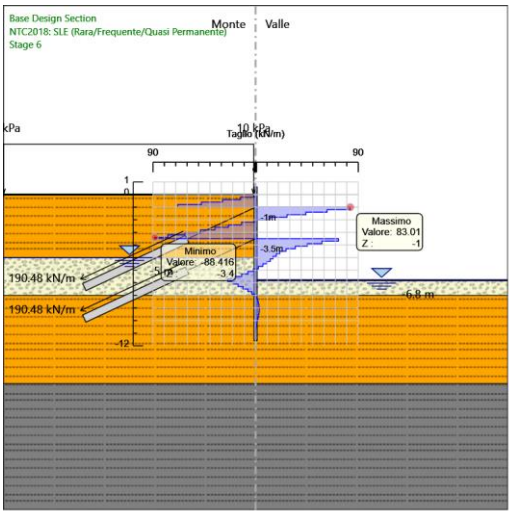

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
-12
Massimo
Valore: -4.9659E-15
Z: -8.1

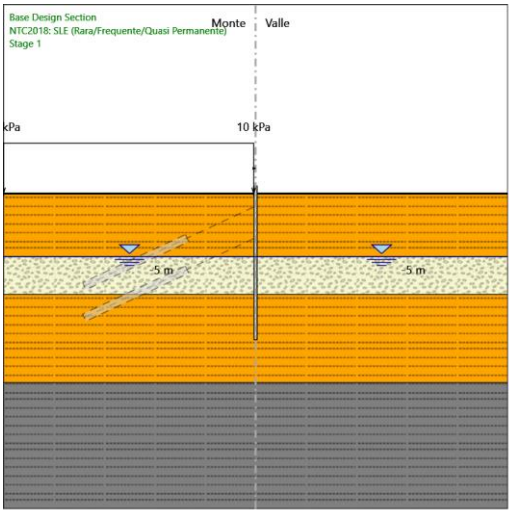

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
-12
Minimo
Valore: -0.97498

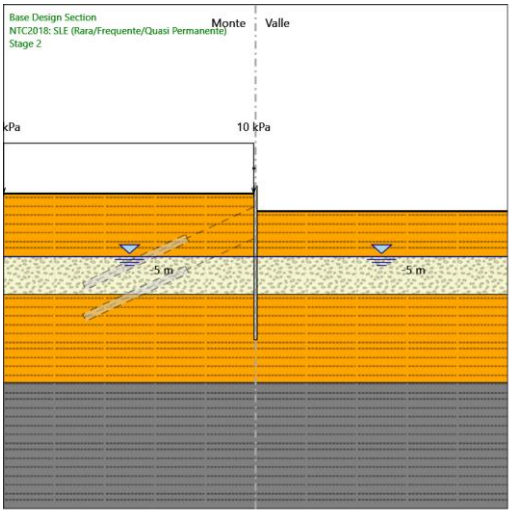

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
80
80
Minimo
Valore: -73.638
Z: -0.8
Massimo
Valore: 78.469
Z: -1
190.48 kN/m
-5 m
-5 m
-12

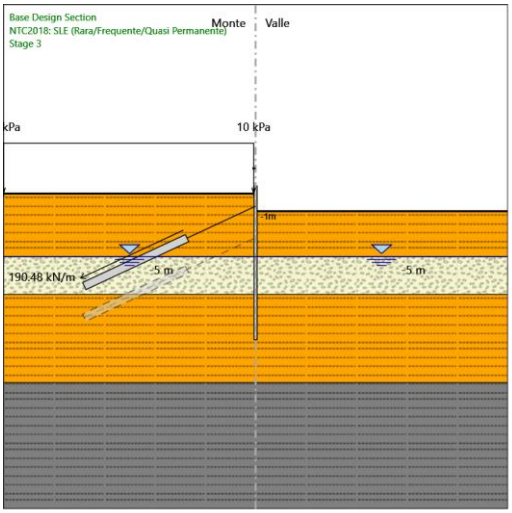

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
80
80
Minimo
Valore: -74.911
Z: -0.8
Massimo
Valore: 76.992
Z: -1
190.48 kN/m
-5 m
-5 m
-12

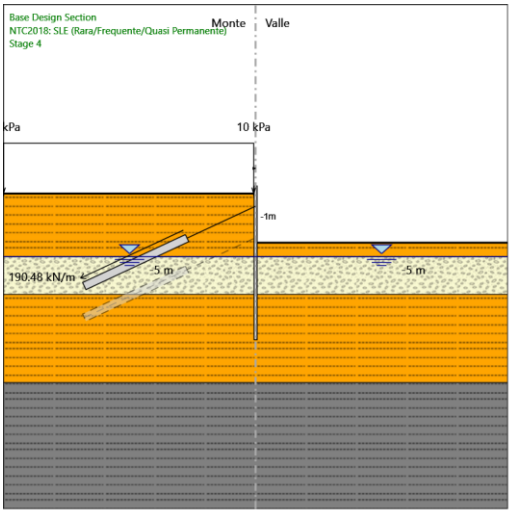

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 5
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
90
90
Massimo
Valore: 83.321
Z: -1
Minimo
Valore: -84.471
Z: -3.4
190.48 kN/m
190.48 kN/m
-5 m
-5 m
-12

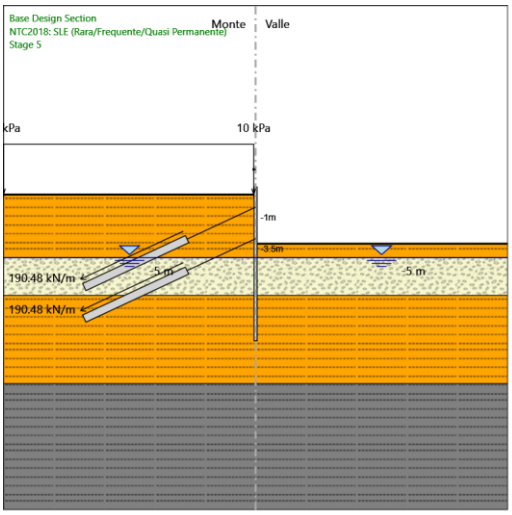

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 6
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
90
90
Massimo
Valore: 83.01
Z: -1
Minimo
Valore: -88.416
Z: -3.4
190.48 kN/m
190.48 kN/m
-5 m
-6.8 m
-12

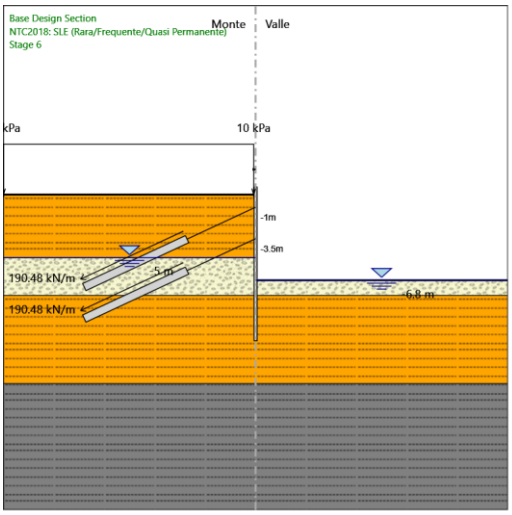

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m

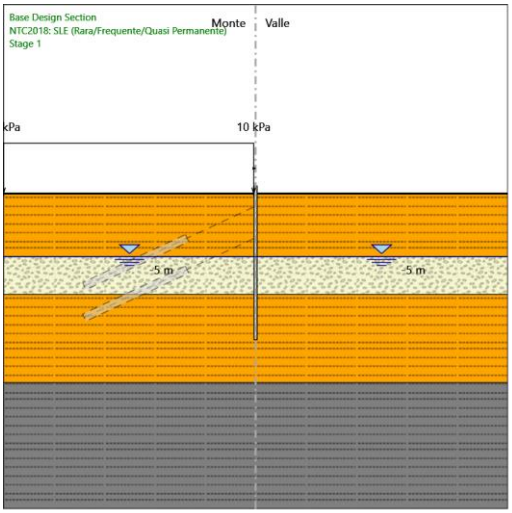

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
-5 m
-5 m

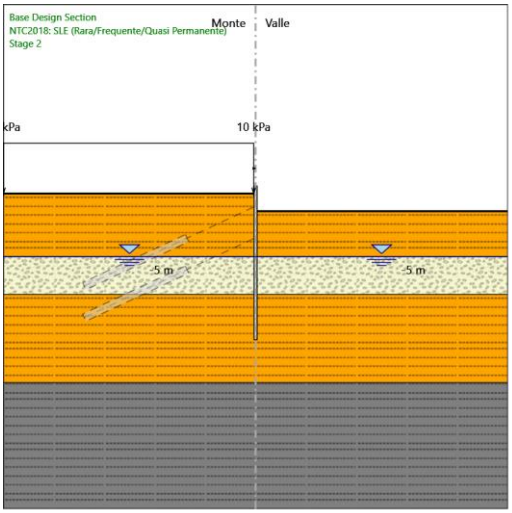

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 5
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 6
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-6.8 m
190.48 kN/m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m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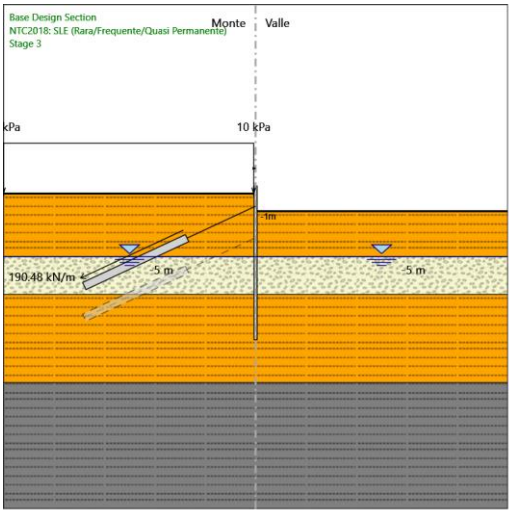
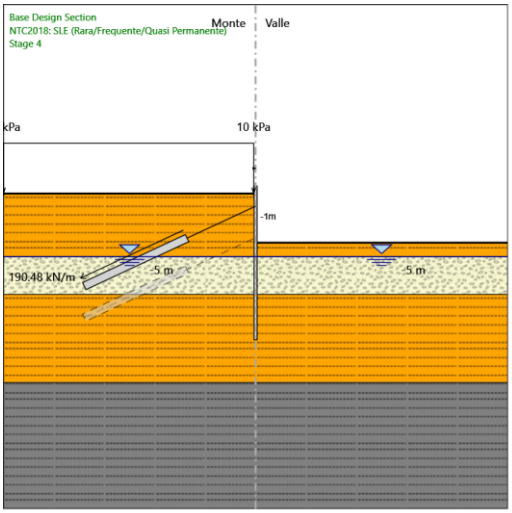
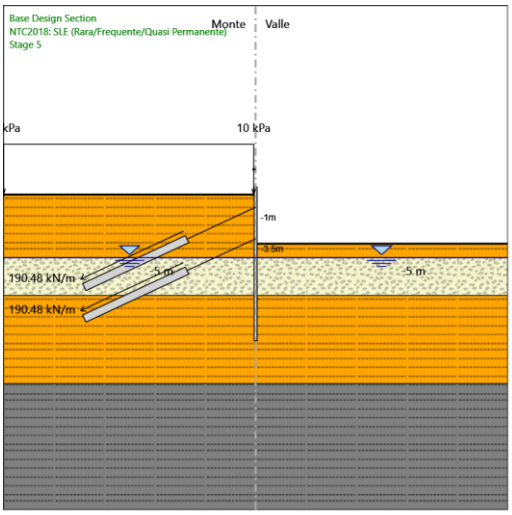
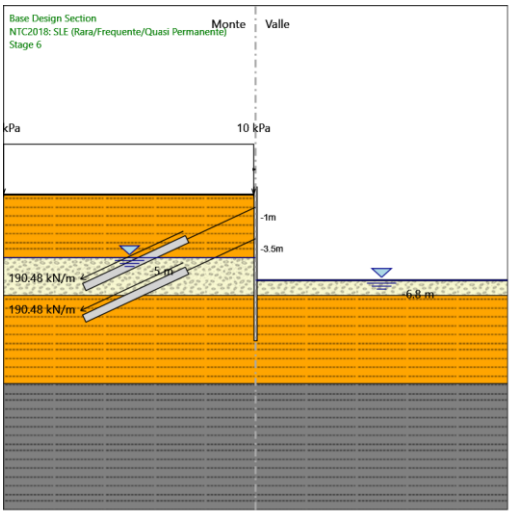
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 4
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 5
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 6
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-6.8 m
190.48 kN/m

Risultati Elementi strutturali - NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Sollecitazione 1° ordine di tiranti
Stage	Forza (kN/m)
Stage 3	190.5
Stage 4	190.4139
Stage 5	190.1975
Stage 6	190.068
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	**Sollecitazione 2° ordine di tiranti**
Stage	**Forza (kN/m)**
Stage 5	190.5
Stage 6	190.4032

Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0
Stage 1	-1	0	0
Stage 1	-1.2	0	0
Stage 1	-1.4	0	0
Stage 1	-1.6	0	0
Stage 1	-1.8	0	0
Stage 1	-2	0	0
Stage 1	-2.2	0	0
Stage 1	-2.4	0	0
Stage 1	-2.6	0	0
Stage 1	-2.8	0	0
Stage 1	-3	0	0
Stage 1	-3.2	0	0
Stage 1	-3.4	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	-0.06	-0.31
Stage 2	-1.4	-0.34	-1.41
Stage 2	-1.6	-0.51	-0.85
Stage 2	-1.8	-0.54	-0.13
Stage 2	-2	-0.48	0.3
Stage 2	-2.2	-0.38	0.49
Stage 2	-2.4	-0.28	0.53
Stage 2	-2.6	-0.18	0.48
Stage 2	-2.8	-0.11	0.38
Stage 2	-3	-0.05	0.27
Stage 2	-3.2	-0.02	0.17

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-3.4	0	0.09
Stage 2	-3.5	0	0.04
Stage 2	-3.7	0	0
Stage 2	-3.9	0	-0.03
Stage 2	-4.1	-0.01	-0.05
Stage 2	-4.3	-0.02	-0.05
Stage 2	-4.5	-0.03	-0.04
Stage 2	-4.7	-0.03	0
Stage 2	-4.9	-0.02	0.07
Stage 2	-5.1	0.01	0.16
Stage 2	-5.3	0.03	0.07
Stage 2	-5.5	0.03	0.02
Stage 2	-5.7	0.03	-0.02
Stage 2	-5.9	0.02	-0.03
Stage 2	-6.1	0.02	-0.03
Stage 2	-6.3	0.01	-0.02
Stage 2	-6.5	0.01	-0.01
Stage 2	-6.7	0.01	0.01
Stage 2	-6.9	0.02	0.02
Stage 2	-7.1	0.02	0.03
Stage 2	-7.3	0.03	0.03
Stage 2	-7.5	0.03	0.02
Stage 2	-7.7	0.03	-0.02
Stage 2	-7.9	0.02	-0.07
Stage 2	-8.1	-0.02	-0.17
Stage 2	-8.3	-0.03	-0.07
Stage 2	-8.5	-0.04	-0.01
Stage 2	-8.7	-0.03	0.02
Stage 2	-8.9	-0.02	0.03
Stage 2	-9.1	-0.02	0.04
Stage 2	-9.3	-0.01	0.03
Stage 2	-9.5	-0.01	0.03
Stage 2	-9.7	0	0.02
Stage 2	-9.9	0	0.01
Stage 2	-10.1	0	0.01
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-4.13	-20.67
Stage 3	-0.6	-12.91	-43.87

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-0.8	-26.73	-69.09
Stage 3	-1	-45.86	-95.67
Stage 3	-1.2	-25.45	102.06
Stage 3	-1.4	-10.06	76.96
Stage 3	-1.6	0.89	54.75
Stage 3	-1.8	8.08	35.94
Stage 3	-2	12.19	20.52
Stage 3	-2.2	13.81	8.14
Stage 3	-2.4	13.46	-1.78
Stage 3	-2.6	11.62	-9.18
Stage 3	-2.8	9.08	-12.74
Stage 3	-3	6.37	-13.52
Stage 3	-3.2	3.99	-11.89
Stage 3	-3.4	2.14	-9.29
Stage 3	-3.5	1.42	-7.2
Stage 3	-3.7	0.37	-5.22
Stage 3	-3.9	-0.24	-3.05
Stage 3	-4.1	-0.53	-1.46
Stage 3	-4.3	-0.61	-0.4
Stage 3	-4.5	-0.56	0.22
Stage 3	-4.7	-0.46	0.54
Stage 3	-4.9	-0.32	0.67
Stage 3	-5.1	-0.18	0.71
Stage 3	-5.3	-0.08	0.51
Stage 3	-5.5	-0.02	0.33
Stage 3	-5.7	0.02	0.18
Stage 3	-5.9	0.04	0.08
Stage 3	-6.1	0.04	0.02
Stage 3	-6.3	0.04	-0.01
Stage 3	-6.5	0.03	-0.02
Stage 3	-6.7	0.03	-0.02
Stage 3	-6.9	0.03	0
Stage 3	-7.1	0.03	0.01
Stage 3	-7.3	0.03	0.01
Stage 3	-7.5	0.03	0.01
Stage 3	-7.7	0.03	-0.02
Stage 3	-7.9	0.01	-0.08
Stage 3	-8.1	-0.02	-0.17
Stage 3	-8.3	-0.03	-0.07
Stage 3	-8.5	-0.04	-0.01
Stage 3	-8.7	-0.03	0.02
Stage 3	-8.9	-0.03	0.04
Stage 3	-9.1	-0.02	0.04
Stage 3	-9.3	-0.01	0.03
Stage 3	-9.5	-0.01	0.03
Stage 3	-9.7	0	0.02
Stage 3	-9.9	0	0.01
Stage 3	-10.1	0	0.01
Stage 3	-10.3	0	0
Stage 3	-10.5	0	0
Stage 3	-10.7	0	0
Stage 3	-10.9	0	0
Stage 3	-11.1	0	0
Stage 3	-11.3	0	0
Stage 3	-11.5	0	0
Stage 3	-11.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 4

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-4.27	-21.34
Stage 4	-0.6	-13.26	-44.96
Stage 4	-0.8	-27.36	-70.52
Stage 4	-1	-46.84	-97.37
Stage 4	-1.2	-26.82	100.11
Stage 4	-1.4	-11.82	74.96
Stage 4	-1.6	-1.22	53
Stage 4	-1.8	5.77	34.95
Stage 4	-2	9.95	20.9
Stage 4	-2.2	12.07	10.61
Stage 4	-2.4	12.79	3.62
Stage 4	-2.6	12.67	-0.63
Stage 4	-2.8	12.11	-2.77
Stage 4	-3	11.24	-4.35
Stage 4	-3.2	10.02	-6.13
Stage 4	-3.4	8.39	-8.12
Stage 4	-3.5	7.42	-9.76
Stage 4	-3.7	5.12	-11.48
Stage 4	-3.9	2.33	-13.97
Stage 4	-4.1	0.05	-11.38
Stage 4	-4.3	-1.51	-7.81
Stage 4	-4.5	-2.35	-4.18
Stage 4	-4.7	-2.61	-1.33
Stage 4	-4.9	-2.47	0.68
Stage 4	-5.1	-2.06	2.07
Stage 4	-5.3	-1.61	2.23
Stage 4	-5.5	-1.19	2.1
Stage 4	-5.7	-0.83	1.83
Stage 4	-5.9	-0.53	1.51
Stage 4	-6.1	-0.29	1.18
Stage 4	-6.3	-0.11	0.89
Stage 4	-6.5	0.02	0.65
Stage 4	-6.7	0.11	0.46
Stage 4	-6.9	0.17	0.31
Stage 4	-7.1	0.21	0.19
Stage 4	-7.3	0.23	0.08
Stage 4	-7.5	0.22	-0.04
Stage 4	-7.7	0.18	-0.2
Stage 4	-7.9	0.1	-0.42
Stage 4	-8.1	-0.05	-0.72
Stage 4	-8.3	-0.13	-0.4
Stage 4	-8.5	-0.16	-0.17
Stage 4	-8.7	-0.16	-0.02
Stage 4	-8.9	-0.15	0.07
Stage 4	-9.1	-0.12	0.12
Stage 4	-9.3	-0.1	0.13
Stage 4	-9.5	-0.07	0.12
Stage 4	-9.7	-0.05	0.11
Stage 4	-9.9	-0.03	0.09

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-10.1	-0.02	0.07
Stage 4	-10.3	-0.01	0.05
Stage 4	-10.5	-0.01	0.03
Stage 4	-10.7	0	0.02
Stage 4	-10.9	0	0.01
Stage 4	-11.1	0	0
Stage 4	-11.3	0	0
Stage 4	-11.5	0	0
Stage 4	-11.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 5

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	0.6	0	0
Stage 5	0.4	0	0
Stage 5	0.4	0	0
Stage 5	0.2	0	0
Stage 5	0.2	0	0
Stage 5	0	0	0
Stage 5	0	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-3.47	-17.33
Stage 5	-0.6	-11.08	-38.08
Stage 5	-0.8	-23.48	-61.99
Stage 5	-1	-41.18	-88.48
Stage 5	-1.2	-19.51	108.35
Stage 5	-1.4	-3.06	82.21
Stage 5	-1.6	8.61	58.35
Stage 5	-1.8	16.04	37.19
Stage 5	-2	19.76	18.57
Stage 5	-2.2	20.16	2
Stage 5	-2.4	17.51	-13.23
Stage 5	-2.6	11.94	-27.87
Stage 5	-2.8	3.42	-42.62
Stage 5	-3	-8.28	-58.48
Stage 5	-3.2	-23.49	-76.07
Stage 5	-3.4	-42.5	-95.04
Stage 5	-3.5	-53.49	-109.86
Stage 5	-3.7	-33.55	99.7
Stage 5	-3.9	-17.47	80.4
Stage 5	-4.1	-5	62.33
Stage 5	-4.3	4.17	45.83
Stage 5	-4.5	10.37	31.02
Stage 5	-4.7	13.88	17.56
Stage 5	-4.9	15.14	6.26
Stage 5	-5.1	14.78	-1.8
Stage 5	-5.3	13.17	-8.02
Stage 5	-5.5	10.92	-11.27
Stage 5	-5.7	8.49	-12.15
Stage 5	-5.9	6.19	-11.49
Stage 5	-6.1	4.2	-9.96
Stage 5	-6.3	2.59	-8.05
Stage 5	-6.5	1.37	-6.09
Stage 5	-6.7	0.51	-4.29
Stage 5	-6.9	-0.04	-2.77

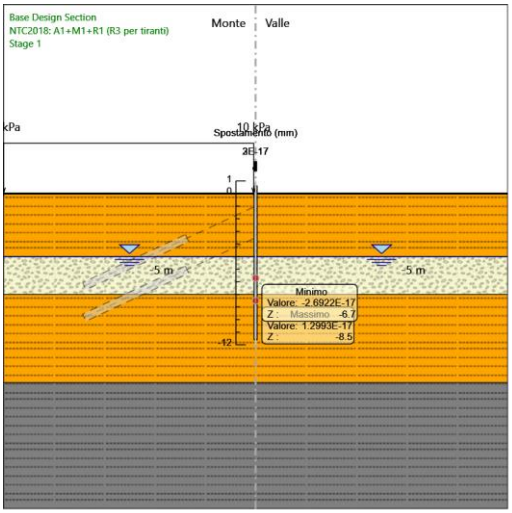
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-7.1	-0.36	-1.57
Stage 5	-7.3	-0.5	-0.71
Stage 5	-7.5	-0.54	-0.17
Stage 5	-7.7	-0.52	0.08
Stage 5	-7.9	-0.5	0.09
Stage 5	-8.1	-0.52	-0.12
Stage 5	-8.3	-0.48	0.2
Stage 5	-8.5	-0.41	0.37
Stage 5	-8.7	-0.32	0.43
Stage 5	-8.9	-0.24	0.42
Stage 5	-9.1	-0.16	0.37
Stage 5	-9.3	-0.1	0.31
Stage 5	-9.5	-0.06	0.23
Stage 5	-9.7	-0.02	0.16
Stage 5	-9.9	0	0.11
Stage 5	-10.1	0.01	0.06
Stage 5	-10.3	0.01	0.03
Stage 5	-10.5	0.02	0
Stage 5	-10.7	0.01	-0.01
Stage 5	-10.9	0.01	-0.02
Stage 5	-11.1	0.01	-0.02
Stage 5	-11.3	0	-0.02
Stage 5	-11.5	0	-0.01
Stage 5	-11.6	0	0

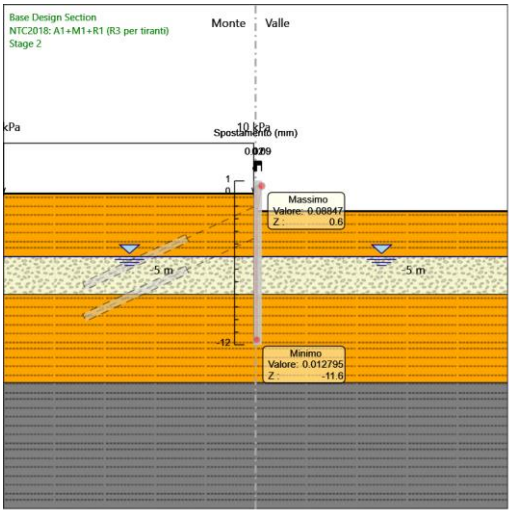
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 6

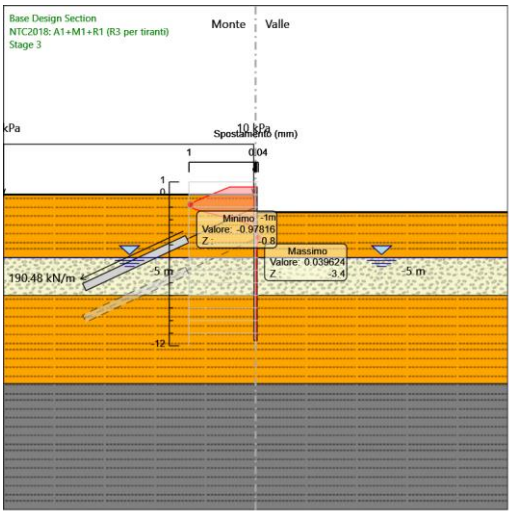
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0.6	0	0
Stage 6	0.4	0	0
Stage 6	0.4	0	0
Stage 6	0.2	0	0
Stage 6	0.2	0	0
Stage 6	0	0	0
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-3.42	-17.09
Stage 6	-0.6	-10.97	-37.78
Stage 6	-0.8	-23.33	-61.8
Stage 6	-1	-41.05	-88.59
Stage 6	-1.2	-19.47	107.93
Stage 6	-1.4	-3.15	81.56
Stage 6	-1.6	8.33	57.42
Stage 6	-1.8	15.51	35.91
Stage 6	-2	18.89	16.89
Stage 6	-2.2	18.86	-0.14
Stage 6	-2.4	15.69	-15.87
Stage 6	-2.6	9.48	-31.05
Stage 6	-2.8	0.21	-46.34
Stage 6	-3	-12.33	-62.72
Stage 6	-3.2	-28.49	-80.77
Stage 6	-3.4	-48.51	-100.11
Stage 6	-3.5	-60.01	-115.06
Stage 6	-3.7	-41.14	94.39
Stage 6	-3.9	-26.03	75.55

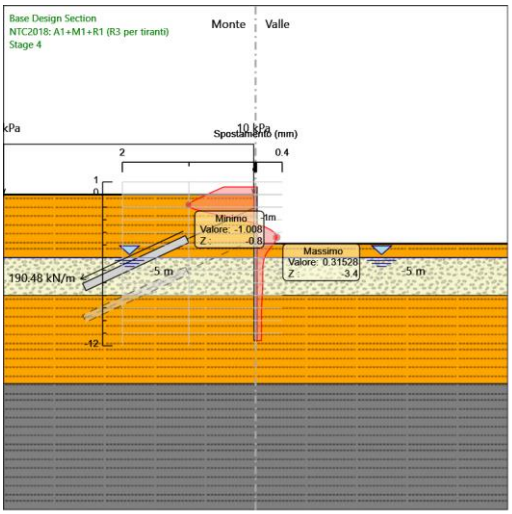
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-4.1	-14.23	58.96
Stage 6	-4.3	-5.18	45.28
Stage 6	-4.5	1.8	34.89
Stage 6	-4.7	7.36	27.78
Stage 6	-4.9	12.15	23.97
Stage 6	-5.1	16.2	20.25
Stage 6	-5.3	19.59	16.93
Stage 6	-5.5	22.18	12.98
Stage 6	-5.7	23.87	8.42
Stage 6	-5.9	24.51	3.22
Stage 6	-6.1	23.99	-2.59
Stage 6	-6.3	22.18	-9.03
Stage 6	-6.5	18.96	-16.1
Stage 6	-6.7	14.21	-23.79
Stage 6	-6.9	7.79	-32.1
Stage 6	-7.1	2.56	-26.13
Stage 6	-7.3	-1.48	-20.22
Stage 6	-7.5	-4.38	-14.47
Stage 6	-7.7	-6.16	-8.94
Stage 6	-7.9	-7.01	-4.24
Stage 6	-8.1	-7.07	-0.27
Stage 6	-8.3	-6.79	1.37
Stage 6	-8.5	-6.28	2.54
Stage 6	-8.7	-5.62	3.35
Stage 6	-8.9	-4.83	3.92
Stage 6	-9.1	-3.96	4.34
Stage 6	-9.3	-3.1	4.34
Stage 6	-9.5	-2.3	3.98
Stage 6	-9.7	-1.62	3.41
Stage 6	-9.9	-1.07	2.76
Stage 6	-10.1	-0.64	2.11
Stage 6	-10.3	-0.34	1.51
Stage 6	-10.5	-0.14	0.99
Stage 6	-10.7	-0.03	0.57
Stage 6	-10.9	0.02	0.26
Stage 6	-11.1	0.03	0.05
Stage 6	-11.3	0.02	-0.07
Stage 6	-11.5	0	-0.09
Stage 6	-11.6	0	-0.03

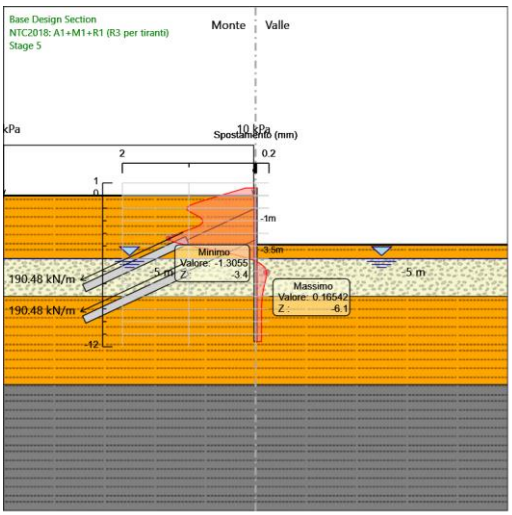
Tabella Grafici dei Risultati

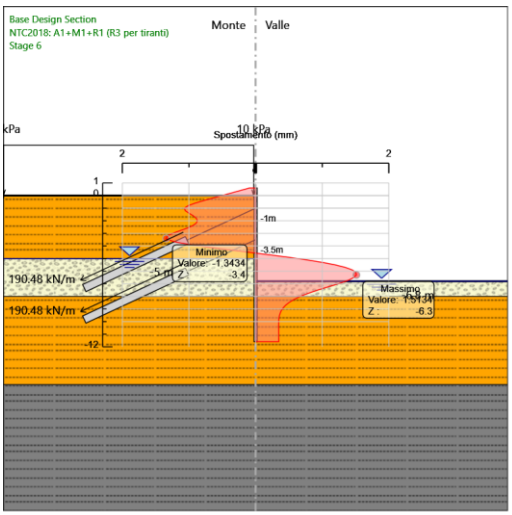


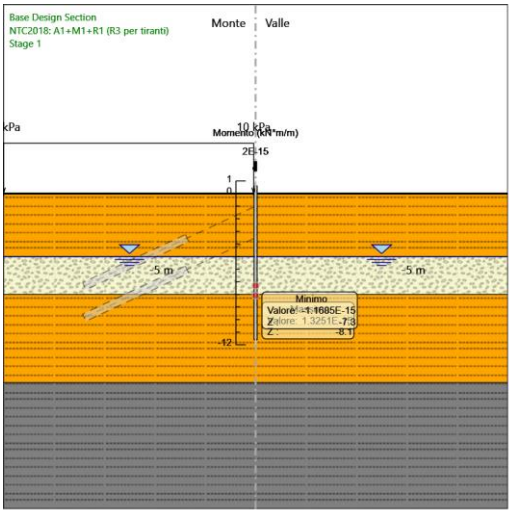


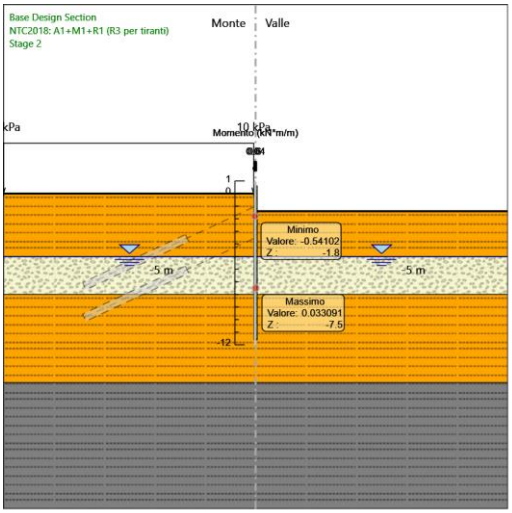


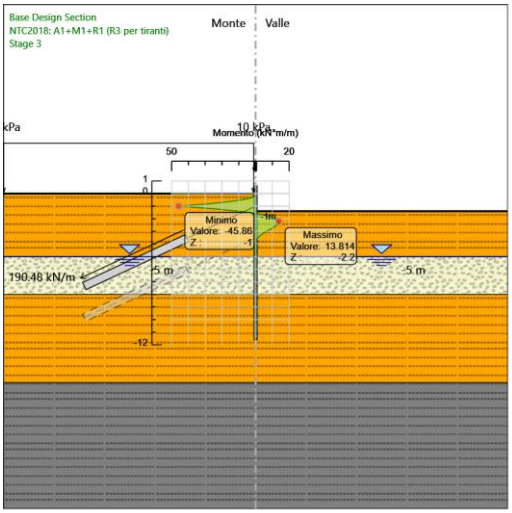


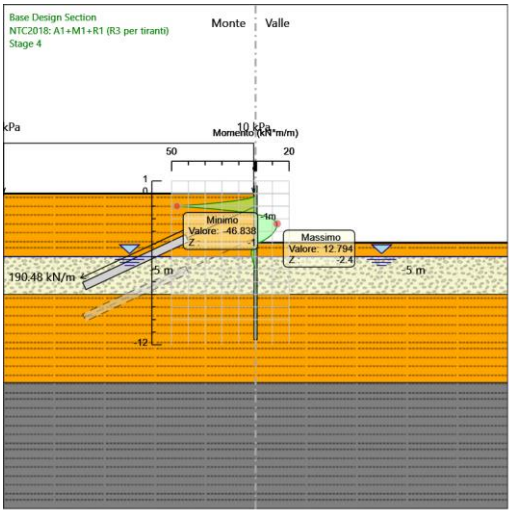


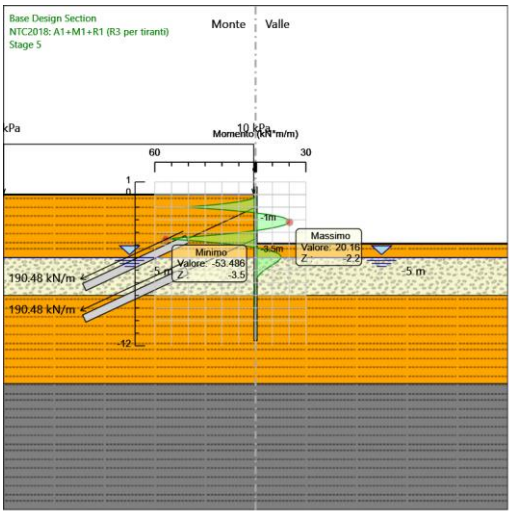


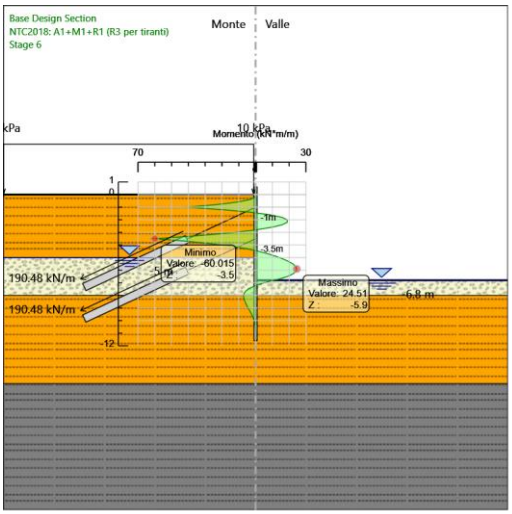

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
-5 m
-5 m
-12
Minimo
Massimo

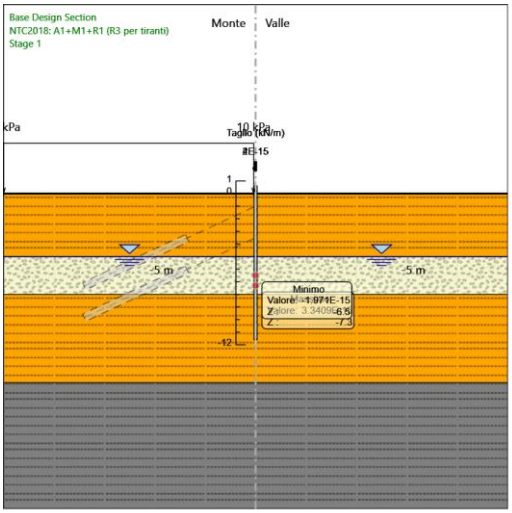

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
Minimo
Valore: -0.54102
Massimo
Valore: 0.033091
-5 m
-5 m
-12

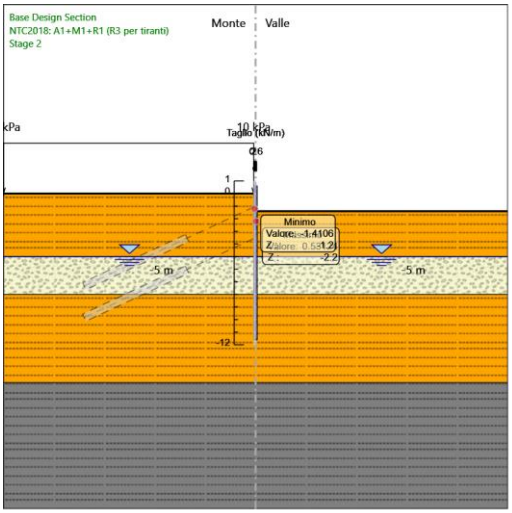

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
50
20
Minimo
Valore: -45.86
Massimo
Valore: 13.814
190.48 kN/m
-5 m
-5 m
-12

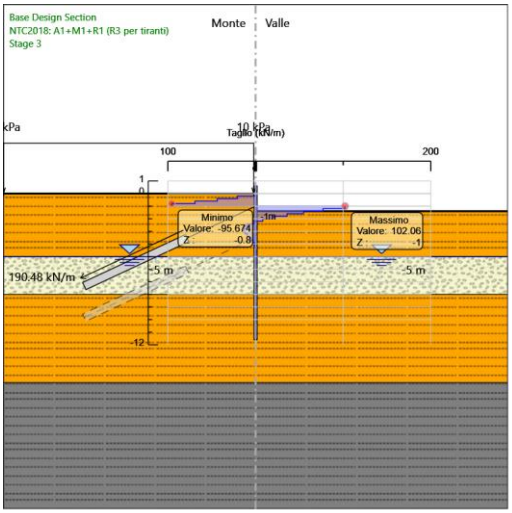

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
50
20
Minimo
Valore: -46.838
Massimo
Valore: 12.794
190.48 kN/m
-5 m
-5 m
-12

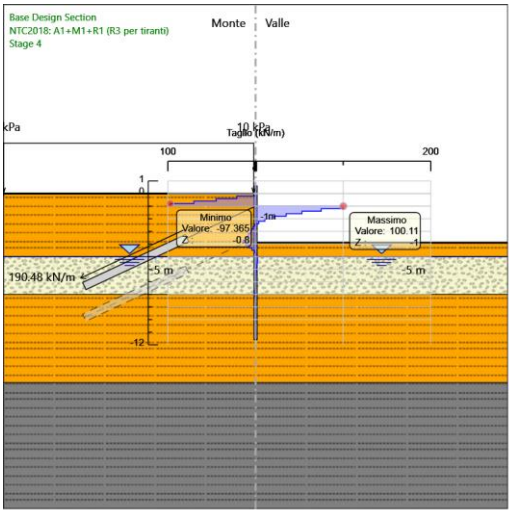

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 5
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
60
30
Minimo
Valore: -53.486
Massimo
Valore: 20.16
190.48 kN/m
190.48 kN/m
-5 m
-5 m
-12

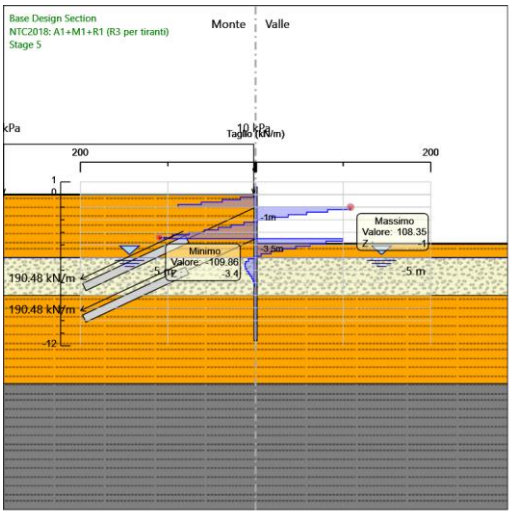

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 6
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
70
30
Minimo
Valore: -60.015
Massimo
Valore: 24.51
190.48 kN/m
190.48 kN/m
-5 m
-6.8 m
-12

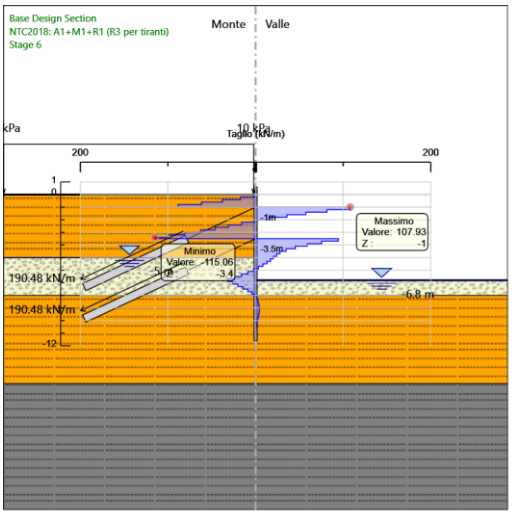

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
-12
Minimo
Valore: -1.971E-15
Z: -7.3

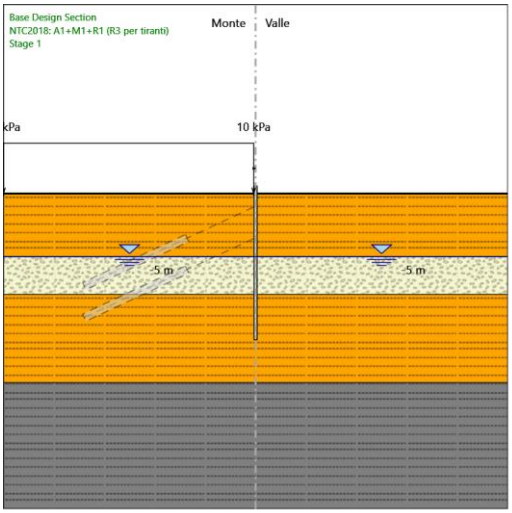

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
Minimo
Valore: -1.4106
-5 m
-5 m
-12

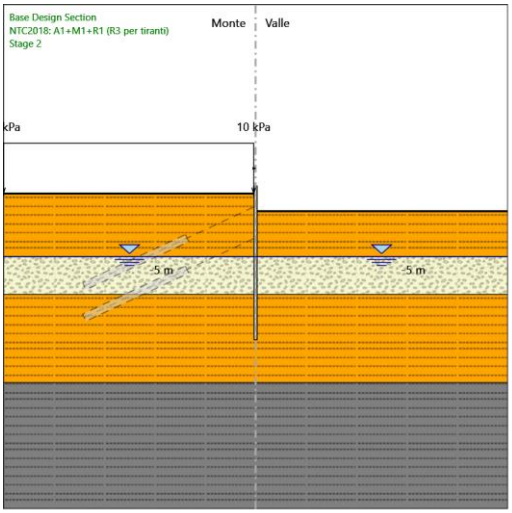

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
100
200
Minimo
Valore: -95.674
Massimo
Valore: 102.06
190.48 kN/m
-5 m
-5 m
-12

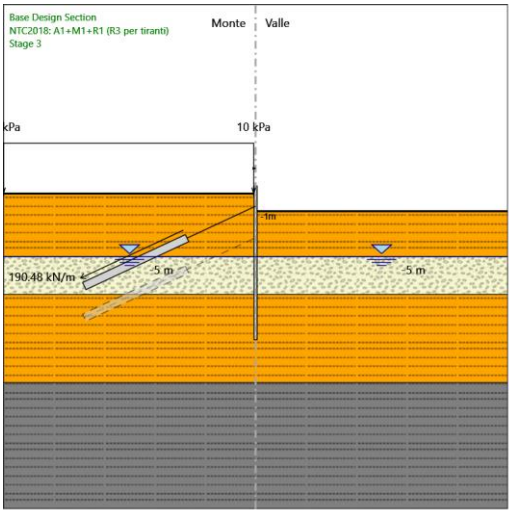

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
100
200
Minimo
Valore: -97.365
Massimo
Valore: 100.11
190.48 kN/m
-5 m
-5 m
-12

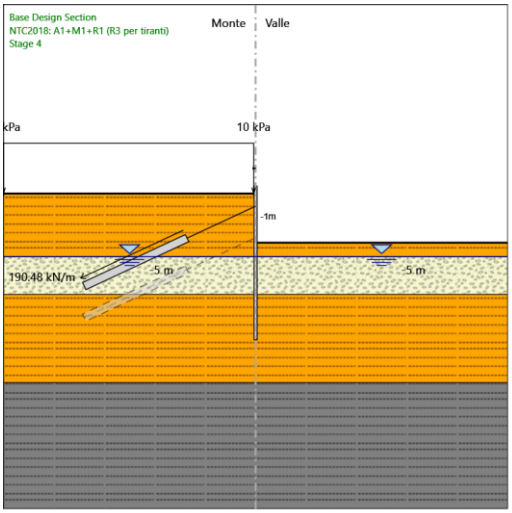

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 5
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
200
200
Minimo
Valore: -109.86
Massimo
Valore: 108.35
190.48 kN/m
190.48 kN/m
-5 m
-12

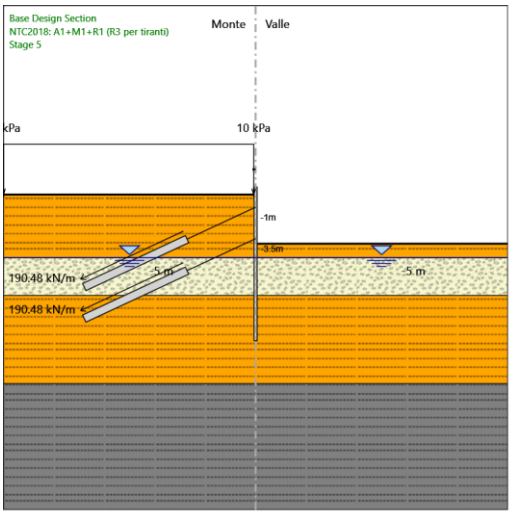

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 6
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
200
200
Minimo
Valore: -115.06
Massimo
Valore: 107.93
190.48 kN/m
190.48 kN/m
6.8 m
-12

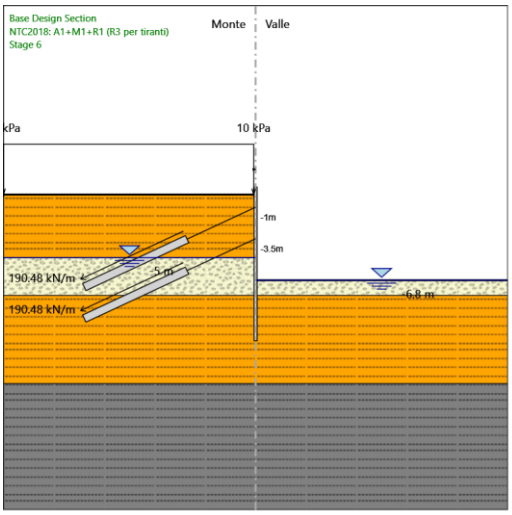

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m

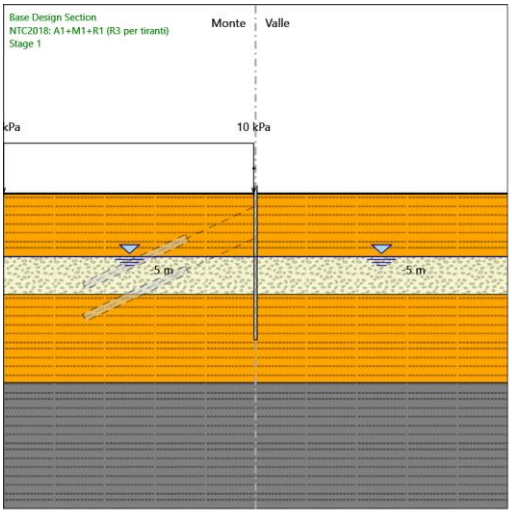

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
-5 m
-5 m

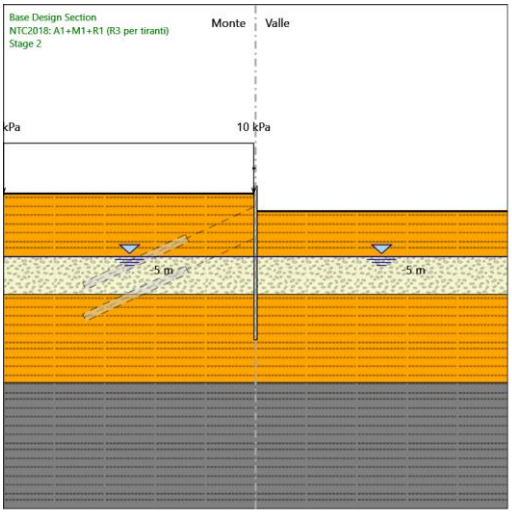

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m

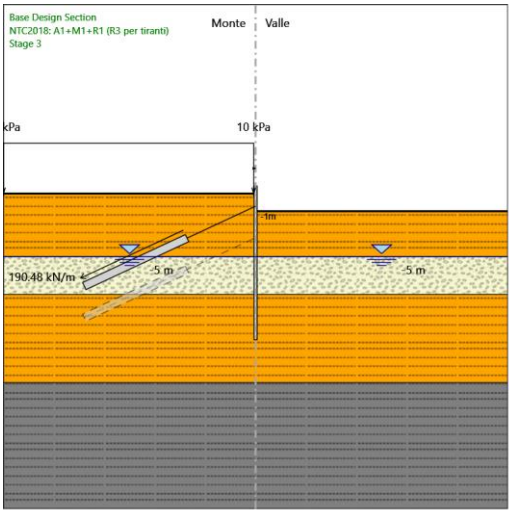

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m

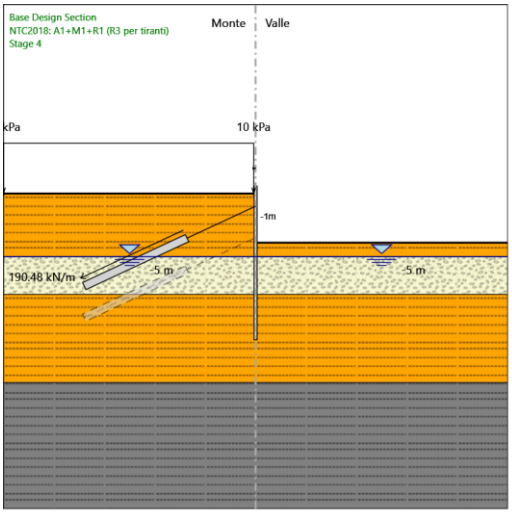

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 5
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-5 m
190.48 kN/m

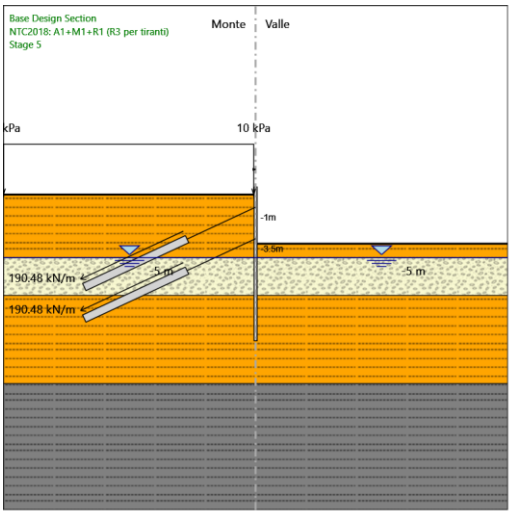

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 6
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-6.8 m
190.48 kN/m

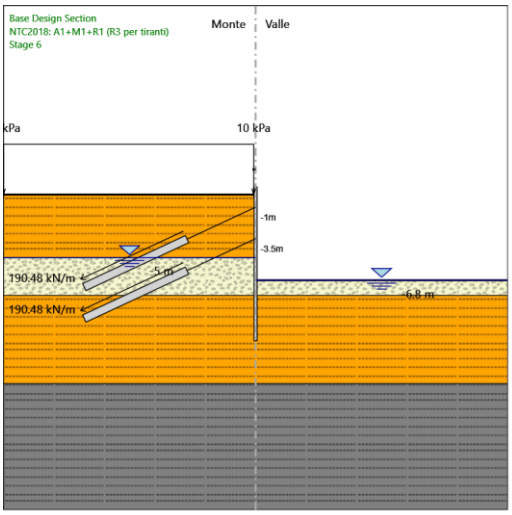

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 4
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 5
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-5 m
190.48 kN/m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 6
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-6.8 m
190.48 kN/m

Risultati Elementi strutturali - NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Sollecitazione 1° ordine di tiranti
Stage	Forza (kN/m)
Stage 3	247.65
Stage 4	247.53807
Stage 5	247.26806
Stage 6	247.09594

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Sollecitazione 2° ordine di tiranti
Stage	Forza (kN/m)
Stage 5	247.65
Stage 6	247.5343

Risultati NTC2018: A2+M2+R1

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.2	0	0
Stage 1	0.2	0	0
Stage 1	0	0	0
Stage 1	0	0	0
Stage 1	-0.2	0	0
Stage 1	-0.2	0	0
Stage 1	-0.4	0	0
Stage 1	-0.6	0	0
Stage 1	-0.8	0	0
Stage 1	-1	0	0
Stage 1	-1.2	0	0
Stage 1	-1.4	0	0
Stage 1	-1.6	0	0
Stage 1	-1.8	0	0
Stage 1	-2	0	0
Stage 1	-2.2	0	0
Stage 1	-2.4	0	0
Stage 1	-2.6	0	0
Stage 1	-2.8	0	0
Stage 1	-3	0	0
Stage 1	-3.2	0	0
Stage 1	-3.4	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.2	0	0
Stage 2	0.2	0	0
Stage 2	0	0	0
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	0	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	-0.01	-0.04
Stage 2	-1.2	-0.08	-0.38
Stage 2	-1.4	-0.35	-1.36
Stage 2	-1.6	-0.5	-0.74
Stage 2	-1.8	-0.52	-0.08
Stage 2	-2	-0.45	0.31
Stage 2	-2.2	-0.36	0.48
Stage 2	-2.4	-0.26	0.51
Stage 2	-2.6	-0.17	0.45
Stage 2	-2.8	-0.1	0.35
Stage 2	-3	-0.05	0.25
Stage 2	-3.2	-0.01	0.16
Stage 2	-3.4	0	0.08
Stage 2	-3.5	0.01	0.04

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-3.7	0.01	0.01
Stage 2	-3.9	0	-0.02
Stage 2	-4.1	-0.01	-0.04
Stage 2	-4.3	-0.02	-0.04
Stage 2	-4.5	-0.02	-0.03
Stage 2	-4.7	-0.02	0
Stage 2	-4.9	-0.01	0.04
Stage 2	-5.1	0.01	0.12
Stage 2	-5.3	0.02	0.05
Stage 2	-5.5	0.02	0.01
Stage 2	-5.7	0.02	-0.01
Stage 2	-5.9	0.02	-0.02
Stage 2	-6.1	0.01	-0.02
Stage 2	-6.3	0.01	-0.01
Stage 2	-6.5	0.01	0
Stage 2	-6.7	0.01	0.01
Stage 2	-6.9	0.01	0.02
Stage 2	-7.1	0.02	0.02
Stage 2	-7.3	0.02	0.02
Stage 2	-7.5	0.02	0.01
Stage 2	-7.7	0.02	-0.01
Stage 2	-7.9	0.01	-0.05
Stage 2	-8.1	-0.01	-0.12
Stage 2	-8.3	-0.02	-0.05
Stage 2	-8.5	-0.03	-0.01
Stage 2	-8.7	-0.02	0.01
Stage 2	-8.9	-0.02	0.02
Stage 2	-9.1	-0.01	0.03
Stage 2	-9.3	-0.01	0.02
Stage 2	-9.5	0	0.02
Stage 2	-9.7	0	0.01
Stage 2	-9.9	0	0.01
Stage 2	-10.1	0	0
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.2	0	0
Stage 3	0.2	0	0
Stage 3	0	0	0
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-2.49	-12.43
Stage 3	-0.6	-8.4	-29.54
Stage 3	-0.8	-18.52	-50.64
Stage 3	-1	-33.07	-72.73

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-1.2	-17.38	78.45
Stage 3	-1.4	-5.64	58.69
Stage 3	-1.6	2.64	41.42
Stage 3	-1.8	8.02	26.9
Stage 3	-2	11.03	15.03
Stage 3	-2.2	12.13	5.49
Stage 3	-2.4	11.69	-2.17
Stage 3	-2.6	10.01	-8.38
Stage 3	-2.8	7.77	-11.21
Stage 3	-3	5.45	-11.59
Stage 3	-3.2	3.43	-10.11
Stage 3	-3.4	1.84	-7.93
Stage 3	-3.5	1.22	-6.21
Stage 3	-3.7	0.31	-4.56
Stage 3	-3.9	-0.22	-2.68
Stage 3	-4.1	-0.48	-1.27
Stage 3	-4.3	-0.55	-0.34
Stage 3	-4.5	-0.5	0.21
Stage 3	-4.7	-0.41	0.48
Stage 3	-4.9	-0.29	0.59
Stage 3	-5.1	-0.17	0.61
Stage 3	-5.3	-0.08	0.45
Stage 3	-5.5	-0.02	0.29
Stage 3	-5.7	0.01	0.17
Stage 3	-5.9	0.03	0.08
Stage 3	-6.1	0.03	0.02
Stage 3	-6.3	0.03	-0.01
Stage 3	-6.5	0.03	-0.02
Stage 3	-6.7	0.03	-0.02
Stage 3	-6.9	0.02	-0.01
Stage 3	-7.1	0.02	0
Stage 3	-7.3	0.03	0.01
Stage 3	-7.5	0.03	0
Stage 3	-7.7	0.02	-0.02
Stage 3	-7.9	0.01	-0.06
Stage 3	-8.1	-0.01	-0.12
Stage 3	-8.3	-0.02	-0.05
Stage 3	-8.5	-0.03	-0.01
Stage 3	-8.7	-0.02	0.01
Stage 3	-8.9	-0.02	0.03
Stage 3	-9.1	-0.01	0.03
Stage 3	-9.3	-0.01	0.02
Stage 3	-9.5	0	0.02
Stage 3	-9.7	0	0.01
Stage 3	-9.9	0	0.01
Stage 3	-10.1	0	0
Stage 3	-10.3	0	0
Stage 3	-10.5	0	0
Stage 3	-10.7	0	0
Stage 3	-10.9	0	0
Stage 3	-11.1	0	0
Stage 3	-11.3	0	0
Stage 3	-11.5	0	0
Stage 3	-11.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 4

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0.6	0	0
Stage 4	0.4	0	0
Stage 4	0.4	0	0
Stage 4	0.2	0	0
Stage 4	0.2	0	0
Stage 4	0	0	0
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-2.49	-12.43
Stage 4	-0.6	-8.4	-29.54
Stage 4	-0.8	-18.52	-50.64
Stage 4	-1	-33.23	-73.52
Stage 4	-1.2	-17.88	76.72
Stage 4	-1.4	-6.55	56.66
Stage 4	-1.6	1.31	39.33
Stage 4	-1.8	6.4	25.43
Stage 4	-2	9.41	15.04
Stage 4	-2.2	10.99	7.91
Stage 4	-2.4	11.72	3.65
Stage 4	-2.6	12.08	1.82
Stage 4	-2.8	12.06	-0.1
Stage 4	-3	11.62	-2.22
Stage 4	-3.2	10.71	-4.54
Stage 4	-3.4	9.3	-7.07
Stage 4	-3.5	8.38	-9.12
Stage 4	-3.7	6.14	-11.24
Stage 4	-3.9	3.28	-14.27
Stage 4	-4.1	0.74	-12.71
Stage 4	-4.3	-1.11	-9.24
Stage 4	-4.5	-2.32	-6.09
Stage 4	-4.7	-2.98	-3.29
Stage 4	-4.9	-3.15	-0.82
Stage 4	-5.1	-2.88	1.33
Stage 4	-5.3	-2.45	2.17
Stage 4	-5.5	-1.95	2.47
Stage 4	-5.7	-1.47	2.42
Stage 4	-5.9	-1.04	2.17
Stage 4	-6.1	-0.67	1.82
Stage 4	-6.3	-0.38	1.45
Stage 4	-6.5	-0.16	1.11
Stage 4	-6.7	0	0.8
Stage 4	-6.9	0.11	0.55
Stage 4	-7.1	0.18	0.34
Stage 4	-7.3	0.21	0.17
Stage 4	-7.5	0.22	0.02
Stage 4	-7.7	0.19	-0.14
Stage 4	-7.9	0.12	-0.33
Stage 4	-8.1	0.01	-0.55
Stage 4	-8.3	-0.06	-0.33
Stage 4	-8.5	-0.09	-0.17
Stage 4	-8.7	-0.1	-0.05
Stage 4	-8.9	-0.1	0.02
Stage 4	-9.1	-0.08	0.06
Stage 4	-9.3	-0.07	0.07
Stage 4	-9.5	-0.05	0.08
Stage 4	-9.7	-0.04	0.07
Stage 4	-9.9	-0.03	0.06
Stage 4	-10.1	-0.02	0.05
Stage 4	-10.3	-0.01	0.04

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-10.5	-0.01	0.02
Stage 4	-10.7	0	0.02
Stage 4	-10.9	0	0.01
Stage 4	-11.1	0	0
Stage 4	-11.3	0	0
Stage 4	-11.5	0	0
Stage 4	-11.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 5

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	0.6	0	0
Stage 5	0.4	0	0
Stage 5	0.4	0	0
Stage 5	0.2	0	0
Stage 5	0.2	0	0
Stage 5	0	0	0
Stage 5	0	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-1.83	-9.17
Stage 5	-0.6	-6.63	-24
Stage 5	-0.8	-15.4	-43.83
Stage 5	-1	-28.71	-66.54
Stage 5	-1.2	-12.09	83.1
Stage 5	-1.4	0.35	62.2
Stage 5	-1.6	9.05	43.46
Stage 5	-1.8	14.46	27.06
Stage 5	-2	17.02	12.81
Stage 5	-2.2	17.08	0.28
Stage 5	-2.4	14.86	-11.07
Stage 5	-2.6	10.5	-21.82
Stage 5	-2.8	3.87	-33.17
Stage 5	-3	-5.24	-45.53
Stage 5	-3.2	-17.07	-59.14
Stage 5	-3.4	-31.81	-73.73
Stage 5	-3.5	-40.32	-85.1
Stage 5	-3.7	-25.09	76.15
Stage 5	-3.9	-12.83	61.34
Stage 5	-4.1	-3.34	47.41
Stage 5	-4.3	3.58	34.62
Stage 5	-4.5	8.19	23.03
Stage 5	-4.7	10.7	12.58
Stage 5	-4.9	11.5	3.97
Stage 5	-5.1	11.11	-1.95
Stage 5	-5.3	9.81	-6.46
Stage 5	-5.5	8.08	-8.66
Stage 5	-5.7	6.25	-9.16
Stage 5	-5.9	4.53	-8.58
Stage 5	-6.1	3.05	-7.4
Stage 5	-6.3	1.86	-5.95
Stage 5	-6.5	0.97	-4.48
Stage 5	-6.7	0.34	-3.14
Stage 5	-6.9	-0.06	-2.02
Stage 5	-7.1	-0.29	-1.14
Stage 5	-7.3	-0.39	-0.51
Stage 5	-7.5	-0.41	-0.11
Stage 5	-7.7	-0.4	0.08
Stage 5	-7.9	-0.38	0.09
Stage 5	-8.1	-0.39	-0.06

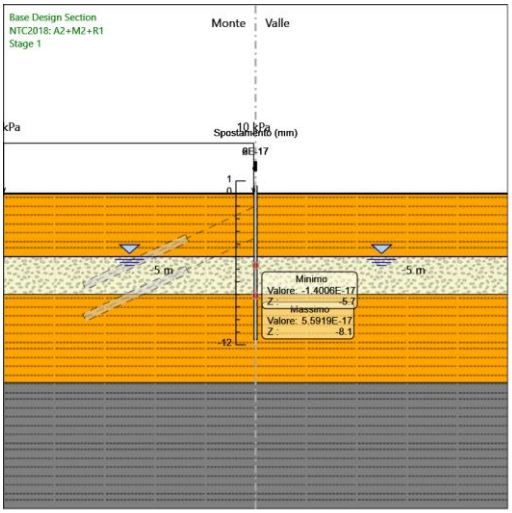
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-8.3	-0.36	0.16
Stage 5	-8.5	-0.3	0.28
Stage 5	-8.7	-0.24	0.32
Stage 5	-8.9	-0.18	0.31
Stage 5	-9.1	-0.12	0.28
Stage 5	-9.3	-0.08	0.22
Stage 5	-9.5	-0.04	0.17
Stage 5	-9.7	-0.02	0.12
Stage 5	-9.9	0	0.08
Stage 5	-10.1	0.01	0.05
Stage 5	-10.3	0.01	0.02
Stage 5	-10.5	0.01	0
Stage 5	-10.7	0.01	-0.01
Stage 5	-10.9	0.01	-0.01
Stage 5	-11.1	0	-0.01
Stage 5	-11.3	0	-0.01
Stage 5	-11.5	0	-0.01
Stage 5	-11.6	0	0

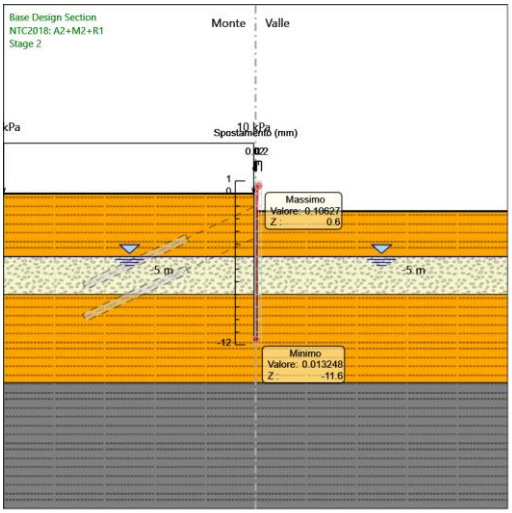
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 6

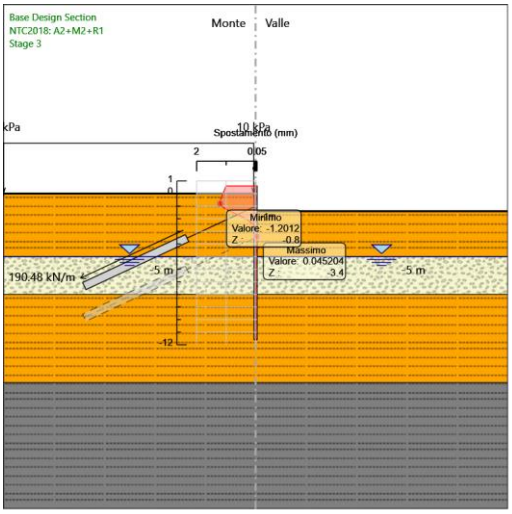
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0.6	0	0
Stage 6	0.4	0	0
Stage 6	0.4	0	0
Stage 6	0.2	0	0
Stage 6	0.2	0	0
Stage 6	0	0	0
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-1.79	-8.96
Stage 6	-0.6	-6.57	-23.89
Stage 6	-0.8	-15.4	-44.14
Stage 6	-1	-28.84	-67.21
Stage 6	-1.2	-12.5	81.69
Stage 6	-1.4	-0.44	60.34
Stage 6	-1.6	7.77	41.05
Stage 6	-1.8	12.57	24
Stage 6	-2	14.38	9.03
Stage 6	-2.2	13.52	-4.28
Stage 6	-2.4	10.23	-16.44
Stage 6	-2.6	4.63	-28.01
Stage 6	-2.8	-3.39	-40.13
Stage 6	-3	-14.02	-53.15
Stage 6	-3.2	-27.47	-67.21
Stage 6	-3.4	-43.83	-81.82
Stage 6	-3.5	-53.09	-92.59
Stage 6	-3.7	-39.08	70.02
Stage 6	-3.9	-27.49	57.95
Stage 6	-4.1	-17.73	48.79
Stage 6	-4.3	-9.09	43.24
Stage 6	-4.5	-1.17	39.6
Stage 6	-4.7	5.99	35.76
Stage 6	-4.9	12.33	31.71
Stage 6	-5.1	17.82	27.46
Stage 6	-5.3	22.47	23.22
Stage 6	-5.5	26.16	18.47

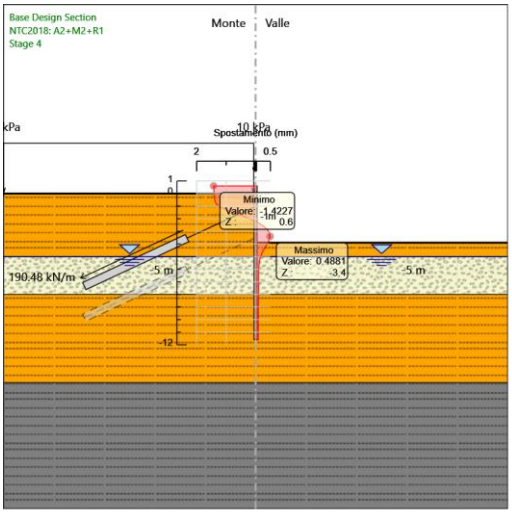
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-5.7	28.8	13.2
Stage 6	-5.9	30.29	7.44
Stage 6	-6.1	30.52	1.16
Stage 6	-6.3	29.39	-5.62
Stage 6	-6.5	26.81	-12.92
Stage 6	-6.7	22.67	-20.72
Stage 6	-6.9	16.86	-29.03
Stage 6	-7.1	11.13	-28.67
Stage 6	-7.3	5.71	-27.08
Stage 6	-7.5	0.86	-24.24
Stage 6	-7.7	-3.17	-20.16
Stage 6	-7.9	-6.14	-14.84
Stage 6	-8.1	-8.01	-9.34
Stage 6	-8.3	-9.2	-5.96
Stage 6	-8.5	-9.82	-3.1
Stage 6	-8.7	-9.96	-0.68
Stage 6	-8.9	-9.68	1.36
Stage 6	-9.1	-9.06	3.1
Stage 6	-9.3	-8.14	4.6
Stage 6	-9.5	-7.06	5.41
Stage 6	-9.7	-5.92	5.72
Stage 6	-9.9	-4.79	5.66
Stage 6	-10.1	-3.71	5.35
Stage 6	-10.3	-2.74	4.89
Stage 6	-10.5	-1.9	4.19
Stage 6	-10.7	-1.22	3.4
Stage 6	-10.9	-0.7	2.59
Stage 6	-11.1	-0.34	1.82
Stage 6	-11.3	-0.11	1.12
Stage 6	-11.5	-0.01	0.51
Stage 6	-11.6	0	0.12

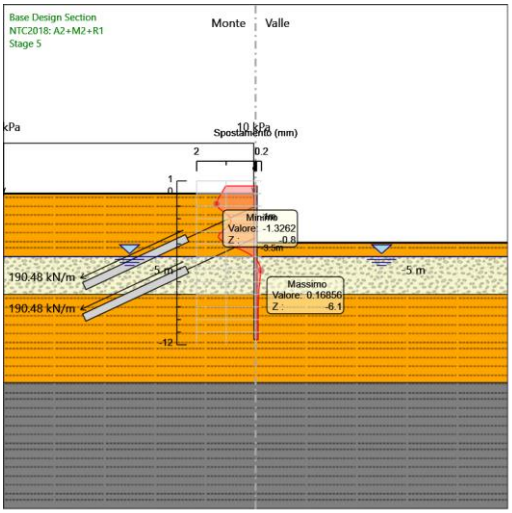
Tabella Grafici dei Risultati

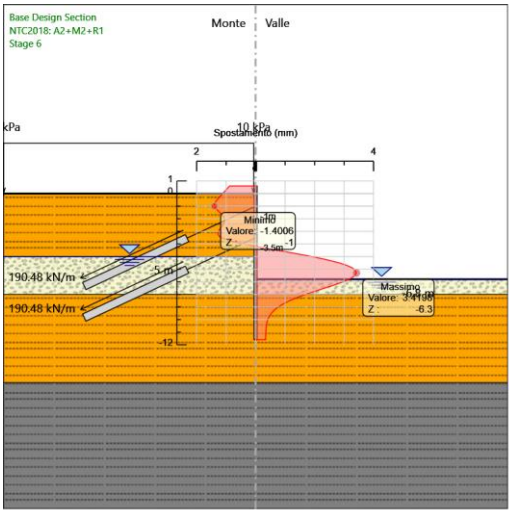


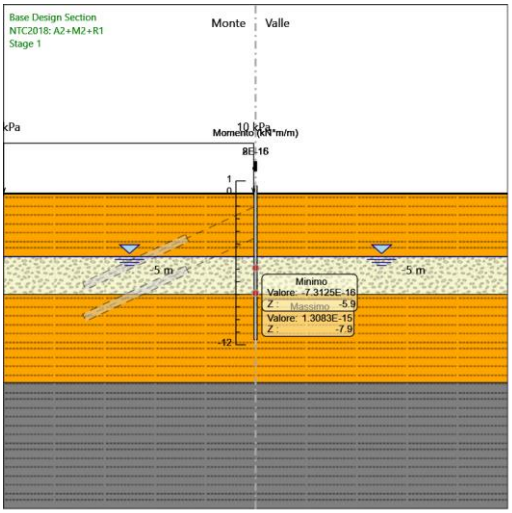


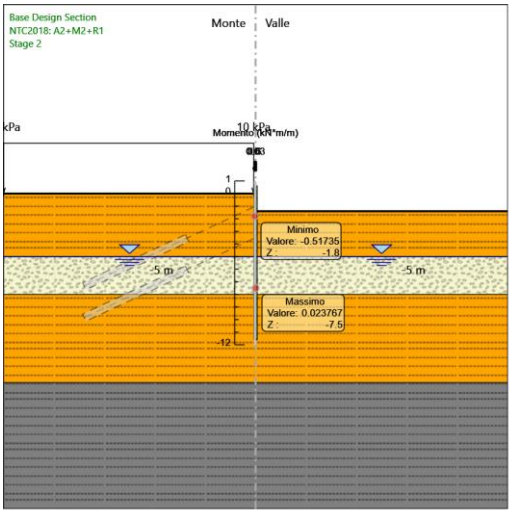


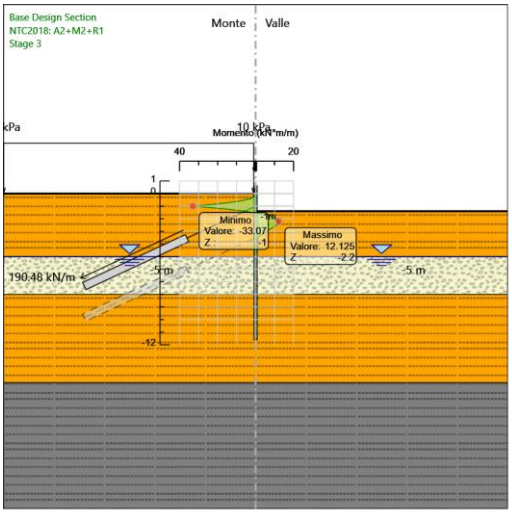


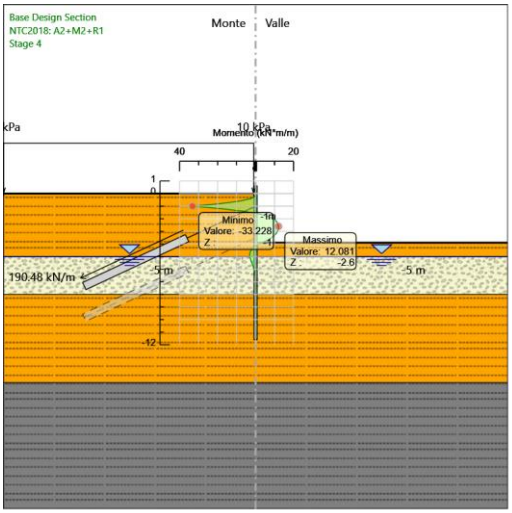


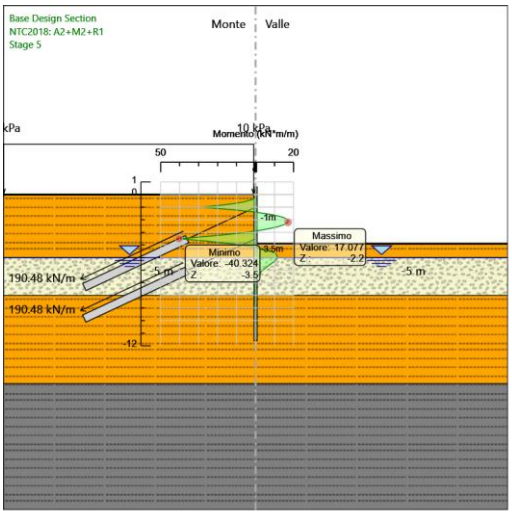


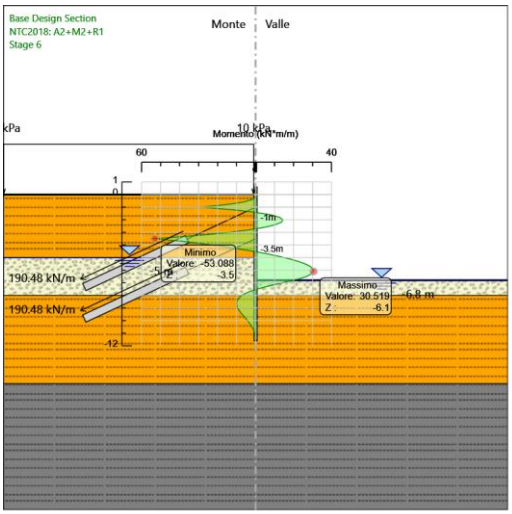

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
Minimo
Valore: -7.3125E-16
Z: -5.9
Massimo
Valore: 1.3083E-15
Z: -7.9
-5 m
-5 m
-12

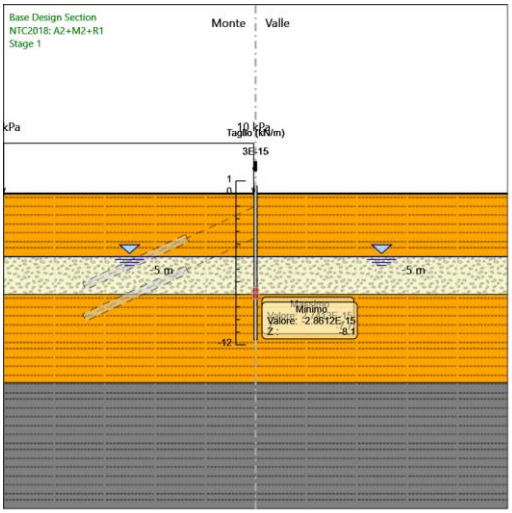

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
Minimo
Valore: -0.51735
Z: -1.8
Massimo
Valore: 0.023767
Z: -7.5
-5 m
-5 m
-12

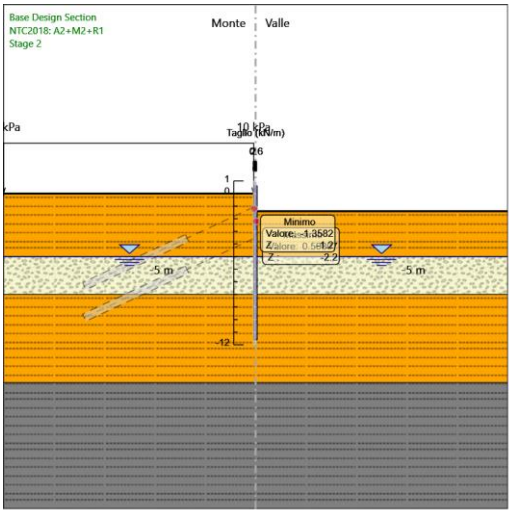

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
40
20
Minimo
Valore: -33.07
Z: -1
Massimo
Valore: 12.125
Z: -2.2
190.48 kN/m
-5 m
-5 m
-12

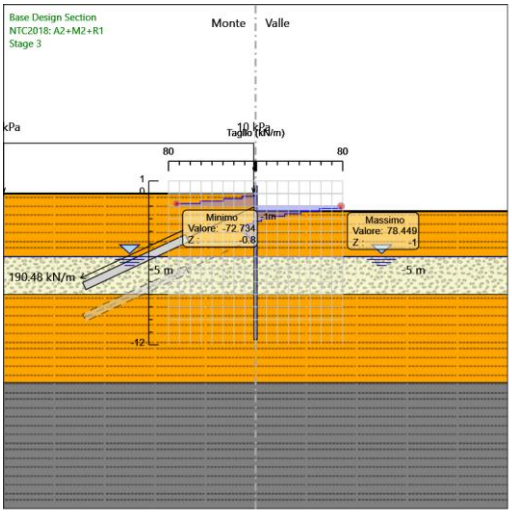

Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
40
20
Minimo
Valore: -33.228
Z: -1
Massimo
Valore: 12.081
Z: -2.6
190.48 kN/m
-5 m
-5 m
-12

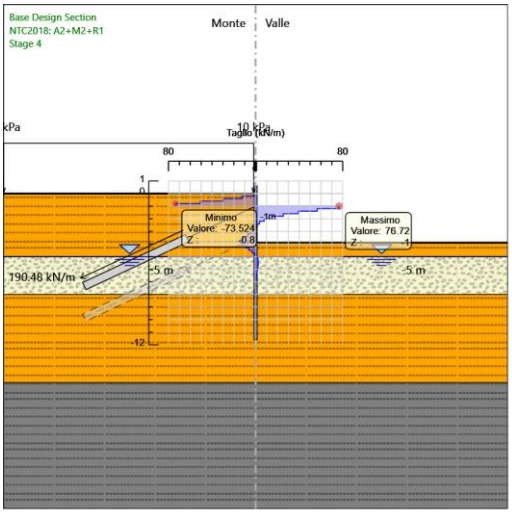

Base Design Section
NTC2018: A2+M2+R1
Stage 5
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
50
20
-1m
Minimo
Valore: -40.324
Z: -3.5
Massimo
Valore: 17.077
Z: -2.2
-3.5m
190.48 kN/m
190.48 kN/m
-5 m
-5 m
-12

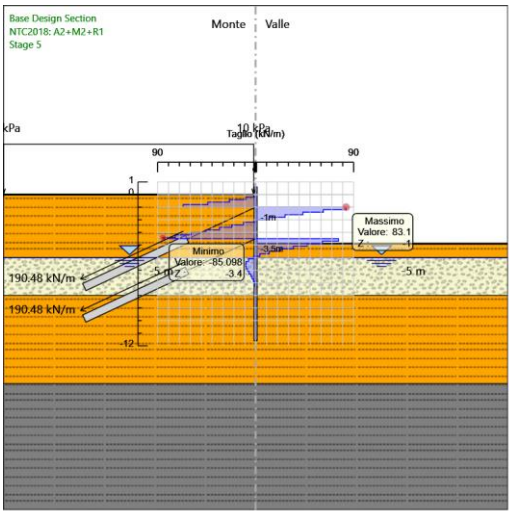

Base Design Section
NTC2018: A2+M2+R1
Stage 6
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
60
40
-1m
Minimo
Valore: -53.088
Z: -3.5
-3.5m
Massimo
Valore: 30.519
Z: -6.1
-6.8 m
190.48 kN/m
190.48 kN/m
-5 m
-12

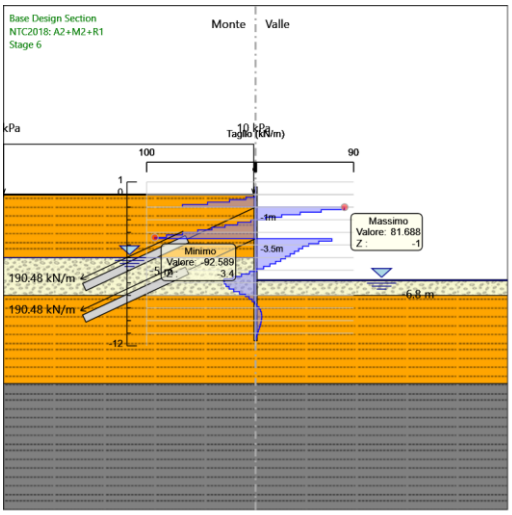

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
-12

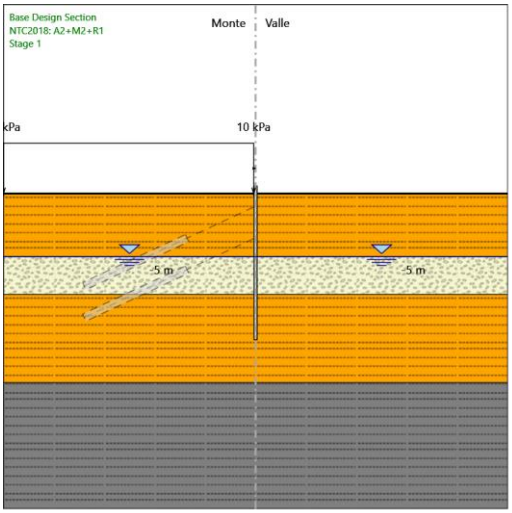

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
Minimo
-5 m
-5 m
-12

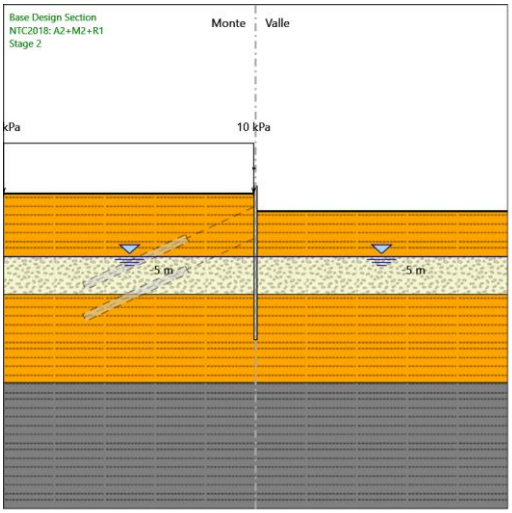

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
80
80
Minimo
Valore: -72.734
Massimo
Valore: 78.449
190.48 kN/m
-5 m
-5 m
-12

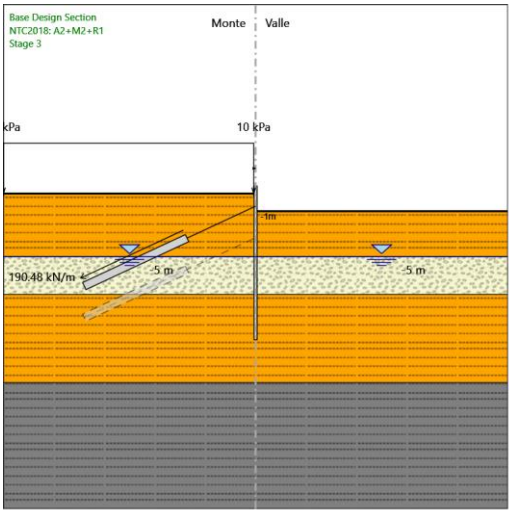

Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
80
80
Minimo
Valore: -73.524
Massimo
Valore: 76.72
190.48 kN/m
-5 m
-5 m
-12

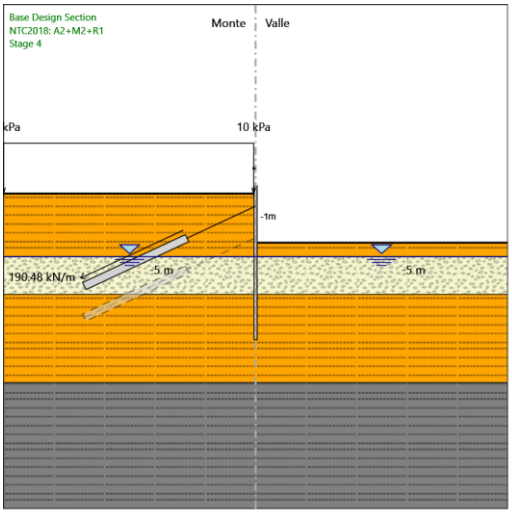

Base Design Section
NTC2018: A2+M2+R1
Stage 5
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
90
90
Minimo
Valore: -85.098
Massimo
Valore: 83.1
190.48 kN/m
190.48 kN/m
-5 m
-5 m
-12

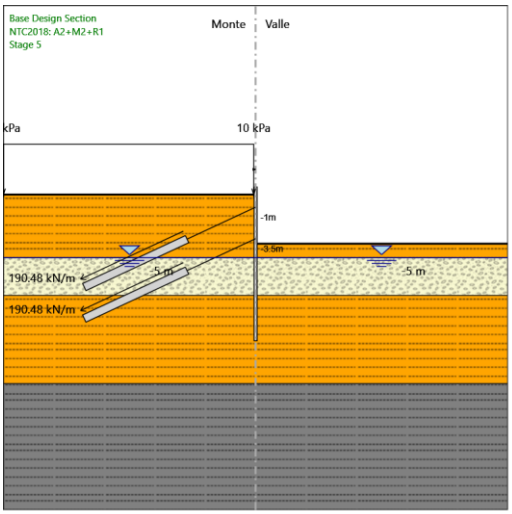

Base Design Section
NTC2018: A2+M2+R1
Stage 6
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
100
90
Minimo
Valore: -92.589
Massimo
Valore: 81.688
190.48 kN/m
190.48 kN/m
-5 m
-6.8 m
-12

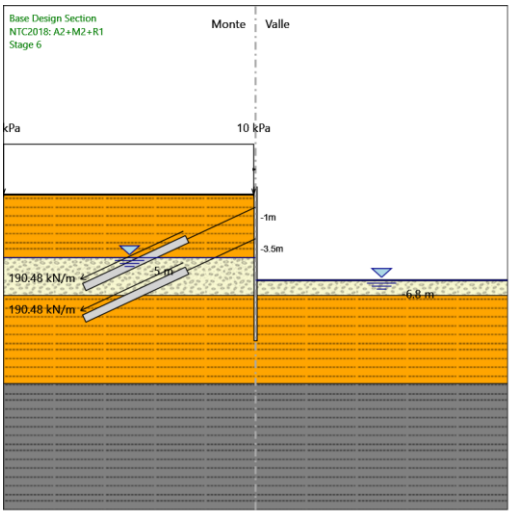

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m

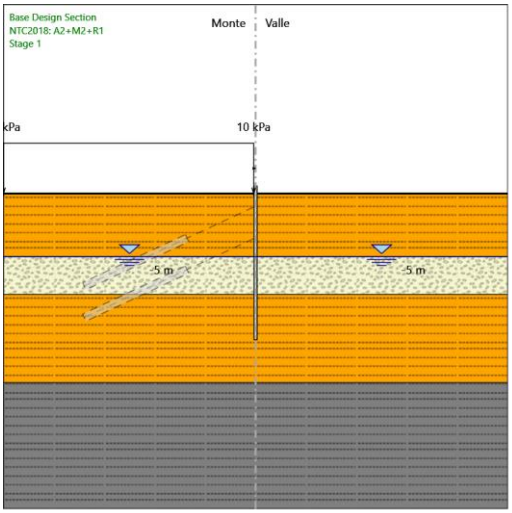

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
-5 m
-5 m

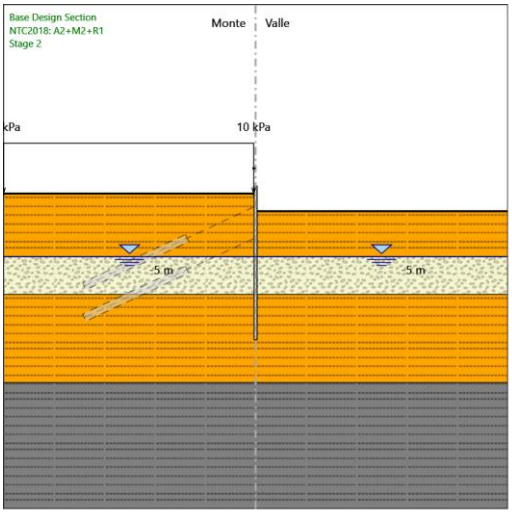

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m

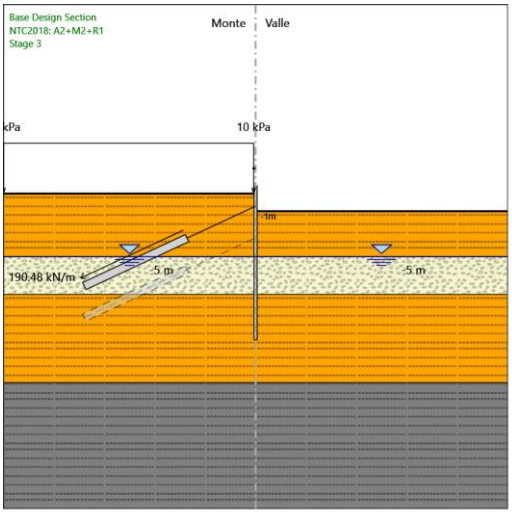

Base Design Section
NTC2018: A2+M2+R1
Stage 4
Monte
Valle
kPa
10 kPa
-1m
190.48 kN/m
-5 m
-5 m

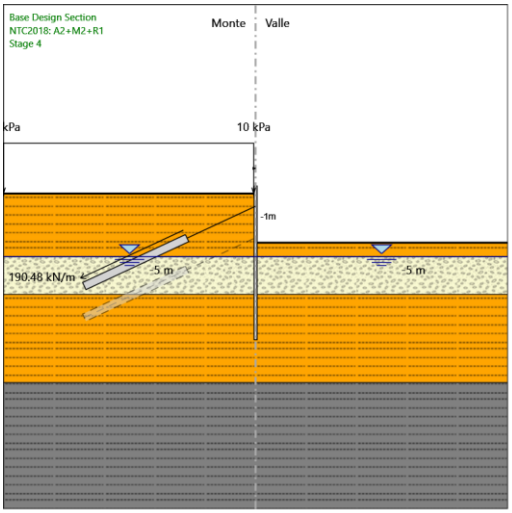

Base Design Section
NTC2018: A2+M2+R1
Stage 5
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-5 m
190.48 kN/m

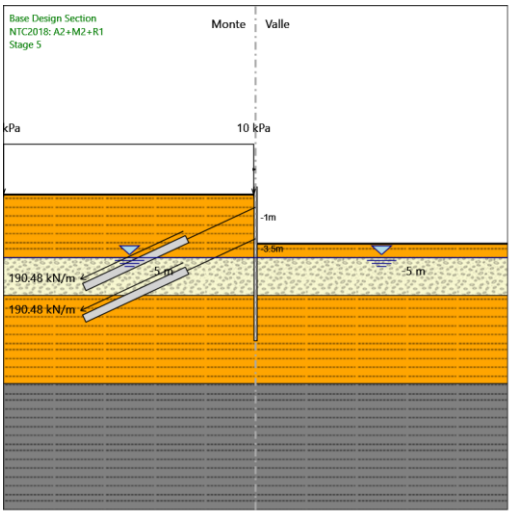

Base Design Section
NTC2018: A2+M2+R1
Stage 6
Monte
Valle
kPa
10 kPa
-1m
-3.5m
190.48 kN/m
-5 m
-6.8 m
190.48 kN/m

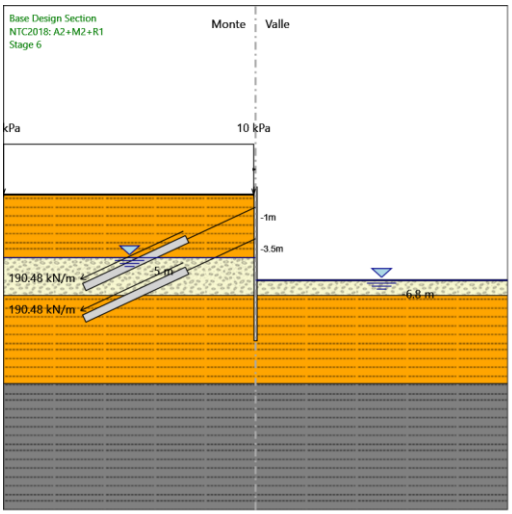












Risultati Elementi strutturali - NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1 Sollecitazione 1° ordine di tiranti

Stage	Forza (kN/m)
Stage 3	190.5
Stage 4	190.0704
Stage 5	189.7928
Stage 6	189.366

Design Assumption: NTC2018: A2+M2+R1 Sollecitazione 2° ordine di tiranti	
Stage	**Forza (kN/m)**
Stage 5	190.5
Stage 6	190.9463

Normative adottate per le verifiche degli Elementi Strutturali

Normative Verifiche	
Calcestruzzo	NTC
Acciaio	NTC
Tirante	NTC

Coefficienti per Verifica Tiranti	
GEO FS	1
ξa3	1.65
γs	1.15

Riepilogo Stage / Design Assumption per Inviluppo

Design Assumption	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
NTC2018: SLE (Rara/Frequente/Quasi Permanente)						
NTC2018: A1+M1+R1 (R3 per tiranti)	V	V	V	V	V	V
NTC2018: A2+M2+R1						

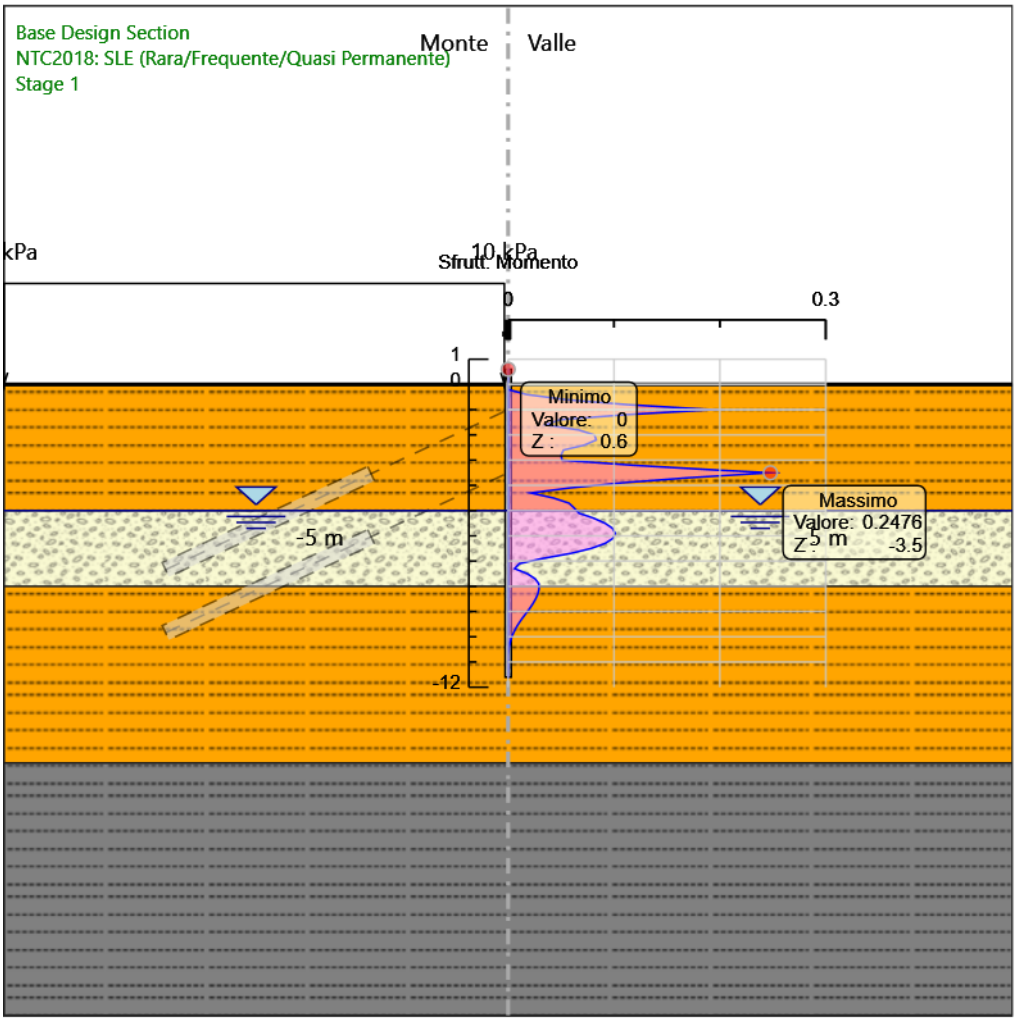
Risultati SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Momento - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
0.6	0
0.4	0
0.2	0
0	0
-0.2	0
-0.4	0.018
-0.6	0.055
-0.8	0.113
-1	0.193
-1.2	0.111
-1.4	0.049
-1.6	0.036
-1.8	0.066
-2	0.082
-2.2	0.083
-2.4	0.072
-2.6	0.052
-2.8	0.05
-3	0.051
-3.2	0.118
-3.4	0.2
-3.5	0.248
-3.7	0.17
-3.9	0.107
-4.1	0.059
-4.3	0.021
-4.5	0.043
-4.7	0.057
-4.9	0.062
-5.1	0.067
-5.3	0.081
-5.5	0.092
-5.7	0.098
-5.9	0.101
-6.1	0.099
-6.3	0.092
-6.5	0.078
-6.7	0.059
-6.9	0.032
-7.1	0.011
-7.3	0.006
-7.5	0.018
-7.7	0.025
-7.9	0.029
-8.1	0.029
-8.3	0.028
-8.5	0.026
-8.7	0.023
-8.9	0.02
-9.1	0.016
-9.3	0.013
-9.5	0.009
-9.7	0.007
-9.9	0.004
-10.1	0.003
-10.3	0.001
-10.5	0.001
-10.7	0
-10.9	0

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
-11.1	0
-11.3	0
-11.5	0
-11.6	0

Grafico Inviluppi Tasso di Sfruttamento a Momento - SteelWorld



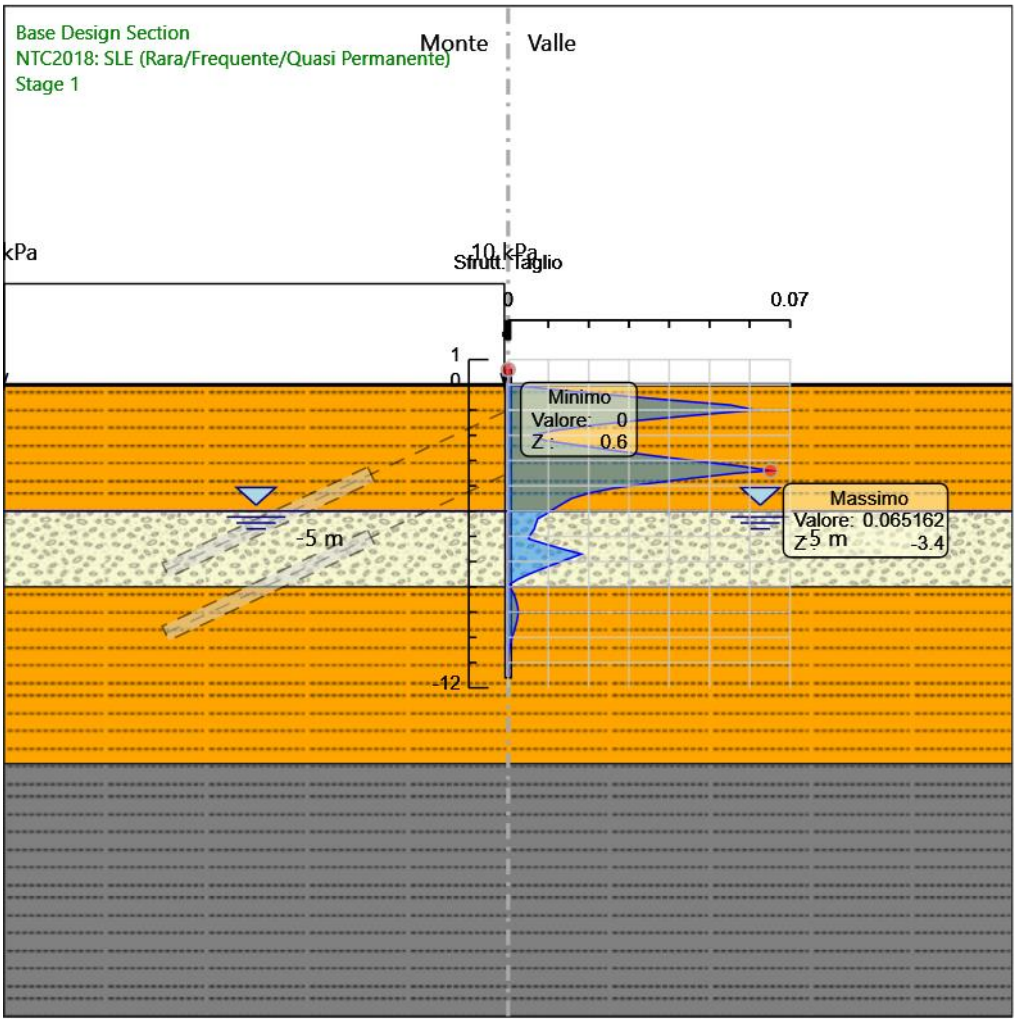
Inviluppi
Tasso di Sfruttamento a Momento - SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
0.6	0
0.4	0
0.2	0
0	0
-0.2	0.012
-0.4	0.025
-0.6	0.04
-0.8	0.055
-1	0.061
-1.2	0.047
-1.4	0.033
-1.6	0.021
-1.8	0.012
-2	0.006
-2.2	0.009
-2.4	0.018
-2.6	0.026
-2.8	0.036
-3	0.046
-3.2	0.057
-3.4	0.065
-3.5	0.056
-3.7	0.046
-3.9	0.035
-4.1	0.026
-4.3	0.02
-4.5	0.016
-4.7	0.014
-4.9	0.011
-5.1	0.01
-5.3	0.007
-5.5	0.007
-5.7	0.007
-5.9	0.006
-6.1	0.005
-6.3	0.009
-6.5	0.013
-6.7	0.018
-6.9	0.015
-7.1	0.011
-7.3	0.008
-7.5	0.005
-7.7	0.002
-7.9	0
-8.1	0.001
-8.3	0.001
-8.5	0.002
-8.7	0.002
-8.9	0.002
-9.1	0.002
-9.3	0.002
-9.5	0.002
-9.7	0.002
-9.9	0.001
-10.1	0.001
-10.3	0.001
-10.5	0
-10.7	0
-10.9	0
-11.1	0

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
-11.3	0
-11.5	0
-11.6	0

Grafico Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld



Inviluppi
Tasso di Sfruttamento a Taglio - SteelWorld

Verifiche Tiranti NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
1° ordine di tiranti	Stage 3	400.05	1071.935	807.409	0.373	0.495		NO
1° ordine di tiranti	Stage 4	399.869	1071.935	807.409	0.373	0.495		NO
1° ordine di tiranti	Stage 5	399.415	1071.935	807.409	0.373	0.495		NO
1° ordine di tiranti	Stage 6	399.143	1071.935	807.409	0.372	0.494		NO
2° ordine di tiranti	Stage 5	400.05	1103.167	807.409	0.363	0.495		NO
2° ordine di tiranti	Stage 6	399.847	1103.167	807.409	0.362	0.495		NO

Verifiche Tiranti NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
1° ordine di tiranti	Stage 3	520.065	590.598	807.409	0.881	0.644		
1° ordine di tiranti	Stage 4	519.83	590.598	807.409	0.88	0.644		
1° ordine di tiranti	Stage 5	519.263	590.598	807.409	0.879	0.643		
1° ordine di tiranti	Stage 6	518.901	590.598	807.409	0.879	0.643		
2° ordine di tiranti	Stage 5	520.065	607.805	807.409	0.856	0.644		
2° ordine di tiranti	Stage 6	519.822	607.805	807.409	0.855	0.644		

Verifiche Tiranti NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
1° ordine di tiranti	Stage 3	400.05	590.598	807.409	0.677	0.495		
1° ordine di tiranti	Stage 4	399.148	590.598	807.409	0.676	0.494		
1° ordine di tiranti	Stage 5	398.565	590.598	807.409	0.675	0.494		
1° ordine di tiranti	Stage 6	397.669	590.598	807.409	0.673	0.493		
2° ordine di tiranti	Stage 5	400.05	607.805	807.409	0.658	0.495		
2° ordine di tiranti	Stage 6	400.987	607.805	807.409	0.66	0.497		

Inviluppo Verifiche Tiranti (su tutte le D.A. attive)

	Tipo Risultato: Verifiche Tiranti								
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze	Design Assumption
1° ordine di tiranti	Stage 3	520.065	590.598	807.409	0.881	0.644			NTC2018: A1+M1+R1 (R3 per tiranti)
2° ordine di tiranti	Stage 5	520.065	607.805	807.409	0.856	0.644			NTC2018: A1+M1+R1 (R3 per tiranti)

9.4 Paratia tipo D2

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL
Quota : 0 m
OCR : 1

Tipo : HORIZONTAL
Quota : -5 m
OCR : 1

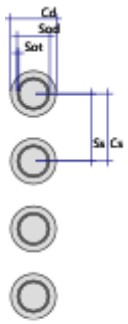
Tipo : HORIZONTAL
Quota : -8 m
OCR : 1

Tipo : HORIZONTAL
Quota : -15 m
OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ø'	øcv	øp	c'	Su	Modulo Elastico	Eu	Evc	Eur	Ah	Av	exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m³	kN/m³	°	°	°	kPa	kPa			kPa	kPa				kPa		kPa	kN/m³	kN/m³	kN/m³
1	G	18.2	18.2	37			7		Constant		86000	258000									
2	SL	19.6	19.6	33			13.5		Constant		87000	261000									
3	G	18.2	18.2	37			7		Constant		86000	258000									
4	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000									

Descrizione Pareti

X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Muro di sinistra

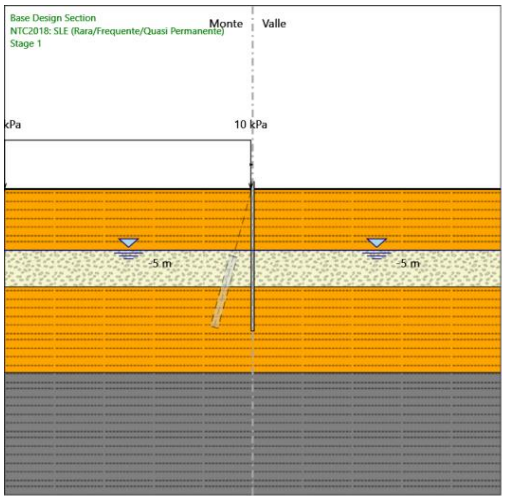


Sezione : Micropali fi240 - fi168.3 sp10
Area equivalente : 0.0217658758055028 m
Inerzia equivalente : 0.0001 m^4/m
Materiale calcestruzzo : C25/30
Tipo sezione : Tangent
Spaziatura : 0.35 m
Diametro : 0.24 m
Efficacia : 0.5
Materiale acciaio : S355
Sezione : CHS168.3*10
Tipo sezione : O

Spaziatura : 0.35 m
Spessore : 0.01 m
Diametro : 0.1683 m

Fasi di Calcolo

Stage 1



Stage 1

Scavo

Muro di sinistra

Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

0 m

Falda acquifera

Falda di sinistra : -5 m
Falda di destra : -5 m

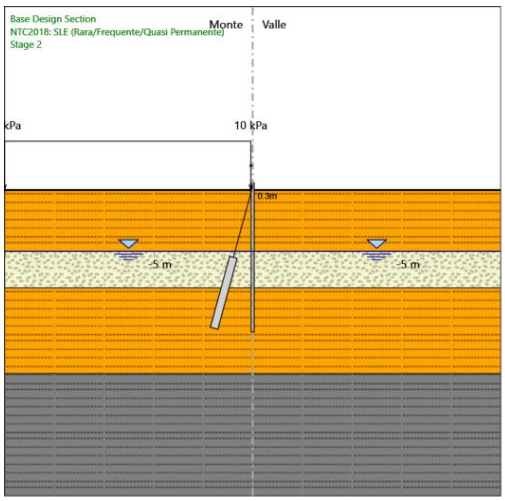
Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m
X finale : -0.15 m
Pressione iniziale : 10 kPa
Pressione finale : 10 kPa

Elementi strutturali
Paratia : Sx
X : 0 m
Quota in alto : 0.6 m
Quota di fondo : -11.6 m
Sezione : Micropali fi240 - fi168.3 sp10

Stage 2



Stage 2

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Orizzontale)
0 m
Linea di scavo di destra (Orizzontale)
0 m

Falda acquifera
Falda di sinistra : -5 m

Falda di destra : -5 m

Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m

X finale : -0.15 m

Pressione iniziale : 10 kPa

Pressione finale : 10 kPa

Elementi strutturali

Paratia : Sx

X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -11.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Tirante : Cavalletto

X : 0 m

Z : 0.3 m

Lunghezza bulbo : 6 m

Diametro bulbo : 0.24 m

Lunghezza libera : 6 m

Spaziatura orizzontale : 0.7 m

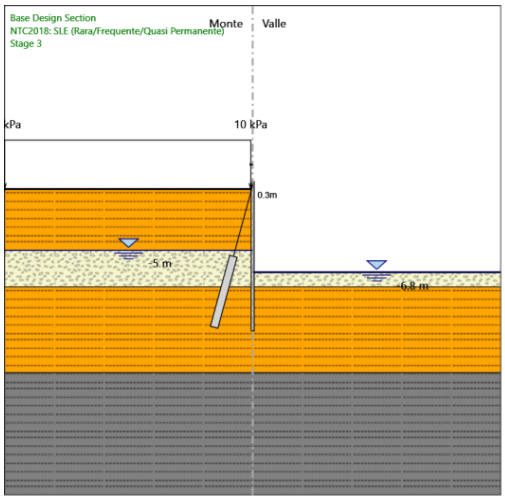
Precarico : 0 kN

Angolo : 75 °

Sezione : cavalletto L12m

Area : 0.00497 m^2

Stage 3



Stage 3

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.8 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-6.8 m

Falda acquifera

Falda di sinistra : -5 m

Falda di destra : -6.8 m

Carichi

Carico lineare in superficie : SurfaceSurcharge

X iniziale : -20 m

X finale : -0.15 m

Pressione iniziale : 10 kPa

Pressione finale : 10 kPa

Elementi strutturali

Paratia : Sx

X : 0 m

Quota in alto : 0.6 m

Quota di fondo : -11.6 m

Sezione : Micropali fi240 - fi168.3 sp10

Tirante : Cavalletto

X : 0 m

Z : 0.3 m

Lunghezza bulbo : 6 m

Diametro bulbo : 0.24 m

Lunghezza libera : 6 m

Spaziatura orizzontale : 0.7 m

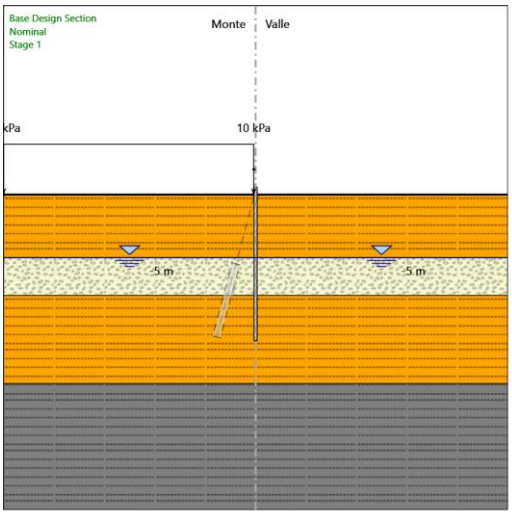
Precarico : 0 kN

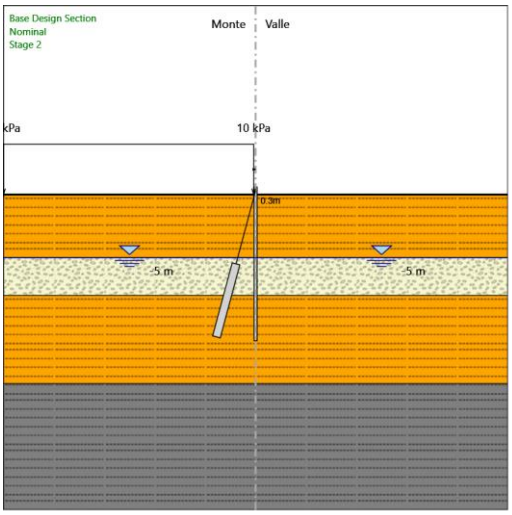
Angolo : 75 °

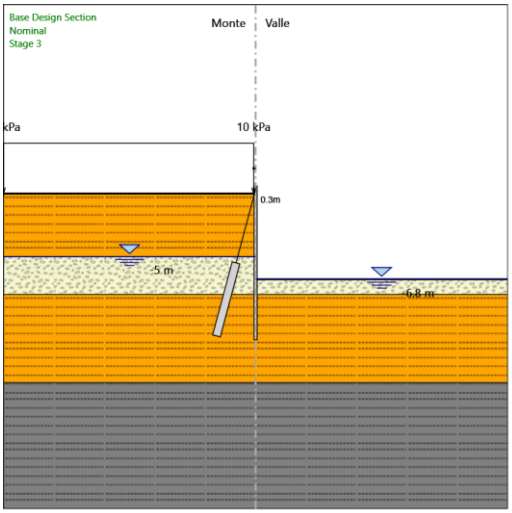
Sezione : cavalletto L12m

Area : 0.00497 m^2

Tabella Configurazione Stage (Nominal)







Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load_unfavour)	Carichi Permanenti Favorevoli (F_dead_load_favour)	Carichi Variabili Sfavorevoli (F_live_load_unfavour)	Carichi Variabili Favorevoli (F_live_load_favour)	Carico Sismico (F_seism_load)	Pressioni Acqua Lato Monte (F_WaterDR)	Pressioni Acqua Lato Valle (F_WaterRes)	Carichi Permanenti Destabilizzanti (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabilizzanti (F_UPL_QDStab)	Carichi Permanenti Destabilizzanti (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabilizzanti (F_HYD_QDStab)
Simbolo	**γG**	**γG**	**γQ**	**γQ**	**γQE**	**γG**	**γG**	**γGdst**	**γGstb**	**γQdst**	**γGdst**	**γGstb**	**γQdst**
Nominal	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	0	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1.3	1	1.5	1	0	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	0	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø') (F_Fr)	Parziale su c' (F_eff_cohe)	Parziale su Su (F_Su)	Parziale su qu (F_qu)	Parziale su peso specifico (F_gamma)
Simbolo	**γϕ**	**γc**	**γcu**	**γqu**	**γγ**
Nominal	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp) (F_Soil_Res_walls)	Parziale resistenza Tiranti permanenti (F_Anch_P)	Parziale resistenza Tiranti temporanei (F_Anch_T)	Parziale elementi strutturali (F_wall)
Simbolo	**γRe**	**γap**	**γat**	
Nominal	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	0.6	0
Stage 1	0.4	0
Stage 1	0.3	0
Stage 1	0.1	0
Stage 1	-0.1	0
Stage 1	-0.3	0
Stage 1	-0.5	0
Stage 1	-0.7	0
Stage 1	-0.9	0
Stage 1	-1.1	0
Stage 1	-1.3	0
Stage 1	-1.5	0
Stage 1	-1.7	0
Stage 1	-1.9	0
Stage 1	-2.1	0
Stage 1	-2.3	0
Stage 1	-2.5	0
Stage 1	-2.7	0
Stage 1	-2.9	0
Stage 1	-3.1	0
Stage 1	-3.3	0
Stage 1	-3.5	0
Stage 1	-3.7	0
Stage 1	-3.9	0
Stage 1	-4.1	0
Stage 1	-4.3	0
Stage 1	-4.5	0
Stage 1	-4.7	0
Stage 1	-4.9	0
Stage 1	-5.1	0
Stage 1	-5.3	0
Stage 1	-5.5	0
Stage 1	-5.7	0
Stage 1	-5.9	0
Stage 1	-6.1	0
Stage 1	-6.3	0
Stage 1	-6.5	0
Stage 1	-6.7	0
Stage 1	-6.9	0
Stage 1	-7.1	0
Stage 1	-7.3	0
Stage 1	-7.5	0
Stage 1	-7.7	0
Stage 1	-7.9	0
Stage 1	-8.1	0
Stage 1	-8.3	0
Stage 1	-8.5	0
Stage 1	-8.7	0
Stage 1	-8.9	0
Stage 1	-9.1	0
Stage 1	-9.3	0
Stage 1	-9.5	0
Stage 1	-9.7	0
Stage 1	-9.9	0
Stage 1	-10.1	0
Stage 1	-10.3	0
Stage 1	-10.5	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	-10.7	0
Stage 1	-10.9	0
Stage 1	-11.1	0
Stage 1	-11.3	0
Stage 1	-11.5	0
Stage 1	-11.6	0

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.3	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	0.6	0
Stage 2	0.4	0
Stage 2	0.3	0
Stage 2	0.1	0
Stage 2	-0.1	0
Stage 2	-0.3	0
Stage 2	-0.5	0
Stage 2	-0.7	0
Stage 2	-0.9	0
Stage 2	-1.1	0
Stage 2	-1.3	0
Stage 2	-1.5	0
Stage 2	-1.7	0
Stage 2	-1.9	0
Stage 2	-2.1	0
Stage 2	-2.3	0
Stage 2	-2.5	0
Stage 2	-2.7	0
Stage 2	-2.9	0
Stage 2	-3.1	0
Stage 2	-3.3	0
Stage 2	-3.5	0
Stage 2	-3.7	0
Stage 2	-3.9	0
Stage 2	-4.1	0
Stage 2	-4.3	0
Stage 2	-4.5	0
Stage 2	-4.7	0
Stage 2	-4.9	0
Stage 2	-5.1	0
Stage 2	-5.3	0
Stage 2	-5.5	0
Stage 2	-5.7	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	-5.9	0
Stage 2	-6.1	0
Stage 2	-6.3	0
Stage 2	-6.5	0
Stage 2	-6.7	0
Stage 2	-6.9	0
Stage 2	-7.1	0
Stage 2	-7.3	0
Stage 2	-7.5	0
Stage 2	-7.7	0
Stage 2	-7.9	0
Stage 2	-8.1	0
Stage 2	-8.3	0
Stage 2	-8.5	0
Stage 2	-8.7	0
Stage 2	-8.9	0
Stage 2	-9.1	0
Stage 2	-9.3	0
Stage 2	-9.5	0
Stage 2	-9.7	0
Stage 2	-9.9	0
Stage 2	-10.1	0
Stage 2	-10.3	0
Stage 2	-10.5	0
Stage 2	-10.7	0
Stage 2	-10.9	0
Stage 2	-11.1	0
Stage 2	-11.3	0
Stage 2	-11.5	0
Stage 2	-11.6	0

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	0	0
Stage 2	-1.7	0	0
Stage 2	-1.9	0	0
Stage 2	-2.1	0	0
Stage 2	-2.3	0	0
Stage 2	-2.5	0	0
Stage 2	-2.7	0	0
Stage 2	-2.9	0	0
Stage 2	-3.1	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-3.3	0	0
Stage 2	-3.5	0	0
Stage 2	-3.7	0	0
Stage 2	-3.9	0	0
Stage 2	-4.1	0	0
Stage 2	-4.3	0	0
Stage 2	-4.5	0	0
Stage 2	-4.7	0	0
Stage 2	-4.9	0	0
Stage 2	-5.1	0	0
Stage 2	-5.3	0	0
Stage 2	-5.5	0	0
Stage 2	-5.7	0	0
Stage 2	-5.9	0	0
Stage 2	-6.1	0	0
Stage 2	-6.3	0	0
Stage 2	-6.5	0	0
Stage 2	-6.7	0	0
Stage 2	-6.9	0	0
Stage 2	-7.1	0	0
Stage 2	-7.3	0	0
Stage 2	-7.5	0	0
Stage 2	-7.7	0	0
Stage 2	-7.9	0	0
Stage 2	-8.1	0	0
Stage 2	-8.3	0	0
Stage 2	-8.5	0	0
Stage 2	-8.7	0	0
Stage 2	-8.9	0	0
Stage 2	-9.1	0	0
Stage 2	-9.3	0	0
Stage 2	-9.5	0	0
Stage 2	-9.7	0	0
Stage 2	-9.9	0	0
Stage 2	-10.1	0	0
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 3

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	0.6	-0.89
Stage 3	0.4	0.53
Stage 3	0.3	1.24
Stage 3	0.1	2.66
Stage 3	-0.1	4.07
Stage 3	-0.3	5.47
Stage 3	-0.5	6.84
Stage 3	-0.7	8.19
Stage 3	-0.9	9.5

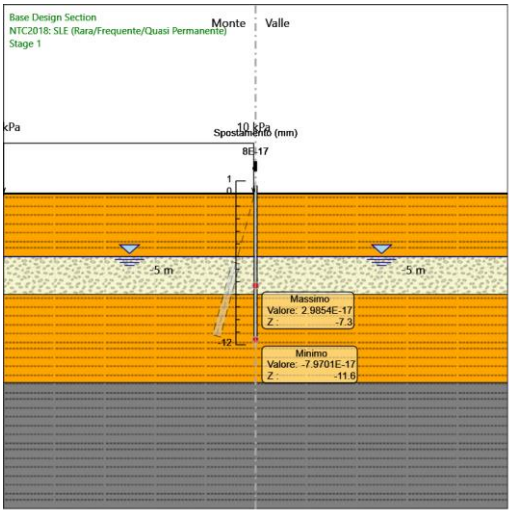
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 3	-1.1	10.77
Stage 3	-1.3	11.98
Stage 3	-1.5	13.14
Stage 3	-1.7	14.23
Stage 3	-1.9	15.25
Stage 3	-2.1	16.2
Stage 3	-2.3	17.05
Stage 3	-2.5	17.82
Stage 3	-2.7	18.49
Stage 3	-2.9	19.05
Stage 3	-3.1	19.5
Stage 3	-3.3	19.84
Stage 3	-3.5	20.07
Stage 3	-3.7	20.17
Stage 3	-3.9	20.16
Stage 3	-4.1	20.02
Stage 3	-4.3	19.76
Stage 3	-4.5	19.38
Stage 3	-4.7	18.88
Stage 3	-4.9	18.26
Stage 3	-5.1	17.54
Stage 3	-5.3	16.71
Stage 3	-5.5	15.79
Stage 3	-5.7	14.79
Stage 3	-5.9	13.71
Stage 3	-6.1	12.57
Stage 3	-6.3	11.39
Stage 3	-6.5	10.18
Stage 3	-6.7	8.97
Stage 3	-6.9	7.78
Stage 3	-7.1	6.63
Stage 3	-7.3	5.56
Stage 3	-7.5	4.57
Stage 3	-7.7	3.69
Stage 3	-7.9	2.91
Stage 3	-8.1	2.26
Stage 3	-8.3	1.71
Stage 3	-8.5	1.27
Stage 3	-8.7	0.93
Stage 3	-8.9	0.67
Stage 3	-9.1	0.49
Stage 3	-9.3	0.37
Stage 3	-9.5	0.3
Stage 3	-9.7	0.27
Stage 3	-9.9	0.26
Stage 3	-10.1	0.27
Stage 3	-10.3	0.29
Stage 3	-10.5	0.31
Stage 3	-10.7	0.34
Stage 3	-10.9	0.37
Stage 3	-11.1	0.39
Stage 3	-11.3	0.42
Stage 3	-11.5	0.45
Stage 3	-11.6	0.46

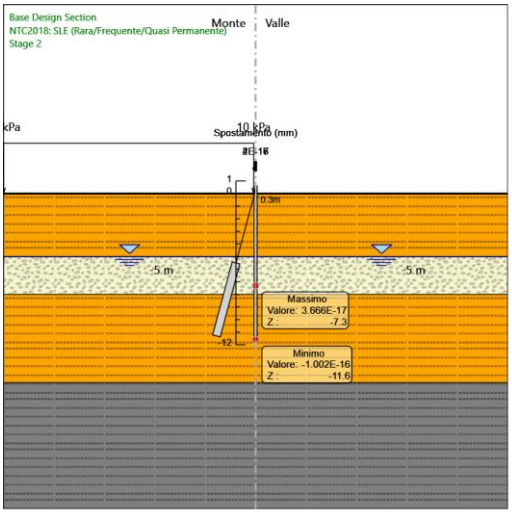
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 3

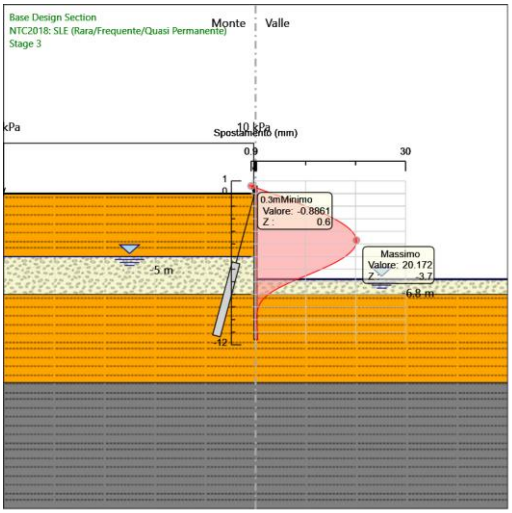
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	2.76	13.79
Stage 3	-0.1	5.52	13.79
Stage 3	-0.3	8.28	13.79
Stage 3	-0.5	11.03	13.79
Stage 3	-0.7	13.79	13.79
Stage 3	-0.9	16.55	13.79
Stage 3	-1.1	19.31	13.79
Stage 3	-1.3	22.07	13.79
Stage 3	-1.5	24.83	13.79
Stage 3	-1.7	27.56	13.66
Stage 3	-1.9	30.23	13.38
Stage 3	-2.1	32.82	12.93
Stage 3	-2.3	35.28	12.32
Stage 3	-2.5	37.59	11.55
Stage 3	-2.7	39.72	10.63
Stage 3	-2.9	41.63	9.54
Stage 3	-3.1	43.29	8.3
Stage 3	-3.3	44.67	6.9
Stage 3	-3.5	45.73	5.34
Stage 3	-3.7	46.46	3.62
Stage 3	-3.9	46.81	1.75
Stage 3	-4.1	46.75	-0.29
Stage 3	-4.3	46.25	-2.48
Stage 3	-4.5	45.29	-4.82
Stage 3	-4.7	43.82	-7.33
Stage 3	-4.9	41.83	-9.99
Stage 3	-5.1	39.27	-12.8
Stage 3	-5.3	36.2	-15.31
Stage 3	-5.5	32.55	-18.29
Stage 3	-5.7	28.2	-21.75
Stage 3	-5.9	23.06	-25.69
Stage 3	-6.1	17.03	-30.12
Stage 3	-6.3	10.03	-35.02
Stage 3	-6.5	1.95	-40.4
Stage 3	-6.7	-7.3	-46.26
Stage 3	-6.9	-17.82	-52.6
Stage 3	-7.1	-27.03	-46.03
Stage 3	-7.3	-34.56	-37.65
Stage 3	-7.5	-40.06	-27.49
Stage 3	-7.7	-43.16	-15.52
Stage 3	-7.9	-43.98	-4.11
Stage 3	-8.1	-42.89	5.45
Stage 3	-8.3	-40.6	11.44
Stage 3	-8.5	-37.35	16.26
Stage 3	-8.7	-33.32	20.14
Stage 3	-8.9	-28.66	23.33
Stage 3	-9.1	-23.66	24.98
Stage 3	-9.3	-18.58	25.42
Stage 3	-9.5	-13.86	23.57
Stage 3	-9.7	-9.78	20.41
Stage 3	-9.9	-6.45	16.65
Stage 3	-10.1	-3.89	12.8
Stage 3	-10.3	-2.05	9.21
Stage 3	-10.5	-0.84	6.07
Stage 3	-10.7	-0.13	3.51

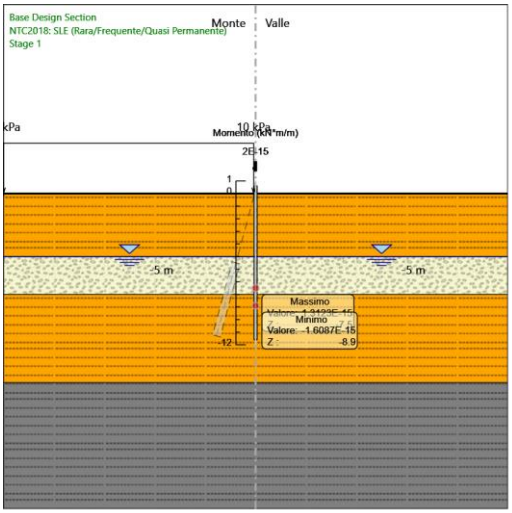
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	**Z (m)**	**Momento (kN*m/m)**	**Taglio (kN/m)**
Stage 3	-10.9	0.18	1.56
Stage 3	-11.1	0.23	0.24
Stage 3	-11.3	0.13	-0.46
Stage 3	-11.5	0.02	-0.57
Stage 3	-11.6	0	-0.2

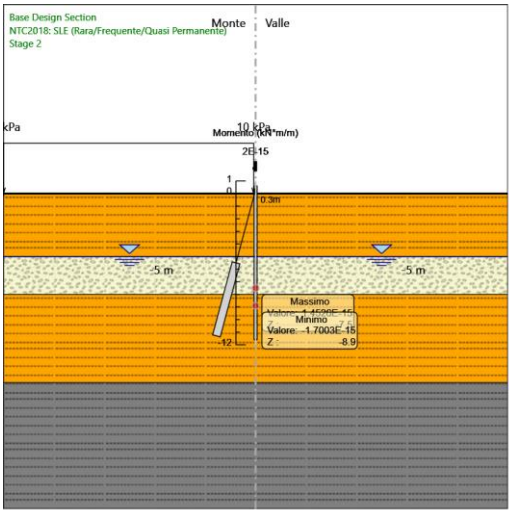
Tabella Grafici dei Risultati

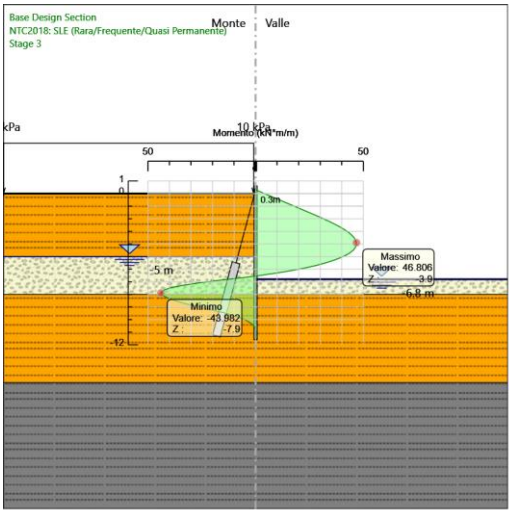


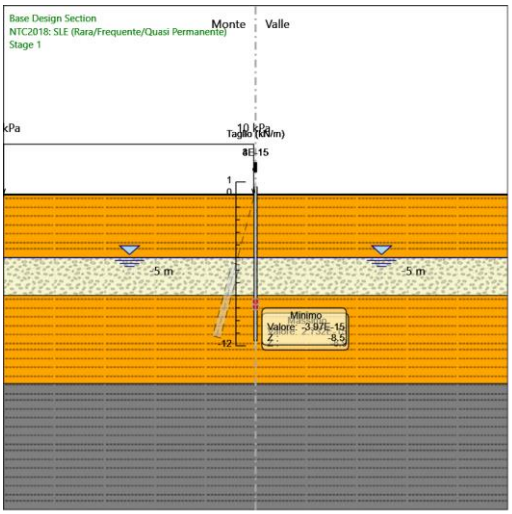


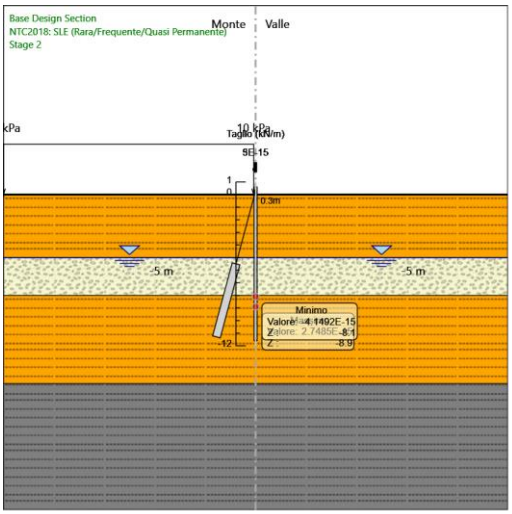


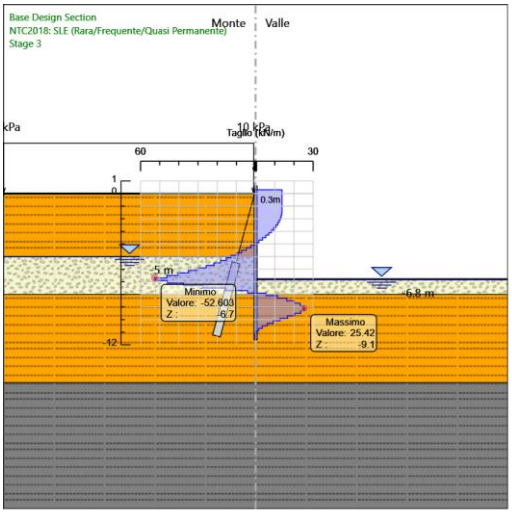

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
2E-15
-5 m
-5 m
Massimo
Minimo
Valore: -1.6087E-15
Z: -8.9
-12

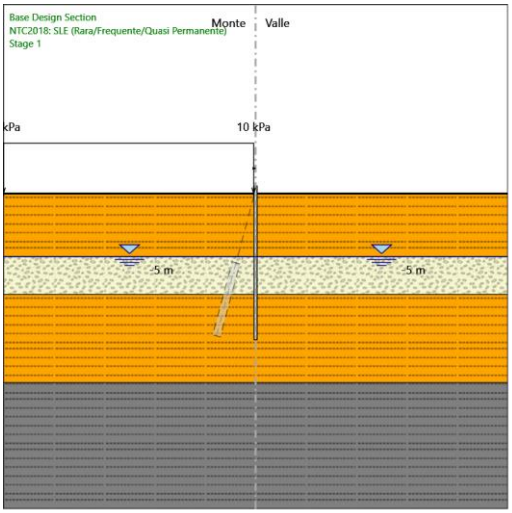

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
2E-15
0.3m
-5 m
-5 m
Massimo
Minimo
Valore: -1.7003E-15
Z: -8.9
-12

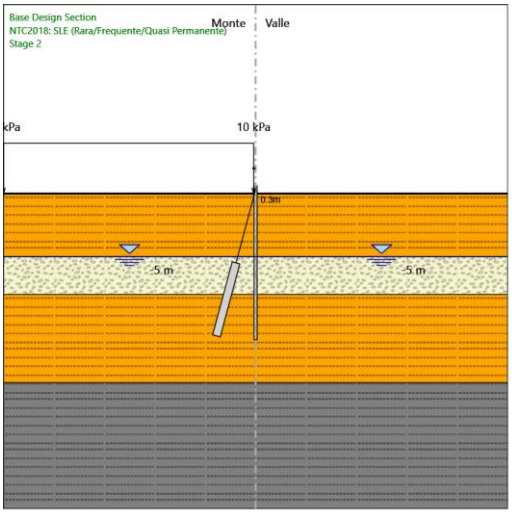

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
50
50
0.3m
-5 m
Massimo
Valore: 46.806
Z: -3.9
6.8 m
Minimo
Valore: -43.982
Z: -7.9
-12

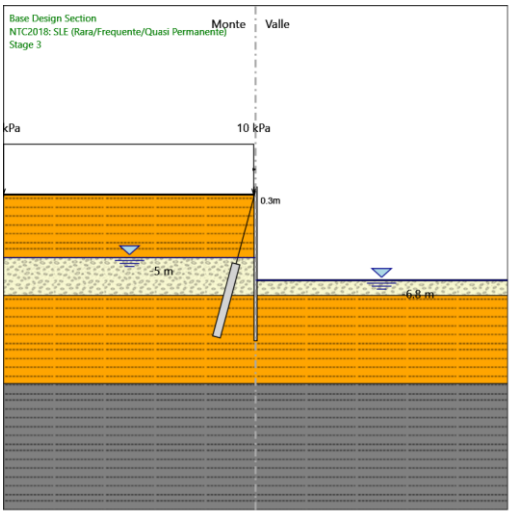

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
Minimo
Valore: -3.987E-15
Z: -8.5
-12

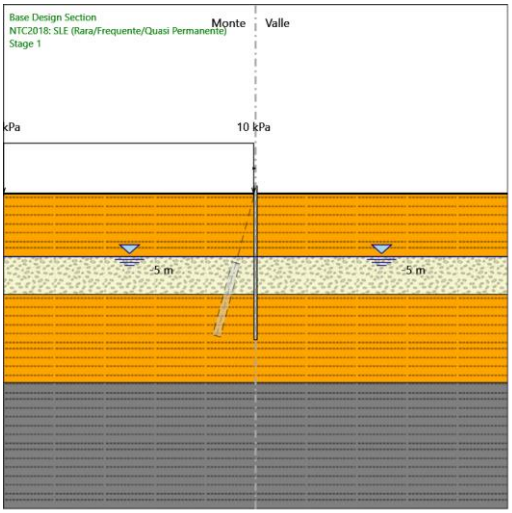

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
0.3m
-5 m
-5 m
Minimo
Valore: -4.1492E-15
Z: -8.9
-12

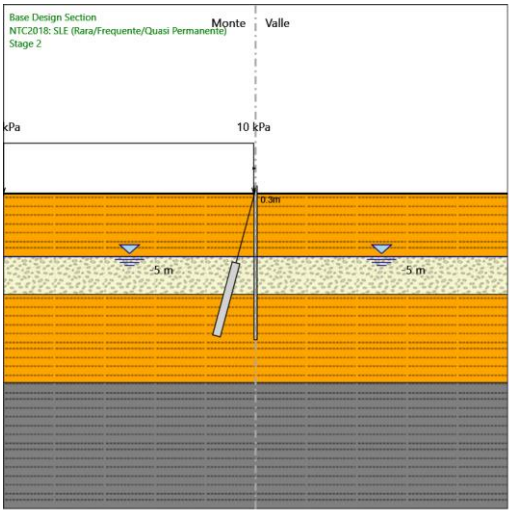

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
60
30
0.3m
-5 m
-6.8 m
Minimo
Valore: -52.603
Z: -6.7
Massimo
Valore: 25.42
Z: -9.1
12

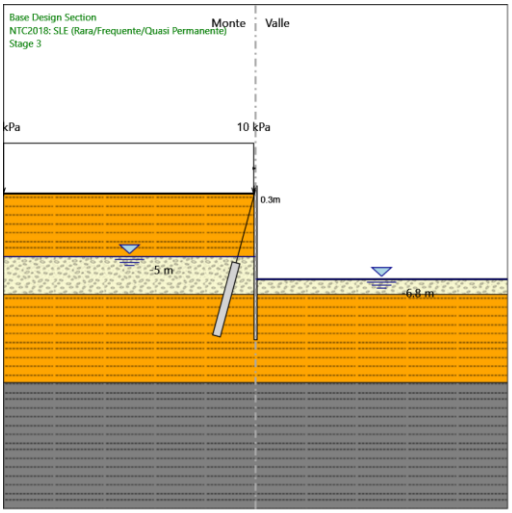

Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 2
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-5 m


Base Design Section
NTC2018: SLE (Rara/Frequente/Quasi Permanente)
Stage 3
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-6.8 m







Risultati Elementi strutturali - NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Sollecitazione Cavalletto
Stage	**Forza (kN/m)**
Stage 2	-1.1354031E-17
Stage 3	53.28702

Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.3	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	0	0
Stage 2	-1.7	0	0
Stage 2	-1.9	0	0
Stage 2	-2.1	0	0
Stage 2	-2.3	0	0
Stage 2	-2.5	0	0
Stage 2	-2.7	0	0
Stage 2	-2.9	0	0
Stage 2	-3.1	0	0
Stage 2	-3.3	0	0
Stage 2	-3.5	0	0
Stage 2	-3.7	0	0
Stage 2	-3.9	0	0
Stage 2	-4.1	0	0
Stage 2	-4.3	0	0
Stage 2	-4.5	0	0
Stage 2	-4.7	0	0
Stage 2	-4.9	0	0
Stage 2	-5.1	0	0
Stage 2	-5.3	0	0
Stage 2	-5.5	0	0
Stage 2	-5.7	0	0
Stage 2	-5.9	0	0
Stage 2	-6.1	0	0
Stage 2	-6.3	0	0
Stage 2	-6.5	0	0
Stage 2	-6.7	0	0
Stage 2	-6.9	0	0

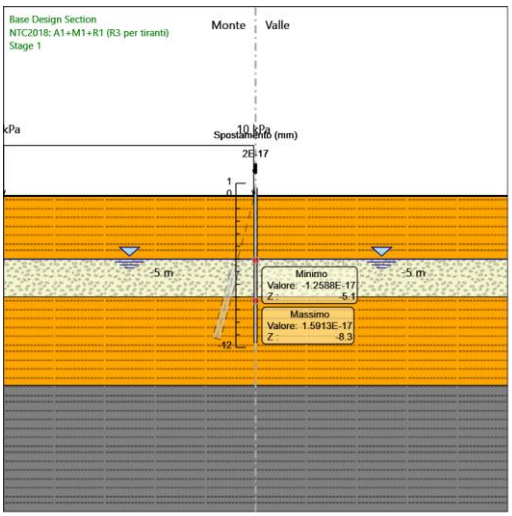
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-7.1	0	0
Stage 2	-7.3	0	0
Stage 2	-7.5	0	0
Stage 2	-7.7	0	0
Stage 2	-7.9	0	0
Stage 2	-8.1	0	0
Stage 2	-8.3	0	0
Stage 2	-8.5	0	0
Stage 2	-8.7	0	0
Stage 2	-8.9	0	0
Stage 2	-9.1	0	0
Stage 2	-9.3	0	0
Stage 2	-9.5	0	0
Stage 2	-9.7	0	0
Stage 2	-9.9	0	0
Stage 2	-10.1	0	0
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

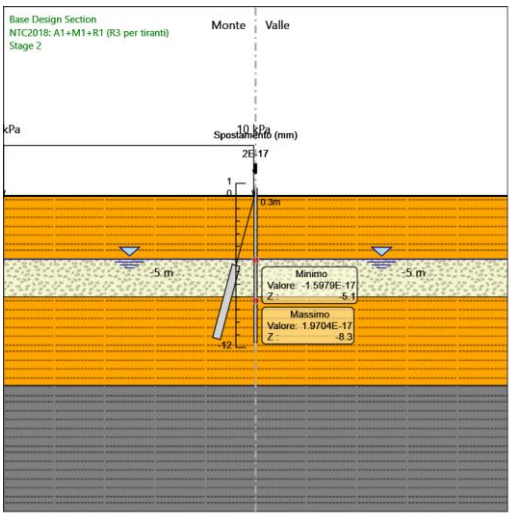
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 3

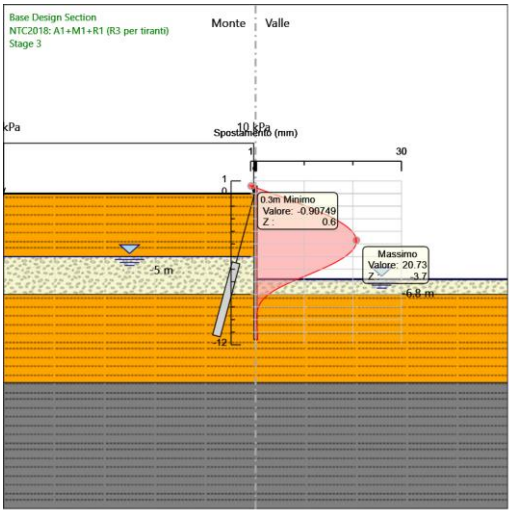
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	3.7	18.49
Stage 3	-0.1	7.4	18.49
Stage 3	-0.3	11.1	18.49
Stage 3	-0.5	14.79	18.49
Stage 3	-0.7	18.49	18.49
Stage 3	-0.9	22.19	18.49
Stage 3	-1.1	25.89	18.49
Stage 3	-1.3	29.59	18.49
Stage 3	-1.5	33.29	18.49
Stage 3	-1.7	36.94	18.27
Stage 3	-1.9	40.51	17.85
Stage 3	-2.1	43.95	17.21
Stage 3	-2.3	47.23	16.37
Stage 3	-2.5	50.29	15.32
Stage 3	-2.7	53.1	14.06
Stage 3	-2.9	55.62	12.6
Stage 3	-3.1	57.81	10.93
Stage 3	-3.3	59.62	9.05
Stage 3	-3.5	61.01	6.97
Stage 3	-3.7	61.95	4.68
Stage 3	-3.9	62.38	2.19
Stage 3	-4.1	62.28	-0.51
Stage 3	-4.3	61.6	-3.41

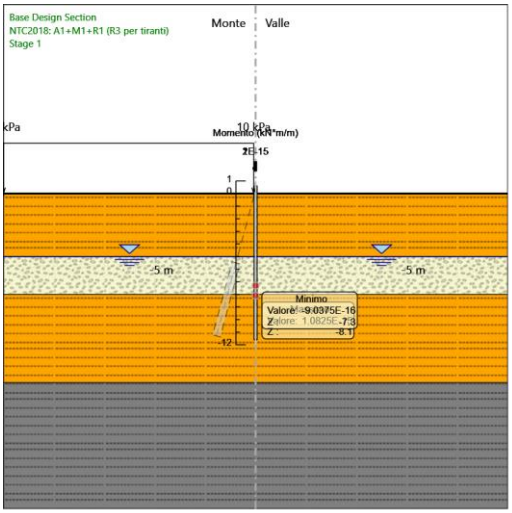
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-4.5	60.3	-6.52
Stage 3	-4.7	58.33	-9.83
Stage 3	-4.9	55.66	-13.34
Stage 3	-5.1	52.25	-17.06
Stage 3	-5.3	48.17	-20.38
Stage 3	-5.5	43.31	-24.33
Stage 3	-5.7	37.53	-28.9
Stage 3	-5.9	30.71	-34.09
Stage 3	-6.1	22.73	-39.91
Stage 3	-6.3	13.46	-46.35
Stage 3	-6.5	2.78	-53.41
Stage 3	-6.7	-9.44	-61.1
Stage 3	-6.9	-23.33	-69.41
Stage 3	-7.1	-35.51	-60.93
Stage 3	-7.3	-45.53	-50.12
Stage 3	-7.5	-52.93	-36.97
Stage 3	-7.7	-57.23	-21.49
Stage 3	-7.9	-58.46	-6.17
Stage 3	-8.1	-57.13	6.63
Stage 3	-8.3	-54.19	14.72
Stage 3	-8.5	-49.95	21.21
Stage 3	-8.7	-44.66	26.44
Stage 3	-8.9	-38.52	30.72
Stage 3	-9.1	-31.9	33.08
Stage 3	-9.3	-25.13	33.87
Stage 3	-9.5	-18.82	31.56
Stage 3	-9.7	-13.33	27.43
Stage 3	-9.9	-8.84	22.45
Stage 3	-10.1	-5.37	17.33
Stage 3	-10.3	-2.87	12.52
Stage 3	-10.5	-1.21	8.31
Stage 3	-10.7	-0.24	4.85
Stage 3	-10.9	0.2	2.21
Stage 3	-11.1	0.29	0.41
Stage 3	-11.3	0.17	-0.57
Stage 3	-11.5	0.03	-0.73
Stage 3	-11.6	0	-0.26

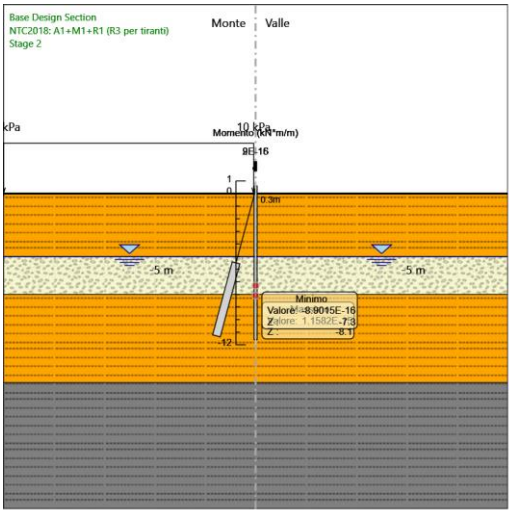
Tabella Grafici dei Risultati

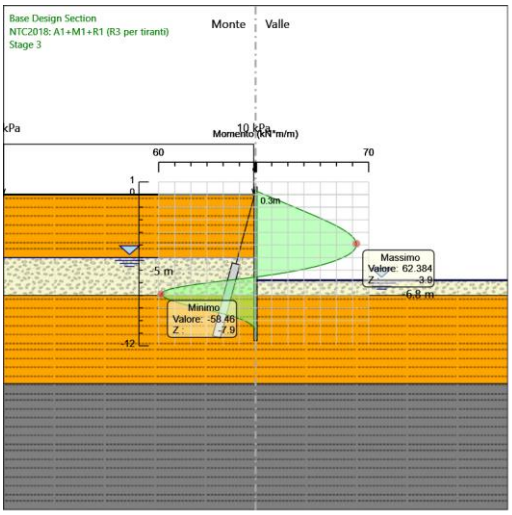


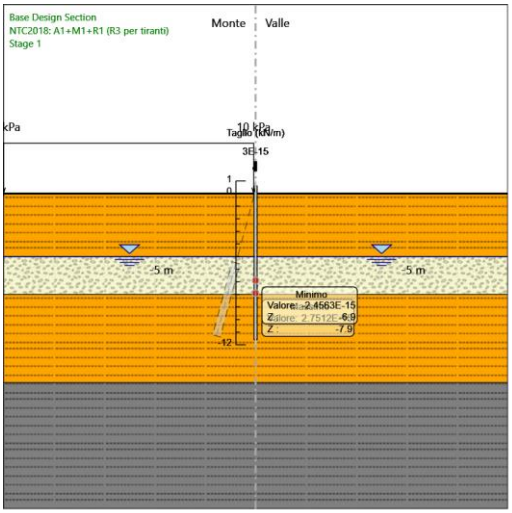


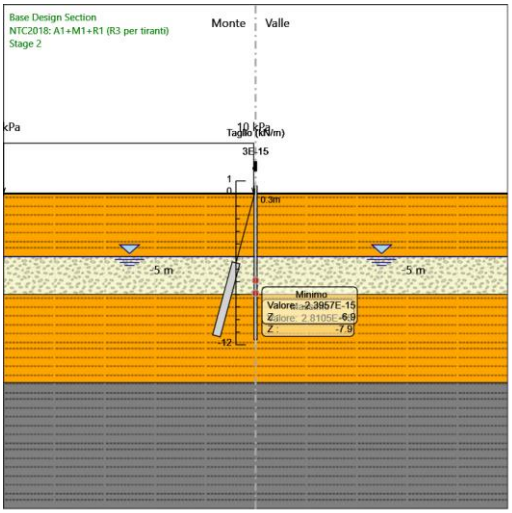

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
Spostamento (mm)
0.3m Minimo
Valore: -0.90749
Massimo
Valore: 20.73
-5 m
-6.8 m
-12

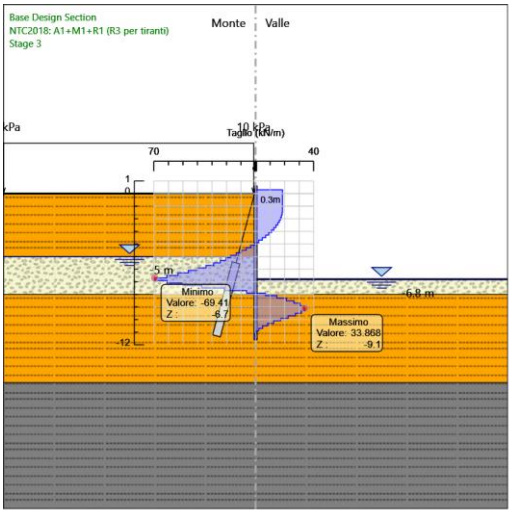

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
Minimo
-5 m
-5 m
-12

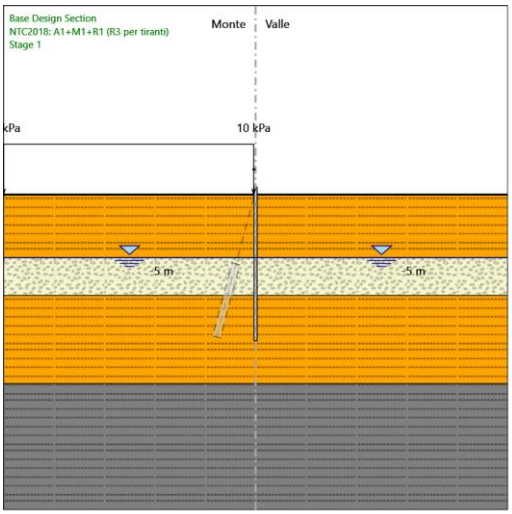

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
0.3m
Minimo
-5 m
-5 m
-12

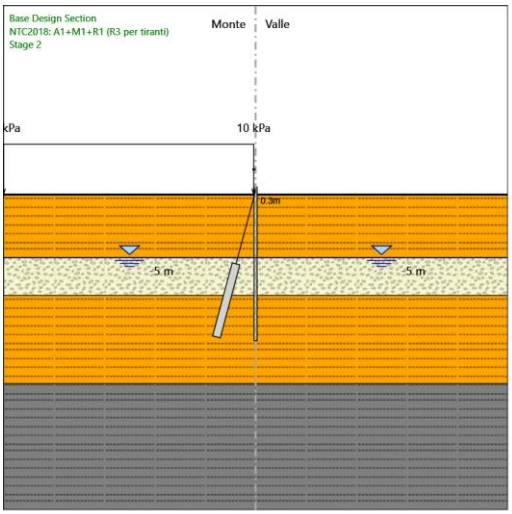

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
Momento (kN*m/m)
60
70
0.3m
Massimo
Valore: 62.384
Minimo
Valore: -58.46
-5 m
-6.8 m
-12

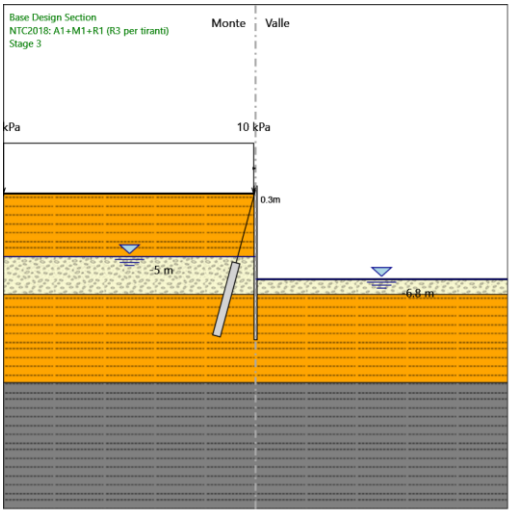

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
-5 m
-5 m
-12

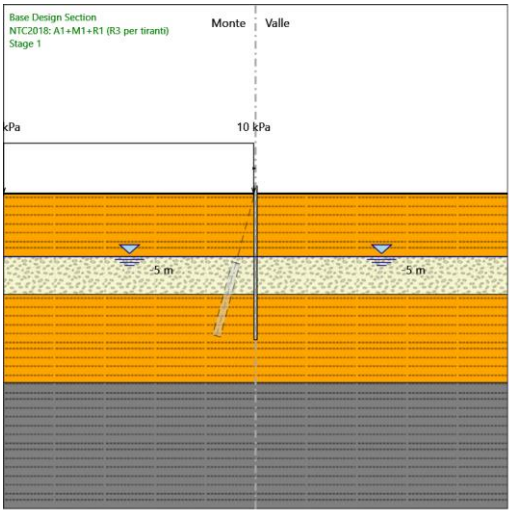

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
0.3m
-5 m
-5 m
-12

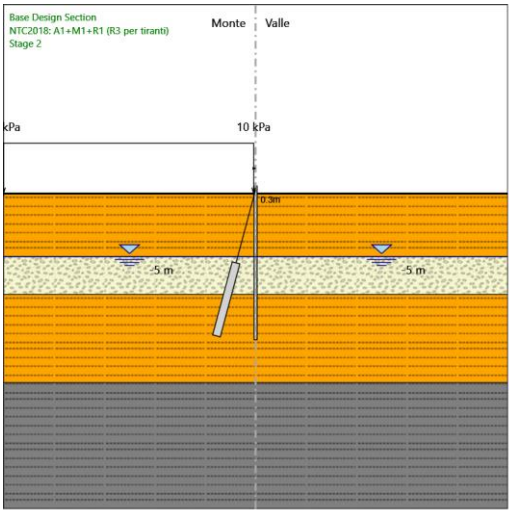

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
70
40
0.3m
-5 m
6.8 m
Minimo
Valore: -69.41
Z: -8.7
Massimo
Valore: 33.868
Z: -9.1
-12

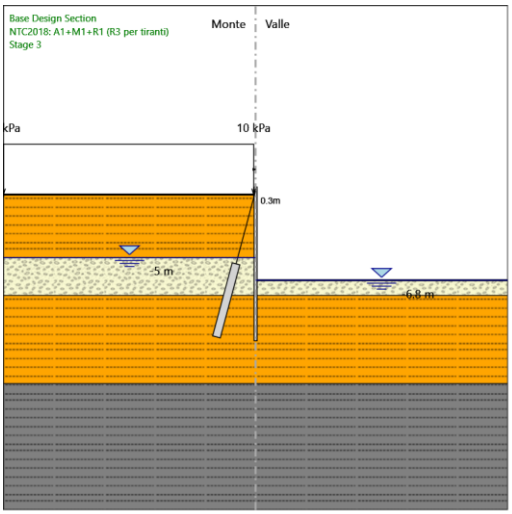

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-6.8 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-5 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 3
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-6.8 m

Risultati Elementi strutturali - NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Sollecitazione Cavalletto
Stage	Forza (kN/m)
Stage 2	4.31014363E-17
Stage 3	71.449014

Risultati NTC2018: A2+M2+R1

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.6	0	0
Stage 1	0.4	0	0
Stage 1	0.4	0	0
Stage 1	0.3	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0
Stage 1	-8.7	0	0
Stage 1	-8.9	0	0
Stage 1	-9.1	0	0
Stage 1	-9.3	0	0
Stage 1	-9.5	0	0
Stage 1	-9.7	0	0
Stage 1	-9.9	0	0
Stage 1	-10.1	0	0
Stage 1	-10.3	0	0
Stage 1	-10.5	0	0
Stage 1	-10.7	0	0
Stage 1	-10.9	0	0
Stage 1	-11.1	0	0
Stage 1	-11.3	0	0
Stage 1	-11.5	0	0
Stage 1	-11.6	0	0

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.6	0	0
Stage 2	0.4	0	0
Stage 2	0.4	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	0	0
Stage 2	-1.7	0	0
Stage 2	-1.9	0	0
Stage 2	-2.1	0	0
Stage 2	-2.3	0	0
Stage 2	-2.5	0	0
Stage 2	-2.7	0	0
Stage 2	-2.9	0	0
Stage 2	-3.1	0	0
Stage 2	-3.3	0	0
Stage 2	-3.5	0	0
Stage 2	-3.7	0	0
Stage 2	-3.9	0	0
Stage 2	-4.1	0	0
Stage 2	-4.3	0	0
Stage 2	-4.5	0	0
Stage 2	-4.7	0	0
Stage 2	-4.9	0	0
Stage 2	-5.1	0	0
Stage 2	-5.3	0	0
Stage 2	-5.5	0	0
Stage 2	-5.7	0	0

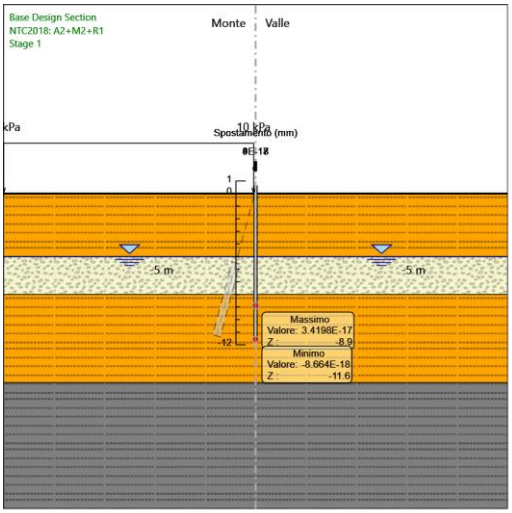
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-5.9	0	0
Stage 2	-6.1	0	0
Stage 2	-6.3	0	0
Stage 2	-6.5	0	0
Stage 2	-6.7	0	0
Stage 2	-6.9	0	0
Stage 2	-7.1	0	0
Stage 2	-7.3	0	0
Stage 2	-7.5	0	0
Stage 2	-7.7	0	0
Stage 2	-7.9	0	0
Stage 2	-8.1	0	0
Stage 2	-8.3	0	0
Stage 2	-8.5	0	0
Stage 2	-8.7	0	0
Stage 2	-8.9	0	0
Stage 2	-9.1	0	0
Stage 2	-9.3	0	0
Stage 2	-9.5	0	0
Stage 2	-9.7	0	0
Stage 2	-9.9	0	0
Stage 2	-10.1	0	0
Stage 2	-10.3	0	0
Stage 2	-10.5	0	0
Stage 2	-10.7	0	0
Stage 2	-10.9	0	0
Stage 2	-11.1	0	0
Stage 2	-11.3	0	0
Stage 2	-11.5	0	0
Stage 2	-11.6	0	0

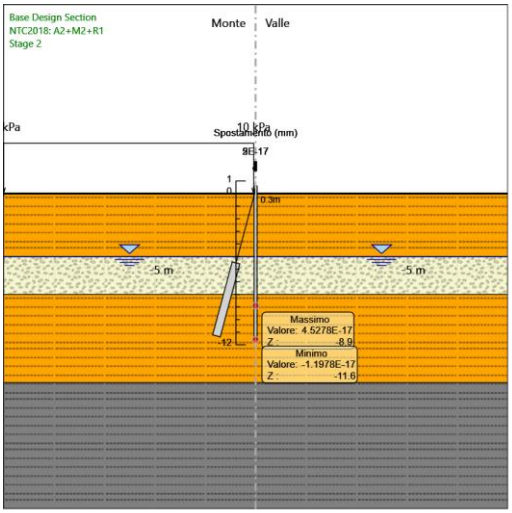
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 3

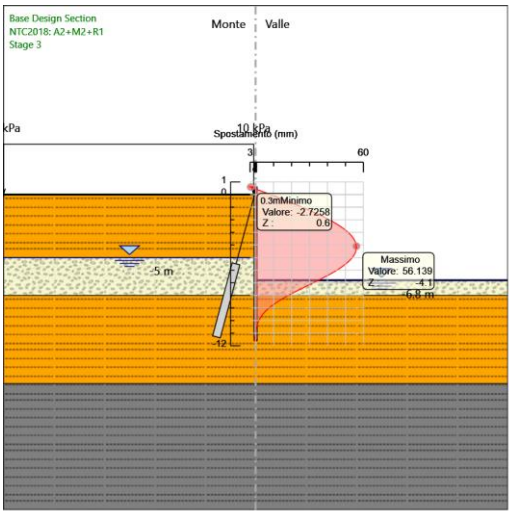
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0.6	0	0
Stage 3	0.4	0	0
Stage 3	0.4	0	0
Stage 3	0.3	0	0
Stage 3	0.3	0	0
Stage 3	0.1	6.21	31.03
Stage 3	-0.1	12.41	31.03
Stage 3	-0.3	18.62	31.03
Stage 3	-0.5	24.82	31.03
Stage 3	-0.7	31.03	31.03
Stage 3	-0.9	37.23	31.03
Stage 3	-1.1	43.41	30.92
Stage 3	-1.3	49.53	30.59
Stage 3	-1.5	55.54	30.04
Stage 3	-1.7	61.4	29.28
Stage 3	-1.9	67.06	28.31
Stage 3	-2.1	72.49	27.13
Stage 3	-2.3	77.63	25.75
Stage 3	-2.5	82.47	24.15
Stage 3	-2.7	86.94	22.35
Stage 3	-2.9	91.01	20.35
Stage 3	-3.1	94.63	18.14
Stage 3	-3.3	97.78	15.72
Stage 3	-3.5	100.4	13.1

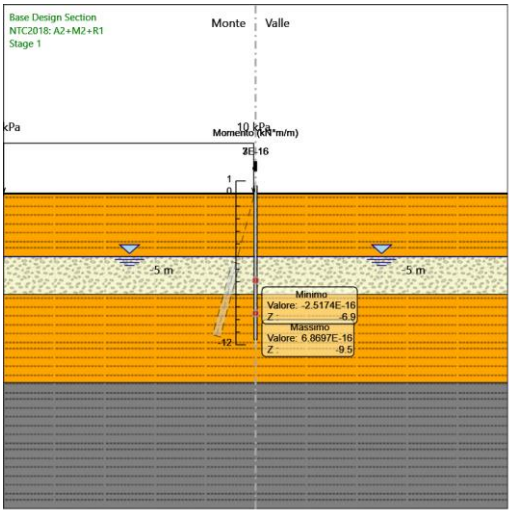
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-3.7	102.45	10.28
Stage 3	-3.9	103.9	7.25
Stage 3	-4.1	104.71	4.02
Stage 3	-4.3	104.82	0.58
Stage 3	-4.5	104.21	-3.06
Stage 3	-4.7	102.83	-6.9
Stage 3	-4.9	100.64	-10.95
Stage 3	-5.1	97.6	-15.2
Stage 3	-5.3	93.71	-19.45
Stage 3	-5.5	88.87	-24.2
Stage 3	-5.7	82.98	-29.46
Stage 3	-5.9	75.93	-35.23
Stage 3	-6.1	67.63	-41.51
Stage 3	-6.3	57.97	-48.29
Stage 3	-6.5	46.85	-55.58
Stage 3	-6.7	34.18	-63.38
Stage 3	-6.9	19.84	-71.69
Stage 3	-7.1	5.57	-71.34
Stage 3	-7.3	-8.38	-69.74
Stage 3	-7.5	-21.76	-66.91
Stage 3	-7.7	-34.32	-62.83
Stage 3	-7.9	-45.83	-57.51
Stage 3	-8.1	-56.01	-50.94
Stage 3	-8.3	-64.97	-44.78
Stage 3	-8.5	-72.42	-37.27
Stage 3	-8.7	-78.11	-28.43
Stage 3	-8.9	-81.76	-18.25
Stage 3	-9.1	-83.11	-6.74
Stage 3	-9.3	-81.89	6.11
Stage 3	-9.5	-77.93	19.76
Stage 3	-9.7	-71.89	30.19
Stage 3	-9.9	-64.31	37.94
Stage 3	-10.1	-55.6	43.52
Stage 3	-10.3	-46.13	47.37
Stage 3	-10.5	-36.15	49.9
Stage 3	-10.7	-26.05	50.47
Stage 3	-10.9	-16.72	46.66
Stage 3	-11.1	-9	38.62
Stage 3	-11.3	-3.42	27.91
Stage 3	-11.5	-0.4	15.1
Stage 3	-11.6	0	3.97

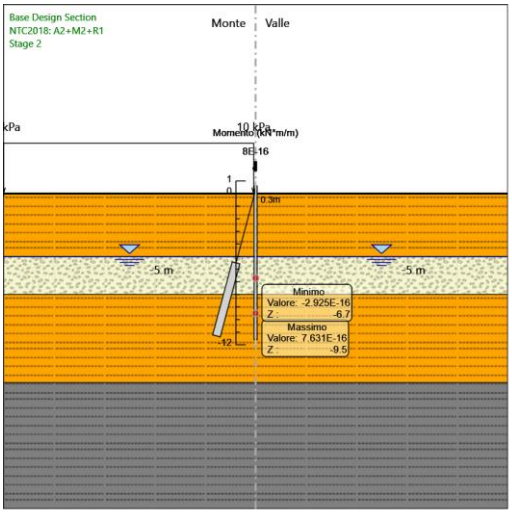
Tabella Grafici dei Risultati

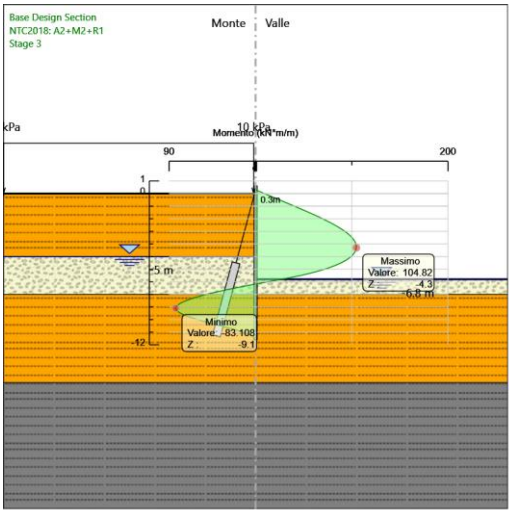


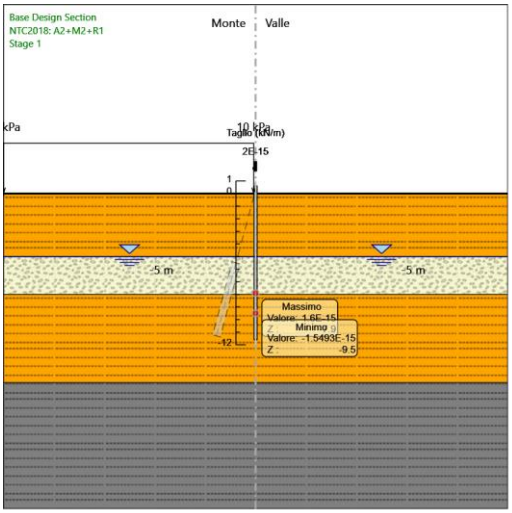


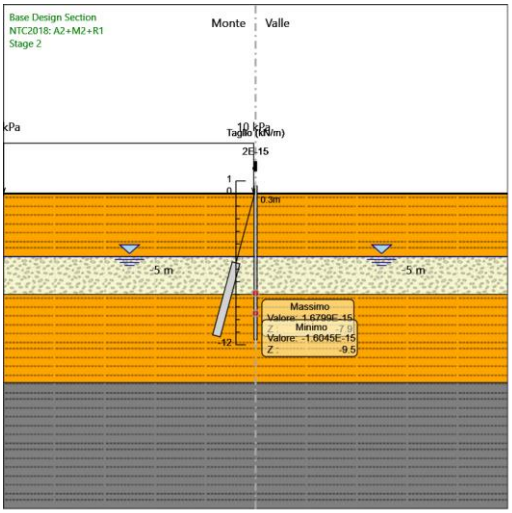


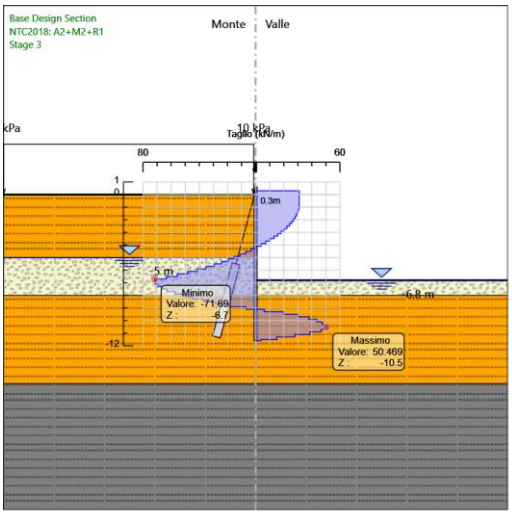


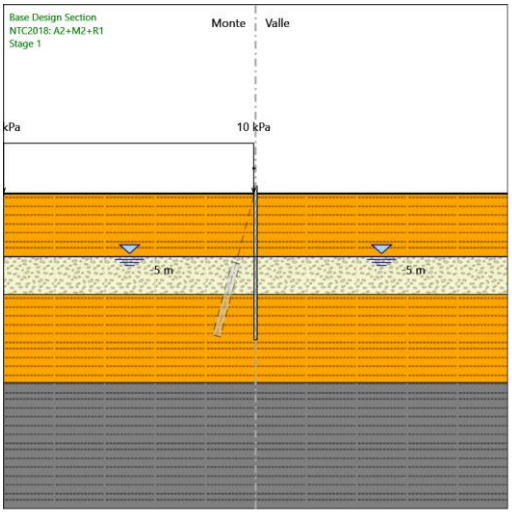


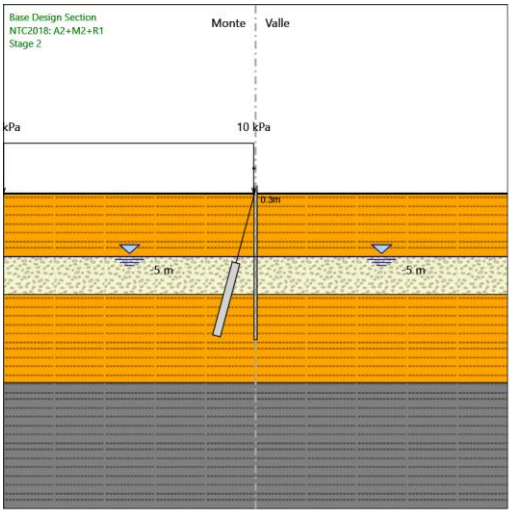

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
Momento (kNm/m)
90
200
0.3m
-5 m
-12
-6.8 m
Massimo
Valore: 104.82
Z: -4.3
Minimo
Valore: -83.108
Z: -9.1

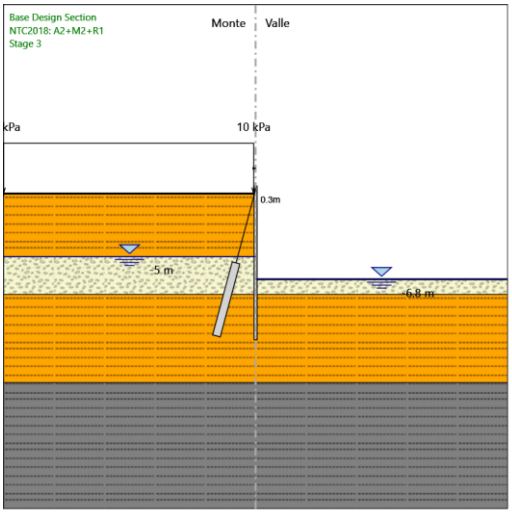

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
2E-15
-5 m
-5 m
-12
Massimo
Valore: 1.6E-15
Minimo
Valore: -1.5493E-15
Z: -9.5

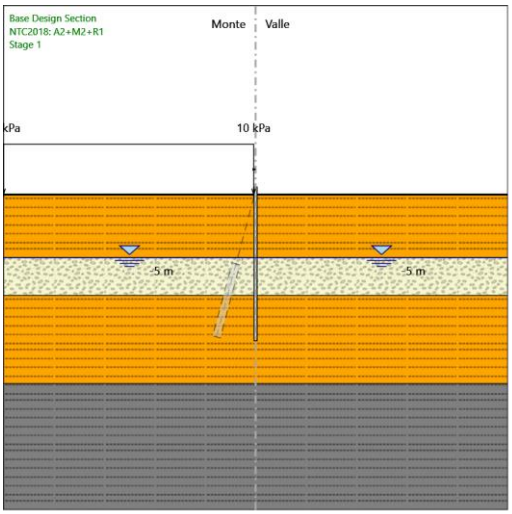

Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
2E-15
0.3m
-5 m
-5 m
-12
Massimo
Valore: 1.6799E-15
Minimo
Valore: -1.6045E-15
Z: -9.5

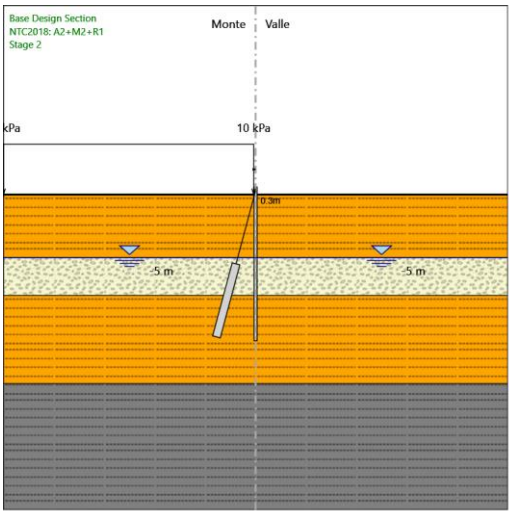

Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
Taglio (kN/m)
80
60
0.3m
-5 m
-6.8 m
-12
Minimo
Valore: -71.69
Z: -5.7
Massimo
Valore: 50.469
Z: -10.5

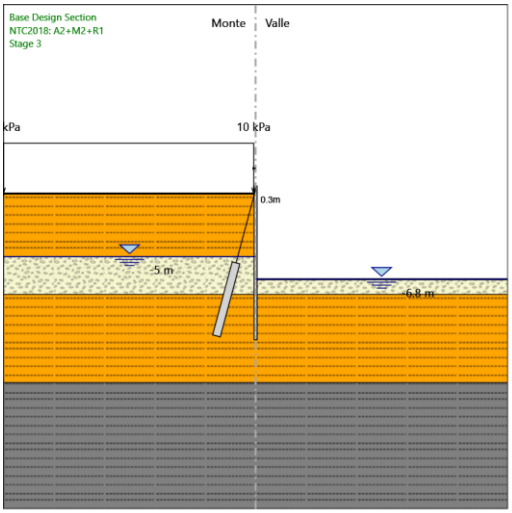

Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-5 m


Base Design Section
NTC2018: A2+M2+R1
Stage 3
Monte
Valle
kPa
10 kPa
0.3m
-5 m
6.8 m


Base Design Section
NTC2018: A2+M2+R1
Stage 1
Monte
Valle
kPa
10 kPa
-5 m
-5 m


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Monte
Valle
kPa
10 kPa
0.3m
-5 m
-5 m



Risultati Elementi strutturali - NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Sollecitazione Cavalletto
Stage	Forza (kN/m)
Stage 2	1.6156622E-17
Stage 3	119.8746

Normative adottate per le verifiche degli Elementi Strutturali

Normative Verifiche	
Calcestruzzo	NTC
Acciaio	NTC
Tirante	NTC

Coefficienti per Verifica Tiranti	
GEO FS	1
ξa3	1.65
γs	1.15

Riepilogo Stage / Design Assumption per Inviluppo

Design Assumption	Stage 1	Stage 2	Stage 3
NTC2018: SLE (Rara/Frequente/Quasi Permanente)			
NTC2018: A1+M1+R1 (R3 per tiranti)	V	V	V
NTC2018: A2+M2+R1			

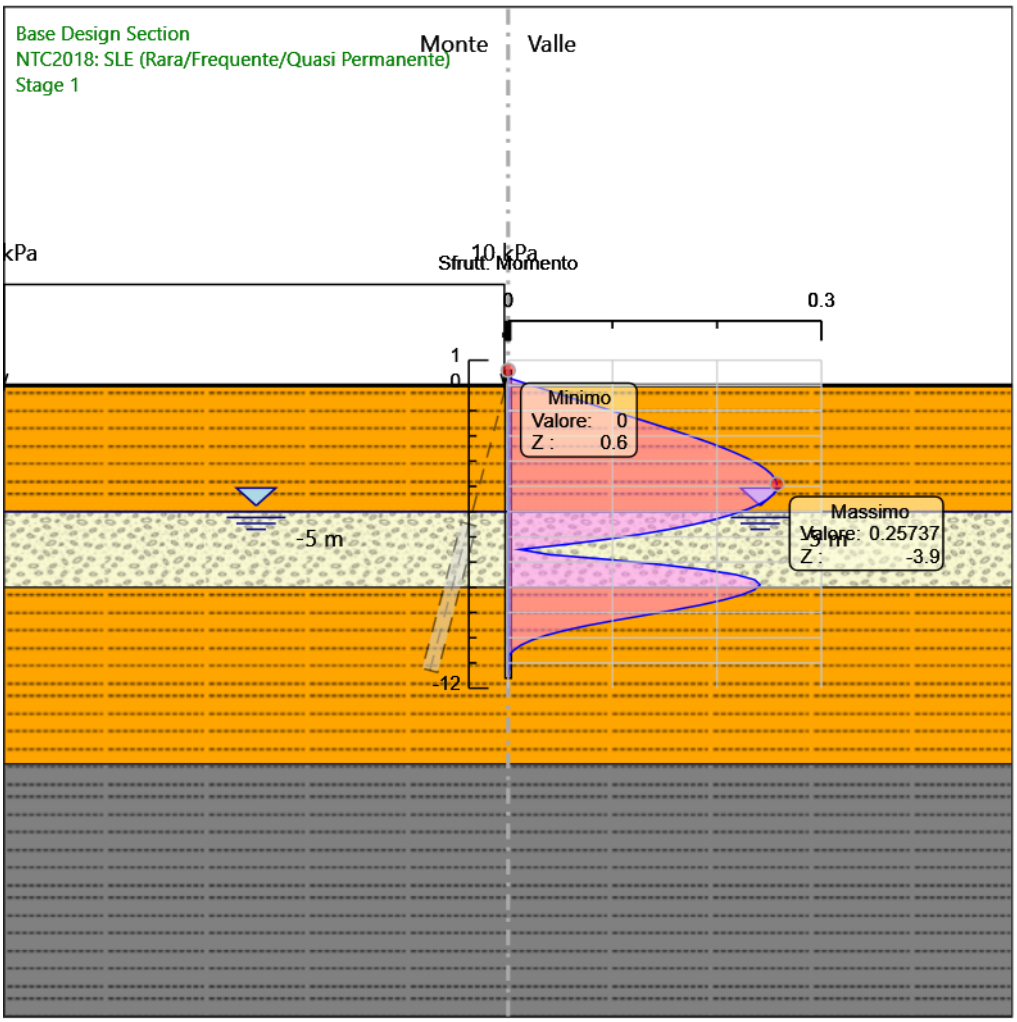
Risultati SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Momento - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
0.6	0
0.4	0
0.3	0
0.1	0.015
-0.1	0.031
-0.3	0.046
-0.5	0.061
-0.7	0.076
-0.9	0.092
-1.1	0.107
-1.3	0.122
-1.5	0.137
-1.7	0.152
-1.9	0.167
-2.1	0.181
-2.3	0.195
-2.5	0.207
-2.7	0.219
-2.9	0.229
-3.1	0.238
-3.3	0.246
-3.5	0.252
-3.7	0.256
-3.9	0.257
-4.1	0.257
-4.3	0.254
-4.5	0.249
-4.7	0.241
-4.9	0.23
-5.1	0.216
-5.3	0.199
-5.5	0.179
-5.7	0.155
-5.9	0.127
-6.1	0.094
-6.3	0.056
-6.5	0.011
-6.7	0.039
-6.9	0.096
-7.1	0.147
-7.3	0.188
-7.5	0.218
-7.7	0.236
-7.9	0.241
-8.1	0.236
-8.3	0.224
-8.5	0.206
-8.7	0.184
-8.9	0.159
-9.1	0.132
-9.3	0.104
-9.5	0.078
-9.7	0.055
-9.9	0.036
-10.1	0.022
-10.3	0.012
-10.5	0.005
-10.7	0.001

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
-10.9	0.001
-11.1	0.001
-11.3	0.001
-11.5	0
-11.6	0

Grafico Inviluppi Tasso di Sfruttamento a Momento - SteelWorld



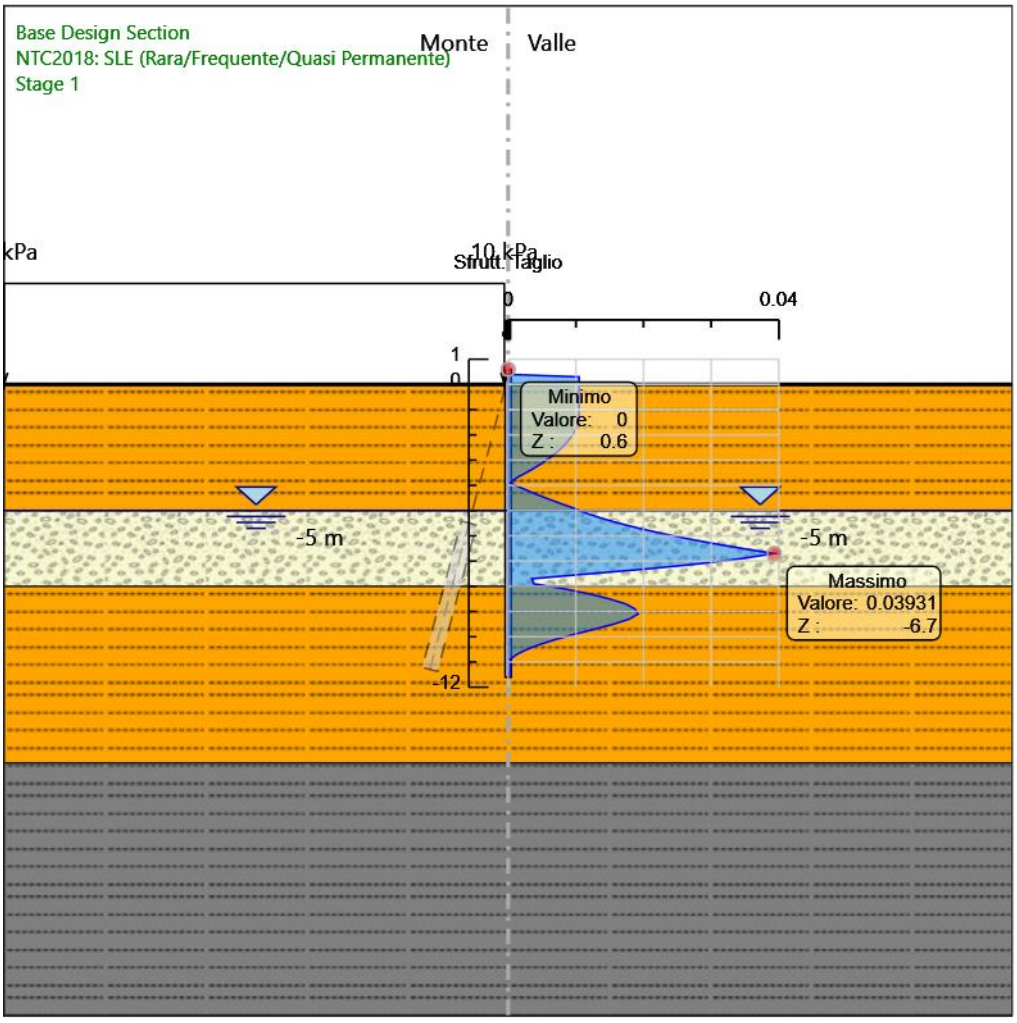
Inviluppi
Tasso di Sfruttamento a Momento - SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
0.6	0
0.4	0
0.3	0.01
0.1	0.01
-0.1	0.01
-0.3	0.01
-0.5	0.01
-0.7	0.01
-0.9	0.01
-1.1	0.01
-1.3	0.01
-1.5	0.01
-1.7	0.01
-1.9	0.01
-2.1	0.009
-2.3	0.009
-2.5	0.008
-2.7	0.007
-2.9	0.006
-3.1	0.005
-3.3	0.004
-3.5	0.003
-3.7	0.001
-3.9	0
-4.1	0.002
-4.3	0.004
-4.5	0.006
-4.7	0.008
-4.9	0.01
-5.1	0.012
-5.3	0.014
-5.5	0.016
-5.7	0.019
-5.9	0.023
-6.1	0.026
-6.3	0.03
-6.5	0.035
-6.7	0.039
-6.9	0.035
-7.1	0.028
-7.3	0.021
-7.5	0.012
-7.7	0.003
-7.9	0.004
-8.1	0.008
-8.3	0.012
-8.5	0.015
-8.7	0.017
-8.9	0.019
-9.1	0.019
-9.3	0.018
-9.5	0.016
-9.7	0.013
-9.9	0.01
-10.1	0.007
-10.3	0.005
-10.5	0.003
-10.7	0.001
-10.9	0
-11.1	0
-11.3	0

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
-11.5	0
-11.6	0

Grafico Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld



Inviluppi
Tasso di Sfruttamento a Taglio - SteelWorld

Verifiche Tiranti NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	903.879	1534.217	0	0		
Cavalletto	Stage 3	37.301	903.879	1534.217	0.041	0.024		

Verifiche Tiranti NTC2018: A1+M1+R1 (R3 per tiranti)

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	498.005	1534.217	0	0		
Cavalletto	Stage 3	50.014	498.005	1534.217	0.1	0.033		

Verifiche Tiranti NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1	Tipo Risultato: Verifiche Tiranti				NTC2018 (ITA)			
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze
Cavalletto	Stage 2	0	498.005	1534.217	0	0		
Cavalletto	Stage 3	83.912	498.005	1534.217	0.168	0.055		

Inviluppo Verifiche Tiranti (su tutte le D.A. attive)

	Tipo Risultato: Verifiche Tiranti								
Tirante	Stage	Sollecitazione (kN)	Resistenza GEO (kN)	Resistenza STR (kN)	Ratio GEO	Ratio STR	Resistenza	Gerarchia delle Resistenze	Design Assumption
Cavalletto	Stage 3	83.912	498.005	1534.217	0.168	0.055			NTC2018: A2+M2+R1

9.5 Palancolato

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL
Quota : 15 m
OCR : 1

Tipo : HORIZONTAL
Quota : -7 m
OCR : 1

Tipo : HORIZONTAL
Quota : -13 m
OCR : 1

Tipo : HORIZONTAL
Quota : -18 m
OCR : 1

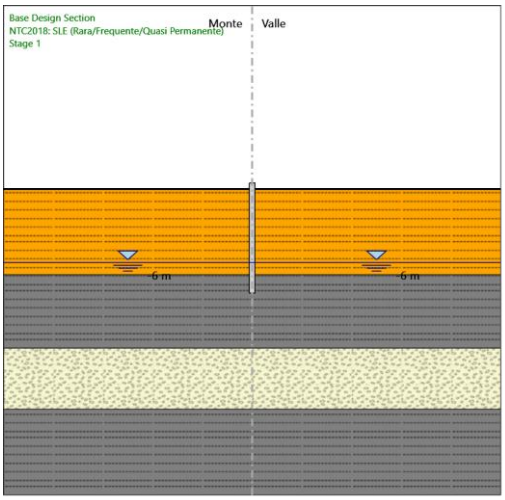
Strato di Terreno	Terreno	γ dry	γ sat	ø'	øcv	øp	c'	Su	Modulo Elastico	Eu	Evc	Eur	Ah Av exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m³	kN/m³	°	°	°	kPa	kPa			kPa	kPa		kPa			kN/m³	kN/m³	kN/m³
1	G	18.2	18.2	37			7		Constant		86000	258000							
2	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000							
3	SL	19.6	19.6	33			13.5		Constant		87000	261000							
4	A/SAM	19.5	19.5	28			17.5		Constant		124000	372000							

Descrizione Pareti

X : 0 m
Quota in alto : 0.5 m
Quota di fondo : -8.5 m
Muro di sinistra

Sezione : Palancole
Area equivalente : 0.02161 m
Inerzia equivalente : 0.0006 m^4/m
Profilo palancola : PU_28

Fasi di Calcolo



Stage 1

Stage 1

Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Orizzontale)
0 m
Linea di scavo di destra (Orizzontale)

0 m

Falda acquifera

Falda di sinistra : -6 m

Falda di destra : -6 m

Elementi strutturali

Paratia : Sx

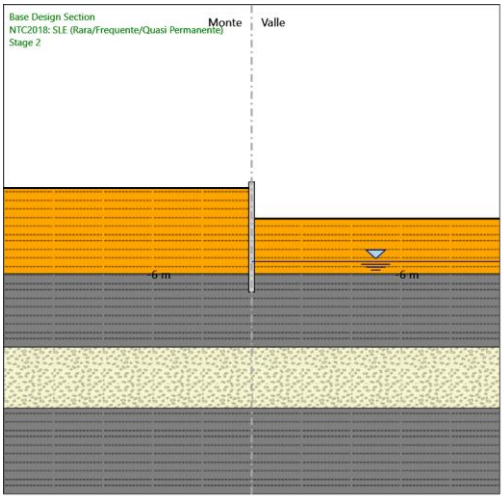
X : 0 m

Quota in alto : 0.5 m

Quota di fondo : -8.5 m

Sezione : Palancole

Stage 2



Stage 2

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2.5 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-2.5 m

Falda acquifera

Falda di sinistra : -6 m

Falda di destra : -6 m

Elementi strutturali

Paratia : Sx

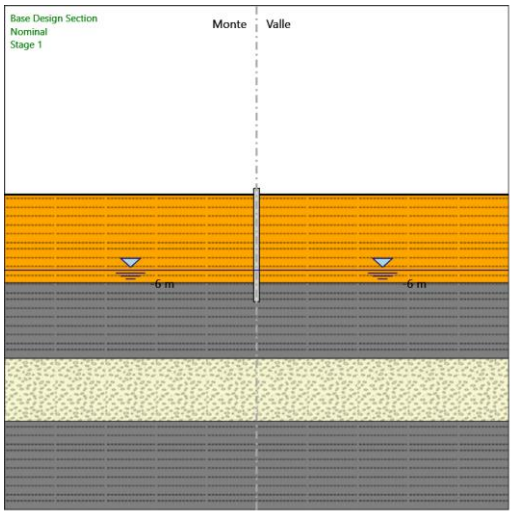
X : 0 m

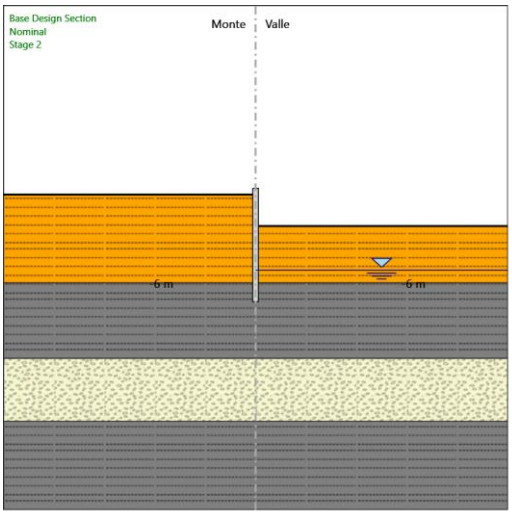
Quota in alto : 0.5 m

Quota di fondo : -8.5 m

Sezione : Palancole

Tabella Configurazione Stage (Nominal)





Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load_unfavour)	Carichi Permanenti Favorevoli (F_dead_load_favour)	Carichi Variabili Sfavorevoli (F_live_load_unfavour)	Carichi Variabili Favorevoli (F_live_load_favour)	Carico Sismico (F_seism_load)	Pressioni Acqua Lato Monte (F_WaterDR)	Pressioni Acqua Lato Valle (F_WaterRes)	Carichi Permanenti Destabilizzanti (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabilizzanti (F_UPL_QDStab)	Carichi Permanenti Destabilizzanti (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabilizzanti (F_HYD_QDStab)
Simbolo	**γG**	**γG**	**γQ**	**γQ**	**γQE**	**γG**	**γG**	**γGdst**	**γGstb**	**γQdst**	**γGdst**	**γGstb**	**γQdst**
Nominal	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	0	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1.3	1	1.5	1	0	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	0	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø') (F_Fr)	Parziale su c' (F_eff_cohe)	Parziale su Su (F_Su)	Parziale su qu (F_qu)	Parziale su peso specifico (F_gamma)
Simbolo	**γϕ**	**γc**	**γcu**	**γqu**	**γγ**
Nominal	1	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp) (F_Soil_Res_walls)	Parziale resistenza Tiranti permanenti (F_Anch_P)	Parziale resistenza Tiranti temporanei (F_Anch_T)	Parziale elementi strutturali (F_wall)
Simbolo	**γRe**	**γap**	**γat**	
Nominal	1	1	1	1
NTC2018: SLE (Rara/Frequente/Quasi Permanente)	1	1	1	1
NTC2018: A1+M1+R1 (R3 per tiranti)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 1	0.5	0
Stage 1	0.3	0
Stage 1	0.1	0
Stage 1	-0.1	0
Stage 1	-0.3	0
Stage 1	-0.5	0
Stage 1	-0.7	0
Stage 1	-0.9	0
Stage 1	-1.1	0
Stage 1	-1.3	0
Stage 1	-1.5	0
Stage 1	-1.7	0
Stage 1	-1.9	0
Stage 1	-2.1	0
Stage 1	-2.3	0
Stage 1	-2.5	0
Stage 1	-2.7	0
Stage 1	-2.9	0
Stage 1	-3.1	0
Stage 1	-3.3	0
Stage 1	-3.5	0
Stage 1	-3.7	0
Stage 1	-3.9	0
Stage 1	-4.1	0
Stage 1	-4.3	0
Stage 1	-4.5	0
Stage 1	-4.7	0
Stage 1	-4.9	0
Stage 1	-5.1	0
Stage 1	-5.3	0
Stage 1	-5.5	0
Stage 1	-5.7	0
Stage 1	-5.9	0
Stage 1	-6.1	0
Stage 1	-6.3	0
Stage 1	-6.5	0
Stage 1	-6.7	0
Stage 1	-6.9	0
Stage 1	-7.1	0
Stage 1	-7.3	0
Stage 1	-7.5	0
Stage 1	-7.7	0
Stage 1	-7.9	0
Stage 1	-8.1	0
Stage 1	-8.3	0
Stage 1	-8.5	0

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.5	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0

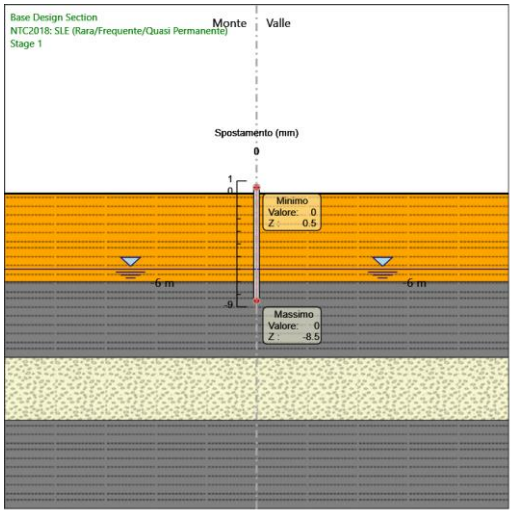
Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 2

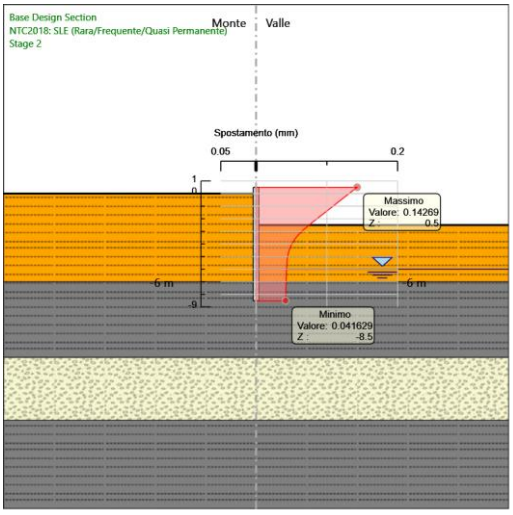
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Tipo Risultato: Spostamento	Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 2	0.5	0.14
Stage 2	0.3	0.14
Stage 2	0.1	0.13
Stage 2	-0.1	0.13
Stage 2	-0.3	0.12
Stage 2	-0.5	0.12
Stage 2	-0.7	0.12
Stage 2	-0.9	0.11
Stage 2	-1.1	0.11
Stage 2	-1.3	0.1
Stage 2	-1.5	0.1
Stage 2	-1.7	0.09
Stage 2	-1.9	0.09
Stage 2	-2.1	0.08
Stage 2	-2.3	0.08
Stage 2	-2.5	0.07
Stage 2	-2.7	0.07
Stage 2	-2.9	0.07
Stage 2	-3.1	0.06
Stage 2	-3.3	0.06
Stage 2	-3.5	0.06
Stage 2	-3.7	0.05
Stage 2	-3.9	0.05
Stage 2	-4.1	0.05
Stage 2	-4.3	0.05
Stage 2	-4.5	0.05
Stage 2	-4.7	0.05
Stage 2	-4.9	0.04
Stage 2	-5.1	0.04
Stage 2	-5.3	0.04
Stage 2	-5.5	0.04
Stage 2	-5.7	0.04
Stage 2	-5.9	0.04
Stage 2	-6.1	0.04
Stage 2	-6.3	0.04
Stage 2	-6.5	0.04
Stage 2	-6.7	0.04
Stage 2	-6.9	0.04
Stage 2	-7.1	0.04
Stage 2	-7.3	0.04
Stage 2	-7.5	0.04
Stage 2	-7.7	0.04
Stage 2	-7.9	0.04
Stage 2	-8.1	0.04
Stage 2	-8.3	0.04
Stage 2	-8.5	0.04

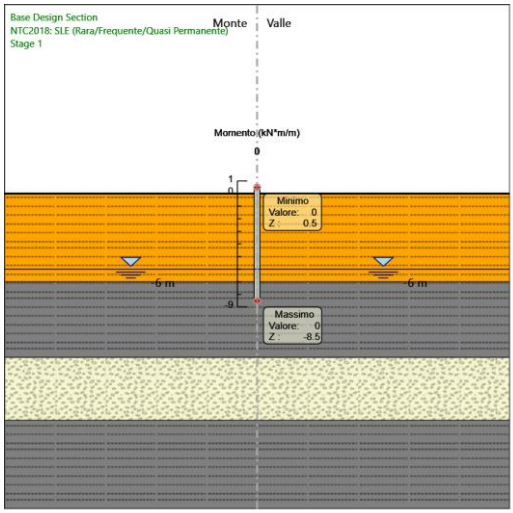
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 2

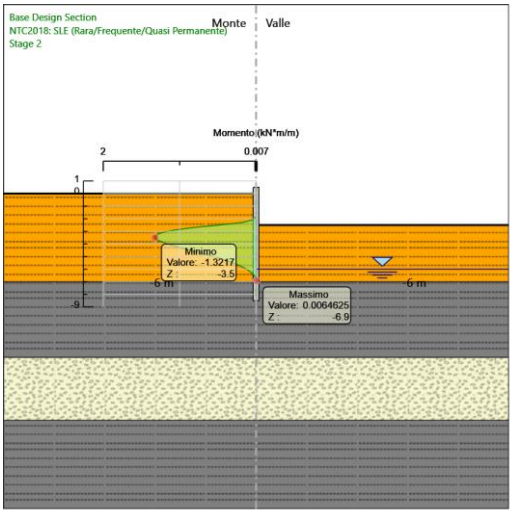
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.5	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	0	0
Stage 2	-1.5	0	0
Stage 2	-1.7	0	0
Stage 2	-1.7	0	0
Stage 2	-1.9	-0.01	-0.03
Stage 2	-2.1	-0.05	-0.22
Stage 2	-2.3	-0.18	-0.66
Stage 2	-2.5	-0.49	-1.53
Stage 2	-2.7	-0.82	-1.67
Stage 2	-2.9	-1.07	-1.24
Stage 2	-3.1	-1.23	-0.79
Stage 2	-3.3	-1.31	-0.39
Stage 2	-3.5	-1.32	-0.06
Stage 2	-3.7	-1.28	0.2
Stage 2	-3.9	-1.2	0.39
Stage 2	-4.1	-1.1	0.52
Stage 2	-4.3	-0.98	0.59
Stage 2	-4.5	-0.86	0.63
Stage 2	-4.7	-0.73	0.63
Stage 2	-4.9	-0.61	0.61
Stage 2	-5.1	-0.5	0.57
Stage 2	-5.3	-0.39	0.51
Stage 2	-5.5	-0.3	0.46
Stage 2	-5.7	-0.22	0.4
Stage 2	-5.9	-0.15	0.34
Stage 2	-6.1	-0.1	0.28
Stage 2	-6.3	-0.05	0.22
Stage 2	-6.5	-0.02	0.16
Stage 2	-6.7	0	0.1
Stage 2	-6.9	0.01	0.04
Stage 2	-7.1	0	-0.02
Stage 2	-7.3	0	-0.01
Stage 2	-7.5	0	-0.01
Stage 2	-7.7	0	0
Stage 2	-7.9	0	0
Stage 2	-8.1	0	0
Stage 2	-8.3	0	0
Stage 2	-8.5	0	0

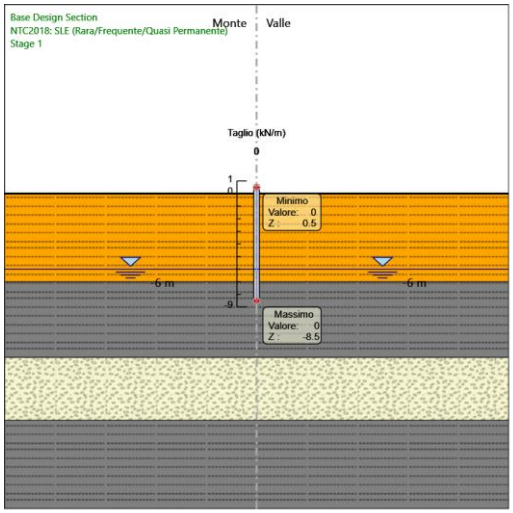
Tabella Grafici dei Risultati

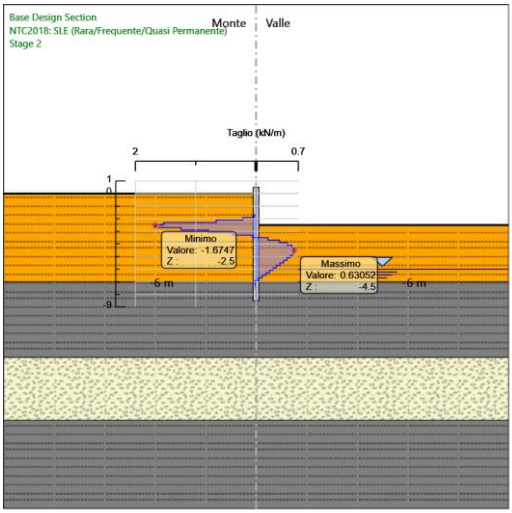












Risultati NTC2018: A1+M1+R1 (R3 per tiranti)

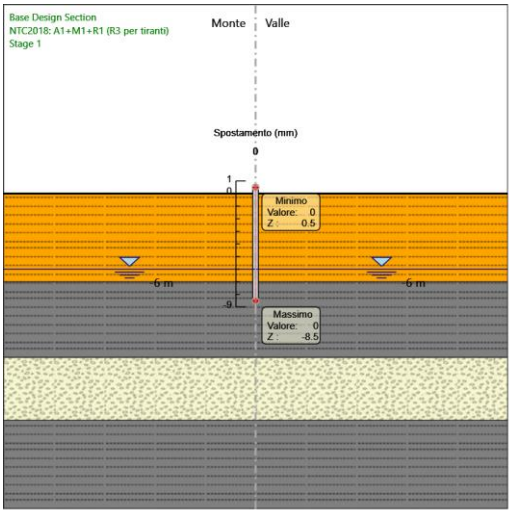
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 1

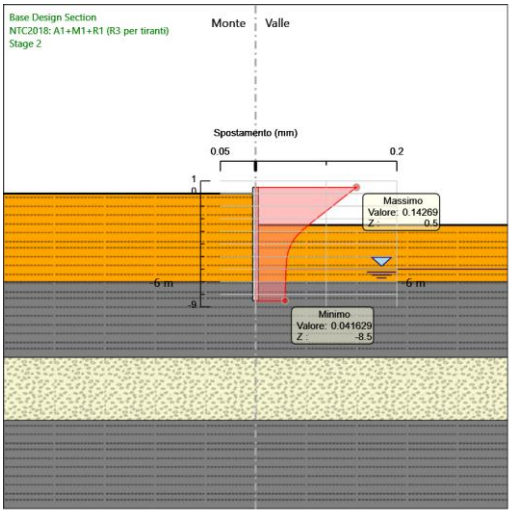
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.5	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0

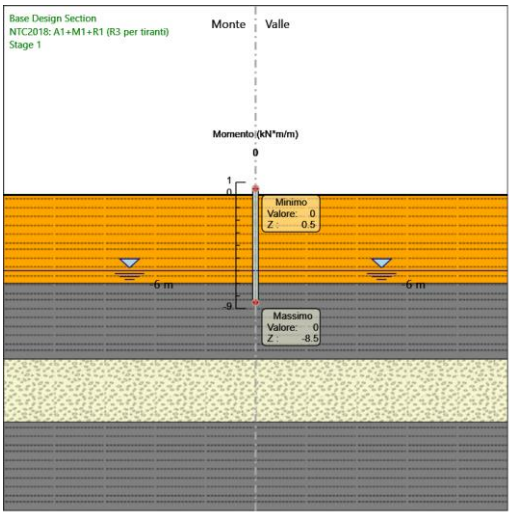
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 2

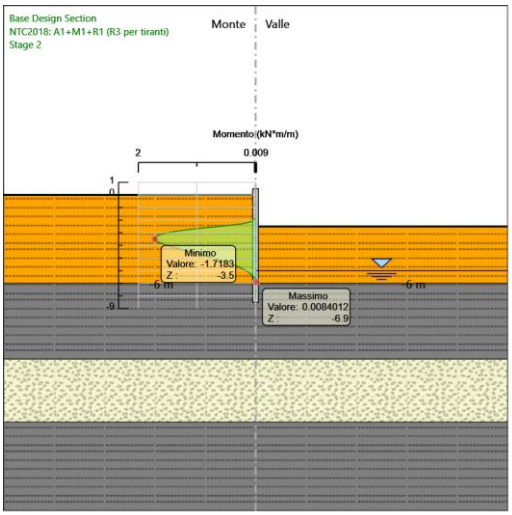
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.5	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	0	0
Stage 2	-1.5	0	0
Stage 2	-1.7	0	0
Stage 2	-1.7	0	0
Stage 2	-1.9	-0.01	-0.04
Stage 2	-2.1	-0.07	-0.29
Stage 2	-2.3	-0.24	-0.86
Stage 2	-2.5	-0.64	-1.99
Stage 2	-2.7	-1.07	-2.18
Stage 2	-2.9	-1.39	-1.62
Stage 2	-3.1	-1.6	-1.03
Stage 2	-3.3	-1.7	-0.51
Stage 2	-3.5	-1.72	-0.08
Stage 2	-3.7	-1.67	0.26
Stage 2	-3.9	-1.57	0.51
Stage 2	-4.1	-1.43	0.67
Stage 2	-4.3	-1.28	0.77
Stage 2	-4.5	-1.11	0.82
Stage 2	-4.7	-0.95	0.82
Stage 2	-4.9	-0.79	0.79
Stage 2	-5.1	-0.64	0.74
Stage 2	-5.3	-0.51	0.67
Stage 2	-5.5	-0.39	0.59
Stage 2	-5.7	-0.29	0.52
Stage 2	-5.9	-0.2	0.44
Stage 2	-6.1	-0.13	0.36
Stage 2	-6.3	-0.07	0.29
Stage 2	-6.5	-0.03	0.21
Stage 2	-6.7	0	0.13
Stage 2	-6.9	0.01	0.05
Stage 2	-7.1	0	-0.02
Stage 2	-7.3	0	-0.02
Stage 2	-7.5	0	-0.01
Stage 2	-7.7	0	0
Stage 2	-7.9	0	0
Stage 2	-8.1	0	0
Stage 2	-8.3	0	0
Stage 2	-8.5	0	0

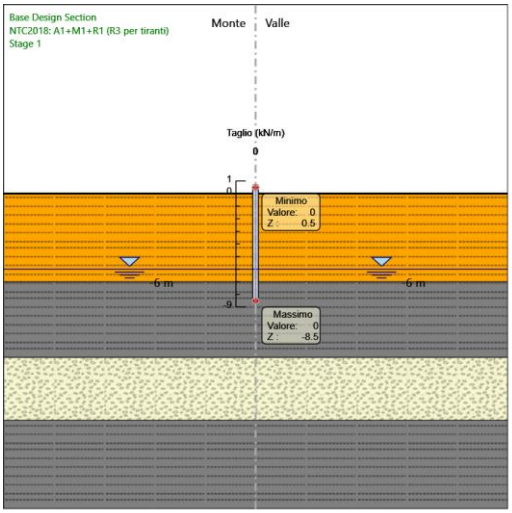
Tabella Grafici dei Risultati

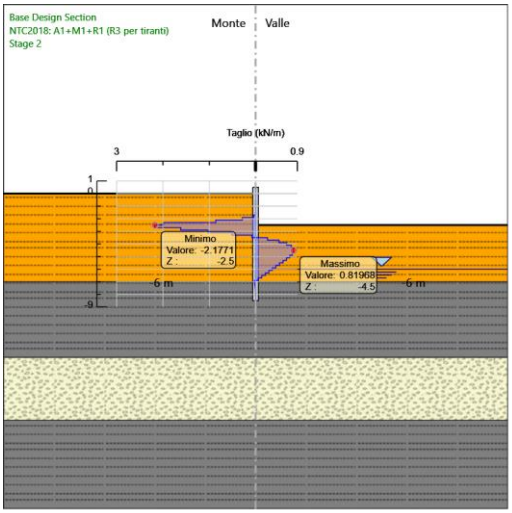


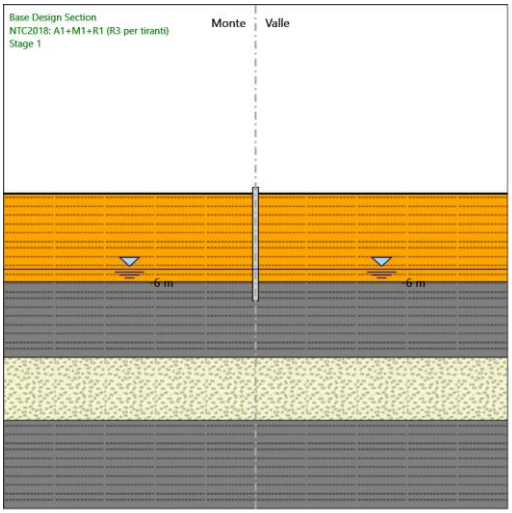


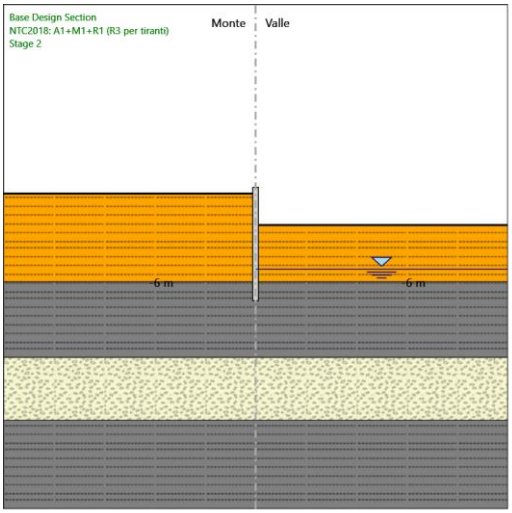


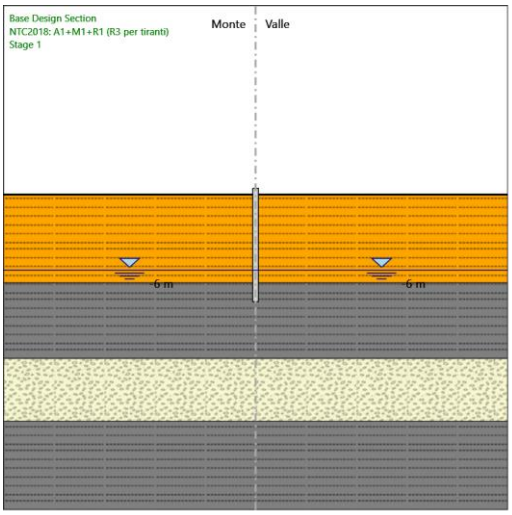


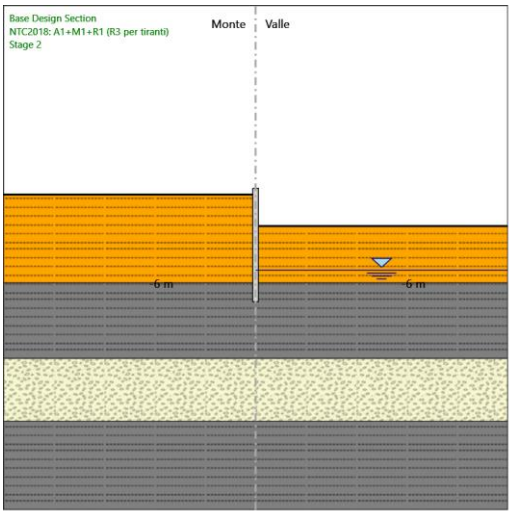

Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
Taglio (kN/m)
Minimo
Valore: 0
Z: -0.5
Massimo
Valore: 0
Z: -8.5
6 m
6 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
Taglio (kN/m)
Minimo
Valore: -2.1771
Z: -2.5
Massimo
Valore: 0.81968
Z: -4.5
6 m
6 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
6 m
6 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
6 m
6 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 1
Monte
Valle
6 m
6 m


Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Monte
Valle
6 m
6 m

Risultati NTC2018: A2+M2+R1

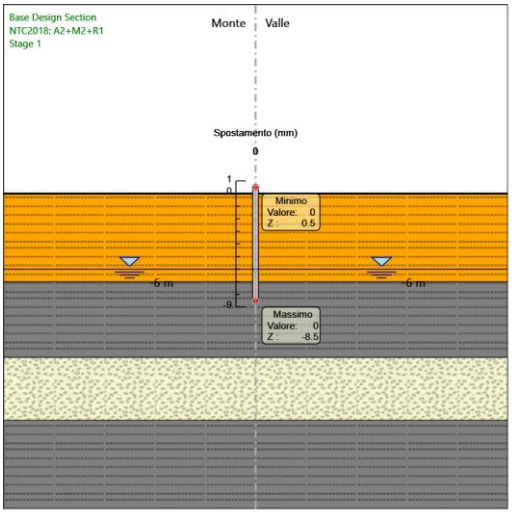
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 1

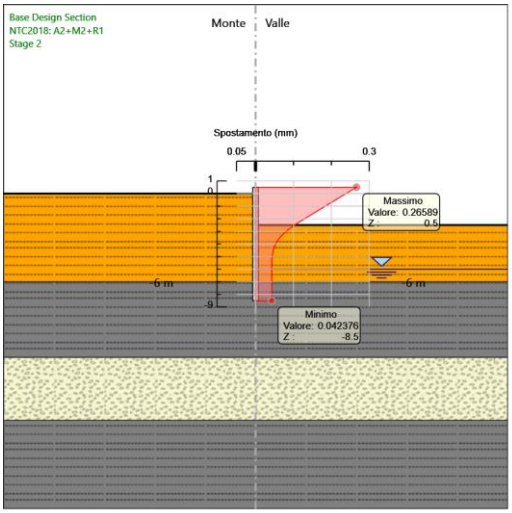
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0.5	0	0
Stage 1	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0
Stage 1	-7.9	0	0
Stage 1	-8.1	0	0
Stage 1	-8.3	0	0
Stage 1	-8.5	0	0

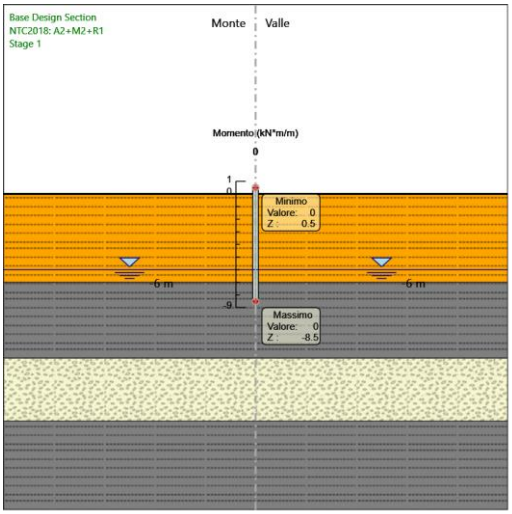
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 2

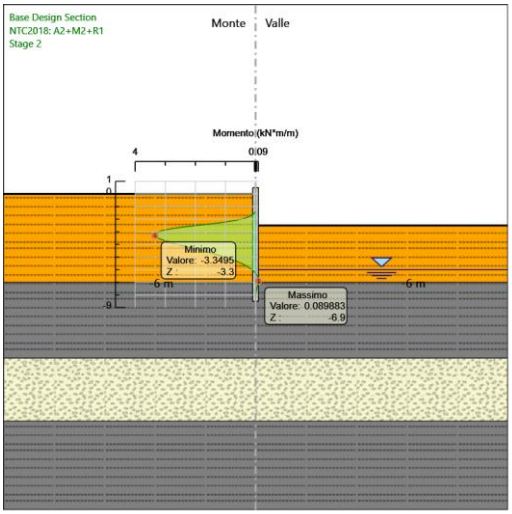
Design Assumption: NTC2018: A2+M2+R1	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0.5	0	0
Stage 2	0.3	0	0
Stage 2	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0	0
Stage 2	-0.3	0	0
Stage 2	-0.5	0	0
Stage 2	-0.5	0	0
Stage 2	-0.7	0	0
Stage 2	-0.7	0	0
Stage 2	-0.9	0	0
Stage 2	-0.9	0	0
Stage 2	-1.1	0	0
Stage 2	-1.1	0	0
Stage 2	-1.3	0	0
Stage 2	-1.3	0	0
Stage 2	-1.5	-0.03	-0.13
Stage 2	-1.7	-0.12	-0.47
Stage 2	-1.9	-0.32	-1.01
Stage 2	-2.1	-0.67	-1.75
Stage 2	-2.3	-1.21	-2.7
Stage 2	-2.5	-1.98	-3.84
Stage 2	-2.7	-2.66	-3.39
Stage 2	-2.9	-3.11	-2.24
Stage 2	-3.1	-3.32	-1.07
Stage 2	-3.3	-3.35	-0.14
Stage 2	-3.5	-3.24	0.56
Stage 2	-3.7	-3.02	1.07
Stage 2	-3.9	-2.74	1.4
Stage 2	-4.1	-2.42	1.59
Stage 2	-4.3	-2.09	1.67
Stage 2	-4.5	-1.76	1.65
Stage 2	-4.7	-1.44	1.58
Stage 2	-4.9	-1.15	1.46
Stage 2	-5.1	-0.89	1.31
Stage 2	-5.3	-0.66	1.15
Stage 2	-5.5	-0.47	0.98
Stage 2	-5.7	-0.3	0.82
Stage 2	-5.9	-0.17	0.66
Stage 2	-6.1	-0.07	0.52
Stage 2	-6.3	0.01	0.38
Stage 2	-6.5	0.06	0.25
Stage 2	-6.7	0.09	0.13
Stage 2	-6.9	0.09	0.02
Stage 2	-7.1	0.07	-0.1
Stage 2	-7.3	0.05	-0.09
Stage 2	-7.5	0.04	-0.08
Stage 2	-7.7	0.02	-0.07
Stage 2	-7.9	0.01	-0.05
Stage 2	-8.1	0.01	-0.04
Stage 2	-8.3	0	-0.02
Stage 2	-8.5	0	-0.01

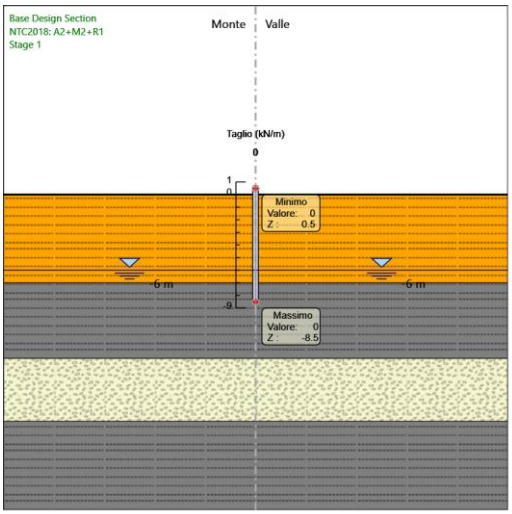
Tabella Grafici dei Risultati

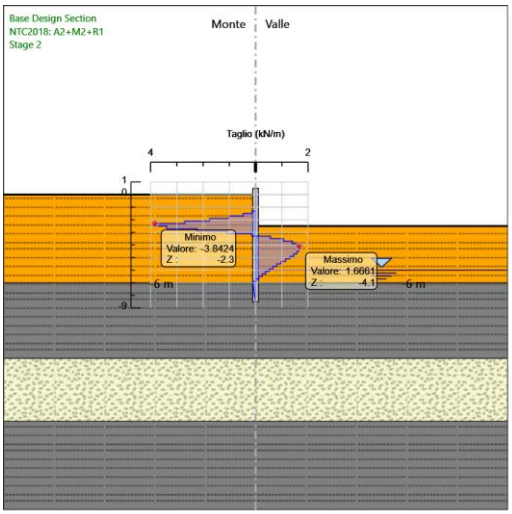


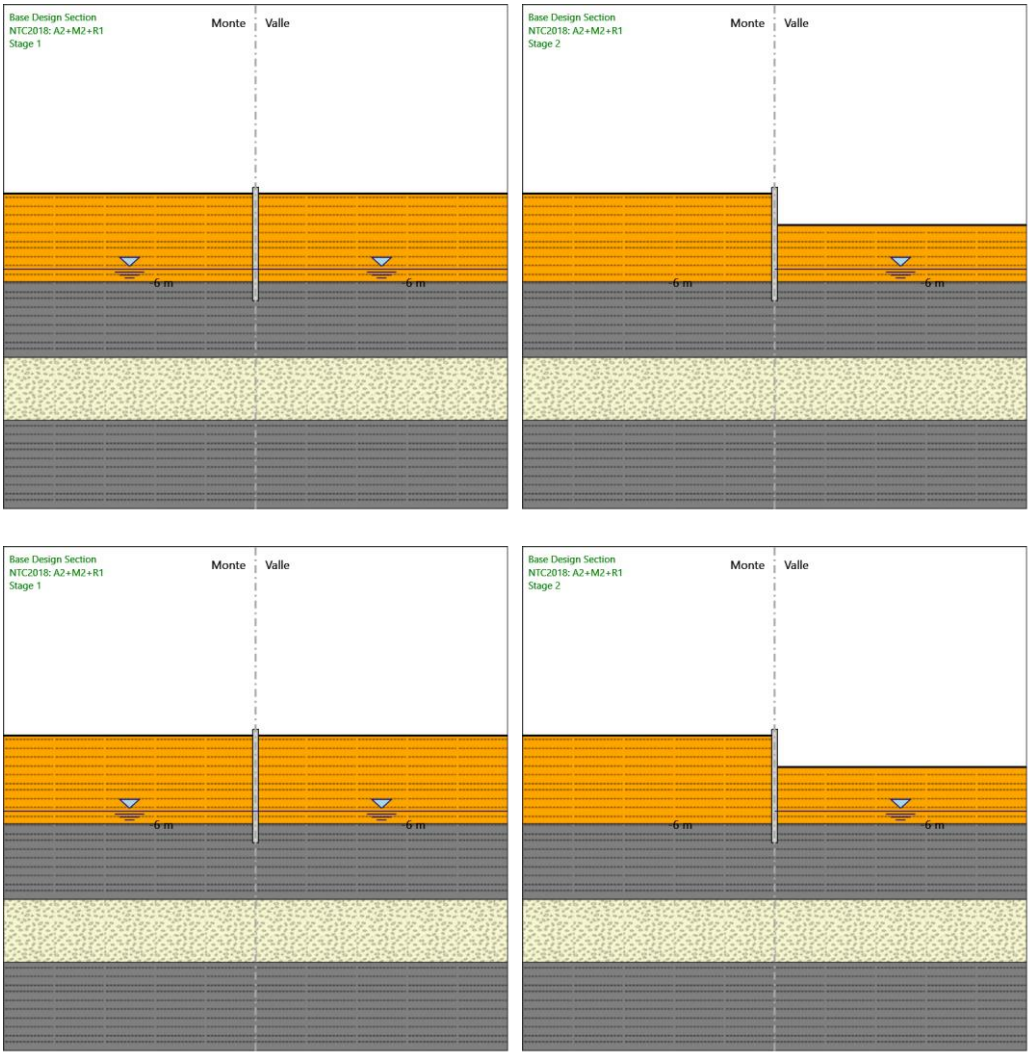












Normative adottate per le verifiche degli Elementi Strutturali

Normative Verifiche	
Calcestruzzo	NTC
Acciaio	NTC
Tirante	NTC

Coefficienti per Verifica Tiranti	
GEO FS	1
ξa3	1.65
γs	1.15

Riepilogo Stage / Design Assumption per Inviluppo

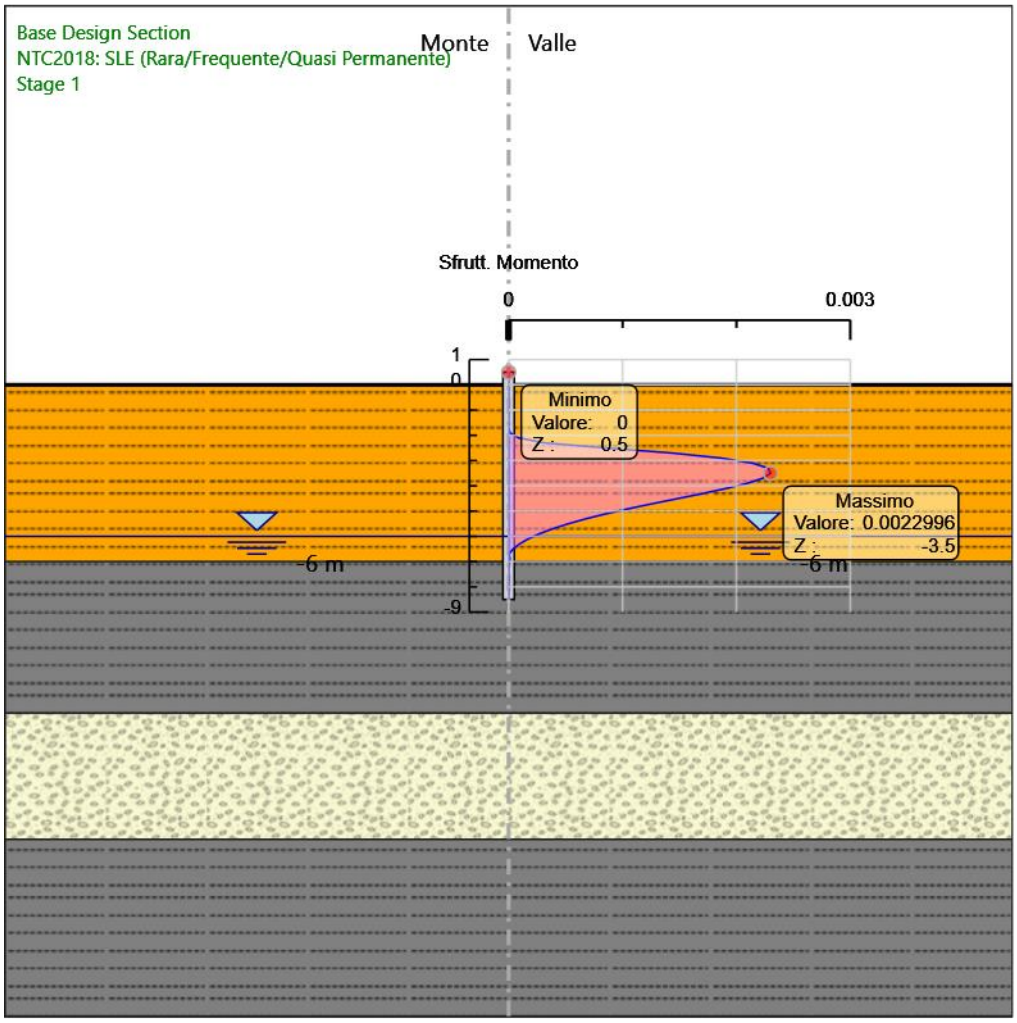
Design Assumption	Stage 1	Stage 2
NTC2018: SLE (Rara/Frequente/Quasi Permanente)		
NTC2018: A1+M1+R1 (R3 per tiranti)	V	V
NTC2018: A2+M2+R1		

Risultati SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Momento - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Momento - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Momento - SteelWorld
0.5	0
0.3	0
0.1	0
-0.1	0
-0.3	0
-0.5	0
-0.7	0
-0.9	0
-1.1	0
-1.3	0
-1.5	0
-1.7	0
-1.9	0
-2.1	0
-2.3	0
-2.5	0.001
-2.7	0.001
-2.9	0.002
-3.1	0.002
-3.3	0.002
-3.5	0.002
-3.7	0.002
-3.9	0.002
-4.1	0.002
-4.3	0.002
-4.5	0.001
-4.7	0.001
-4.9	0.001
-5.1	0.001
-5.3	0.001
-5.5	0.001
-5.7	0
-5.9	0
-6.1	0
-6.3	0
-6.5	0
-6.7	0
-6.9	0
-7.1	0
-7.3	0
-7.5	0
-7.7	0
-7.9	0
-8.1	0
-8.3	0
-8.5	0

Grafico Inviluppi Tasso di Sfruttamento a Momento – SteelWorld

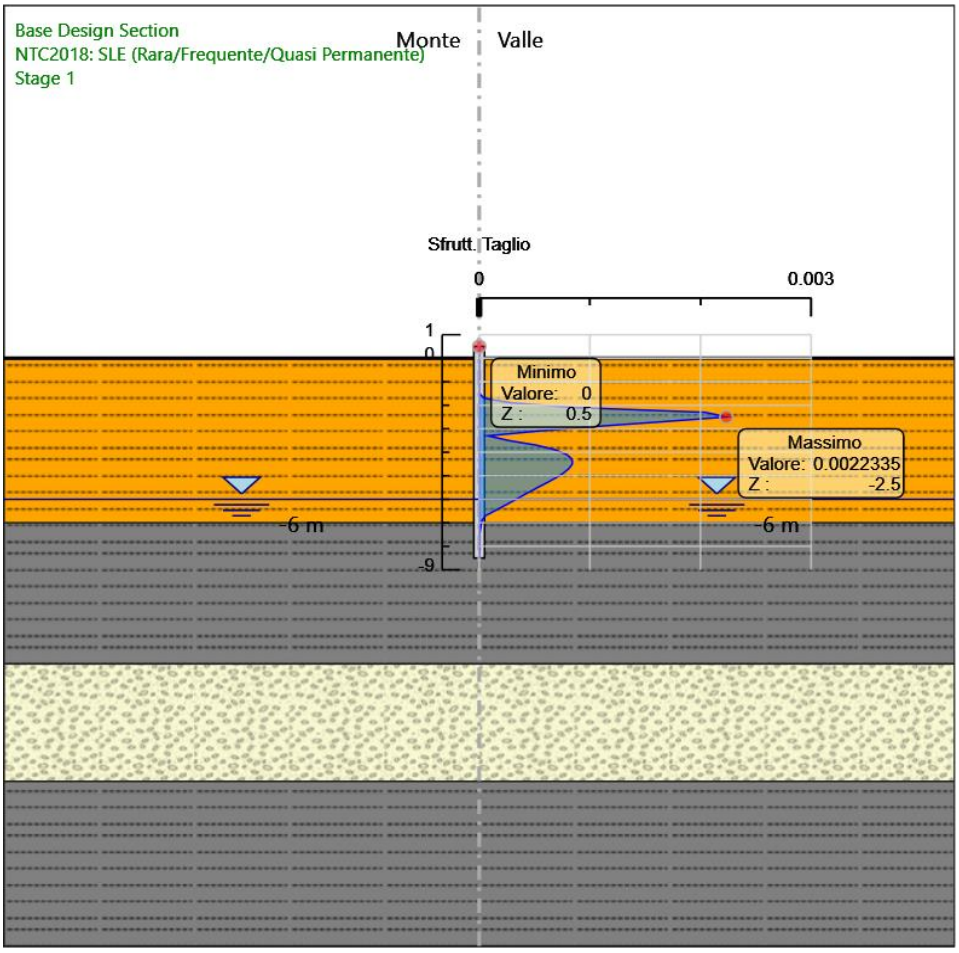


Inviluppi
Tasso di Sfruttamento a Momento - SteelWorld

Tabella Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld : LEFT

Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld	LEFT
Z (m)	Tasso di Sfruttamento a Taglio - SteelWorld
0.5	0
0.3	0
0.1	0
-0.1	0
-0.3	0
-0.5	0
-0.7	0
-0.9	0
-1.1	0
-1.3	0
-1.5	0
-1.7	0
-1.9	0
-2.1	0.001
-2.3	0.002
-2.5	0.002
-2.7	0.002
-2.9	0.001
-3.1	0.001
-3.3	0
-3.5	0
-3.7	0.001
-3.9	0.001
-4.1	0.001
-4.3	0.001
-4.5	0.001
-4.7	0.001
-4.9	0.001
-5.1	0.001
-5.3	0.001
-5.5	0.001
-5.7	0
-5.9	0
-6.1	0
-6.3	0
-6.5	0
-6.7	0
-6.9	0
-7.1	0
-7.3	0
-7.5	0
-7.7	0
-7.9	0
-8.1	0
-8.3	0
-8.5	0

Grafico Inviluppi Tasso di Sfruttamento a Taglio - SteelWorld



Inviluppi