



AGENZIA INTERREGIONALE PER IL FIUME PO – PARMA

Strada Giuseppe Garibaldi 75, I-43121 Parma

**LAVORI DI REALIZZAZIONE MANUFATTO DI
GRIGLIATURA LUNGO IL CANALE SCOLMATORE DI
NORD-OVEST (C.S.N.O.) IN LOCALITÀ CISLIANO (MI)**

PROGETTO ESECUTIVO

ALLEGATO

Relazione di calcolo delle strutture

C.U.P. B88B20000340002	C.I.G.	SCALA: -
Commessa progettista 455.03510	Codice elaborato 01-PE-B1-R-01	

PROGETTAZIONE



PROGETTISTA:

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Ordine degli Ingegneri di Milano n. 10669

APPROVATO

IL RESPONSABILE
DEL PROCEDIMENTO

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 <small>AGENZIA INTERREGIONALE PER IL FIUME PO – PARMA</small> <small>Strada Giuseppe Garibaldi 75, I-43121 Parma</small>	Realizzazione di un manufatto di grigliatura sul CSNO in Comune di Cisliano (MI) Progetto esecutivo.
	Relazione di calcolo strutturale

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ALLEGATO 1: Tabulati di calcolo

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1 PREMESSA

La presente relazione, costituente parte del progetto esecutivo, descrive le caratteristiche costruttive e strutturali delle opere civili previste nel nuovo manufatto di grigliatura da realizzarsi sul Canale Scolmatore di Nord Ovest (C.S.N.O) , in Comune di Cisliano (MI).

Nei punti seguenti si riportano i calcoli di dimensionamento e le verifiche degli elementi strutturali principali previsti nell'opera.

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2 ANALISI STRUTTURALE TRAMITE MODELLO FEM

Le opere di sostegno sono state sviluppate tramite analisi strutturale eseguita sviluppando un modello ad elementi finiti bidimensionale con il software di calcolo PARATIE PLUS 2022; si tratta di un programma non lineare ad Elementi Finiti per il calcolo di strutture di sostegno flessibili. Sono stati introdotti opportuni vincoli laddove il collegamento è stato schematizzato che lo abbia.

2.1 Descrizione della geometria del modello

Nel modello è stata introdotta la paratia in c.a. con spessore 60cm e lunghezza di infissione 1m. È stata schematizzata la stratigrafia del terreno fino a -15m dal p.c. con le caratteristiche ottenute tramite le prove geotecniche descritte nella rispettiva relazione di calcolo; è stato inoltre introdotto un sovraccarico a monte della paratia pari a 10 kPa, atto a simulare i macchinari per le operazioni di cantiere.

Il modello è stato suddiviso in 6 step di calcolo atte a descrivere le varie fasi di cantiere, in particolare:
1) Fase geostatica; 2) Scavo per posizionamento tirante passivo; 3) Scavo a quota di progetto; 4) Realizzazione soletta di fondo in c.a.; 5) Attivazione carichi sismici SLV.

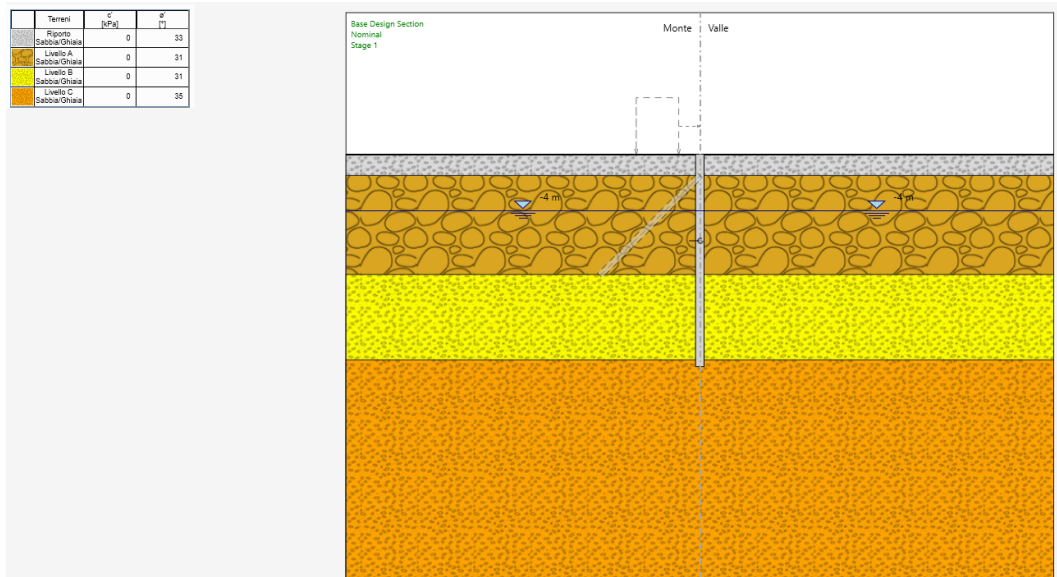


Figura 2-1 – Fase 1 – Fase geostatica

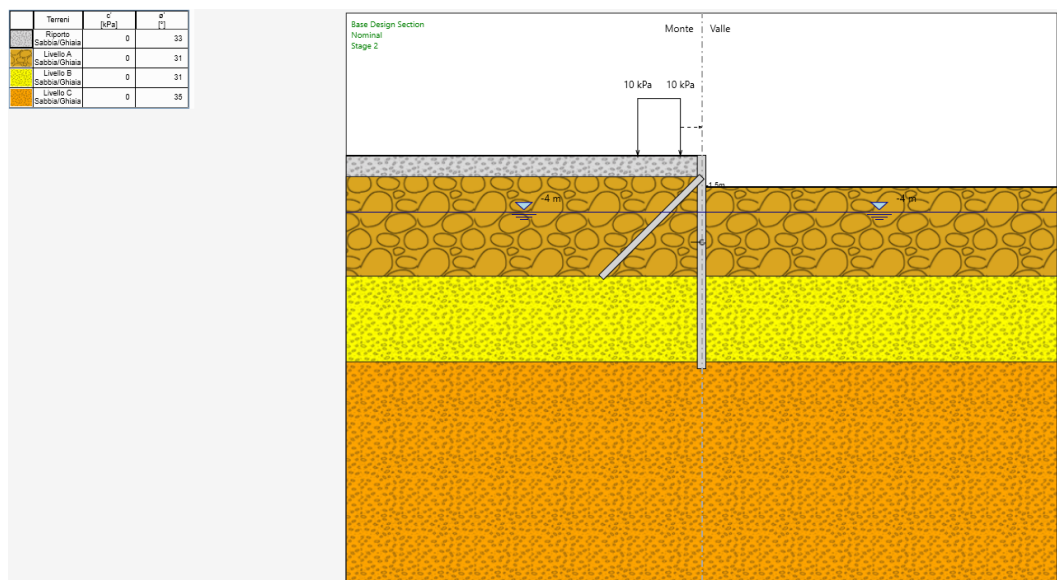


Figura 2-2 – Fase 2 – Scavo (-1.5m) e attivazione tirante passivo

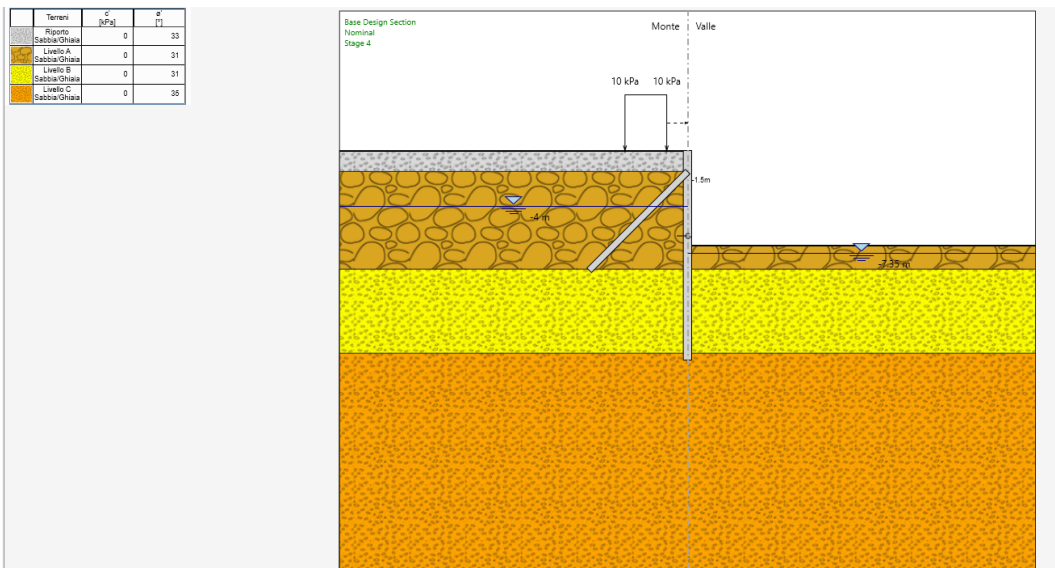


Figura 2-3 – Fase 3 – Scavo a quota di progetto

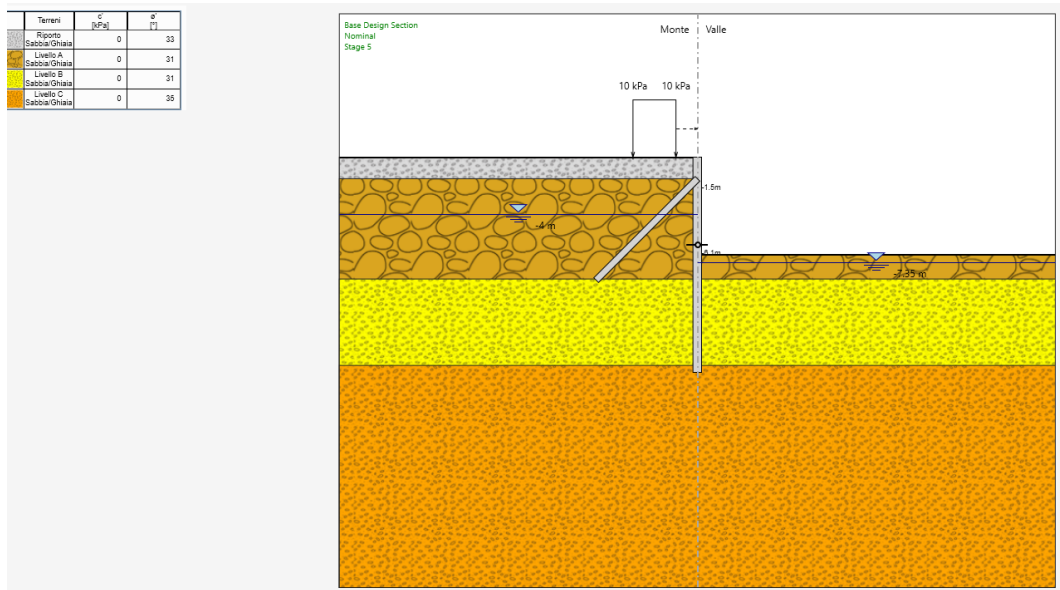


Figura 2-4 – Fase 4 – Realizzazione soletta di base

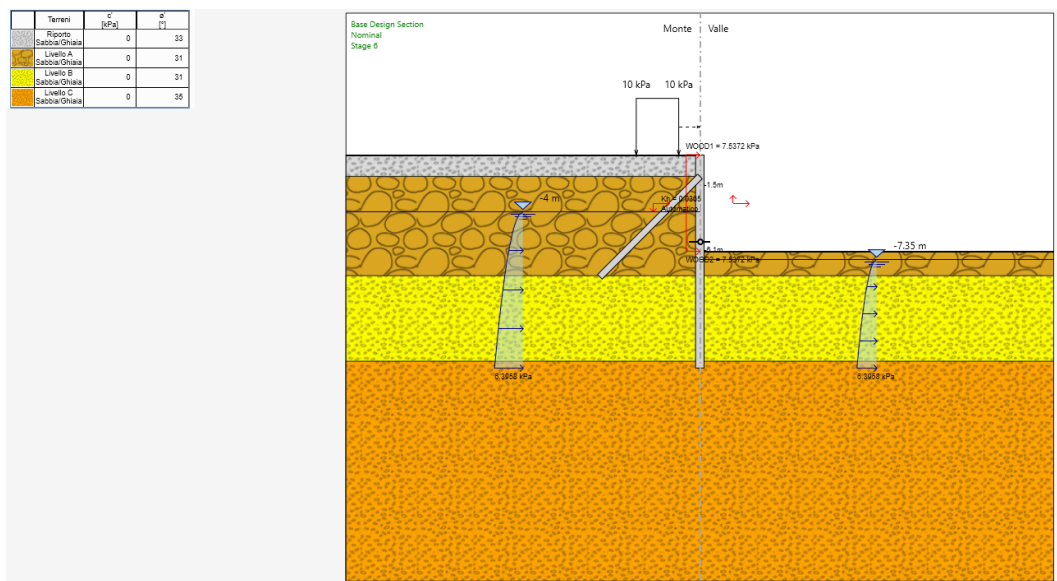


Figura 2-5 – Fase 4 – Attivazione carichi sismici SLV

2.2 Condizioni di carico

I carichi agenti sulla paratia dipendono dalla stratigrafia del terreno e dalle sue caratteristiche meccaniche e geometriche (γ_{sat} , E , Φ , k_a , k_p).

I valori di spinta attiva (k_a) e passiva (k_p), fattori che determinano i valori finali delle azioni sollecitanti sulla paratia sono, determinati automaticamente dal software di calcolo in dipendenza del tipo di terreno, del suo angolo di attrito (Φ), e dell'angolo di attrito tra paratia e terreno (δ) avendo ipotizzato $\delta/\Phi=0.66$.

I calcoli effettuati dal software fanno riferimento alla teoria di Caquot e Kerisel (1948), come evidenziato dal seguente estratto del manuale del software:

4.2 Parametri che caratterizzano il modello

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 e 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:

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

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

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

dove:

$$K_0^{NC} = 1 - \sin \phi'$$

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. Ladd et al. (1977), Jamiolkowski et al. (1979) forniscono valori di m per argille italiane.

Il coefficiente di spinta attiva e passiva sono dati secondo Rankine per una parete liscia, da

$$K_A = \tan^2(45^\circ - \phi'/2)$$

$$K_P = \tan^2(45^\circ + \phi'/2)$$



Attraverso valori opportuni di K_A e K_P si può tener conto dell'angolo di attrito δ tra paratia e terreno e della pendenza del terreno a monte ed entro la luce di scavo; si possono usare a questo scopo i valori desunti da NAVFAC (1986) o quelle elaborate da Caquot e Kerisel (1948)

Il valore limite della tensione orizzontale sarà dato da

$$\dot{\sigma}_h = K_A \dot{\sigma}_v - 2c' \sqrt{K_A}$$

$$\dot{\sigma}_h = K_P \dot{\sigma}_v + 2c' \sqrt{K_P}$$

a seconda che il collasso avvenga in spinta attiva o passiva rispettivamente. c' è la coesione drenata del terreno.

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2.3 Combinazioni di carico

In accordo con il § 6.5.3.1.2 di **Error! Reference source not found.** sono determinate le seguenti combinazioni di carico:

SLU di tipo geotecnico (GEO) e di tipo idraulico (HYD)

- Collasso per rotazione intorno a un punto dell'opera (atto di moto rigido);
- Collasso per caric limite verticale;
- Sfilamento di uno o più ancoraggi;
- Instabilità del fondo scavo in terreni a grana fine in condizioni non drenate;
- Instabilità del fondo scavo per sollevamento;
- Sifonamento del fondo scavo;
- Instabilità globale dell'insieme terreno-opera.

SLU di tipo strutturale (STR)

- Raggiungimento della resistenza in uno o più ancoraggi;
- Raggiungimento della resistenza in uno più puntoni o sistemi di contrasto;
- Raggiungimento della resistenza strutturale della paratia.

La verifica di stabilità globale dell'insieme terreno-opera deve essere effettuata secondo l'approccio 1:

Combinazione 2: A2+M2+R2

Le rimanenti verifiche devono essere effettuate considerando le seguenti combinazioni di coefficienti:

- Combinazione 1: A1+M1+R1
- Combinazione 2: A2+M2+R1

tenendo conto dei valori dei coefficienti parziali riportati nelle Tabelle 6.1.I, 6.2.II, 6.5.I

SLE: Le verifiche allo SLE riguardano il calcolo degli spostamenti dell'opera di sostegno e del terreno circostante, i quali devono essere valutati al fine di verificare la compatibilità con la funzionalità dell'opera e con la sicurezza e funzionalità dei manufatti adiacenti, anche a seguito di modifiche indotte sul regime delle acque sotterranee.

In presenza di manufatti particolarmente sensibili agli spostamenti dell'opera di sostegno, deve essere sviluppata una specifica analisi dell'interazione tra opere e terreno, tenendo conto della sequenza delle fasi costruttive.

- SISMICA STR: Verifica Strutturale con azione sismica
- SISMICA GEO: Verifica di tipo geotecnico con azione sismica

L'azione sismica introdotta nel programma di calcolo è l'azione secondo Wood:

$$E_{Wood} = \frac{a_g}{g} * S * \gamma_{sat} * H, \text{ azione sismica del terreno;}$$

$$E_{Wood} = \frac{a_g}{g} * S * \gamma_{H_2O} * H, \text{ azione sismica acqua}$$

3 RISULTATI ANALISI STRUTTURALE PARATIA

3.1 Diagrammi azioni interne

Nel presente paragrafo sono riportati i diagrammi delle massime azioni interne tra le combinazioni A1+M1+R1, A2+M2+R1, SISMICA STR, SISMICA GEO.

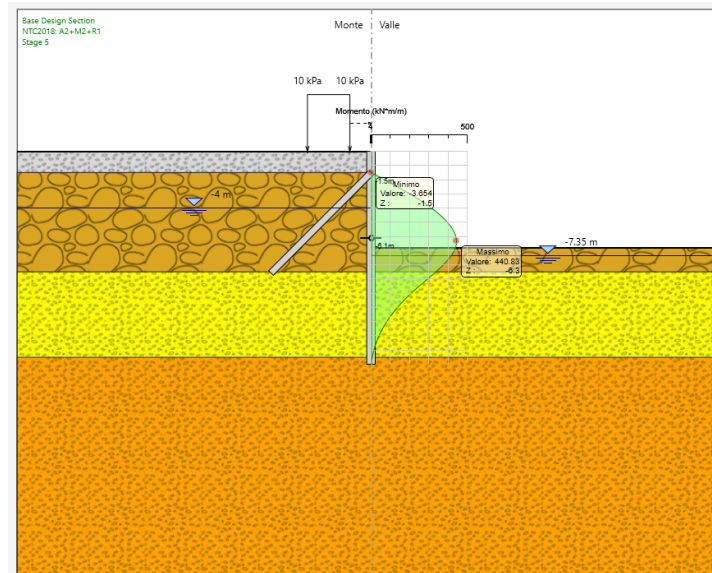


Figura 3-1 – Momento flettente massimo

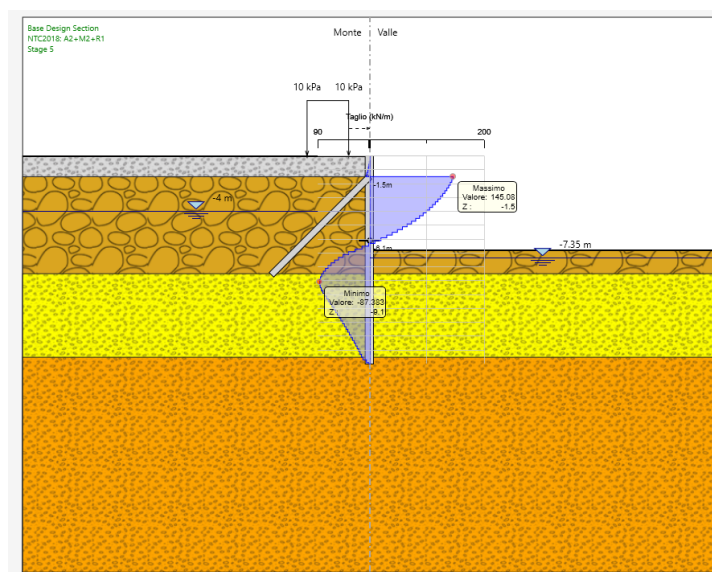




Figura 3-2 – Taglio massimo

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3.2 Diagrammi delle deformate

La verifica per il massimo spostamento è effettuato per la combinazione allo SLE. Di seguito un immagine del massimo spostamento allo SLE.

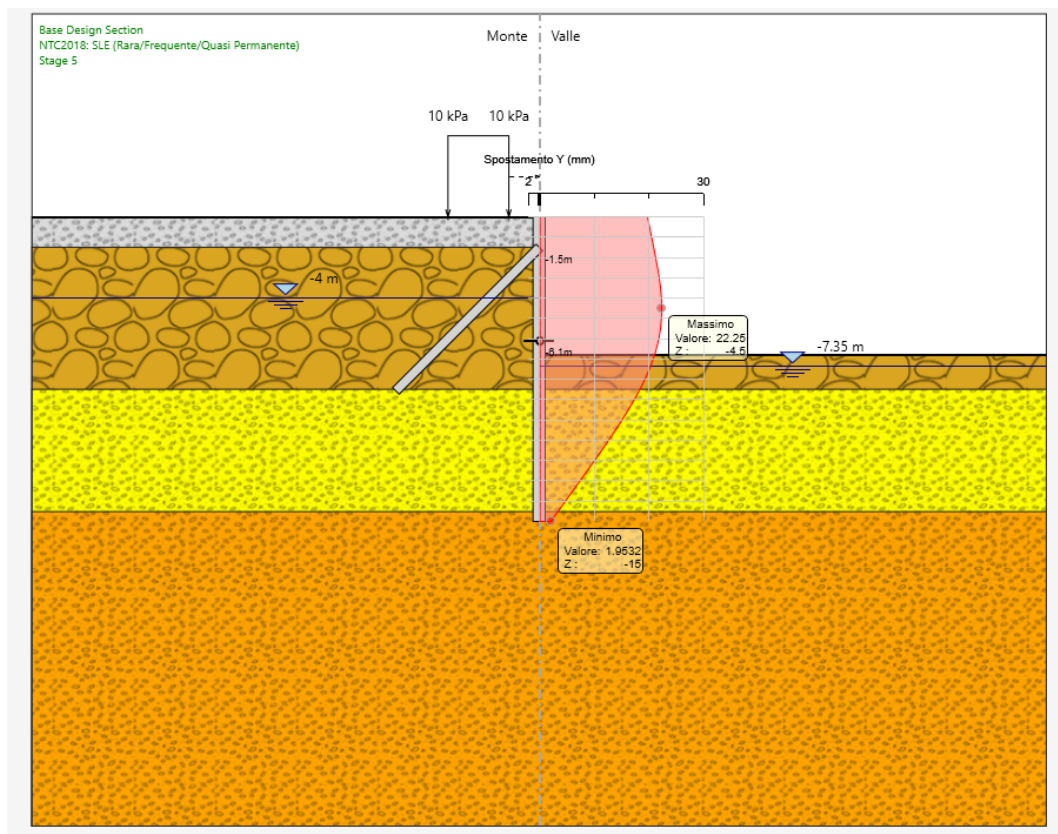


Figura 3-3 – Comb. SLE – Massimo spostamento della paratia ($s_{\max}=22 \text{ mm}$)

4 VERIFICHE ELEMENTI STRUTTURALI

Di seguito si riportano le verifiche più significative dell'opera di sostegno.

4.1 SLU – Momento flettente

Verifica C.A. S.L.U. - File

File Materiali Opzioni Visualizza Progetto Sez. Rett. Sismica Normativa: NTC 2018 ?

TITOLO :

N° strati barre 2 Zoom

N°	b [cm]	h [cm]
1	100	60

N°	As [cm²]	d [cm]
1	22,62	6
2	22,62	54

Tipo Sezione
☒ Rettan.re ☐ Trapezi
☐ a T ☐ Circolare
☐ Rettangoli ☐ Coord.
☐ DXF

Sollecitazioni
 S.L.U. Metodo n

N_{Ed} 0 kN
 M_{xEd} 0 kNm
 M_{yEd} 0 kNm

P.to applicazione N
☒ Centro ☐ Baricentro cls
☐ Coord.[cm] xN 0 yN 0

Tipo rottura
 Lato calcestruzzo - Acciaio snervato

Materiali
B450C **C28/35**
 ϵ_{su} 67,5 ‰ ϵ_{c2} 2 ‰
 f_{yd} 391,3 N/mm² ϵ_{cu} 3,5 ‰
 E_s 200.000 N/mm² f_{cd} 15,87
 E_s/E_c 15 f_{cc}/f_{cd} 0,8
 ϵ_{syd} 1,957 ‰ $\sigma_{c,adm}$ 11
 $\sigma_{s,adm}$ 255 N/mm² τ_{co} 0,6667
 τ_{c1} 1,971

M_{xRd} 452,2 kN m
 σ_c -15,87 N/mm²
 σ_s 391,3 N/mm²
 ϵ_c 3,5 ‰
 ϵ_s 26,51 ‰
 d 54 cm
 x 6,298 x/d 0,1166
 δ 0,7



Metodo di calcolo
☒ S.L.U. + ☐ S.L.U. -
☐ Metodo n

Tipo flessione
☒ Retta ☐ Deviata

N° rett. 100
 Calcola MRd Dominio M-N
 L₀ 0 cm Col. modello
 M-curvatura
☐ Precompresso

Armatura in zona tesa: 5 Φ 24 in zona tesa + 5 Φ 24 in zona compressa



La verifica a flessione è positiva in quanto M_{xrd} (452.2 kN/m) > M_{xed} (440 kNm/m).

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4.2 SLU – Taglio

VERIFICA A TAGLIO SECONDO D.M. 2018 ED EUROCODICE 2 (UNI EN 1992 1-1)									
Dati di input									
Rck									
fck									
Valore medio della resistenza a trazione	$f_{ctm} =$								
Coefficiente sicurezza cls	$\gamma_c =$								
Coefficiente carichi lunga durata	$\alpha_{cc} =$								
fcd=resistenza di calcolo del cls	fcd =								
Resistenza caratteristica di snervamento acciaio	$f_{yk} =$								
Coefficiente sicurezza acciaio	$\gamma_s =$								
Snervamento di calcolo acciaio	$f_{yd} =$								
Forza di taglio di calcolo	$V_{sd} =$								
Forza assiale di calcolo	$N_{sd} =$								
Larghezza sezione	$b_w =$								
altezza della sezione	$H =$								
Copriferro	$c =$								
Diametro barre superiori	$\phi_e =$								
Diametro barre inferiori	$\phi_i =$								
Diametro staffe	$\phi_{st} =$								
Numero di barre superiori	$N_2 =$								
Numero di barre inferiori	$N_1 =$								
altezza utile della sezione	$d =$								
Resistenza di calcolo dell'elemento senza armatura a taglio: Vrd1 (rif. cap. 4.1.2.1.3.1 del D.M. 2018)									
$V_{rd1} = \{ [0.18 \times k \times (100 \times \rho_1 \times f_{ck})^{1/3} / \gamma_c] + 0.15 \times \sigma_{cp} \} \times (b_w \times d)$									
con $V_{rd1} \geq V_{rd1min} = \{ V_{min} + 0.15 \times \sigma_{cp} \} \times (b_w \times d)$									
$K = 1 + (200 / d)^{0.5} < 2.00$	$K =$								
$V_{min} = 0.035 \times K^{1.5} \times f_{ck}^{0.5}$	$V_{min} =$								
$\rho_1 = A_{s1} / (b_w d) \leq 0.02$									
As1=area delle armature di trazione che si estendono non meno di $d + l_{bnet}$ oltre la sezione considerata	$A_{s1} =$								
	$\rho_1 =$								
$\sigma_{cp} = -N_{sd} / A_{cs} \leq 0.2 f_{cd}$	$\sigma_{cp} =$								
	$V_{rd1} =$								
	$V_{rdmin} =$								
	$V_{rd1} =$								
OK! - VERIFICA SODDISFATTA									

La verifica a taglio è positiva in quanto $M_{xrd} (452.2 \text{ kN/m}) > M_{xed} (440 \text{ kNm/m})$.

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4.3 SLE – Tensioni di esercizio

In condizioni di esercizio, è stato considerato che la quota della falda a monte dell'opera sia allo stesso livello del pelo libero del canale, in quanto tra le due sussiste continuità idraulica.

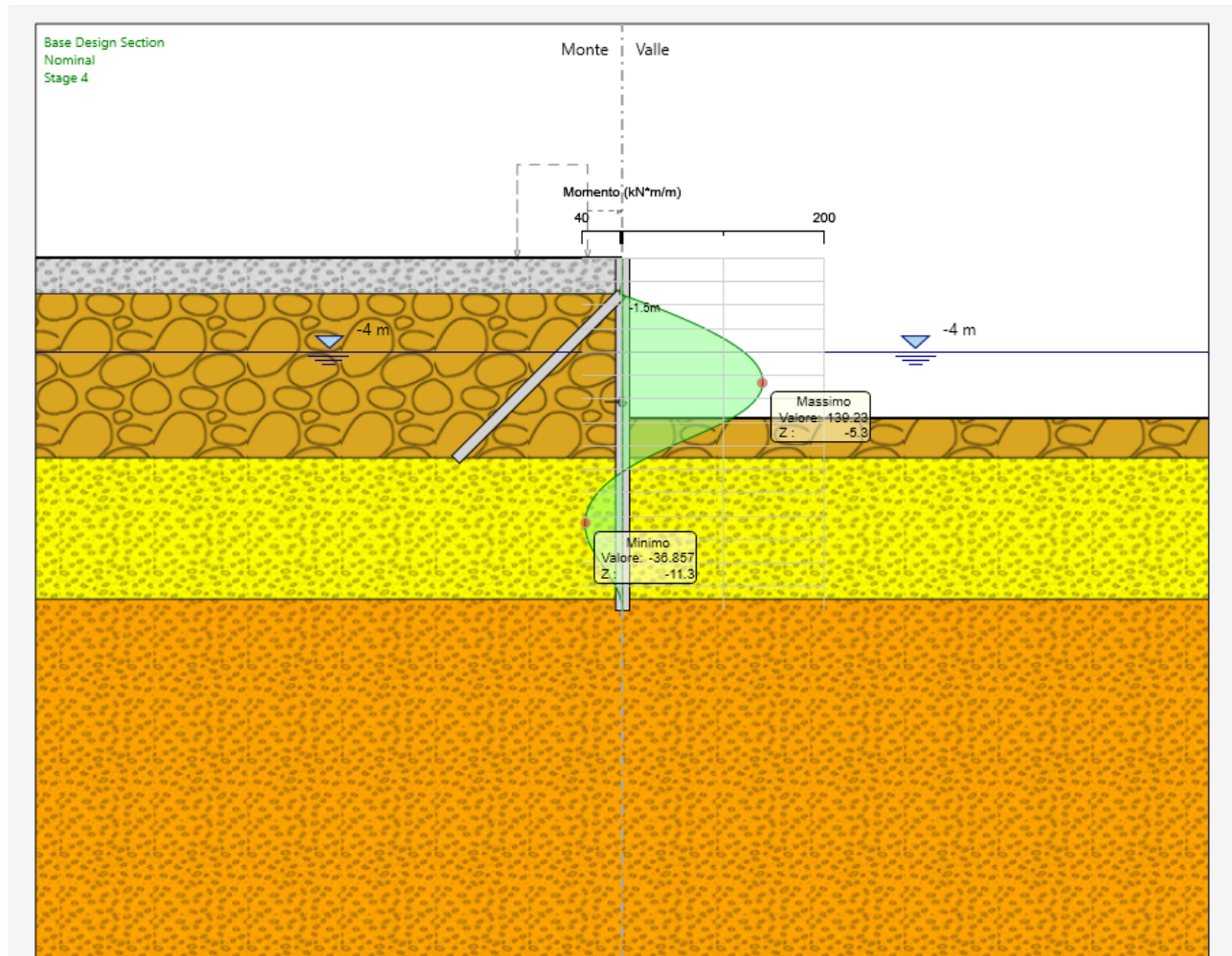


Figura 4-1 – Comb. SLE – Massima azione flettente ($M_{max}=139,23$ kNm/m)

Verifica C.A. S.L.U. - File

File Materiali Opzioni Visualizza Progetto Sez. Rett. Sismica Normativa: NTC 2018 ?

Titolo :

N° strati barre Zoom

N°	b [cm]	h [cm]
1	100	60

N°	As [cm²]	d [cm]
1	22,62	6
2	22,62	54

Tipo Sezione

☒ Rettan.re ☐ Trapezi
☐ a T ☐ Circolare
☐ Rettangoli ☐ Coord.
☐ DXF

Sollecitazioni

S.L.U. ☒ Metodo n ☐

N_{Ed} kN
M_{xEd} kNm
M_{yEd} kNm

P.to applicazione N

☒ Centro ☐ Baricentro cls
☐ Coord.[cm] xN yN

Materiali

B450C **C28/35**

ε_{su} ‰ ε_{c2} ‰
f_{yd} N/mm² ε_{cu} ‰
E_s N/mm² f_{cd} N/mm²
E_s/E_c f_{cc}/f_{cd} ?
ε_{syd} ‰ σ_{c,adm} N/mm²
σ_{s,adm} N/mm² τ_{co} N/mm²
τ_{c1} N/mm²

σ_c N/mm²
σ_s N/mm²
ε_s ‰
d cm
x x/d
δ

Metodo di calcolo

☐ S.L.U.+ ☐ S.L.U.-
☒ Metodo n

Verifica

N° iterazioni:

☐ Precompresso

La verifica risulta positiva in quanto:

$$\sigma_c = 3.08 \text{ MPa} \leq 0.45 * f_{ck} = 12.6 \text{ MPa}$$

$$\sigma_s = 125.8 \text{ MPa} \leq 0.8 * f_{yk} = 360 \text{ MPa}$$

4.4 SLE – Fessurazione

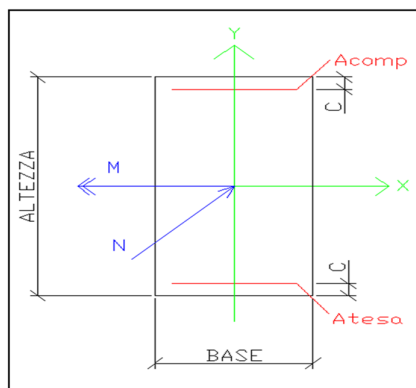
La verifica si pone come: SLE quasi permanente: $w_k \leq 0.2 \text{ mm}$

Sezione

Base 100 cm
Altezza 60 cm
copriferro 5 cm

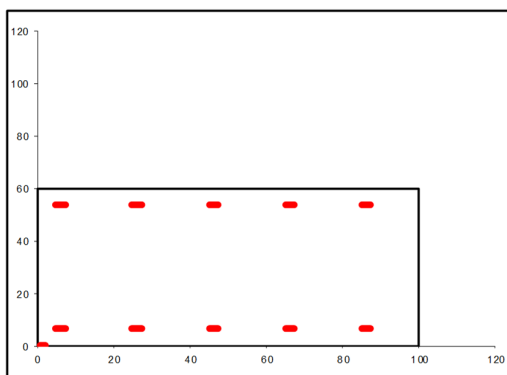
Materiale

R_{ck} 35 MPa
 f_{ck} 28 MPa
 f_{cm} 36 MPa
n 15



Armatura

Barre superiori
numero 5,00
diametro 24 mm
passo 20 cm
area 22,62 cm²
Barre inferiori
numero 5,00
diametro 24 mm
passo 20 cm
area 22,62 cm²
Staffe
diametro 0 mm





Sollecitazioni

M_{sd} 139,23 kNm
 N_{sd} 0 kN
e NA cm

Risultati

$\sigma_{s,inf}$ 126,45 MPa
 $\sigma_{s,sup}$ -26,72 MPa
 σ_c -3,11 MPa
 M_{cr} 199,06 kNm
 $M_{cr,I}$ 167,21 kNm
 w_k 0,16 mm

La verifica è positiva in quanto w_k (0.16mm) è inferiore a 0.2 mm

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5 VERIFICHE STATI LIMITE ULTIMI DI TIPO IDRAULICO

In conformita' alle NTC 2018 (paragrafo 6.2.4.2), le opere geotecniche devono essere verificate nei confronti dei possibili stati limite di sifonamento o di sollevamento.

Si è pertanto provveduto ad effettuare tali verifiche relativamente ai diaframmi di cui è prevista la realizzazione.

Nella figura allegata è rappresentato lo schema di verifica, assumendo:

- Quota del terreno a monte dei diaframmi: 130,00
- Quota della falda a monte dei diaframmi: 129,00
- Quota del terreno a valle dei diaframmi: 124,00.

Risulta un ΔH idraulico pari a 5,00m ed una profondità di infissione nel terreno dei diaframmi pari a 10,00 m.

Il fenomeno di sollevamento del terreno è costituito dalla perdita di equilibrio del terreno a causa della sottospinta dell'acqua.

Invece il sifonamento e la conseguente erosione del terreno sono generati dai moti di filtrazione dell'acqua dal basso verso l'alto, con un gradiente idraulico tale da produrre l'annullamento delle tensioni efficaci.

5.1 Verifica al sollevamento

In un terreno privo di leganti coesivi, quale quello in oggetto, il sifonamento e la conseguente erosione del terreno sono generati dai moti di filtrazione dell'acqua dal basso verso l'alto, con un gradiente idraulico tale da produrre l'annullamento delle tensioni efficaci.

Per la verifica del sollevamento del fondo scavo deve risultare che il valore di "progetto dell'azione instabilizzante " $V_{inst,d}$ " ovverosia la risultante delle pressioni idrauliche ottenuta considerando separatamente la parte permanente " $G_{inst,d}$ " e quella variabile " $Q_{inst,d}$ " (in questo caso trascurabile), sia non maggiore della combinazione dei valori di progetto delle azioni stabilizzanti " $G_{stb,d}$ " e dei valori di progetto delle resistenze " R_d ".



Nel ns. caso, quindi si ha:

- " $V_{inst,d}$ " = " $G_{inst,d}$ "
- " $V_{inst,d}$ " \leq " $G_{stb,d}$ " + " R_d ".

Per le verifiche di stabilità al sollevamento, i relativi coefficienti parziali sono indicati nella Tab. 6.2.III delle NTC 2018 e risultano:

- Carichi permanenti G_1 : coefficiente parziale γ_{G1} favorevole: 0,9;
- Carichi permanenti G_1 : coefficiente parziale γ_{G1} sfavorevole: 1,1.

Nella verifica al sollevamento del fondo scavo, il volume di terreno presente immediatamente a valle della paratia costituita dai diaframmi è interessato da forze di infiltrazione che

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contrastano la forza di gravità; in queste condizioni le forze di filtrazione possono controbilanciare completamente il peso efficace, dando luogo al fenomeno del sifonamento.

La forza instabilizzante " $V_{inst,d}$ " risulta pari a $I_E y_W V$ ove :

$$- I_E = H / (H + 2D) = 5,00 / 25,00 = 0,200$$

$$- y_W = 10 \text{ kN/m}^3$$

$$- V = D \cdot D/2 = 50 \text{ m}^3/\text{ml}.$$

Risulta quindi:

$$"V_{inst,d}" = 100 \text{ kN/ml}$$

La forza stabilizzante " $G_{stb,d}$ " è il contributo derivante dal peso sommerso del terreno relativo alla zona di pericolo.

Il peso sommerso (W) è pari a $y' V$., ove $y' = y_{sat} - y_W$.

Assumendo $y_{sat} = 19,35 \text{ kN/m}^3$, $y_W = 10 \text{ kN/m}^3$ ed essendo $V = 50 \text{ m}^3$, risulta da verificare:

$$- I_E y_W V y_{G1sfav} \leq y' V y_{G1fav}$$

Dividendo il tutto per y_W e ricordando che y'/y_W è il gradiente idraulico critico I_C , l'espressione risulta:

$$- I_E y_{G1sfav} \leq I_C y_{G1fav}$$

$$- I_C = (y_{sat} - y_W) / y_W = (19,35 - 10,00) / 10,00 = 0,935 \text{ kN}$$

E quindi risulta:

$$- 0,200 \times 1,1 \leq 0,935 \times 0,9, \text{ verificato.}$$

5.2 Verifica al sifonamento

Il controllo del fenomeno di sifonamento, così come stabilito dalle norme, prevede due possibili tipologie di verifiche.



Se la frontiera di efflusso (come nel caso in oggetto) è libera, si verifica che il gradiente idraulico I , sia, al più, pari al gradiente idraulico critico I_C opportunamente diviso attraverso il coefficiente y_R .

Poiché la verifica viene condotta considerando il gradiente idraulico di efflusso, y_R viene assunto pari a 2.

Nel terreno a valle dei diaframmi, in presenza di filtrazione ascendente, quando $I = I_C$, si annullano le forze intergranulari, si annulla la resistenza del terreno e le particelle solide possono essere trasportate dall'acqua in movimento, dando origine ad un fenomeno progressivo di erosione che può condurre al collasso della struttura del terreno. Tale fenomeno è noto come instabilità idrodinamica o sifonamento.

Per la verifica del sifonamento del fondo scavo deve risultare:

$$- I_C / I_E > 2.$$



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Si è già calcolato:

- $I_C = (y_{sat} - y_w) / y_w = (19,35 - 10,00) / 10,00 = 0,935 \text{ kN}$
- $I_E = H / (H + 2D) = 5,00 / 25,00 = 0,200$

E quindi:

- $I_C / I_E = 4,675 > 2$, verificato.

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6 PASSERELLA

La passerella di servizio del nuovo manufatto sarà realizzata mediante lastre alveolari autoportanti in c.a.p.

La soletta risulta, quindi, strutturalmente una piastra appoggiata alle pareti verticali degli speroni di sostegno con una dimensione, la lunghezza, variabile tra i 6,00 m delle solette intermedie ed i 10,00 m della soletta alloggiante anche il cassone di raccolta dei grigliati.

Per quanto riguarda i carichi, il carico accidentale di riferimento è stato assunto pari a 5,0 kN/m².

In via cautelativa, però, si è considerato un carico isolato di 10 kN avente impronta di 0,10 x 0,10 m e corrispondente allo schema di carico 4 della Normativa.

Le azioni in gioco sono risultate :

- peso proprio
- carico accidentale pari a 5,0 kN/m² (1,5 kN/m² permanente + 3,5 kN/m² temporaneo)
- carico concentrato da 10 kN su impronta di 0,10 x 0,10 ,m
- carico neve.

Le lastre sono state studiate come un solaio con schema statico di semplice appoggio.

Il carico isolato su impronta è stato assunto uniformemente distribuito sulla superficie dell'impronta, considerando una diffusione , attraverso la soletta strutturale sottostante, secondo un angolo di 45°.

Si sono quindi assunte luci di calcolo di 6,00 e 10,00 m, fermo restando che in fase costruttiva sarà verificata l'effettiva lunghezza da calcolare nella scelta della lastre da posare in opera.

6.1 Verifica di sicurezza

La valutazione della sicurezza è stata effettuata in precalcolo attraverso il metodo semiprobabilistico agli stati limite con l'impiego di coefficienti parziali di sicurezza.

In fase di progettazione esecutiva si effettuerà la progettazione con il metodo degli stati limite secondo NTC 2018.



6.2 Stati limite considerati

Vn = 50 anni

SLU (STR) Resistenza elementi strutturali

SLE In relazione alla classe d'opera XA1 (ambiente aggressivo)

La valutazione della sicurezza è stata effettuata in precalcolo attraverso il metodo semiprobabilistico agli stati limite con l'impiego di coefficienti parziali di sicurezza.

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6.3 Analisi dei carichi

Di seguito si riportano le assunzioni di progetto relative alla tipologia di copertura da impiegare, le analisi sono state condotte considerando i seguenti pesi specifici e i seguenti carichi di progetto.

Carichi permanenti

Calcestruzzo: $\gamma = 24,0 \text{ kN/m}^3$

C.A: $\gamma = 25,0 \text{ kN/m}^3$

Acciaio: $\gamma = 78,5 \text{ kN/m}^3$

Spessore soletta inferiore 30 + 8cm di cappa collaborante

Trefoli fptk: 1860 N/mm^2 ; $f_p(1\%K) = 1670 \text{ N/mm}^2$

Sovraccarichi accidentali (Q1k)

Q1k = $5,0 \text{ kN/m}^2$ carico uniformemente distribuito (Schema di carico 5 NTC)

Q1k = $10,0 \text{ kN}$ carico concentrato su impronta quadrata $0,10 \times 0,10 \text{ m}$ per verifica a punzonamento (Schema di carico 4 NTC)

Sovraccarichi accidentali da neve (Q2k)

Zona neve : I Mediterranea, as < 200 m.s.m, $Q_{sk} = 1,5 \text{ kN/m}^2$

Ce (coeff. di esposizione al vento): 1,1

Copertura ad una falda: angolo di inclinazione della falda = $0,0^\circ$, $\mu_1 = 0,80$ coefficiente di forma.

Q2k = $1,32 \text{ kN/m}^2$ carico uniformemente distribuito.

Verifiche effettuate

Lastre tralicciate H = 38 cm (30 +8 cm getto c.a spessore totale 38 cm), luce 6,00 m

Lastre tralicciate H = 48 cm (30 +8 cm getto c.a spessore totale 45 cm), luce 10,00 m



Classe di calcestruzzo minima: C28/35

Acciaio B450 C

Trattandosi di lastre vincolate con semplice appoggio, si è verificato, ai sensi del D.M. 09/01/1996, che il rapporto tra la luce delle lastre e lo spessore sia inferiore a 25; è risultato:

-lastre H =35 cm, rapporto = 17,14

-lastre H =45 cm, rapporto = 22,22.

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Carico a rottura SLU è stato verificato considerando il peso proprio del solaio, il sovraccarico accidentale $Q1k = 5,0 \text{ kN/m}^2$ uniformemente distribuito e il carico concentrato su impronta $0,10 \times 0,10\text{m} = 10 \text{ kN}$.

Schema statico : trave semplicemente appoggiata.

Le verifiche a flessione semplice SLU hanno sempre confermato $M_{rd} > M_{sd}$ (Stato di sollecitazione ultima)

Le verifiche alle tensioni di esercizio e di deformabilità SLE sono a loro volta risultate positive.

L'Appaltatore dovrà definire l'armatura di precompressione in funzione della tipologia di prefabbricazione scelta.

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7 PARAPETTI

I parapetti saranno costituiti da montanti verticali ad interasse di 1500 mm e da tre correnti orizzontali, così costituiti:

- corrimano superiore con asse a 1100 mm dalla soletta di appoggio, realizzato con tubolare \varnothing 42,4, spessore 2,60mm;
- corrente intermedio con asse a 640 mm dalla soletta di appoggio, realizzato con tubolare \varnothing 26,9, spessore 2,20mm;-corrente inferiore con asse a 150 mm dalla soletta di appoggio, realizzato con tubolare \varnothing 26,9, spessore 2,20mm.

I montanti verticali saranno realizzati con scatolari 60 x 40 x 4,00 mm, con fori passanti dei corrimani e piastre di appoggio 150 x 150 x 10, ancorati con 4 tasselli M12 x 120.

La struttura dei parapetti sarà realizzata in acciaio S 235 JR, zincata a caldo secondo la norma EN ISO 1461.

I parapetti sono dimensionati per reggere una azione orizzontale di 1,5 kN/m applicata al corrimano, in conformità a quanto previsto dalle NTC 2018.

Verifica del montante

Carico orizzontale sul corrimano H_k : 1,5 kN/m

Carico puntuale: $H_k = 1,50 \times 1,50 \text{ m} = 2,25 \text{ kN}$

Coefficiente di sicurezza SLU: 1,10

$F_{SLU} = 2,25 \times 1,10 = 2,475 \text{ kN}$

Momento $M_{ED} = 2,475 \times 1,10 \text{ h} = 2,723 \text{ kN}$

Si adotta montante con profilo cavo a sezione rettangolare 60 x 40 x 4 mm, caratterizzato da modulo di resistenza plastica W_{pl-y} pari a 13,80 cm³.

La verifica a flessione retta della sezione M_{pl} viene effettuata con la formula:

$M_{pl} = (W_{pl-y} \cdot f_{yk}) : \gamma_{MO} \cdot 10^3$, con

- $f_{yk} = 235 \text{ N/mm}^2$

- γ_{MO} , coefficiente adimensionale NTC= 1,05

Risulta $M_{pl} = 3,088 > 2,723$, verifica positiva.

Verifica del corrimano

Carico orizzontale sul corrimano H_k : 1,5 kN/m

Coefficiente di sicurezza SLU: 1,10

$F_{SLU} = 1,50 \times 1,10 = 1,65 \text{ kN/m}$

Momento $M_{ED} = F \cdot L^2/8$

Momento $M_{ED} = 1,65 \times 1,50^2/8 = 0,465 \text{ kNm}$

Si adotta un corrimano con profilo tubolare 42,4 x 2,6 mm, caratterizzato da modulo di resistenza plastica W_{pl-y} pari a 4,12 cm³.



La verifica a flessione retta della sezione M_{pl} viene effettuata con la formula:

$M_{pl} = (W_{pl-y} \cdot f_{yk}) : \gamma_{MO} \cdot 10^3$, con

- $f_{yk} = 235 \text{ N/mm}^2$

- γ_{MO} , coefficiente adimensionale NTC= 1,05

Risulta $M_{pl} = 0,922 > 0,465$, verifica positiva.

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	<p>Relazione di calcolo strutturale</p>

ALLEGATO 1 “Tabulati di calcolo”



Report di Calcolo paratie di progetto

Nome Progetto: New Project

Autore: Ingegnere

Jobname: C:\Users\apiazza\OneDrive - Stantec\Documents\Data\AIPO_Cislano\Modello Paratie\Sponda Sinistra\Sponda sx finale.pplus

Data: 16/02/2023 10:14:17

Design Section: Base Design Section

Sommario

Contenuto Sommario

Descrizione del Software

ParatiePlus è un codice agli elementi finiti che simula il problema di uno scavo sostenuto da diaframmi flessibili e permette di valutare il comportamento della parete di sostegno durante tutte le fasi intermedie e nella configurazione finale.

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : HORIZONTAL

Quota : 0 m

OCR : 1

Tipo : HORIZONTAL

Quota : -1.5 m

OCR : 1

Tipo : HORIZONTAL

Quota : -8.5 m

OCR : 1

Tipo : HORIZONTAL

Quota : -14.5 m

OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ϕ'	ϕ	c_v	ϕ	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	Riporto	16.5	17.5	33				0		Constant		8600	25800										
2	Livello A	16.7	17.7	31				0		Constant		7800	23400										
3	Livello B	17.9	18.9	31				0		Constant		9900	29700										
4	Livello C	17.9	18.9	35				0		Constant		17900	53700										

Descrizione Pareti

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Muro di sinistra

Sezione : Diaframma

Area equivalente : 0.6 m

Inerzia equivalente : 0.018 m⁴/m

Materiale calcestruzzo : C28/35

Tipo sezione : Solid

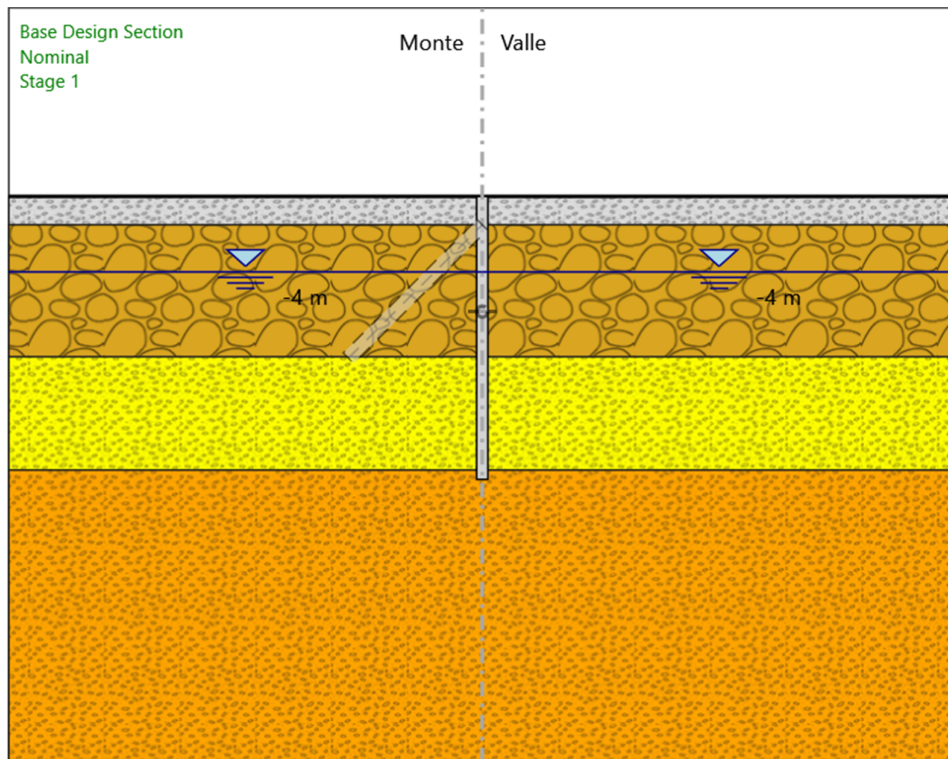
Spessore : 0.6 m

Efficacia : 1



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 : -4 m

Falda di destra : -4 m

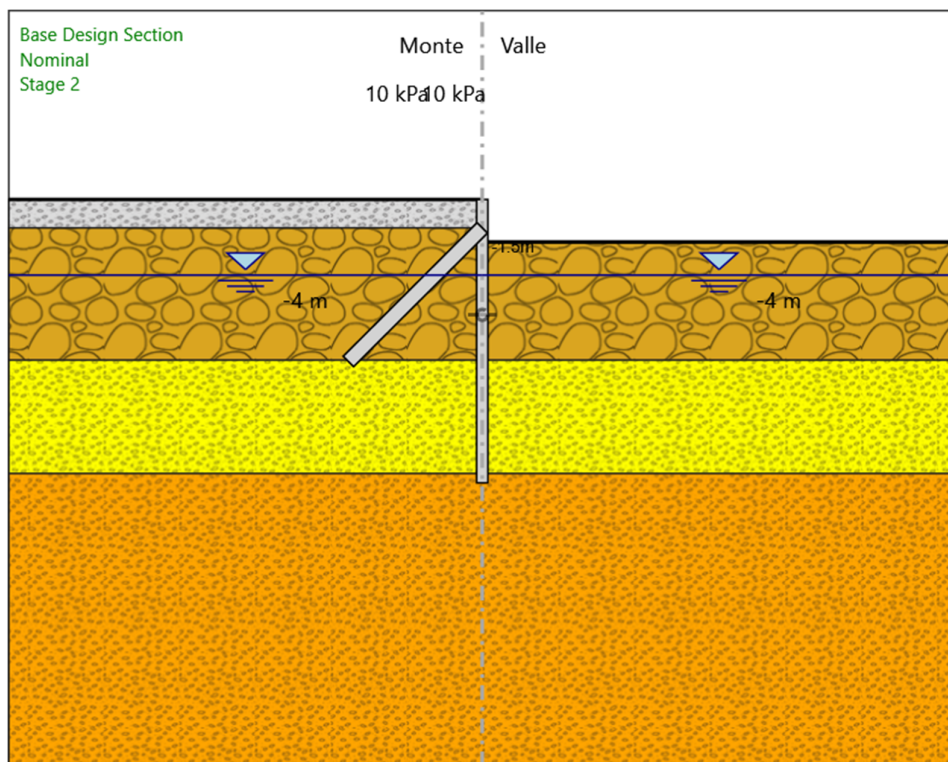
Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m
Quota di fondo : -15 m
Sezione : Diaframma

Stage 2



Stage 2

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2.25 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-2.25 m

Falda acquifera

Falda di sinistra : -4 m

Falda di destra : -4 m

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Sezione : Diaframma

Tirante : Tieback

X : 0 m

Z : -1.5 m

Lunghezza bulbo : 10 m

Diametro bulbo : 0.3 m

Lunghezza libera : 0 m

Spaziatura orizzontale : 2 m

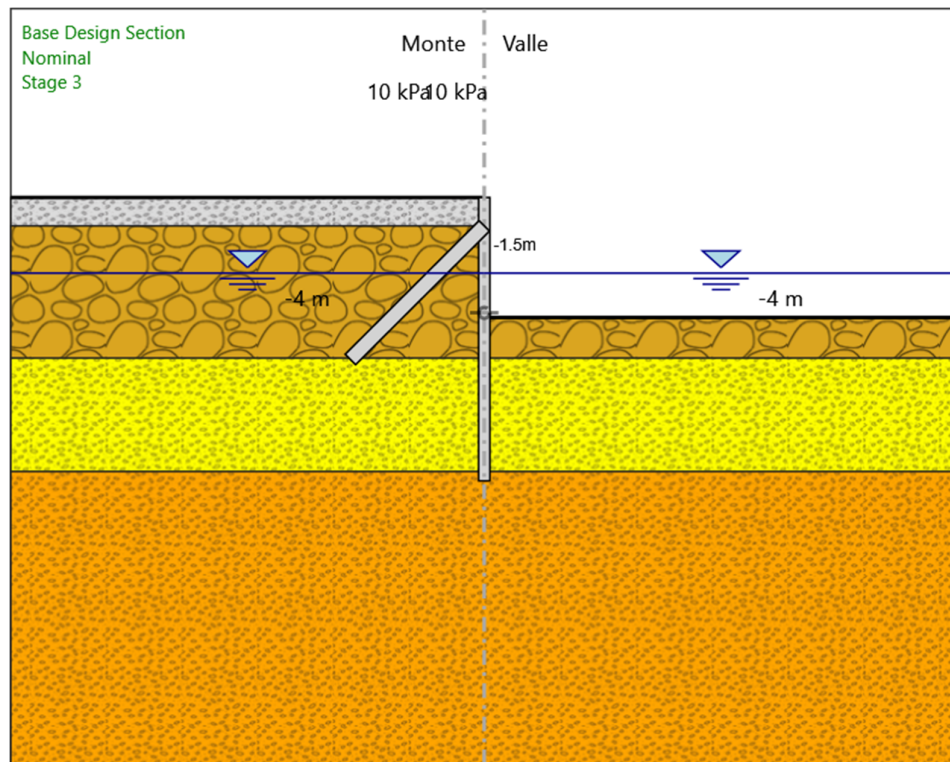
Precarico : 0 kN

Angolo : 45 °

Sezione : 4 strands

Area : 0.000556 m²

Stage 3



Stage 3

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.35 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-6.35 m

Falda acquifera

Falda di sinistra : -4 m

Falda di destra : -4 m

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Sezione : Diaframma

Tirante : Tieback

X : 0 m

Z : -1.5 m

Lunghezza bulbo : 10 m

Diametro bulbo : 0.3 m

Lunghezza libera : 0 m

Spaziatura orizzontale : 2 m

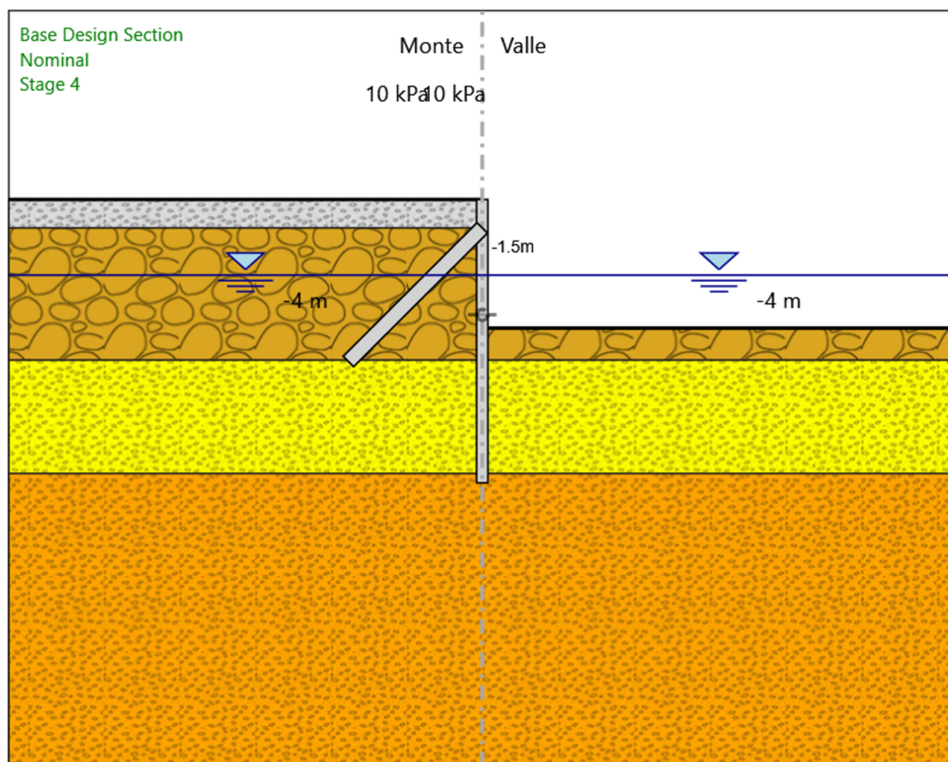
Precarico : 0 kN

Angolo : 45 °

Sezione : 4 strands

Area : 0.000556 m²

Stage 4



Stage 4

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.81 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-6.81 m

Falda acquifera

Falda di sinistra : -4 m

Falda di destra : -4 m

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Sezione : Diaframma

Tirante : Tieback

X : 0 m

Z : -1.5 m

Lunghezza bulbo : 10 m

Diametro bulbo : 0.3 m

Lunghezza libera : 0 m

Spaziatura orizzontale : 2 m

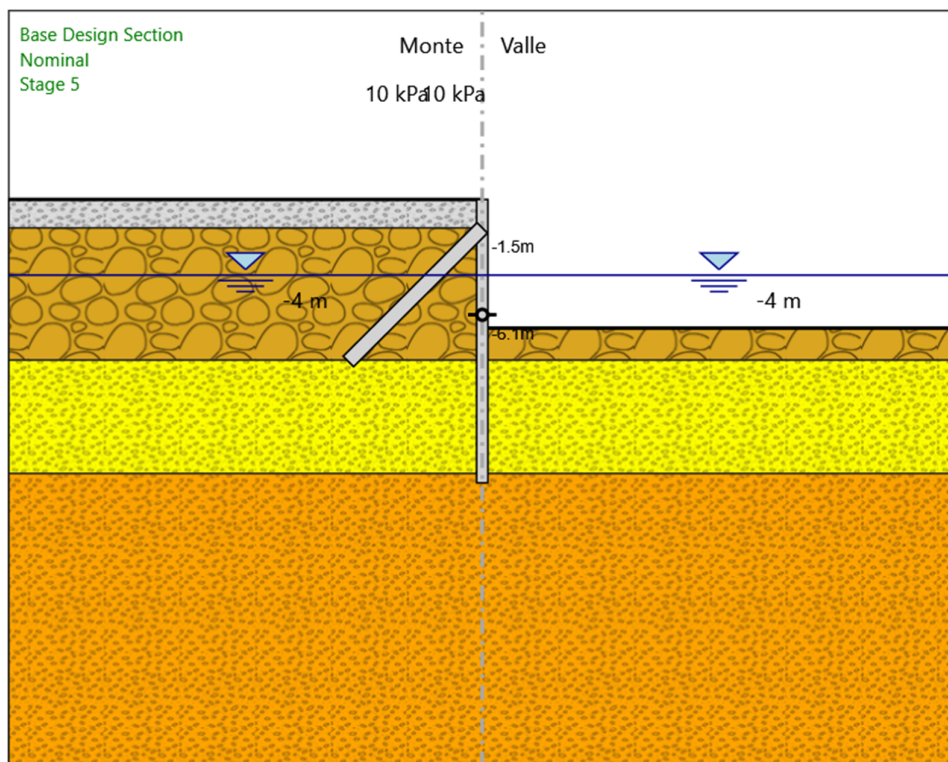
Precarico : 0 kN

Angolo : 45 °

Sezione : 4 strands

Area : 0.000556 m²

Stage 5



Stage 5

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.81 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-6.81 m

Falda acquifera

Falda di sinistra : -4 m

Falda di destra : -4 m

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Sezione : Diaframma

Tirante : Tieback

X : 0 m

Z : -1.5 m

Lunghezza bulbo : 10 m

Diametro bulbo : 0.3 m

Lunghezza libera : 0 m

Spaziatura orizzontale : 2 m

Precarico : 0 kN

Angolo : 45 °

Sezione : 4 strands

Area : 0.000556 m²

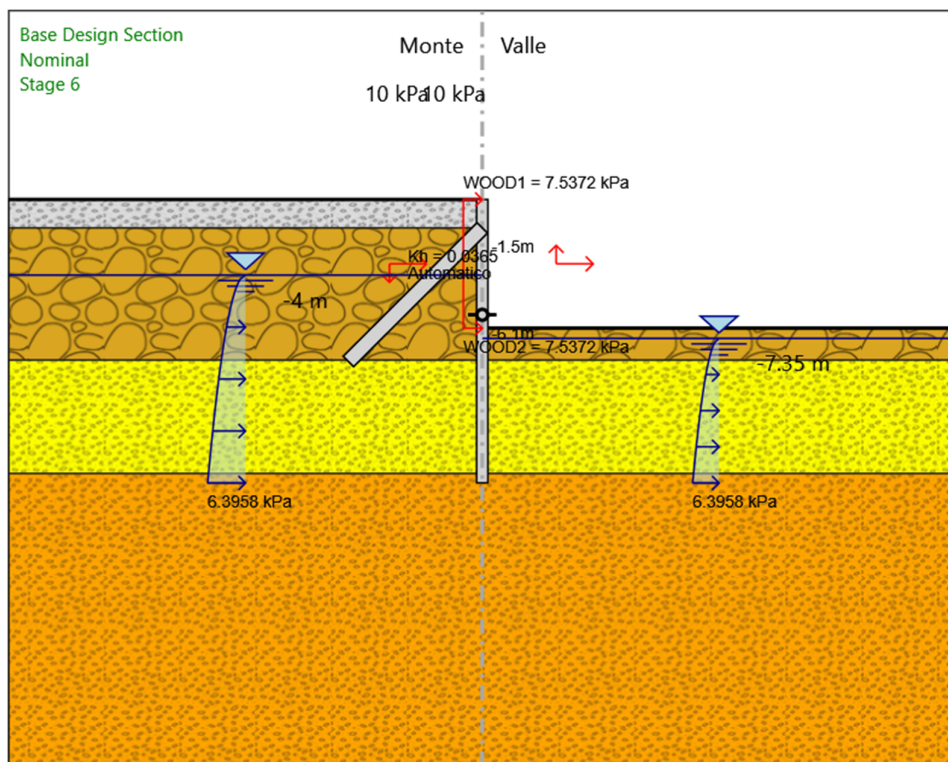
Vincolo fisso : FixedSupport

X : 0 m

Z : -6.1 m

Angolo : 0 °

Stage 6



Stage 6

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.81 m

Linea di scavo di sinistra (Orizzontale)

0 m

Linea di scavo di destra (Orizzontale)

-6.81 m

Falda acuífera

Falda di sinistra : -4 m

Falda di destra : -7.35 m

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -15 m

Sezione : Diaframma

Tirante : Tieback

X : 0 m

Z : -1.5 m

Lunghezza bulbo : 10 m

Diametro bulbo : 0.3 m

Lunghezza libera : 0 m

Spaziatura orizzontale : 2 m

Precarico : 0 kN

Angolo : 45 °

Sezione : 4 strands

Area : 0.000556 m²

Vincolo fisso : FixedSupport

X : 0 m

Z : -6.1 m

Angolo : 0 °

Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti (F_dead_load_unfavour)	Carichi Permanenti (F_dead_loa_d_favour)	Carichi Variabili (F_live_load_unfavour)	Carichi Variabili (F_live_loa_d_favour)	Carico Sismico (F_seis m_load)	Pressio ni Acqua Lato Monte (F_Wa terDR)	Pressio ni Acqua Valle (F_Wat erRes)	Carichi Permanenti Destabili (F_UPL_GDStab)	Carichi Permanenti Stabilizzanti (F_UPL_GStab)	Carichi Variabili Destabili (F_UPL_QDStab)	Carichi Permanenti Destabili (F_HYD_GDStab)	Carichi Permanenti Stabilizzanti (F_HYD_GStab)	Carichi Variabili Destabili (F_HYD_QDStab)
Simbolo	γ_G	γ_G	γ_Q	γ_Q	γ_{QE}	γ_G	γ_G	γ_{Gdst}	γ_{Gstb}	γ_{Qdst}	γ_{Gdst}	γ_{Gstb}	γ_{Qdst}
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
NTC2018: SISMICA STR	1	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: SISMICA GEO	1	1	1	1	1	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ϕ') (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	γ_ϕ	γ_c	γ_{cu}	γ_{qu}	γ_γ
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
NTC2018: SISMICA STR	1	1	1	1	1
NTC2018: SISMICA GEO	1	1	1	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	γ_{Re}	γ_{ap}	γ_{at}	
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
NTC2018: SISMICA STR	1	1.2	1.1	1
NTC2018: SISMICA GEO	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 orizzontale (mm)	
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	-1.5	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	
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	-11.7	0	
Stage 1	-11.9	0	
Stage 1	-12.1	0	
Stage 1	-12.3	0	
Stage 1	-12.5	0	

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 1	-12.7	0	
Stage 1	-12.9	0	
Stage 1	-13.1	0	
Stage 1	-13.3	0	
Stage 1	-13.5	0	
Stage 1	-13.7	0	
Stage 1	-13.9	0	
Stage 1	-14.1	0	
Stage 1	-14.3	0	
Stage 1	-14.5	0	
Stage 1	-14.7	0	
Stage 1	-14.9	0	
Stage 1	-15	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	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	-1.5	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
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	-11.7	0	0
Stage 1	-11.9	0	0
Stage 1	-12.1	0	0
Stage 1	-12.3	0	0
Stage 1	-12.5	0	0
Stage 1	-12.7	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	-12.9	0	0	
Stage 1	-13.1	0	0	
Stage 1	-13.3	0	0	
Stage 1	-13.5	0	0	
Stage 1	-13.7	0	0	
Stage 1	-13.9	0	0	
Stage 1	-14.1	0	0	
Stage 1	-14.3	0	0	
Stage 1	-14.5	0	0	
Stage 1	-14.7	0	0	
Stage 1	-14.9	0	0	
Stage 1	-15	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 orizzontale (mm)	
Stage 2	0	1.4	
Stage 2	-0.2	1.36	
Stage 2	-0.4	1.33	
Stage 2	-0.6	1.3	
Stage 2	-0.8	1.27	
Stage 2	-1	1.23	
Stage 2	-1.2	1.2	
Stage 2	-1.4	1.17	
Stage 2	-1.5	1.15	
Stage 2	-1.7	1.12	
Stage 2	-1.9	1.09	
Stage 2	-2.1	1.06	
Stage 2	-2.3	1.02	
Stage 2	-2.5	0.99	
Stage 2	-2.7	0.96	
Stage 2	-2.9	0.93	
Stage 2	-3.1	0.9	
Stage 2	-3.3	0.87	
Stage 2	-3.5	0.85	
Stage 2	-3.7	0.82	
Stage 2	-3.9	0.79	
Stage 2	-4.1	0.77	
Stage 2	-4.3	0.74	
Stage 2	-4.5	0.72	
Stage 2	-4.7	0.7	
Stage 2	-4.9	0.68	
Stage 2	-5.1	0.66	
Stage 2	-5.3	0.64	
Stage 2	-5.5	0.62	
Stage 2	-5.7	0.6	
Stage 2	-5.9	0.59	
Stage 2	-6.1	0.57	
Stage 2	-6.3	0.56	
Stage 2	-6.5	0.55	
Stage 2	-6.7	0.53	
Stage 2	-6.9	0.52	
Stage 2	-7.1	0.51	
Stage 2	-7.3	0.5	
Stage 2	-7.5	0.49	
Stage 2	-7.7	0.48	
Stage 2	-7.9	0.47	
Stage 2	-8.1	0.46	
Stage 2	-8.3	0.45	
Stage 2	-8.5	0.45	
Stage 2	-8.7	0.44	
Stage 2	-8.9	0.43	
Stage 2	-9.1	0.43	
Stage 2	-9.3	0.42	
Stage 2	-9.5	0.42	
Stage 2	-9.7	0.41	
Stage 2	-9.9	0.4	
Stage 2	-10.1	0.4	
Stage 2	-10.3	0.4	
Stage 2	-10.5	0.39	
Stage 2	-10.7	0.39	
Stage 2	-10.9	0.38	
Stage 2	-11.1	0.38	
Stage 2	-11.3	0.37	
Stage 2	-11.5	0.37	
Stage 2	-11.7	0.37	
Stage 2	-11.9	0.36	
Stage 2	-12.1	0.36	
Stage 2	-12.3	0.36	
Stage 2	-12.5	0.35	
Stage 2	-12.7	0.35	
Stage 2	-12.9	0.34	
Stage 2	-13.1	0.34	

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 2	-13.3	0.33	
Stage 2	-13.5	0.33	
Stage 2	-13.7	0.33	
Stage 2	-13.9	0.32	
Stage 2	-14.1	0.32	
Stage 2	-14.3	0.31	
Stage 2	-14.5	0.31	
Stage 2	-14.7	0.3	
Stage 2	-14.9	0.3	
Stage 2	-15	0.29	

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	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	-0.04	-0.19
Stage 2	-0.6	-0.16	-0.59
Stage 2	-0.8	-0.39	-1.18
Stage 2	-1	-0.79	-1.97
Stage 2	-1.2	-1.38	-2.97
Stage 2	-1.4	-2.21	-4.17
Stage 2	-1.5	-2.73	-5.22
Stage 2	-1.7	-2.74	-0.04
Stage 2	-1.9	-3.12	-1.9
Stage 2	-2.1	-3.92	-3.99
Stage 2	-2.3	-5.18	-6.31
Stage 2	-2.5	-6.81	-8.12
Stage 2	-2.7	-8.38	-7.85
Stage 2	-2.9	-9.84	-7.34
Stage 2	-3.1	-11.18	-6.67
Stage 2	-3.3	-12.35	-5.86
Stage 2	-3.5	-13.33	-4.93
Stage 2	-3.7	-14.11	-3.89
Stage 2	-3.9	-14.68	-2.83
Stage 2	-4.1	-15.05	-1.87
Stage 2	-4.3	-15.26	-1.02
Stage 2	-4.5	-15.31	-0.28
Stage 2	-4.7	-15.24	0.37
Stage 2	-4.9	-15.05	0.93
Stage 2	-5.1	-14.77	1.42
Stage 2	-5.3	-14.4	1.84
Stage 2	-5.5	-13.96	2.2
Stage 2	-5.7	-13.46	2.48
Stage 2	-5.9	-12.92	2.71
Stage 2	-6.1	-12.34	2.89
Stage 2	-6.3	-11.74	3.01
Stage 2	-6.5	-11.13	3.07
Stage 2	-6.7	-10.51	3.1
Stage 2	-6.9	-9.89	3.07
Stage 2	-7.1	-9.29	3.01
Stage 2	-7.3	-8.71	2.91
Stage 2	-7.5	-8.16	2.77
Stage 2	-7.7	-7.64	2.59
Stage 2	-7.9	-7.16	2.39
Stage 2	-8.1	-6.73	2.15
Stage 2	-8.3	-6.35	1.88
Stage 2	-8.5	-6.04	1.59
Stage 2	-8.7	-5.78	1.27
Stage 2	-8.9	-5.49	1.47
Stage 2	-9.1	-5.16	1.63
Stage 2	-9.3	-4.81	1.77
Stage 2	-9.5	-4.43	1.88
Stage 2	-9.7	-4.04	1.97
Stage 2	-9.9	-3.63	2.03
Stage 2	-10.1	-3.22	2.07
Stage 2	-10.3	-2.8	2.09
Stage 2	-10.5	-2.38	2.09
Stage 2	-10.7	-1.97	2.08
Stage 2	-10.9	-1.56	2.04
Stage 2	-11.1	-1.16	1.99
Stage 2	-11.3	-0.78	1.92
Stage 2	-11.5	-0.41	1.83
Stage 2	-11.7	-0.07	1.73
Stage 2	-11.9	0.26	1.61
Stage 2	-12.1	0.55	1.47
Stage 2	-12.3	0.81	1.32
Stage 2	-12.5	1.04	1.15

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 2	-12.7	1.24	0.96	
Stage 2	-12.9	1.39	0.76	
Stage 2	-13.1	1.49	0.53	
Stage 2	-13.3	1.55	0.29	
Stage 2	-13.5	1.56	0.02	
Stage 2	-13.7	1.5	-0.27	
Stage 2	-13.9	1.39	-0.57	
Stage 2	-14.1	1.21	-0.9	
Stage 2	-14.3	0.96	-1.26	
Stage 2	-14.5	0.63	-1.63	
Stage 2	-14.7	0.22	-2.03	
Stage 2	-14.9	0.02	-0.99	
Stage 2	-15	0	-0.24	

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 orizzontale (mm)
Stage 3	0	12.41
Stage 3	-0.2	12.35
Stage 3	-0.4	12.3
Stage 3	-0.6	12.24
Stage 3	-0.8	12.18
Stage 3	-1	12.12
Stage 3	-1.2	12.07
Stage 3	-1.4	12.01
Stage 3	-1.5	11.98
Stage 3	-1.7	11.92
Stage 3	-1.9	11.86
Stage 3	-2.1	11.81
Stage 3	-2.3	11.74
Stage 3	-2.5	11.68
Stage 3	-2.7	11.61
Stage 3	-2.9	11.54
Stage 3	-3.1	11.46
Stage 3	-3.3	11.38
Stage 3	-3.5	11.29
Stage 3	-3.7	11.19
Stage 3	-3.9	11.09
Stage 3	-4.1	10.98
Stage 3	-4.3	10.86
Stage 3	-4.5	10.74
Stage 3	-4.7	10.6
Stage 3	-4.9	10.46
Stage 3	-5.1	10.31
Stage 3	-5.3	10.15
Stage 3	-5.5	9.99
Stage 3	-5.7	9.81
Stage 3	-5.9	9.63
Stage 3	-6.1	9.44
Stage 3	-6.3	9.24
Stage 3	-6.5	9.04
Stage 3	-6.7	8.83
Stage 3	-6.9	8.62
Stage 3	-7.1	8.4
Stage 3	-7.3	8.17
Stage 3	-7.5	7.94
Stage 3	-7.7	7.71
Stage 3	-7.9	7.48
Stage 3	-8.1	7.25
Stage 3	-8.3	7.01
Stage 3	-8.5	6.78
Stage 3	-8.7	6.54
Stage 3	-8.9	6.3
Stage 3	-9.1	6.07
Stage 3	-9.3	5.84
Stage 3	-9.5	5.6
Stage 3	-9.7	5.37
Stage 3	-9.9	5.15
Stage 3	-10.1	4.92
Stage 3	-10.3	4.7
Stage 3	-10.5	4.48
Stage 3	-10.7	4.26
Stage 3	-10.9	4.05
Stage 3	-11.1	3.84
Stage 3	-11.3	3.63
Stage 3	-11.5	3.43
Stage 3	-11.7	3.22
Stage 3	-11.9	3.02
Stage 3	-12.1	2.83
Stage 3	-12.3	2.63
Stage 3	-12.5	2.44
Stage 3	-12.7	2.25
Stage 3	-12.9	2.06
Stage 3	-13.1	1.87

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 3	-13.3	1.69	
Stage 3	-13.5	1.5	
Stage 3	-13.7	1.32	
Stage 3	-13.9	1.14	
Stage 3	-14.1	0.95	
Stage 3	-14.3	0.77	
Stage 3	-14.5	0.59	
Stage 3	-14.7	0.41	
Stage 3	-14.9	0.23	
Stage 3	-15	0.13	

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	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.04	-0.19
Stage 3	-0.6	-0.16	-0.59
Stage 3	-0.8	-0.39	-1.18
Stage 3	-1	-0.79	-1.97
Stage 3	-1.2	-1.38	-2.97
Stage 3	-1.4	-2.21	-4.17
Stage 3	-1.5	-2.73	-5.22
Stage 3	-1.7	9.3	60.19
Stage 3	-1.9	20.97	58.33
Stage 3	-2.1	32.22	56.24
Stage 3	-2.3	43	53.92
Stage 3	-2.5	53.27	51.35
Stage 3	-2.7	62.98	48.56
Stage 3	-2.9	72.09	45.53
Stage 3	-3.1	80.54	42.27
Stage 3	-3.3	88.3	38.79
Stage 3	-3.5	95.32	35.07
Stage 3	-3.7	101.54	31.14
Stage 3	-3.9	106.94	26.97
Stage 3	-4.1	111.45	22.59
Stage 3	-4.3	115.06	18.04
Stage 3	-4.5	117.74	13.38
Stage 3	-4.7	119.46	8.62
Stage 3	-4.9	120.22	3.77
Stage 3	-5.1	119.98	-1.18
Stage 3	-5.3	118.74	-6.22
Stage 3	-5.5	116.47	-11.35
Stage 3	-5.7	113.15	-16.57
Stage 3	-5.9	108.78	-21.88
Stage 3	-6.1	103.32	-27.29
Stage 3	-6.3	96.76	-32.8
Stage 3	-6.5	89.08	-38.4
Stage 3	-6.7	80.47	-43.03
Stage 3	-6.9	71.2	-46.37
Stage 3	-7.1	61.52	-48.39
Stage 3	-7.3	51.7	-49.1
Stage 3	-7.5	42	-48.51
Stage 3	-7.7	32.68	-46.6
Stage 3	-7.9	23.81	-44.35
Stage 3	-8.1	15.39	-42.1
Stage 3	-8.3	7.42	-39.85
Stage 3	-8.5	-0.1	-37.63
Stage 3	-8.7	-7.19	-35.43
Stage 3	-8.9	-13.59	-32.01
Stage 3	-9.1	-19.32	-28.65
Stage 3	-9.3	-24.39	-25.36
Stage 3	-9.5	-28.82	-22.14
Stage 3	-9.7	-32.62	-19
Stage 3	-9.9	-35.81	-15.93
Stage 3	-10.1	-38.4	-12.94
Stage 3	-10.3	-40.4	-10.02
Stage 3	-10.5	-41.84	-7.19
Stage 3	-10.7	-42.72	-4.43
Stage 3	-10.9	-43.07	-1.75
Stage 3	-11.1	-42.9	0.86
Stage 3	-11.3	-42.22	3.39
Stage 3	-11.5	-41.06	5.84
Stage 3	-11.7	-39.41	8.22
Stage 3	-11.9	-37.31	10.52
Stage 3	-12.1	-34.81	12.51
Stage 3	-12.3	-31.98	14.12
Stage 3	-12.5	-28.91	15.35

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 3	-12.7	-25.68	16.19	
Stage 3	-12.9	-22.35	16.65	
Stage 3	-13.1	-19	16.74	
Stage 3	-13.3	-15.71	16.45	
Stage 3	-13.5	-12.55	15.79	
Stage 3	-13.7	-9.6	14.75	
Stage 3	-13.9	-6.93	13.35	
Stage 3	-14.1	-4.62	11.57	
Stage 3	-14.3	-2.73	9.42	
Stage 3	-14.5	-1.35	6.91	
Stage 3	-14.7	-0.55	4.01	
Stage 3	-14.9	-0.07	2.4	
Stage 3	-15	0	0.67	

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 orizzontale (mm)
Stage 4	0	13.59
Stage 4	-0.2	13.56
Stage 4	-0.4	13.53
Stage 4	-0.6	13.49
Stage 4	-0.8	13.46
Stage 4	-1	13.42
Stage 4	-1.2	13.39
Stage 4	-1.4	13.35
Stage 4	-1.5	13.34
Stage 4	-1.7	13.3
Stage 4	-1.9	13.27
Stage 4	-2.1	13.23
Stage 4	-2.3	13.19
Stage 4	-2.5	13.15
Stage 4	-2.7	13.1
Stage 4	-2.9	13.05
Stage 4	-3.1	12.99
Stage 4	-3.3	12.93
Stage 4	-3.5	12.86
Stage 4	-3.7	12.78
Stage 4	-3.9	12.69
Stage 4	-4.1	12.6
Stage 4	-4.3	12.5
Stage 4	-4.5	12.38
Stage 4	-4.7	12.26
Stage 4	-4.9	12.13
Stage 4	-5.1	11.98
Stage 4	-5.3	11.83
Stage 4	-5.5	11.67
Stage 4	-5.7	11.49
Stage 4	-5.9	11.31
Stage 4	-6.1	11.12
Stage 4	-6.3	10.92
Stage 4	-6.5	10.7
Stage 4	-6.7	10.48
Stage 4	-6.9	10.26
Stage 4	-7.1	10.02
Stage 4	-7.3	9.78
Stage 4	-7.5	9.53
Stage 4	-7.7	9.27
Stage 4	-7.9	9.01
Stage 4	-8.1	8.75
Stage 4	-8.3	8.48
Stage 4	-8.5	8.21
Stage 4	-8.7	7.94
Stage 4	-8.9	7.67
Stage 4	-9.1	7.4
Stage 4	-9.3	7.12
Stage 4	-9.5	6.85
Stage 4	-9.7	6.58
Stage 4	-9.9	6.31
Stage 4	-10.1	6.04
Stage 4	-10.3	5.77
Stage 4	-10.5	5.51
Stage 4	-10.7	5.24
Stage 4	-10.9	4.98
Stage 4	-11.1	4.72
Stage 4	-11.3	4.47
Stage 4	-11.5	4.21
Stage 4	-11.7	3.96
Stage 4	-11.9	3.71
Stage 4	-12.1	3.47
Stage 4	-12.3	3.23
Stage 4	-12.5	2.98
Stage 4	-12.7	2.74
Stage 4	-12.9	2.51
Stage 4	-13.1	2.27

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 4	-13.3	2.04	
Stage 4	-13.5	1.8	
Stage 4	-13.7	1.57	
Stage 4	-13.9	1.34	
Stage 4	-14.1	1.11	
Stage 4	-14.3	0.88	
Stage 4	-14.5	0.65	
Stage 4	-14.7	0.42	
Stage 4	-14.9	0.19	
Stage 4	-15	0.07	

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	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.04	-0.19
Stage 4	-0.6	-0.16	-0.59
Stage 4	-0.8	-0.39	-1.18
Stage 4	-1	-0.79	-1.97
Stage 4	-1.2	-1.38	-2.97
Stage 4	-1.4	-2.21	-4.17
Stage 4	-1.5	-2.73	-5.22
Stage 4	-1.7	10.81	67.74
Stage 4	-1.9	23.99	65.87
Stage 4	-2.1	36.75	63.79
Stage 4	-2.3	49.04	61.46
Stage 4	-2.5	60.82	58.9
Stage 4	-2.7	72.04	56.1
Stage 4	-2.9	82.65	53.08
Stage 4	-3.1	92.62	49.82
Stage 4	-3.3	101.88	46.33
Stage 4	-3.5	110.41	42.62
Stage 4	-3.7	118.14	38.68
Stage 4	-3.9	125.05	34.52
Stage 4	-4.1	131.07	30.13
Stage 4	-4.3	136.19	25.58
Stage 4	-4.5	140.38	20.93
Stage 4	-4.7	143.61	16.17
Stage 4	-4.9	145.87	11.31
Stage 4	-5.1	147.15	6.37
Stage 4	-5.3	147.41	1.33
Stage 4	-5.5	146.65	-3.8
Stage 4	-5.7	144.85	-9.02
Stage 4	-5.9	141.98	-14.34
Stage 4	-6.1	138.03	-19.75
Stage 4	-6.3	132.98	-25.25
Stage 4	-6.5	126.81	-30.85
Stage 4	-6.7	119.5	-36.54
Stage 4	-6.9	111.04	-42.33
Stage 4	-7.1	101.52	-47.58
Stage 4	-7.3	91.22	-51.52
Stage 4	-7.5	80.39	-54.15
Stage 4	-7.7	69.29	-55.47
Stage 4	-7.9	58.19	-55.49
Stage 4	-8.1	47.36	-54.2
Stage 4	-8.3	37.04	-51.59
Stage 4	-8.5	27.24	-49
Stage 4	-8.7	17.95	-46.42
Stage 4	-8.9	9.41	-42.72
Stage 4	-9.1	1.61	-39
Stage 4	-9.3	-5.45	-35.27
Stage 4	-9.5	-11.74	-31.49
Stage 4	-9.7	-17.3	-27.8
Stage 4	-9.9	-22.15	-24.21
Stage 4	-10.1	-26.29	-20.72
Stage 4	-10.3	-29.76	-17.34
Stage 4	-10.5	-32.57	-14.05
Stage 4	-10.7	-34.74	-10.87
Stage 4	-10.9	-36.3	-7.8
Stage 4	-11.1	-37.27	-4.83
Stage 4	-11.3	-37.66	-1.97
Stage 4	-11.5	-37.51	0.79
Stage 4	-11.7	-36.82	3.44
Stage 4	-11.9	-35.62	5.98
Stage 4	-12.1	-33.94	8.42
Stage 4	-12.3	-31.79	10.75
Stage 4	-12.5	-29.23	12.8

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 4	-12.7	-26.35	14.38	
Stage 4	-12.9	-23.25	15.5	
Stage 4	-13.1	-20.02	16.14	
Stage 4	-13.3	-16.76	16.33	
Stage 4	-13.5	-13.55	16.04	
Stage 4	-13.7	-10.49	15.3	
Stage 4	-13.9	-7.67	14.1	
Stage 4	-14.1	-5.18	12.43	
Stage 4	-14.3	-3.12	10.31	
Stage 4	-14.5	-1.58	7.72	
Stage 4	-14.7	-0.64	4.67	
Stage 4	-14.9	-0.08	2.82	
Stage 4	-15	0	0.79	

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 orizzontale (mm)	
Stage 5	0	13.59	
Stage 5	-0.2	13.56	
Stage 5	-0.4	13.53	
Stage 5	-0.6	13.49	
Stage 5	-0.8	13.46	
Stage 5	-1	13.42	
Stage 5	-1.2	13.39	
Stage 5	-1.4	13.35	
Stage 5	-1.5	13.34	
Stage 5	-1.7	13.3	
Stage 5	-1.9	13.27	
Stage 5	-2.1	13.23	
Stage 5	-2.3	13.19	
Stage 5	-2.5	13.15	
Stage 5	-2.7	13.1	
Stage 5	-2.9	13.05	
Stage 5	-3.1	12.99	
Stage 5	-3.3	12.93	
Stage 5	-3.5	12.86	
Stage 5	-3.7	12.78	
Stage 5	-3.9	12.69	
Stage 5	-4.1	12.6	
Stage 5	-4.3	12.5	
Stage 5	-4.5	12.38	
Stage 5	-4.7	12.26	
Stage 5	-4.9	12.13	
Stage 5	-5.1	11.98	
Stage 5	-5.3	11.83	
Stage 5	-5.5	11.67	
Stage 5	-5.7	11.49	
Stage 5	-5.9	11.31	
Stage 5	-6.1	11.12	
Stage 5	-6.3	10.92	
Stage 5	-6.5	10.7	
Stage 5	-6.7	10.48	
Stage 5	-6.9	10.26	
Stage 5	-7.1	10.02	
Stage 5	-7.3	9.78	
Stage 5	-7.5	9.53	
Stage 5	-7.7	9.27	
Stage 5	-7.9	9.01	
Stage 5	-8.1	8.75	
Stage 5	-8.3	8.48	
Stage 5	-8.5	8.21	
Stage 5	-8.7	7.94	
Stage 5	-8.9	7.67	
Stage 5	-9.1	7.4	
Stage 5	-9.3	7.12	
Stage 5	-9.5	6.85	
Stage 5	-9.7	6.58	
Stage 5	-9.9	6.31	
Stage 5	-10.1	6.04	
Stage 5	-10.3	5.77	
Stage 5	-10.5	5.51	
Stage 5	-10.7	5.24	
Stage 5	-10.9	4.98	
Stage 5	-11.1	4.72	
Stage 5	-11.3	4.47	
Stage 5	-11.5	4.21	
Stage 5	-11.7	3.96	
Stage 5	-11.9	3.71	
Stage 5	-12.1	3.47	
Stage 5	-12.3	3.23	
Stage 5	-12.5	2.98	
Stage 5	-12.7	2.74	
Stage 5	-12.9	2.51	
Stage 5	-13.1	2.27	

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 5	-13.3	2.04	
Stage 5	-13.5	1.8	
Stage 5	-13.7	1.57	
Stage 5	-13.9	1.34	
Stage 5	-14.1	1.11	
Stage 5	-14.3	0.88	
Stage 5	-14.5	0.65	
Stage 5	-14.7	0.42	
Stage 5	-14.9	0.19	
Stage 5	-15	0.07	

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	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-0.04	-0.2
Stage 5	-0.6	-0.16	-0.59
Stage 5	-0.8	-0.39	-1.18
Stage 5	-1	-0.79	-1.97
Stage 5	-1.2	-1.38	-2.97
Stage 5	-1.4	-2.21	-4.17
Stage 5	-1.5	-2.74	-5.22
Stage 5	-1.7	10.81	67.73
Stage 5	-1.9	23.99	65.87
Stage 5	-2.1	36.74	63.78
Stage 5	-2.3	49.03	61.46
Stage 5	-2.5	60.81	58.9
Stage 5	-2.7	72.03	56.1
Stage 5	-2.9	82.65	53.07
Stage 5	-3.1	92.61	49.81
Stage 5	-3.3	101.87	46.33
Stage 5	-3.5	110.4	42.62
Stage 5	-3.7	118.13	38.68
Stage 5	-3.9	125.04	34.52
Stage 5	-4.1	131.06	30.13
Stage 5	-4.3	136.18	25.58
Stage 5	-4.5	140.36	20.92
Stage 5	-4.7	143.59	16.16
Stage 5	-4.9	145.86	11.31
Stage 5	-5.1	147.13	6.36
Stage 5	-5.3	147.39	1.32
Stage 5	-5.5	146.63	-3.81
Stage 5	-5.7	144.83	-9.03
Stage 5	-5.9	141.96	-14.34
Stage 5	-6.1	138.01	-19.75
Stage 5	-6.3	132.96	-25.23
Stage 5	-6.5	126.79	-30.83
Stage 5	-6.7	119.49	-36.52
Stage 5	-6.9	111.03	-42.31
Stage 5	-7.1	101.52	-47.55
Stage 5	-7.3	91.22	-51.5
Stage 5	-7.5	80.39	-54.13
Stage 5	-7.7	69.3	-55.45
Stage 5	-7.9	58.21	-55.47
Stage 5	-8.1	47.37	-54.18
Stage 5	-8.3	37.06	-51.58
Stage 5	-8.5	27.26	-48.98
Stage 5	-8.7	17.98	-46.41
Stage 5	-8.9	9.44	-42.71
Stage 5	-9.1	1.64	-38.99
Stage 5	-9.3	-5.41	-35.25
Stage 5	-9.5	-11.71	-31.5
Stage 5	-9.7	-17.27	-27.81
Stage 5	-9.9	-22.12	-24.22
Stage 5	-10.1	-26.26	-20.73
Stage 5	-10.3	-29.73	-17.35
Stage 5	-10.5	-32.55	-14.06
Stage 5	-10.7	-34.72	-10.88
Stage 5	-10.9	-36.28	-7.81
Stage 5	-11.1	-37.25	-4.84
Stage 5	-11.3	-37.65	-1.98
Stage 5	-11.5	-37.49	0.78
Stage 5	-11.7	-36.81	3.43
Stage 5	-11.9	-35.61	5.97
Stage 5	-12.1	-33.93	8.41
Stage 5	-12.3	-31.78	10.74
Stage 5	-12.5	-29.22	12.8

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 5	-12.7	-26.35	14.38	
Stage 5	-12.9	-23.25	15.49	
Stage 5	-13.1	-20.02	16.14	
Stage 5	-13.3	-16.75	16.32	
Stage 5	-13.5	-13.55	16.04	
Stage 5	-13.7	-10.49	15.3	
Stage 5	-13.9	-7.67	14.1	
Stage 5	-14.1	-5.18	12.43	
Stage 5	-14.3	-3.12	10.3	
Stage 5	-14.5	-1.58	7.72	
Stage 5	-14.7	-0.64	4.67	
Stage 5	-14.9	-0.08	2.82	
Stage 5	-15	0	0.79	

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 orizzontale (mm)	
Stage 6	0	12.46	
Stage 6	-0.2	12.45	
Stage 6	-0.4	12.43	
Stage 6	-0.6	12.42	
Stage 6	-0.8	12.4	
Stage 6	-1	12.39	
Stage 6	-1.2	12.38	
Stage 6	-1.4	12.37	
Stage 6	-1.5	12.36	
Stage 6	-1.7	12.35	
Stage 6	-1.9	12.33	
Stage 6	-2.1	12.32	
Stage 6	-2.3	12.3	
Stage 6	-2.5	12.28	
Stage 6	-2.7	12.26	
Stage 6	-2.9	12.24	
Stage 6	-3.1	12.21	
Stage 6	-3.3	12.18	
Stage 6	-3.5	12.14	
Stage 6	-3.7	12.09	
Stage 6	-3.9	12.04	
Stage 6	-4.1	11.99	
Stage 6	-4.3	11.92	
Stage 6	-4.5	11.86	
Stage 6	-4.7	11.78	
Stage 6	-4.9	11.7	
Stage 6	-5.1	11.62	
Stage 6	-5.3	11.53	
Stage 6	-5.5	11.43	
Stage 6	-5.7	11.33	
Stage 6	-5.9	11.23	
Stage 6	-6.1	11.12	
Stage 6	-6.3	11.01	
Stage 6	-6.5	10.89	
Stage 6	-6.7	10.78	
Stage 6	-6.9	10.65	
Stage 6	-7.1	10.53	
Stage 6	-7.3	10.39	
Stage 6	-7.5	10.26	
Stage 6	-7.7	10.11	
Stage 6	-7.9	9.96	
Stage 6	-8.1	9.81	
Stage 6	-8.3	9.65	
Stage 6	-8.5	9.49	
Stage 6	-8.7	9.32	
Stage 6	-8.9	9.14	
Stage 6	-9.1	8.96	
Stage 6	-9.3	8.78	
Stage 6	-9.5	8.59	
Stage 6	-9.7	8.4	
Stage 6	-9.9	8.2	
Stage 6	-10.1	8.01	
Stage 6	-10.3	7.8	
Stage 6	-10.5	7.6	
Stage 6	-10.7	7.39	
Stage 6	-10.9	7.18	
Stage 6	-11.1	6.97	
Stage 6	-11.3	6.75	
Stage 6	-11.5	6.54	
Stage 6	-11.7	6.32	
Stage 6	-11.9	6.1	
Stage 6	-12.1	5.87	
Stage 6	-12.3	5.65	
Stage 6	-12.5	5.43	
Stage 6	-12.7	5.2	
Stage 6	-12.9	4.97	
Stage 6	-13.1	4.75	

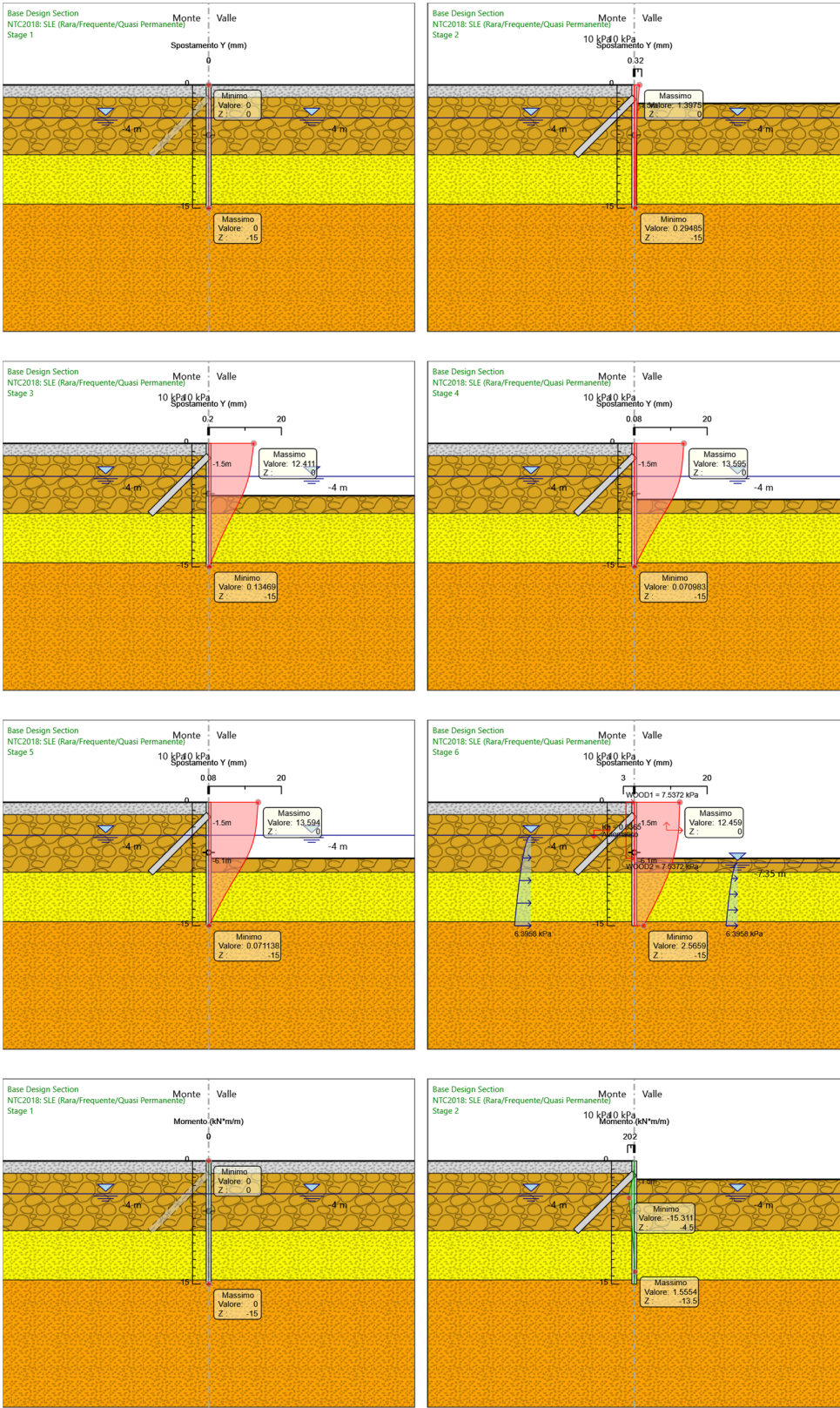
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento orizzontale (mm)	
Stage 6	-13.3	4.52	
Stage 6	-13.5	4.29	
Stage 6	-13.7	4.06	
Stage 6	-13.9	3.83	
Stage 6	-14.1	3.6	
Stage 6	-14.3	3.37	
Stage 6	-14.5	3.14	
Stage 6	-14.7	2.91	
Stage 6	-14.9	2.68	
Stage 6	-15	2.57	

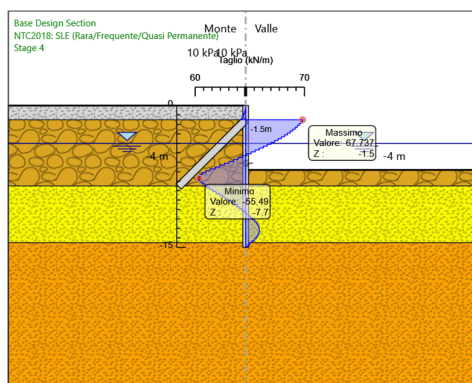
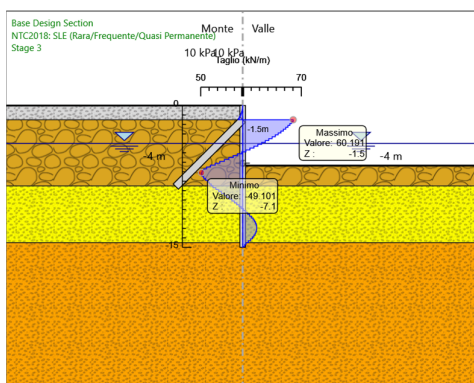
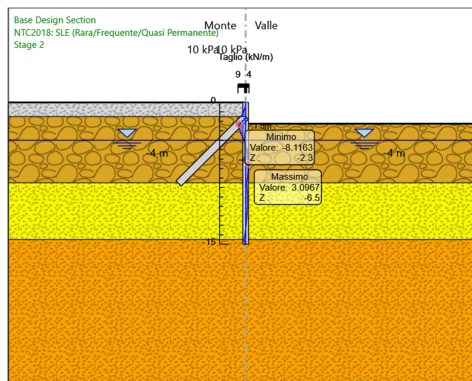
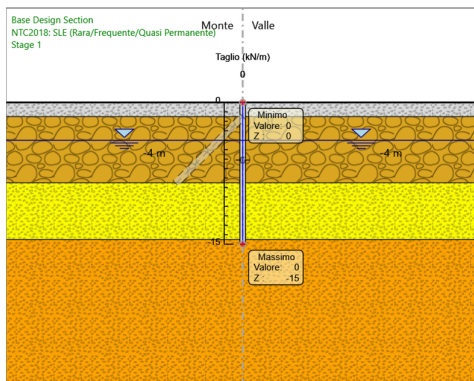
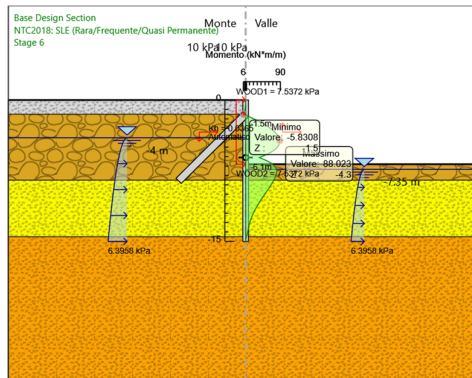
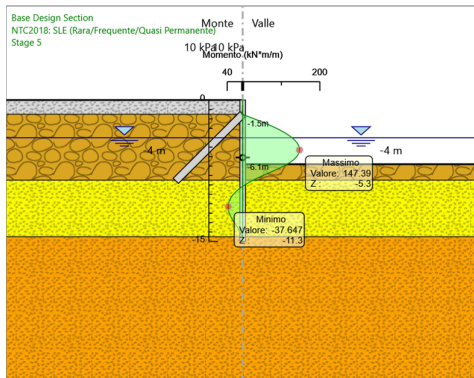
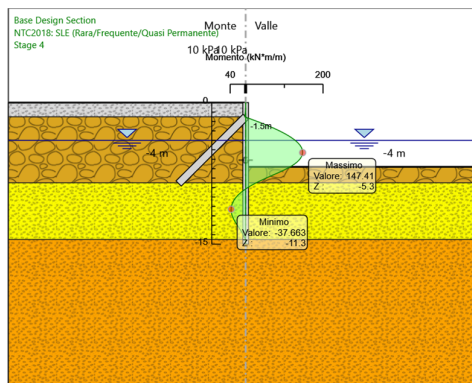
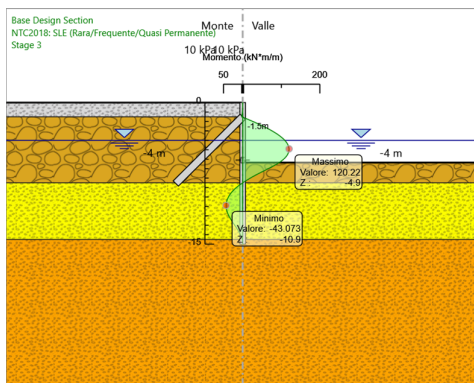
Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage: Stage 6

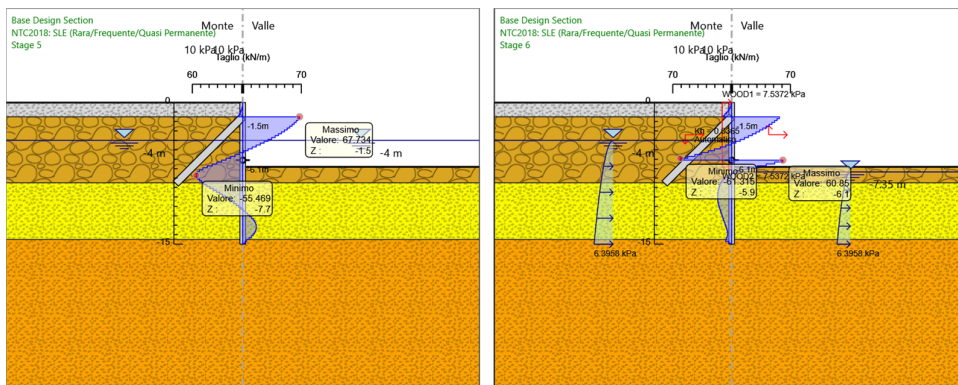
Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-0.13	-0.67
Stage 6	-0.6	-0.46	-1.63
Stage 6	-0.8	-1.03	-2.87
Stage 6	-1	-1.91	-4.39
Stage 6	-1.2	-3.15	-6.21
Stage 6	-1.4	-4.82	-8.32
Stage 6	-1.5	-5.83	-10.12
Stage 6	-1.7	5.52	56.73
Stage 6	-1.9	16.32	54
Stage 6	-2.1	26.53	51.06
Stage 6	-2.3	36.11	47.91
Stage 6	-2.5	45.02	44.53
Stage 6	-2.7	53.21	40.95
Stage 6	-2.9	60.64	37.16
Stage 6	-3.1	67.27	33.16
Stage 6	-3.3	73.06	28.96
Stage 6	-3.5	77.97	24.56
Stage 6	-3.7	81.97	19.97
Stage 6	-3.9	85	15.18
Stage 6	-4.1	87.04	10.2
Stage 6	-4.3	88.02	4.91
Stage 6	-4.5	87.86	-0.82
Stage 6	-4.7	86.47	-6.97
Stage 6	-4.9	83.76	-13.53
Stage 6	-5.1	79.66	-20.5
Stage 6	-5.3	74.09	-27.87
Stage 6	-5.5	66.96	-35.64
Stage 6	-5.7	58.2	-43.81
Stage 6	-5.9	47.73	-52.37
Stage 6	-6.1	35.46	-61.32
Stage 6	-6.3	47.63	60.85
Stage 6	-6.5	57.86	51.15
Stage 6	-6.7	66.08	41.07
Stage 6	-6.9	72.18	30.54
Stage 6	-7.1	76.35	20.8
Stage 6	-7.3	78.82	12.39
Stage 6	-7.5	79.86	5.2
Stage 6	-7.7	79.73	-0.67
Stage 6	-7.9	78.69	-5.18
Stage 6	-8.1	77.04	-8.29
Stage 6	-8.3	74.99	-10.24
Stage 6	-8.5	72.58	-12.03
Stage 6	-8.7	69.85	-13.67
Stage 6	-8.9	66.96	-14.46
Stage 6	-9.1	63.93	-15.11
Stage 6	-9.3	60.8	-15.64
Stage 6	-9.5	57.59	-16.05
Stage 6	-9.7	54.31	-16.4
Stage 6	-9.9	50.99	-16.61
Stage 6	-10.1	47.65	-16.69
Stage 6	-10.3	44.33	-16.63
Stage 6	-10.5	41.04	-16.43
Stage 6	-10.7	37.82	-16.1
Stage 6	-10.9	34.69	-15.64
Stage 6	-11.1	31.68	-15.05
Stage 6	-11.3	28.82	-14.32
Stage 6	-11.5	26.11	-13.57
Stage 6	-11.7	23.54	-12.82
Stage 6	-11.9	21.13	-12.06
Stage 6	-12.1	18.87	-11.29
Stage 6	-12.3	16.77	-10.51
Stage 6	-12.5	14.83	-9.73

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 6	-12.7	13.04	-8.94	
Stage 6	-12.9	11.41	-8.16	
Stage 6	-13.1	9.93	-7.38	
Stage 6	-13.3	8.61	-6.6	
Stage 6	-13.5	7.45	-5.82	
Stage 6	-13.7	6.42	-5.14	
Stage 6	-13.9	5.45	-4.83	
Stage 6	-14.1	4.48	-4.89	
Stage 6	-14.3	3.41	-5.32	
Stage 6	-14.5	2.18	-6.14	
Stage 6	-14.7	0.72	-7.33	
Stage 6	-14.9	0.07	-3.22	
Stage 6	-15	0	-0.73	

Tabella Grafici dei Risultati







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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 2	9.064577
Stage 3	94.24399
Stage 4	104.9154
Stage 5	104.9137
Stage 6	97.22701

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Sollecitazione FixedSupport	
Stage	Forza (kN/m)
Stage 5	0.03469447
Stage 6	131.492

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	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	-1.5	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
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	-11.7	0	0
Stage 1	-11.9	0	0
Stage 1	-12.1	0	0
Stage 1	-12.3	0	0
Stage 1	-12.5	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	-12.7	0	0
Stage 1	-12.9	0	0
Stage 1	-13.1	0	0
Stage 1	-13.3	0	0
Stage 1	-13.5	0	0
Stage 1	-13.7	0	0
Stage 1	-13.9	0	0
Stage 1	-14.1	0	0
Stage 1	-14.3	0	0
Stage 1	-14.5	0	0
Stage 1	-14.7	0	0
Stage 1	-14.9	0	0
Stage 1	-15	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	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	-0.05	-0.25
Stage 2	-0.6	-0.2	-0.76
Stage 2	-0.8	-0.51	-1.53
Stage 2	-1	-1.02	-2.56
Stage 2	-1.2	-1.79	-3.85
Stage 2	-1.4	-2.88	-5.42
Stage 2	-1.5	-3.55	-6.79
Stage 2	-1.7	-3.56	-0.05
Stage 2	-1.9	-4.06	-2.47
Stage 2	-2.1	-5.1	-5.19
Stage 2	-2.3	-6.74	-8.21
Stage 2	-2.5	-8.85	-10.55
Stage 2	-2.7	-10.89	-10.2
Stage 2	-2.9	-12.8	-9.54
Stage 2	-3.1	-14.53	-8.67
Stage 2	-3.3	-16.05	-7.61
Stage 2	-3.5	-17.33	-6.4
Stage 2	-3.7	-18.34	-5.05
Stage 2	-3.9	-19.08	-3.68
Stage 2	-4.1	-19.57	-2.43
Stage 2	-4.3	-19.83	-1.32
Stage 2	-4.5	-19.9	-0.36
Stage 2	-4.7	-19.81	0.48
Stage 2	-4.9	-19.57	1.21
Stage 2	-5.1	-19.2	1.85
Stage 2	-5.3	-18.72	2.39
Stage 2	-5.5	-18.15	2.85
Stage 2	-5.7	-17.5	3.23
Stage 2	-5.9	-16.8	3.53
Stage 2	-6.1	-16.04	3.75
Stage 2	-6.3	-15.26	3.91
Stage 2	-6.5	-14.46	4
Stage 2	-6.7	-13.66	4.03
Stage 2	-6.9	-12.86	4
Stage 2	-7.1	-12.08	3.91
Stage 2	-7.3	-11.32	3.78
Stage 2	-7.5	-10.6	3.6
Stage 2	-7.7	-9.93	3.37
Stage 2	-7.9	-9.31	3.1
Stage 2	-8.1	-8.75	2.79
Stage 2	-8.3	-8.26	2.45
Stage 2	-8.5	-7.85	2.07
Stage 2	-8.7	-7.52	1.65
Stage 2	-8.9	-7.13	1.91
Stage 2	-9.1	-6.71	2.12
Stage 2	-9.3	-6.25	2.3
Stage 2	-9.5	-5.76	2.44
Stage 2	-9.7	-5.25	2.56
Stage 2	-9.9	-4.72	2.64
Stage 2	-10.1	-4.19	2.69
Stage 2	-10.3	-3.64	2.72
Stage 2	-10.5	-3.1	2.72
Stage 2	-10.7	-2.56	2.7
Stage 2	-10.9	-2.03	2.65
Stage 2	-11.1	-1.51	2.58
Stage 2	-11.3	-1.01	2.49
Stage 2	-11.5	-0.54	2.38
Stage 2	-11.7	-0.09	2.25
Stage 2	-11.9	0.33	2.09
Stage 2	-12.1	0.71	1.92
Stage 2	-12.3	1.06	1.72
Stage 2	-12.5	1.36	1.5
Stage 2	-12.7	1.61	1.25
Stage 2	-12.9	1.8	0.98

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	-13.1	1.94	0.69	
Stage 2	-13.3	2.02	0.37	
Stage 2	-13.5	2.02	0.03	
Stage 2	-13.7	1.95	-0.34	
Stage 2	-13.9	1.8	-0.74	
Stage 2	-14.1	1.57	-1.17	
Stage 2	-14.3	1.24	-1.63	
Stage 2	-14.5	0.82	-2.12	
Stage 2	-14.7	0.29	-2.64	
Stage 2	-14.9	0.03	-1.29	
Stage 2	-15	0	-0.32	

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	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.05	-0.25
Stage 3	-0.6	-0.2	-0.76
Stage 3	-0.8	-0.51	-1.53
Stage 3	-1	-1.02	-2.56
Stage 3	-1.2	-1.79	-3.85
Stage 3	-1.4	-2.88	-5.42
Stage 3	-1.5	-3.55	-6.79
Stage 3	-1.7	12.1	78.25
Stage 3	-1.9	27.26	75.83
Stage 3	-2.1	41.88	73.11
Stage 3	-2.3	55.9	70.09
Stage 3	-2.5	69.25	66.76
Stage 3	-2.7	81.88	63.12
Stage 3	-2.9	93.72	59.19
Stage 3	-3.1	104.71	54.95
Stage 3	-3.3	114.79	50.42
Stage 3	-3.5	123.91	45.6
Stage 3	-3.7	132.01	40.48
Stage 3	-3.9	139.02	35.07
Stage 3	-4.1	144.89	29.36
Stage 3	-4.3	149.58	23.45
Stage 3	-4.5	153.06	17.4
Stage 3	-4.7	155.3	11.21
Stage 3	-4.9	156.28	4.9
Stage 3	-5.1	155.98	-1.53
Stage 3	-5.3	154.36	-8.08
Stage 3	-5.5	151.41	-14.75
Stage 3	-5.7	147.1	-21.54
Stage 3	-5.9	141.41	-28.45
Stage 3	-6.1	134.31	-35.48
Stage 3	-6.3	125.79	-42.64
Stage 3	-6.5	115.8	-49.91
Stage 3	-6.7	104.62	-55.95
Stage 3	-6.9	92.56	-60.27
Stage 3	-7.1	79.98	-62.9
Stage 3	-7.3	67.21	-63.83
Stage 3	-7.5	54.6	-63.06
Stage 3	-7.7	42.48	-60.59
Stage 3	-7.9	30.95	-57.66
Stage 3	-8.1	20.01	-54.72
Stage 3	-8.3	9.65	-51.81
Stage 3	-8.5	-0.14	-48.91
Stage 3	-8.7	-9.35	-46.06
Stage 3	-8.9	-17.67	-41.61
Stage 3	-9.1	-25.12	-37.25
Stage 3	-9.3	-31.71	-32.97
Stage 3	-9.5	-37.47	-28.79
Stage 3	-9.7	-42.41	-24.7
Stage 3	-9.9	-46.55	-20.71
Stage 3	-10.1	-49.92	-16.82
Stage 3	-10.3	-52.52	-13.03
Stage 3	-10.5	-54.39	-9.34
Stage 3	-10.7	-55.54	-5.76
Stage 3	-10.9	-56	-2.27
Stage 3	-11.1	-55.77	1.12
Stage 3	-11.3	-54.89	4.4
Stage 3	-11.5	-53.37	7.59
Stage 3	-11.7	-51.24	10.68
Stage 3	-11.9	-48.5	13.67
Stage 3	-12.1	-45.25	16.27
Stage 3	-12.3	-41.58	18.36
Stage 3	-12.5	-37.59	19.95
Stage 3	-12.7	-33.38	21.04
Stage 3	-12.9	-29.05	21.65

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	-13.1	-24.7	21.76	
Stage 3	-13.3	-20.42	21.38	
Stage 3	-13.5	-16.32	20.52	
Stage 3	-13.7	-12.48	19.18	
Stage 3	-13.9	-9.01	17.35	
Stage 3	-14.1	-6	15.04	
Stage 3	-14.3	-3.55	12.25	
Stage 3	-14.5	-1.75	8.98	
Stage 3	-14.7	-0.71	5.22	
Stage 3	-14.9	-0.09	3.12	
Stage 3	-15	0	0.87	

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	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.05	-0.25
Stage 4	-0.6	-0.2	-0.76
Stage 4	-0.8	-0.51	-1.53
Stage 4	-1	-1.02	-2.56
Stage 4	-1.2	-1.79	-3.85
Stage 4	-1.4	-2.88	-5.42
Stage 4	-1.5	-3.55	-6.79
Stage 4	-1.7	14.06	88.06
Stage 4	-1.9	31.18	85.64
Stage 4	-2.1	47.77	82.92
Stage 4	-2.3	63.75	79.9
Stage 4	-2.5	79.06	76.57
Stage 4	-2.7	93.65	72.93
Stage 4	-2.9	107.45	69
Stage 4	-3.1	120.4	64.76
Stage 4	-3.3	132.45	60.23
Stage 4	-3.5	143.53	55.41
Stage 4	-3.7	153.59	50.29
Stage 4	-3.9	162.56	44.88
Stage 4	-4.1	170.4	39.17
Stage 4	-4.3	177.05	33.26
Stage 4	-4.5	182.49	27.21
Stage 4	-4.7	186.69	21.02
Stage 4	-4.9	189.63	14.71
Stage 4	-5.1	191.29	8.28
Stage 4	-5.3	191.64	1.73
Stage 4	-5.5	190.65	-4.94
Stage 4	-5.7	188.3	-11.73
Stage 4	-5.9	184.57	-18.64
Stage 4	-6.1	179.44	-25.67
Stage 4	-6.3	172.87	-32.83
Stage 4	-6.5	164.85	-40.1
Stage 4	-6.7	155.35	-47.5
Stage 4	-6.9	144.35	-55.02
Stage 4	-7.1	131.98	-61.85
Stage 4	-7.3	118.58	-66.97
Stage 4	-7.5	104.5	-70.39
Stage 4	-7.7	90.08	-72.12
Stage 4	-7.9	75.65	-72.14
Stage 4	-8.1	61.56	-70.46
Stage 4	-8.3	48.15	-67.07
Stage 4	-8.5	35.41	-63.69
Stage 4	-8.7	23.34	-60.35
Stage 4	-8.9	12.23	-55.54
Stage 4	-9.1	2.09	-50.7
Stage 4	-9.3	-7.08	-45.85
Stage 4	-9.5	-15.27	-40.93
Stage 4	-9.7	-22.5	-36.14
Stage 4	-9.9	-28.79	-31.48
Stage 4	-10.1	-34.18	-26.94
Stage 4	-10.3	-38.69	-22.54
Stage 4	-10.5	-42.34	-18.27
Stage 4	-10.7	-45.17	-14.13
Stage 4	-10.9	-47.19	-10.14
Stage 4	-11.1	-48.45	-6.28
Stage 4	-11.3	-48.96	-2.56
Stage 4	-11.5	-48.76	1.02
Stage 4	-11.7	-47.86	4.47
Stage 4	-11.9	-46.31	7.77
Stage 4	-12.1	-44.12	10.94
Stage 4	-12.3	-41.33	13.98
Stage 4	-12.5	-38	16.64
Stage 4	-12.7	-34.26	18.7
Stage 4	-12.9	-30.23	20.15

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	-13.1	-26.03	20.99	
Stage 4	-13.3	-21.79	21.22	
Stage 4	-13.5	-17.61	20.86	
Stage 4	-13.7	-13.64	19.89	
Stage 4	-13.9	-9.97	18.33	
Stage 4	-14.1	-6.74	16.16	
Stage 4	-14.3	-4.06	13.4	
Stage 4	-14.5	-2.05	10.03	
Stage 4	-14.7	-0.84	6.07	
Stage 4	-14.9	-0.1	3.67	
Stage 4	-15	0	1.02	

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	0	0	
Stage 5	-0.2	0	0	
Stage 5	-0.2	0	0	
Stage 5	-0.4	-0.05	-0.25	
Stage 5	-0.6	-0.2	-0.76	
Stage 5	-0.8	-0.51	-1.53	
Stage 5	-1	-1.02	-2.56	
Stage 5	-1.2	-1.79	-3.86	
Stage 5	-1.4	-2.88	-5.42	
Stage 5	-1.5	-3.56	-6.79	
Stage 5	-1.7	14.06	88.05	
Stage 5	-1.9	31.18	85.63	
Stage 5	-2.1	47.76	82.92	
Stage 5	-2.3	63.74	79.9	
Stage 5	-2.5	79.06	76.56	
Stage 5	-2.7	93.64	72.93	
Stage 5	-2.9	107.44	68.99	
Stage 5	-3.1	120.39	64.76	
Stage 5	-3.3	132.44	60.22	
Stage 5	-3.5	143.52	55.4	
Stage 5	-3.7	153.57	50.28	
Stage 5	-3.9	162.55	44.87	
Stage 5	-4.1	170.38	39.17	
Stage 5	-4.3	177.03	33.25	
Stage 5	-4.5	182.47	27.2	
Stage 5	-4.7	186.67	21.01	
Stage 5	-4.9	189.61	14.7	
Stage 5	-5.1	191.27	8.27	
Stage 5	-5.3	191.61	1.72	
Stage 5	-5.5	190.62	-4.95	
Stage 5	-5.7	188.27	-11.74	
Stage 5	-5.9	184.54	-18.65	
Stage 5	-6.1	179.41	-25.68	
Stage 5	-6.3	172.85	-32.8	
Stage 5	-6.5	164.83	-40.08	
Stage 5	-6.7	155.34	-47.48	
Stage 5	-6.9	144.34	-55	
Stage 5	-7.1	131.97	-61.82	
Stage 5	-7.3	118.59	-66.94	
Stage 5	-7.5	104.51	-70.37	
Stage 5	-7.7	90.09	-72.09	
Stage 5	-7.9	75.67	-72.11	
Stage 5	-8.1	61.59	-70.43	
Stage 5	-8.3	48.18	-67.05	
Stage 5	-8.5	35.44	-63.68	
Stage 5	-8.7	23.37	-60.33	
Stage 5	-8.9	12.27	-55.52	
Stage 5	-9.1	2.13	-50.69	
Stage 5	-9.3	-7.03	-45.83	
Stage 5	-9.5	-15.22	-40.95	
Stage 5	-9.7	-22.45	-36.16	
Stage 5	-9.9	-28.75	-31.49	
Stage 5	-10.1	-34.14	-26.95	
Stage 5	-10.3	-38.65	-22.55	
Stage 5	-10.5	-42.31	-18.28	
Stage 5	-10.7	-45.14	-14.15	
Stage 5	-10.9	-47.17	-10.15	
Stage 5	-11.1	-48.43	-6.29	
Stage 5	-11.3	-48.94	-2.57	
Stage 5	-11.5	-48.74	1.01	
Stage 5	-11.7	-47.85	4.46	
Stage 5	-11.9	-46.29	7.76	
Stage 5	-12.1	-44.11	10.93	
Stage 5	-12.3	-41.31	13.97	
Stage 5	-12.5	-37.99	16.64	
Stage 5	-12.7	-34.25	18.69	
Stage 5	-12.9	-30.22	20.14	

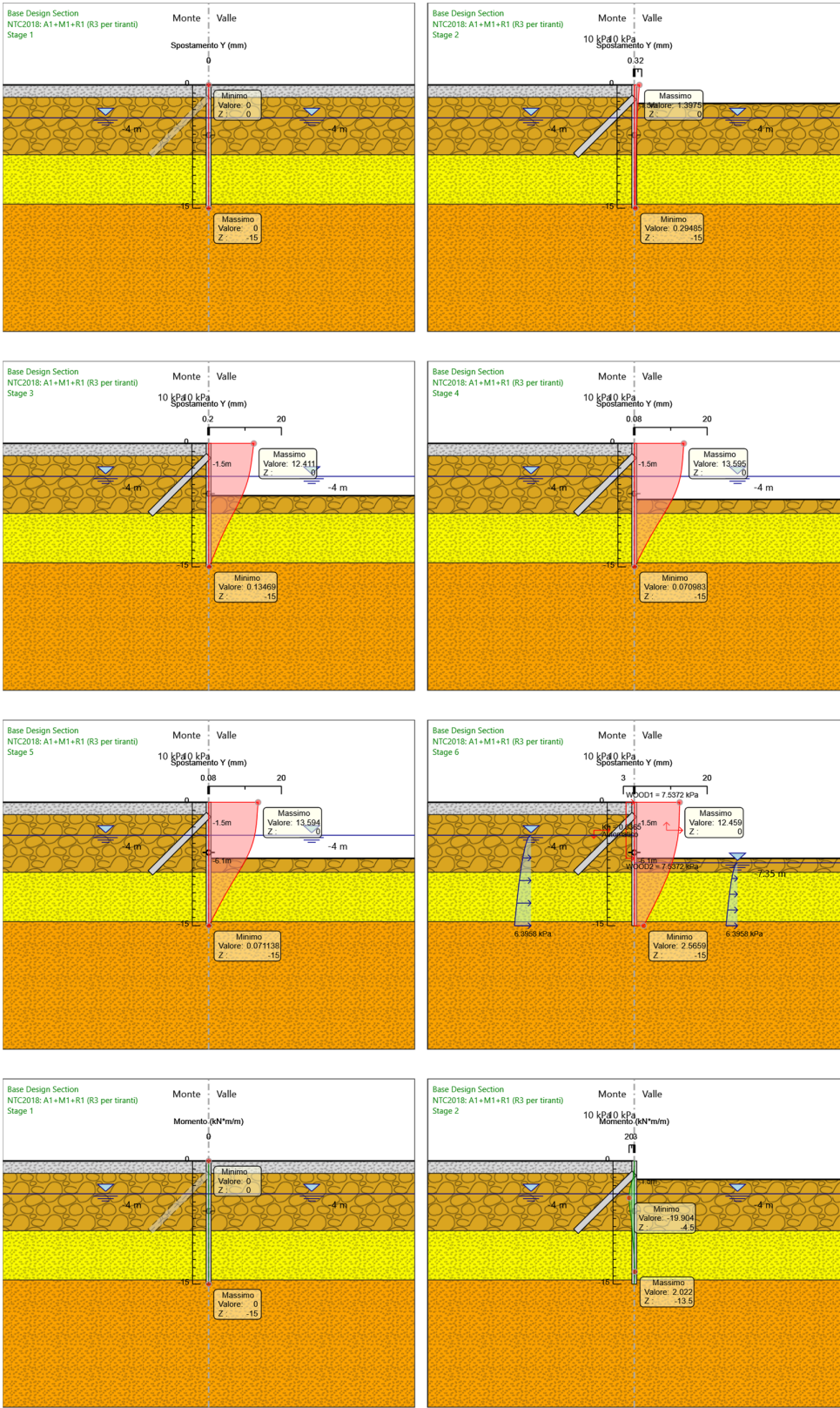
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 5	-13.1	-26.02	20.98	
Stage 5	-13.3	-21.78	21.22	
Stage 5	-13.5	-17.61	20.85	
Stage 5	-13.7	-13.63	19.89	
Stage 5	-13.9	-9.97	18.32	
Stage 5	-14.1	-6.74	16.16	
Stage 5	-14.3	-4.06	13.4	
Stage 5	-14.5	-2.05	10.03	
Stage 5	-14.7	-0.84	6.07	
Stage 5	-14.9	-0.1	3.67	
Stage 5	-15	0	1.02	

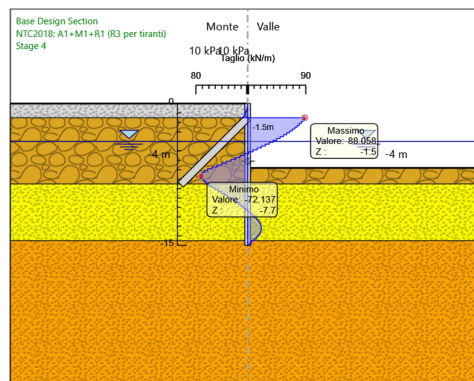
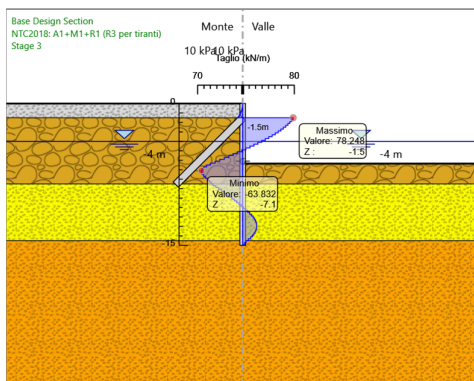
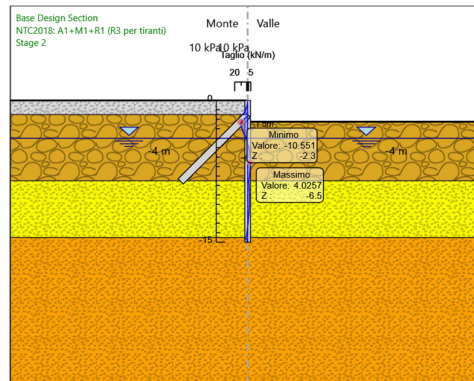
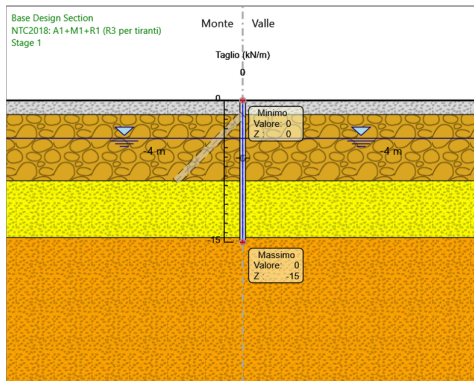
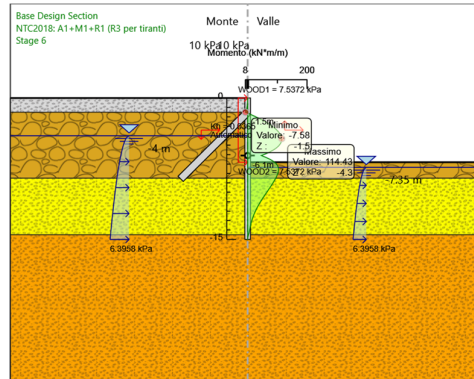
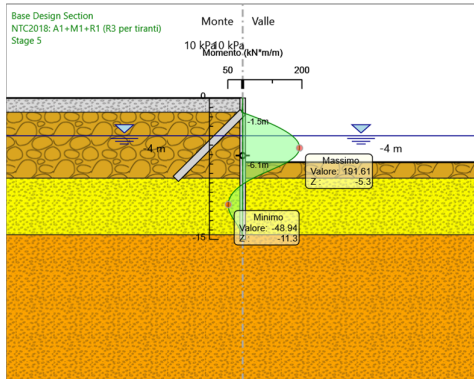
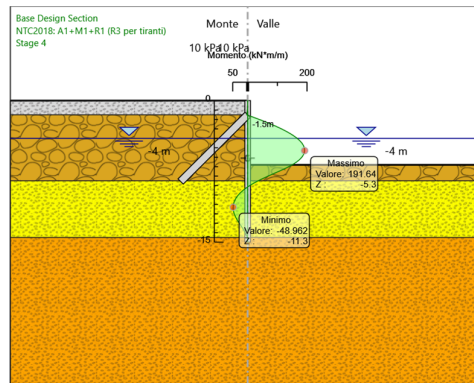
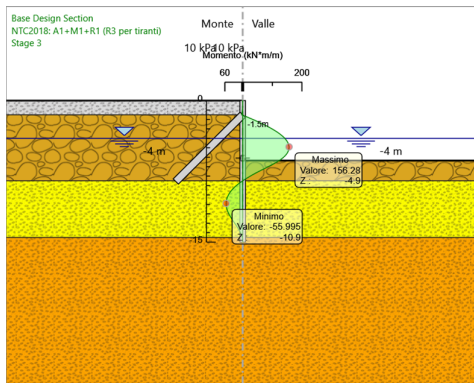
Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 6

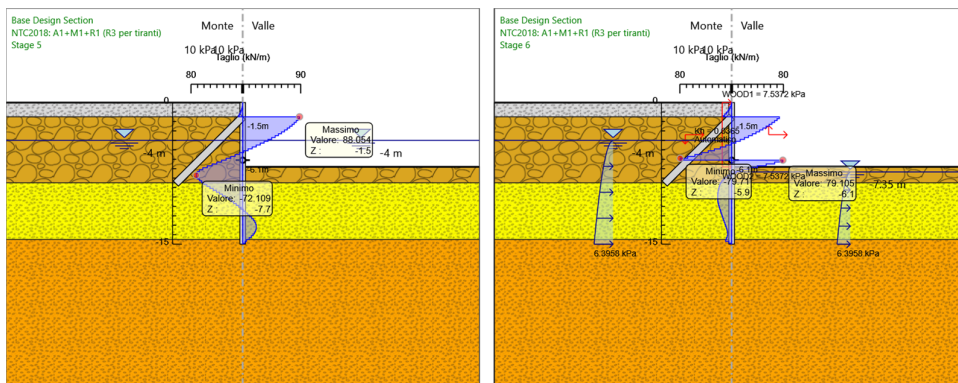
Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-0.18	-0.88
Stage 6	-0.6	-0.6	-2.12
Stage 6	-0.8	-1.34	-3.73
Stage 6	-1	-2.49	-5.71
Stage 6	-1.2	-4.1	-8.07
Stage 6	-1.4	-6.26	-10.82
Stage 6	-1.5	-7.58	-13.16
Stage 6	-1.7	7.17	73.75
Stage 6	-1.9	21.21	70.2
Stage 6	-2.1	34.49	66.38
Stage 6	-2.3	46.94	62.28
Stage 6	-2.5	58.52	57.89
Stage 6	-2.7	69.17	53.23
Stage 6	-2.9	78.83	48.31
Stage 6	-3.1	87.45	43.11
Stage 6	-3.3	94.98	37.65
Stage 6	-3.5	101.37	31.93
Stage 6	-3.7	106.56	25.96
Stage 6	-3.9	110.5	19.73
Stage 6	-4.1	113.15	13.26
Stage 6	-4.3	114.43	6.38
Stage 6	-4.5	114.22	-1.06
Stage 6	-4.7	112.41	-9.06
Stage 6	-4.9	108.89	-17.58
Stage 6	-5.1	103.56	-26.64
Stage 6	-5.3	96.32	-36.23
Stage 6	-5.5	87.05	-46.33
Stage 6	-5.7	75.66	-56.95
Stage 6	-5.9	62.04	-68.08
Stage 6	-6.1	46.1	-79.71
Stage 6	-6.3	61.92	79.1
Stage 6	-6.5	75.22	66.49
Stage 6	-6.7	85.9	53.39
Stage 6	-6.9	93.84	39.7
Stage 6	-7.1	99.25	27.05
Stage 6	-7.3	102.47	16.1
Stage 6	-7.5	103.82	6.76
Stage 6	-7.7	103.65	-0.88
Stage 6	-7.9	102.3	-6.73
Stage 6	-8.1	100.15	-10.77
Stage 6	-8.3	97.48	-13.31
Stage 6	-8.5	94.36	-15.64
Stage 6	-8.7	90.8	-17.78
Stage 6	-8.9	87.04	-18.8
Stage 6	-9.1	83.11	-19.65
Stage 6	-9.3	79.04	-20.34
Stage 6	-9.5	74.87	-20.87
Stage 6	-9.7	70.61	-21.32
Stage 6	-9.9	66.29	-21.6
Stage 6	-10.1	61.95	-21.69
Stage 6	-10.3	57.63	-21.61
Stage 6	-10.5	53.35	-21.36
Stage 6	-10.7	49.17	-20.93
Stage 6	-10.9	45.1	-20.33
Stage 6	-11.1	41.19	-19.56
Stage 6	-11.3	37.47	-18.61
Stage 6	-11.5	33.94	-17.65
Stage 6	-11.7	30.61	-16.67
Stage 6	-11.9	27.47	-15.67
Stage 6	-12.1	24.54	-14.67
Stage 6	-12.3	21.8	-13.66
Stage 6	-12.5	19.27	-12.65
Stage 6	-12.7	16.95	-11.63
Stage 6	-12.9	14.83	-10.61

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	-13.1	12.91	-9.59	
Stage 6	-13.3	11.19	-8.58	
Stage 6	-13.5	9.68	-7.57	
Stage 6	-13.7	8.34	-6.68	
Stage 6	-13.9	7.09	-6.27	
Stage 6	-14.1	5.82	-6.35	
Stage 6	-14.3	4.43	-6.92	
Stage 6	-14.5	2.84	-7.98	
Stage 6	-14.7	0.93	-9.53	
Stage 6	-14.9	0.1	-4.19	
Stage 6	-15	0	-0.95	

Tabella Grafici dei Risultati







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

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 2	11.7839501
Stage 3	122.517187
Stage 4	136.39002
Stage 5	136.38781
Stage 6	126.395113

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Sollecitazione FixedSupport	
Stage	Forza (kN/m)
Stage 5	0.045102811
Stage 6	170.9396

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	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	-1.5	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
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	-11.7	0	0
Stage 1	-11.9	0	0
Stage 1	-12.1	0	0
Stage 1	-12.3	0	0
Stage 1	-12.5	0	0

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-12.7	0	0
Stage 1	-12.9	0	0
Stage 1	-13.1	0	0
Stage 1	-13.3	0	0
Stage 1	-13.5	0	0
Stage 1	-13.7	0	0
Stage 1	-13.9	0	0
Stage 1	-14.1	0	0
Stage 1	-14.3	0	0
Stage 1	-14.5	0	0
Stage 1	-14.7	0	0
Stage 1	-14.9	0	0
Stage 1	-15	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	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	-0.05	-0.24
Stage 2	-0.6	-0.2	-0.73
Stage 2	-0.8	-0.49	-1.47
Stage 2	-1	-0.98	-2.46
Stage 2	-1.2	-1.72	-3.71
Stage 2	-1.4	-2.77	-5.21
Stage 2	-1.5	-3.42	-6.53
Stage 2	-1.7	-3.26	0.81
Stage 2	-1.9	-3.55	-1.49
Stage 2	-2.1	-4.37	-4.06
Stage 2	-2.3	-5.75	-6.93
Stage 2	-2.5	-7.66	-9.54
Stage 2	-2.7	-9.7	-10.2
Stage 2	-2.9	-11.61	-9.55
Stage 2	-3.1	-13.37	-8.82
Stage 2	-3.3	-14.98	-8.05
Stage 2	-3.5	-16.43	-7.25
Stage 2	-3.7	-17.72	-6.43
Stage 2	-3.9	-18.84	-5.59
Stage 2	-4.1	-19.79	-4.75
Stage 2	-4.3	-20.57	-3.92
Stage 2	-4.5	-21.2	-3.14
Stage 2	-4.7	-21.68	-2.39
Stage 2	-4.9	-22.01	-1.67
Stage 2	-5.1	-22.2	-0.96
Stage 2	-5.3	-22.26	-0.26
Stage 2	-5.5	-22.17	0.42
Stage 2	-5.7	-21.96	1.08
Stage 2	-5.9	-21.61	1.74
Stage 2	-6.1	-21.14	2.34
Stage 2	-6.3	-20.57	2.85
Stage 2	-6.5	-19.92	3.25
Stage 2	-6.7	-19.21	3.57
Stage 2	-6.9	-18.44	3.81
Stage 2	-7.1	-17.65	3.97
Stage 2	-7.3	-16.84	4.06
Stage 2	-7.5	-16.02	4.08
Stage 2	-7.7	-15.21	4.04
Stage 2	-7.9	-14.42	3.95
Stage 2	-8.1	-13.66	3.79
Stage 2	-8.3	-12.94	3.59
Stage 2	-8.5	-12.27	3.34
Stage 2	-8.7	-11.66	3.05
Stage 2	-8.9	-11.01	3.26
Stage 2	-9.1	-10.33	3.43
Stage 2	-9.3	-9.62	3.55
Stage 2	-9.5	-8.89	3.63
Stage 2	-9.7	-8.16	3.67
Stage 2	-9.9	-7.42	3.69
Stage 2	-10.1	-6.69	3.67
Stage 2	-10.3	-5.96	3.63
Stage 2	-10.5	-5.25	3.56
Stage 2	-10.7	-4.56	3.47
Stage 2	-10.9	-3.89	3.35
Stage 2	-11.1	-3.24	3.22
Stage 2	-11.3	-2.63	3.07
Stage 2	-11.5	-2.05	2.91
Stage 2	-11.7	-1.5	2.72
Stage 2	-11.9	-1	2.53
Stage 2	-12.1	-0.53	2.31
Stage 2	-12.3	-0.12	2.08
Stage 2	-12.5	0.25	1.84
Stage 2	-12.7	0.57	1.59
Stage 2	-12.9	0.83	1.31

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-13.1	1.04	1.03
Stage 2	-13.3	1.18	0.72
Stage 2	-13.5	1.26	0.4
Stage 2	-13.7	1.28	0.07
Stage 2	-13.9	1.22	-0.29
Stage 2	-14.1	1.09	-0.66
Stage 2	-14.3	0.88	-1.05
Stage 2	-14.5	0.58	-1.46
Stage 2	-14.7	0.21	-1.89
Stage 2	-14.9	0.02	-0.92
Stage 2	-15	0	-0.23

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	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.05	-0.24
Stage 3	-0.6	-0.2	-0.73
Stage 3	-0.8	-0.49	-1.47
Stage 3	-1	-0.98	-2.46
Stage 3	-1.2	-1.72	-3.71
Stage 3	-1.4	-2.77	-5.21
Stage 3	-1.5	-3.42	-6.53
Stage 3	-1.7	14.14	87.81
Stage 3	-1.9	31.24	85.51
Stage 3	-2.1	47.83	82.93
Stage 3	-2.3	63.84	80.06
Stage 3	-2.5	79.22	76.9
Stage 3	-2.7	93.91	73.45
Stage 3	-2.9	107.86	69.71
Stage 3	-3.1	120.99	65.69
Stage 3	-3.3	133.27	61.39
Stage 3	-3.5	144.63	56.81
Stage 3	-3.7	155.02	51.95
Stage 3	-3.9	164.38	46.81
Stage 3	-4.1	172.66	41.39
Stage 3	-4.3	179.82	35.78
Stage 3	-4.5	185.82	30.03
Stage 3	-4.7	190.65	24.15
Stage 3	-4.9	194.29	18.16
Stage 3	-5.1	196.7	12.06
Stage 3	-5.3	197.87	5.84
Stage 3	-5.5	197.77	-0.49
Stage 3	-5.7	196.38	-6.94
Stage 3	-5.9	193.68	-13.5
Stage 3	-6.1	189.64	-20.18
Stage 3	-6.3	184.25	-26.97
Stage 3	-6.5	177.47	-33.88
Stage 3	-6.7	169.45	-40.14
Stage 3	-6.9	160.35	-45.48
Stage 3	-7.1	150.37	-49.9
Stage 3	-7.3	139.69	-53.42
Stage 3	-7.5	128.48	-56.02
Stage 3	-7.7	116.94	-57.71
Stage 3	-7.9	105.24	-58.48
Stage 3	-8.1	93.57	-58.35
Stage 3	-8.3	82.11	-57.3
Stage 3	-8.5	71.05	-55.34
Stage 3	-8.7	60.53	-52.59
Stage 3	-8.9	50.71	-49.11
Stage 3	-9.1	41.57	-45.68
Stage 3	-9.3	33.11	-42.29
Stage 3	-9.5	25.32	-38.95
Stage 3	-9.7	18.19	-35.67
Stage 3	-9.9	11.7	-32.44
Stage 3	-10.1	5.85	-29.27
Stage 3	-10.3	0.62	-26.15
Stage 3	-10.5	-4	-23.09
Stage 3	-10.7	-8.02	-20.09
Stage 3	-10.9	-11.45	-17.14
Stage 3	-11.1	-14.3	-14.26
Stage 3	-11.3	-16.59	-11.43
Stage 3	-11.5	-18.32	-8.66
Stage 3	-11.7	-19.51	-5.95
Stage 3	-11.9	-20.17	-3.3
Stage 3	-12.1	-20.31	-0.73
Stage 3	-12.3	-20	1.59
Stage 3	-12.5	-19.27	3.64
Stage 3	-12.7	-18.18	5.44
Stage 3	-12.9	-16.78	6.99

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-13.1	-15.13	8.28
Stage 3	-13.3	-13.26	9.31
Stage 3	-13.5	-11.25	10.08
Stage 3	-13.7	-9.13	10.6
Stage 3	-13.9	-6.97	10.79
Stage 3	-14.1	-4.91	10.3
Stage 3	-14.3	-3.09	9.12
Stage 3	-14.5	-1.64	7.25
Stage 3	-14.7	-0.7	4.69
Stage 3	-14.9	-0.09	3.06
Stage 3	-15	0	0.88

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	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.05	-0.24
Stage 4	-0.6	-0.2	-0.73
Stage 4	-0.8	-0.49	-1.47
Stage 4	-1	-0.98	-2.46
Stage 4	-1.2	-1.72	-3.71
Stage 4	-1.4	-2.77	-5.21
Stage 4	-1.5	-3.42	-6.53
Stage 4	-1.7	16.38	99
Stage 4	-1.9	35.72	96.7
Stage 4	-2.1	54.54	94.12
Stage 4	-2.3	72.8	91.25
Stage 4	-2.5	90.41	88.09
Stage 4	-2.7	107.34	84.64
Stage 4	-2.9	123.52	80.9
Stage 4	-3.1	138.9	76.88
Stage 4	-3.3	153.41	72.58
Stage 4	-3.5	167.01	68
Stage 4	-3.7	179.64	63.14
Stage 4	-3.9	191.24	58
Stage 4	-4.1	201.76	52.58
Stage 4	-4.3	211.15	46.97
Stage 4	-4.5	219.39	41.22
Stage 4	-4.7	226.46	35.34
Stage 4	-4.9	232.33	29.35
Stage 4	-5.1	236.98	23.25
Stage 4	-5.3	240.39	17.03
Stage 4	-5.5	242.53	10.7
Stage 4	-5.7	243.38	4.25
Stage 4	-5.9	242.91	-2.31
Stage 4	-6.1	241.12	-8.99
Stage 4	-6.3	237.96	-15.78
Stage 4	-6.5	233.42	-22.69
Stage 4	-6.7	227.48	-29.72
Stage 4	-6.9	220.1	-36.86
Stage 4	-7.1	211.37	-43.66
Stage 4	-7.3	201.47	-49.54
Stage 4	-7.5	190.56	-54.51
Stage 4	-7.7	178.85	-58.56
Stage 4	-7.9	166.51	-61.71
Stage 4	-8.1	153.72	-63.94
Stage 4	-8.3	140.67	-65.26
Stage 4	-8.5	127.53	-65.67
Stage 4	-8.7	114.5	-65.17
Stage 4	-8.9	101.78	-63.61
Stage 4	-9.1	89.58	-61.01
Stage 4	-9.3	78.11	-57.34
Stage 4	-9.5	67.41	-53.48
Stage 4	-9.7	57.48	-49.68
Stage 4	-9.9	48.29	-45.94
Stage 4	-10.1	39.83	-42.28
Stage 4	-10.3	32.1	-38.68
Stage 4	-10.5	25.06	-35.16
Stage 4	-10.7	18.72	-31.71
Stage 4	-10.9	13.06	-28.34
Stage 4	-11.1	8.05	-25.04
Stage 4	-11.3	3.68	-21.82
Stage 4	-11.5	-0.06	-18.68
Stage 4	-11.7	-3.18	-15.62
Stage 4	-11.9	-5.71	-12.64
Stage 4	-12.1	-7.66	-9.74
Stage 4	-12.3	-9.04	-6.92
Stage 4	-12.5	-9.88	-4.18
Stage 4	-12.7	-10.21	-1.64
Stage 4	-12.9	-10.09	0.58

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-13.1	-9.6	2.47
Stage 4	-13.3	-8.79	4.04
Stage 4	-13.5	-7.73	5.29
Stage 4	-13.7	-6.49	6.21
Stage 4	-13.9	-5.12	6.81
Stage 4	-14.1	-3.71	7.09
Stage 4	-14.3	-2.37	6.7
Stage 4	-14.5	-1.27	5.47
Stage 4	-14.7	-0.59	3.39
Stage 4	-14.9	-0.08	2.58
Stage 4	-15	0	0.79

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	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-0.05	-0.24
Stage 5	-0.6	-0.2	-0.73
Stage 5	-0.8	-0.49	-1.47
Stage 5	-1	-0.98	-2.46
Stage 5	-1.2	-1.72	-3.71
Stage 5	-1.4	-2.77	-5.21
Stage 5	-1.5	-3.42	-6.53
Stage 5	-1.7	16.38	99
Stage 5	-1.9	35.72	96.7
Stage 5	-2.1	54.54	94.12
Stage 5	-2.3	72.79	91.25
Stage 5	-2.5	90.41	88.09
Stage 5	-2.7	107.34	84.64
Stage 5	-2.9	123.52	80.9
Stage 5	-3.1	138.9	76.88
Stage 5	-3.3	153.41	72.58
Stage 5	-3.5	167.01	68
Stage 5	-3.7	179.64	63.14
Stage 5	-3.9	191.24	58
Stage 5	-4.1	201.75	52.58
Stage 5	-4.3	211.15	46.97
Stage 5	-4.5	219.39	41.22
Stage 5	-4.7	226.46	35.34
Stage 5	-4.9	232.33	29.35
Stage 5	-5.1	236.98	23.25
Stage 5	-5.3	240.39	17.03
Stage 5	-5.5	242.52	10.7
Stage 5	-5.7	243.37	4.25
Stage 5	-5.9	242.91	-2.31
Stage 5	-6.1	241.11	-8.99
Stage 5	-6.3	237.96	-15.78
Stage 5	-6.5	233.42	-22.69
Stage 5	-6.7	227.47	-29.72
Stage 5	-6.9	220.1	-36.86
Stage 5	-7.1	211.37	-43.66
Stage 5	-7.3	201.46	-49.54
Stage 5	-7.5	190.56	-54.51
Stage 5	-7.7	178.85	-58.56
Stage 5	-7.9	166.51	-61.71
Stage 5	-8.1	153.72	-63.94
Stage 5	-8.3	140.67	-65.26
Stage 5	-8.5	127.53	-65.67
Stage 5	-8.7	114.5	-65.17
Stage 5	-8.9	101.78	-63.61
Stage 5	-9.1	89.58	-61.01
Stage 5	-9.3	78.11	-57.34
Stage 5	-9.5	67.41	-53.48
Stage 5	-9.7	57.48	-49.68
Stage 5	-9.9	48.29	-45.94
Stage 5	-10.1	39.83	-42.28
Stage 5	-10.3	32.1	-38.68
Stage 5	-10.5	25.06	-35.16
Stage 5	-10.7	18.72	-31.71
Stage 5	-10.9	13.06	-28.34
Stage 5	-11.1	8.05	-25.04
Stage 5	-11.3	3.68	-21.82
Stage 5	-11.5	-0.06	-18.68
Stage 5	-11.7	-3.18	-15.62
Stage 5	-11.9	-5.71	-12.64
Stage 5	-12.1	-7.66	-9.74
Stage 5	-12.3	-9.04	-6.92
Stage 5	-12.5	-9.88	-4.18
Stage 5	-12.7	-10.21	-1.64
Stage 5	-12.9	-10.09	0.58

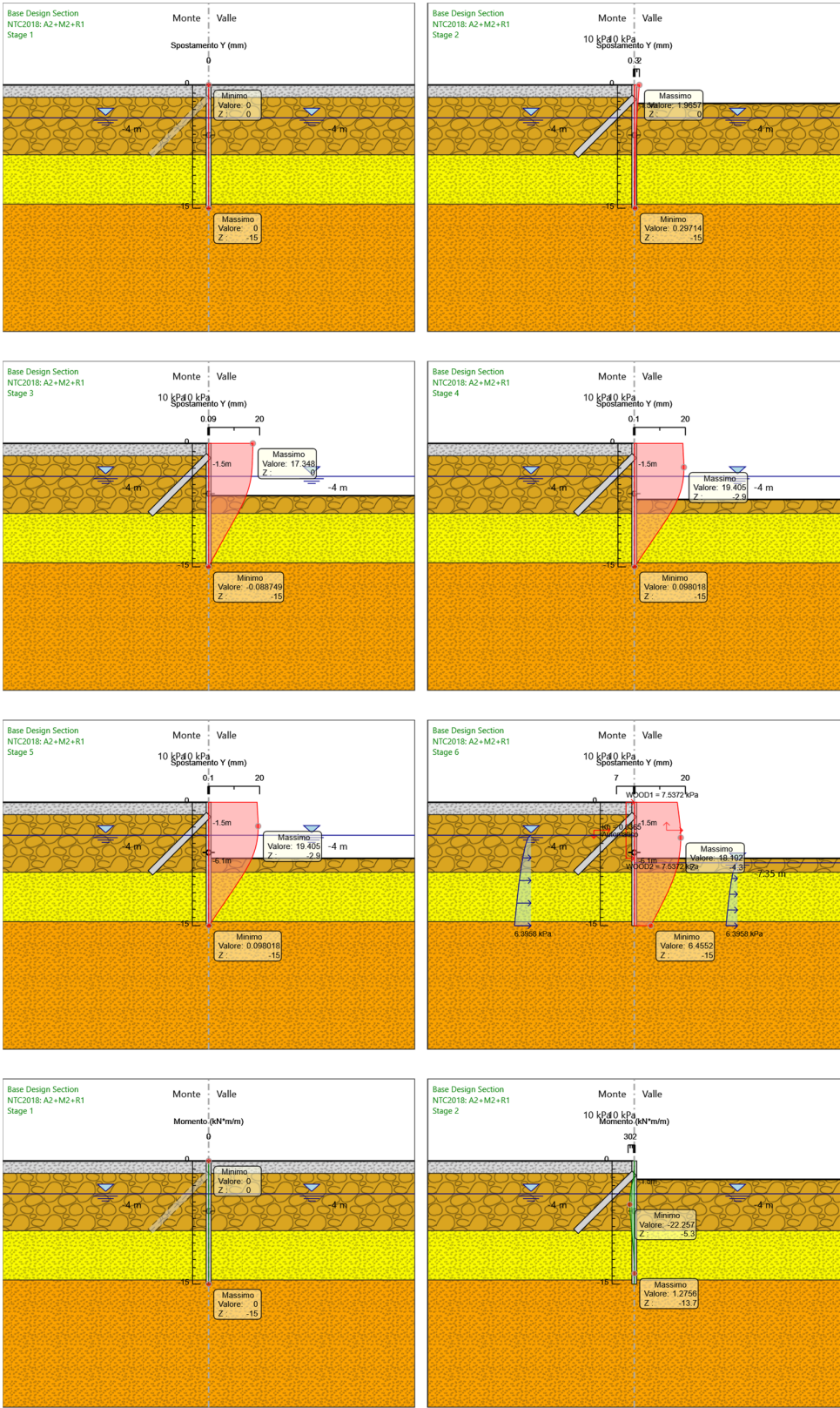
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-13.1	-9.6	2.47
Stage 5	-13.3	-8.79	4.04
Stage 5	-13.5	-7.73	5.29
Stage 5	-13.7	-6.49	6.21
Stage 5	-13.9	-5.12	6.81
Stage 5	-14.1	-3.71	7.09
Stage 5	-14.3	-2.37	6.7
Stage 5	-14.5	-1.27	5.47
Stage 5	-14.7	-0.59	3.39
Stage 5	-14.9	-0.08	2.58
Stage 5	-15	0	0.79

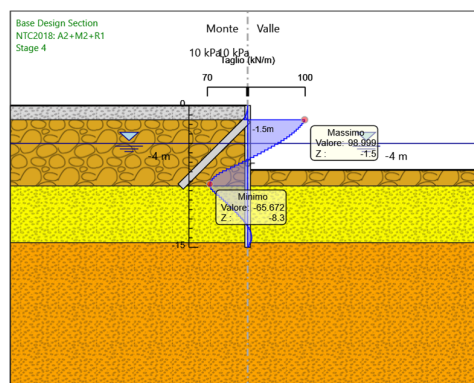
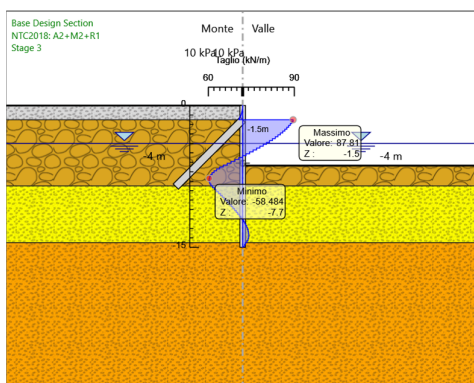
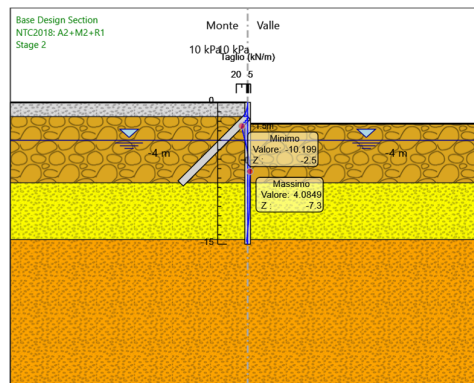
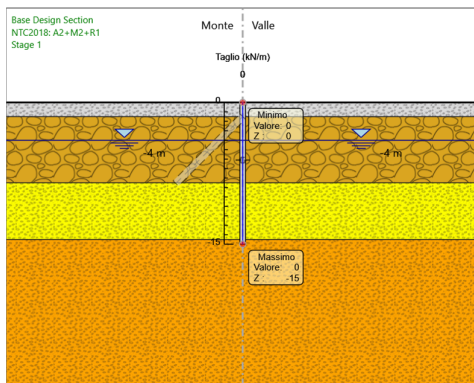
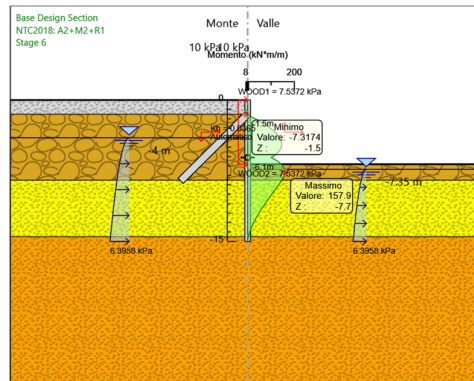
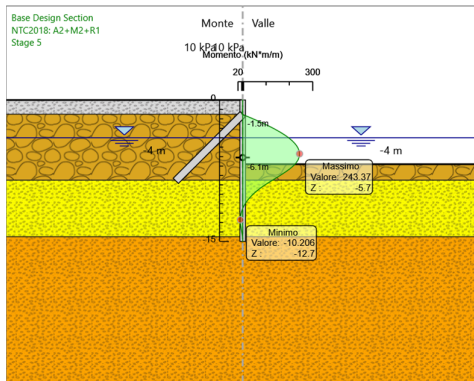
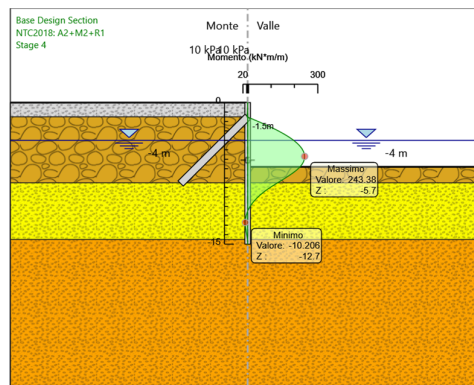
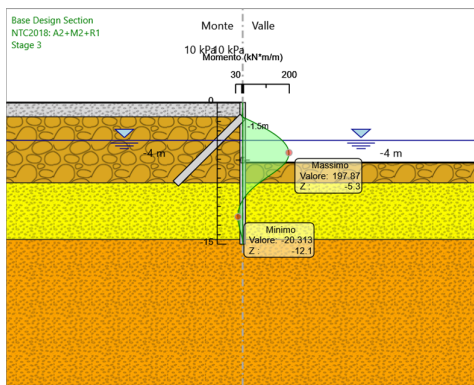
Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 6

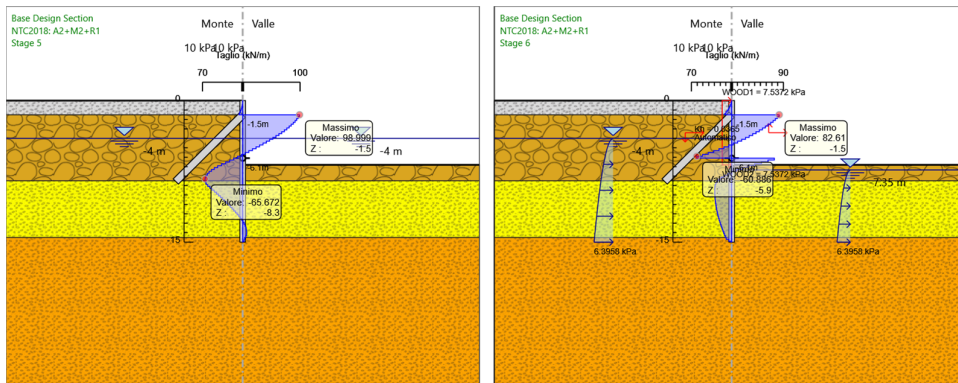
Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0	0	0
Stage 6	-0.2	0	0
Stage 6	-0.2	0	0
Stage 6	-0.4	-0.19	-0.96
Stage 6	-0.6	-0.64	-2.21
Stage 6	-0.8	-1.39	-3.76
Stage 6	-1	-2.51	-5.6
Stage 6	-1.2	-4.06	-7.74
Stage 6	-1.4	-6.09	-10.19
Stage 6	-1.5	-7.32	-12.25
Stage 6	-1.7	9.2	82.61
Stage 6	-1.9	25.09	79.42
Stage 6	-2.1	40.27	75.92
Stage 6	-2.3	54.69	72.09
Stage 6	-2.5	68.28	67.93
Stage 6	-2.7	80.97	63.44
Stage 6	-2.9	92.7	58.64
Stage 6	-3.1	103.4	53.51
Stage 6	-3.3	113.01	48.07
Stage 6	-3.5	121.49	42.41
Stage 6	-3.7	128.8	36.52
Stage 6	-3.9	134.88	30.4
Stage 6	-4.1	139.69	24.07
Stage 6	-4.3	143.17	17.41
Stage 6	-4.5	145.23	10.32
Stage 6	-4.7	145.79	2.8
Stage 6	-4.9	144.77	-5.12
Stage 6	-5.1	142.08	-13.44
Stage 6	-5.3	137.65	-22.16
Stage 6	-5.5	131.4	-31.27
Stage 6	-5.7	123.25	-40.76
Stage 6	-5.9	113.12	-50.64
Stage 6	-6.1	100.94	-60.89
Stage 6	-6.3	115.79	74.23
Stage 6	-6.5	128.43	63.22
Stage 6	-6.7	138.78	51.74
Stage 6	-6.9	146.74	39.79
Stage 6	-7.1	152.41	28.36
Stage 6	-7.3	156.04	18.15
Stage 6	-7.5	157.81	8.82
Stage 6	-7.7	157.9	0.45
Stage 6	-7.9	156.52	-6.9
Stage 6	-8.1	153.88	-13.19
Stage 6	-8.3	150.19	-18.43
Stage 6	-8.5	145.68	-22.59
Stage 6	-8.7	140.54	-25.67
Stage 6	-8.9	135.01	-27.68
Stage 6	-9.1	129.24	-28.84
Stage 6	-9.3	123.39	-29.24
Stage 6	-9.5	117.53	-29.32
Stage 6	-9.7	111.66	-29.33
Stage 6	-9.9	105.81	-29.28
Stage 6	-10.1	99.97	-29.17
Stage 6	-10.3	94.17	-29.01
Stage 6	-10.5	88.42	-28.77
Stage 6	-10.7	82.72	-28.46
Stage 6	-10.9	77.11	-28.09
Stage 6	-11.1	71.58	-27.64
Stage 6	-11.3	66.15	-27.13
Stage 6	-11.5	60.84	-26.55
Stage 6	-11.7	55.66	-25.91
Stage 6	-11.9	50.62	-25.21
Stage 6	-12.1	45.73	-24.45
Stage 6	-12.3	41	-23.63
Stage 6	-12.5	36.45	-22.75
Stage 6	-12.7	32.09	-21.82
Stage 6	-12.9	27.92	-20.83

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-13.1	23.96	-19.79
Stage 6	-13.3	20.22	-18.69
Stage 6	-13.5	16.71	-17.54
Stage 6	-13.7	13.45	-16.34
Stage 6	-13.9	10.43	-15.09
Stage 6	-14.1	7.67	-13.78
Stage 6	-14.3	5.19	-12.42
Stage 6	-14.5	2.99	-11.01
Stage 6	-14.7	1.08	-9.56
Stage 6	-14.9	0.12	-4.78
Stage 6	-15	0	-1.2

Tabella Grafici dei Risultati







Risultati Elementi strutturali - NTC2018: A2+M2+R1

Design Assumption: NTC2018: A2+M2+R1 Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 2	12.53055
Stage 3	135.5626
Stage 4	151.3869
Stage 5	151.3872
Stage 6	137.1923

Design Assumption: NTC2018: A2+M2+R1 Sollecitazione FixedSupport	
Stage	Forza (kN/m)
Stage 5	0
Stage 6	145.7515

Risultati NTC2018: SISMICA STR

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0	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	-1.5	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
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	-11.7	0	0
Stage 1	-11.9	0	0
Stage 1	-12.1	0	0
Stage 1	-12.3	0	0
Stage 1	-12.5	0	0

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-12.7	0	0
Stage 1	-12.9	0	0
Stage 1	-13.1	0	0
Stage 1	-13.3	0	0
Stage 1	-13.5	0	0
Stage 1	-13.7	0	0
Stage 1	-13.9	0	0
Stage 1	-14.1	0	0
Stage 1	-14.3	0	0
Stage 1	-14.5	0	0
Stage 1	-14.7	0	0
Stage 1	-14.9	0	0
Stage 1	-15	0	0

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	-0.04	-0.19
Stage 2	-0.6	-0.16	-0.59
Stage 2	-0.8	-0.39	-1.18
Stage 2	-1	-0.79	-1.97
Stage 2	-1.2	-1.38	-2.97
Stage 2	-1.4	-2.21	-4.17
Stage 2	-1.5	-2.73	-5.22
Stage 2	-1.7	-2.74	-0.04
Stage 2	-1.9	-3.12	-1.9
Stage 2	-2.1	-3.92	-3.99
Stage 2	-2.3	-5.18	-6.31
Stage 2	-2.5	-6.81	-8.12
Stage 2	-2.7	-8.38	-7.85
Stage 2	-2.9	-9.84	-7.34
Stage 2	-3.1	-11.18	-6.67
Stage 2	-3.3	-12.35	-5.86
Stage 2	-3.5	-13.33	-4.93
Stage 2	-3.7	-14.11	-3.89
Stage 2	-3.9	-14.68	-2.83
Stage 2	-4.1	-15.05	-1.87
Stage 2	-4.3	-15.26	-1.02
Stage 2	-4.5	-15.31	-0.28
Stage 2	-4.7	-15.24	0.37
Stage 2	-4.9	-15.05	0.93
Stage 2	-5.1	-14.77	1.42
Stage 2	-5.3	-14.4	1.84
Stage 2	-5.5	-13.96	2.2
Stage 2	-5.7	-13.46	2.48
Stage 2	-5.9	-12.92	2.71
Stage 2	-6.1	-12.34	2.89
Stage 2	-6.3	-11.74	3.01
Stage 2	-6.5	-11.13	3.07
Stage 2	-6.7	-10.51	3.1
Stage 2	-6.9	-9.89	3.07
Stage 2	-7.1	-9.29	3.01
Stage 2	-7.3	-8.71	2.91
Stage 2	-7.5	-8.16	2.77
Stage 2	-7.7	-7.64	2.59
Stage 2	-7.9	-7.16	2.39
Stage 2	-8.1	-6.73	2.15
Stage 2	-8.3	-6.35	1.88
Stage 2	-8.5	-6.04	1.59
Stage 2	-8.7	-5.78	1.27
Stage 2	-8.9	-5.49	1.47
Stage 2	-9.1	-5.16	1.63
Stage 2	-9.3	-4.81	1.77
Stage 2	-9.5	-4.43	1.88
Stage 2	-9.7	-4.04	1.97
Stage 2	-9.9	-3.63	2.03
Stage 2	-10.1	-3.22	2.07
Stage 2	-10.3	-2.8	2.09
Stage 2	-10.5	-2.38	2.09
Stage 2	-10.7	-1.97	2.08
Stage 2	-10.9	-1.56	2.04
Stage 2	-11.1	-1.16	1.99
Stage 2	-11.3	-0.78	1.92
Stage 2	-11.5	-0.41	1.83
Stage 2	-11.7	-0.07	1.73
Stage 2	-11.9	0.26	1.61
Stage 2	-12.1	0.55	1.47
Stage 2	-12.3	0.81	1.32
Stage 2	-12.5	1.04	1.15
Stage 2	-12.7	1.24	0.96
Stage 2	-12.9	1.39	0.76

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-13.1	1.49	0.53
Stage 2	-13.3	1.55	0.29
Stage 2	-13.5	1.56	0.02
Stage 2	-13.7	1.5	-0.27
Stage 2	-13.9	1.39	-0.57
Stage 2	-14.1	1.21	-0.9
Stage 2	-14.3	0.96	-1.26
Stage 2	-14.5	0.63	-1.63
Stage 2	-14.7	0.22	-2.03
Stage 2	-14.9	0.02	-0.99
Stage 2	-15	0	-0.24

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.04	-0.19
Stage 3	-0.6	-0.16	-0.59
Stage 3	-0.8	-0.39	-1.18
Stage 3	-1	-0.79	-1.97
Stage 3	-1.2	-1.38	-2.97
Stage 3	-1.4	-2.21	-4.17
Stage 3	-1.5	-2.73	-5.22
Stage 3	-1.7	9.3	60.19
Stage 3	-1.9	20.97	58.33
Stage 3	-2.1	32.22	56.24
Stage 3	-2.3	43	53.92
Stage 3	-2.5	53.27	51.35
Stage 3	-2.7	62.98	48.56
Stage 3	-2.9	72.09	45.53
Stage 3	-3.1	80.54	42.27
Stage 3	-3.3	88.3	38.79
Stage 3	-3.5	95.32	35.07
Stage 3	-3.7	101.54	31.14
Stage 3	-3.9	106.94	26.97
Stage 3	-4.1	111.45	22.59
Stage 3	-4.3	115.06	18.04
Stage 3	-4.5	117.74	13.38
Stage 3	-4.7	119.46	8.62
Stage 3	-4.9	120.22	3.77
Stage 3	-5.1	119.98	-1.18
Stage 3	-5.3	118.74	-6.22
Stage 3	-5.5	116.47	-11.35
Stage 3	-5.7	113.15	-16.57
Stage 3	-5.9	108.78	-21.88
Stage 3	-6.1	103.32	-27.29
Stage 3	-6.3	96.76	-32.8
Stage 3	-6.5	89.08	-38.4
Stage 3	-6.7	80.47	-43.03
Stage 3	-6.9	71.2	-46.37
Stage 3	-7.1	61.52	-48.39
Stage 3	-7.3	51.7	-49.1
Stage 3	-7.5	42	-48.51
Stage 3	-7.7	32.68	-46.6
Stage 3	-7.9	23.81	-44.35
Stage 3	-8.1	15.39	-42.1
Stage 3	-8.3	7.42	-39.85
Stage 3	-8.5	-0.1	-37.63
Stage 3	-8.7	-7.19	-35.43
Stage 3	-8.9	-13.59	-32.01
Stage 3	-9.1	-19.32	-28.65
Stage 3	-9.3	-24.39	-25.36
Stage 3	-9.5	-28.82	-22.14
Stage 3	-9.7	-32.62	-19
Stage 3	-9.9	-35.81	-15.93
Stage 3	-10.1	-38.4	-12.94
Stage 3	-10.3	-40.4	-10.02
Stage 3	-10.5	-41.84	-7.19
Stage 3	-10.7	-42.72	-4.43
Stage 3	-10.9	-43.07	-1.75
Stage 3	-11.1	-42.9	0.86
Stage 3	-11.3	-42.22	3.39
Stage 3	-11.5	-41.06	5.84
Stage 3	-11.7	-39.41	8.22
Stage 3	-11.9	-37.31	10.52
Stage 3	-12.1	-34.81	12.51
Stage 3	-12.3	-31.98	14.12
Stage 3	-12.5	-28.91	15.35
Stage 3	-12.7	-25.68	16.19
Stage 3	-12.9	-22.35	16.65

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-13.1	-19	16.74
Stage 3	-13.3	-15.71	16.45
Stage 3	-13.5	-12.55	15.79
Stage 3	-13.7	-9.6	14.75
Stage 3	-13.9	-6.93	13.35
Stage 3	-14.1	-4.62	11.57
Stage 3	-14.3	-2.73	9.42
Stage 3	-14.5	-1.35	6.91
Stage 3	-14.7	-0.55	4.01
Stage 3	-14.9	-0.07	2.4
Stage 3	-15	0	0.67

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 4

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.04	-0.19
Stage 4	-0.6	-0.16	-0.59
Stage 4	-0.8	-0.39	-1.18
Stage 4	-1	-0.79	-1.97
Stage 4	-1.2	-1.38	-2.97
Stage 4	-1.4	-2.21	-4.17
Stage 4	-1.5	-2.73	-5.22
Stage 4	-1.7	10.81	67.74
Stage 4	-1.9	23.99	65.87
Stage 4	-2.1	36.75	63.79
Stage 4	-2.3	49.04	61.46
Stage 4	-2.5	60.82	58.9
Stage 4	-2.7	72.04	56.1
Stage 4	-2.9	82.65	53.08
Stage 4	-3.1	92.62	49.82
Stage 4	-3.3	101.88	46.33
Stage 4	-3.5	110.41	42.62
Stage 4	-3.7	118.14	38.68
Stage 4	-3.9	125.05	34.52
Stage 4	-4.1	131.07	30.13
Stage 4	-4.3	136.19	25.58
Stage 4	-4.5	140.38	20.93
Stage 4	-4.7	143.61	16.17
Stage 4	-4.9	145.87	11.31
Stage 4	-5.1	147.15	6.37
Stage 4	-5.3	147.41	1.33
Stage 4	-5.5	146.65	-3.8
Stage 4	-5.7	144.85	-9.02
Stage 4	-5.9	141.98	-14.34
Stage 4	-6.1	138.03	-19.75
Stage 4	-6.3	132.98	-25.25
Stage 4	-6.5	126.81	-30.85
Stage 4	-6.7	119.5	-36.54
Stage 4	-6.9	111.04	-42.33
Stage 4	-7.1	101.52	-47.58
Stage 4	-7.3	91.22	-51.52
Stage 4	-7.5	80.39	-54.15
Stage 4	-7.7	69.29	-55.47
Stage 4	-7.9	58.19	-55.49
Stage 4	-8.1	47.36	-54.2
Stage 4	-8.3	37.04	-51.59
Stage 4	-8.5	27.24	-49
Stage 4	-8.7	17.95	-46.42
Stage 4	-8.9	9.41	-42.72
Stage 4	-9.1	1.61	-39
Stage 4	-9.3	-5.45	-35.27
Stage 4	-9.5	-11.74	-31.49
Stage 4	-9.7	-17.3	-27.8
Stage 4	-9.9	-22.15	-24.21
Stage 4	-10.1	-26.29	-20.72
Stage 4	-10.3	-29.76	-17.34
Stage 4	-10.5	-32.57	-14.05
Stage 4	-10.7	-34.74	-10.87
Stage 4	-10.9	-36.3	-7.8
Stage 4	-11.1	-37.27	-4.83
Stage 4	-11.3	-37.66	-1.97
Stage 4	-11.5	-37.51	0.79
Stage 4	-11.7	-36.82	3.44
Stage 4	-11.9	-35.62	5.98
Stage 4	-12.1	-33.94	8.42
Stage 4	-12.3	-31.79	10.75
Stage 4	-12.5	-29.23	12.8
Stage 4	-12.7	-26.35	14.38
Stage 4	-12.9	-23.25	15.5

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-13.1	-20.02	16.14
Stage 4	-13.3	-16.76	16.33
Stage 4	-13.5	-13.55	16.04
Stage 4	-13.7	-10.49	15.3
Stage 4	-13.9	-7.67	14.1
Stage 4	-14.1	-5.18	12.43
Stage 4	-14.3	-3.12	10.31
Stage 4	-14.5	-1.58	7.72
Stage 4	-14.7	-0.64	4.67
Stage 4	-14.9	-0.08	2.82
Stage 4	-15	0	0.79

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 5

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	0	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-0.04	-0.2
Stage 5	-0.6	-0.16	-0.59
Stage 5	-0.8	-0.39	-1.18
Stage 5	-1	-0.79	-1.97
Stage 5	-1.2	-1.38	-2.97
Stage 5	-1.4	-2.21	-4.17
Stage 5	-1.5	-2.74	-5.22
Stage 5	-1.7	10.81	67.73
Stage 5	-1.9	23.99	65.87
Stage 5	-2.1	36.74	63.78
Stage 5	-2.3	49.03	61.46
Stage 5	-2.5	60.81	58.9
Stage 5	-2.7	72.03	56.1
Stage 5	-2.9	82.65	53.07
Stage 5	-3.1	92.61	49.81
Stage 5	-3.3	101.87	46.33
Stage 5	-3.5	110.4	42.62
Stage 5	-3.7	118.13	38.68
Stage 5	-3.9	125.04	34.52
Stage 5	-4.1	131.06	30.13
Stage 5	-4.3	136.18	25.58
Stage 5	-4.5	140.36	20.92
Stage 5	-4.7	143.59	16.16
Stage 5	-4.9	145.86	11.31
Stage 5	-5.1	147.13	6.36
Stage 5	-5.3	147.39	1.32
Stage 5	-5.5	146.63	-3.81
Stage 5	-5.7	144.83	-9.03
Stage 5	-5.9	141.96	-14.34
Stage 5	-6.1	138.01	-19.75
Stage 5	-6.3	132.96	-25.23
Stage 5	-6.5	126.79	-30.83
Stage 5	-6.7	119.49	-36.52
Stage 5	-6.9	111.03	-42.31
Stage 5	-7.1	101.52	-47.55
Stage 5	-7.3	91.22	-51.5
Stage 5	-7.5	80.39	-54.13
Stage 5	-7.7	69.3	-55.45
Stage 5	-7.9	58.21	-55.47
Stage 5	-8.1	47.37	-54.18
Stage 5	-8.3	37.06	-51.58
Stage 5	-8.5	27.26	-48.98
Stage 5	-8.7	17.98	-46.41
Stage 5	-8.9	9.44	-42.71
Stage 5	-9.1	1.64	-38.99
Stage 5	-9.3	-5.41	-35.25
Stage 5	-9.5	-11.71	-31.5
Stage 5	-9.7	-17.27	-27.81
Stage 5	-9.9	-22.12	-24.22
Stage 5	-10.1	-26.26	-20.73
Stage 5	-10.3	-29.73	-17.35
Stage 5	-10.5	-32.55	-14.06
Stage 5	-10.7	-34.72	-10.88
Stage 5	-10.9	-36.28	-7.81
Stage 5	-11.1	-37.25	-4.84
Stage 5	-11.3	-37.65	-1.98
Stage 5	-11.5	-37.49	0.78
Stage 5	-11.7	-36.81	3.43
Stage 5	-11.9	-35.61	5.97
Stage 5	-12.1	-33.93	8.41
Stage 5	-12.3	-31.78	10.74
Stage 5	-12.5	-29.22	12.8
Stage 5	-12.7	-26.35	14.38
Stage 5	-12.9	-23.25	15.49

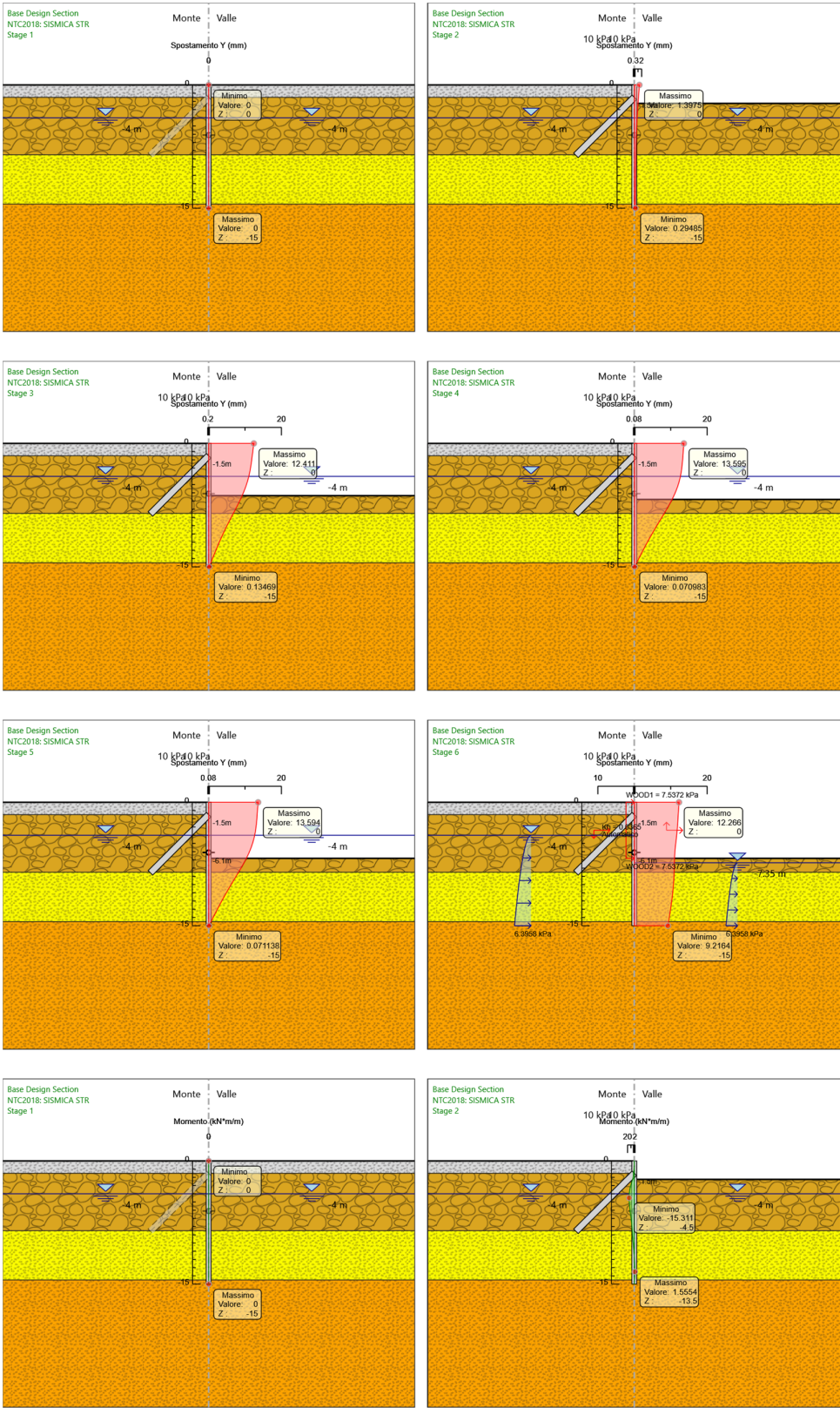
Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-13.1	-20.02	16.14
Stage 5	-13.3	-16.75	16.32
Stage 5	-13.5	-13.55	16.04
Stage 5	-13.7	-10.49	15.3
Stage 5	-13.9	-7.67	14.1
Stage 5	-14.1	-5.18	12.43
Stage 5	-14.3	-3.12	10.3
Stage 5	-14.5	-1.58	7.72
Stage 5	-14.7	-0.64	4.67
Stage 5	-14.9	-0.08	2.82
Stage 5	-15	0	0.79

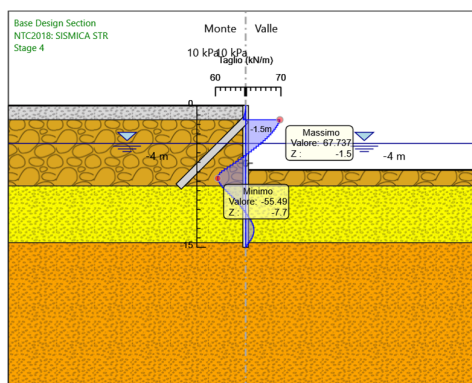
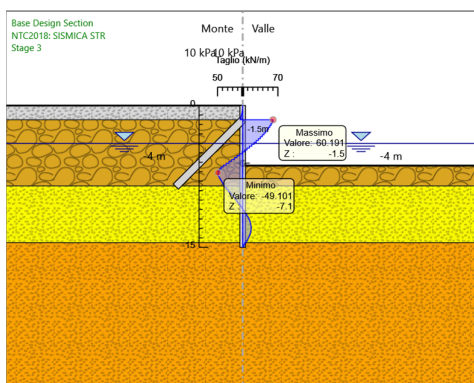
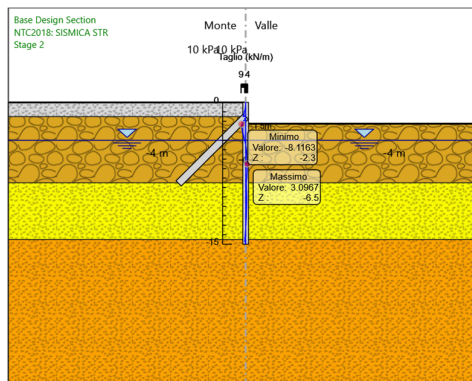
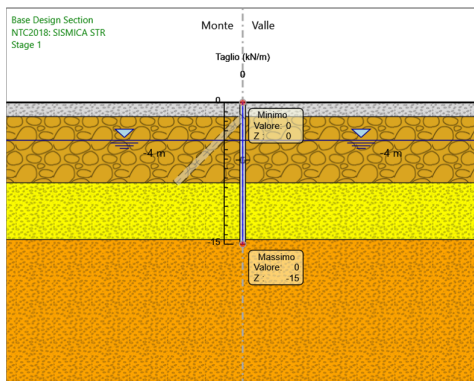
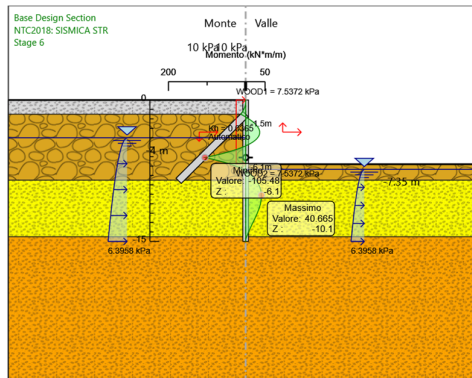
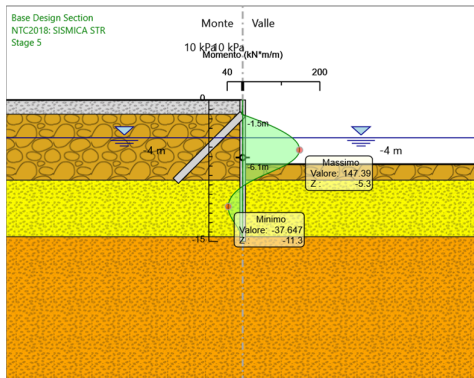
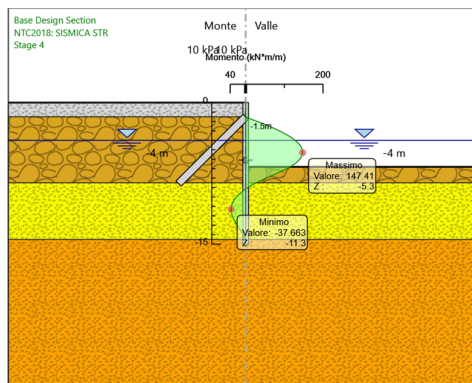
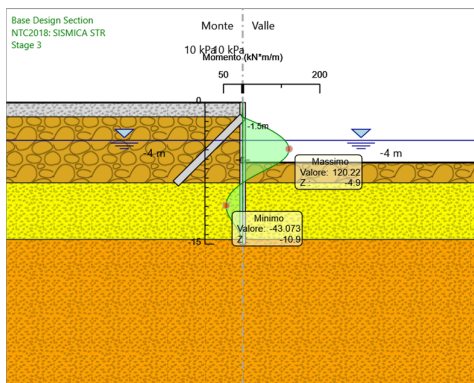
Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 6

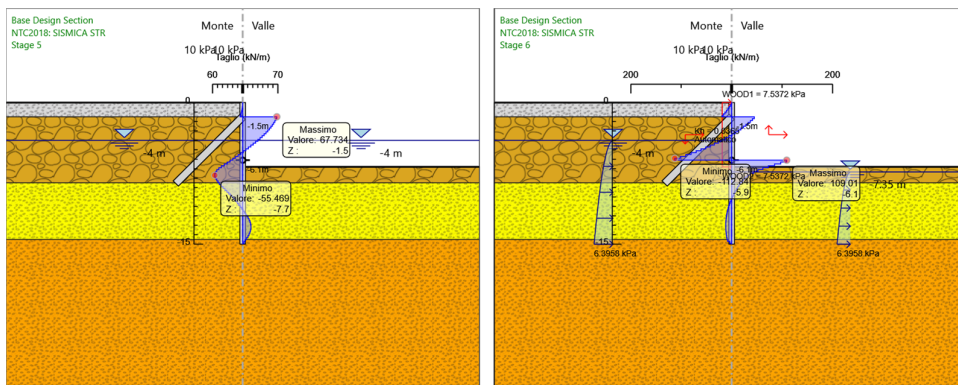
Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0	0	-0.06
Stage 6	-0.2	-0.01	-0.06
Stage 6	-0.4	-0.48	-2.33
Stage 6	-0.6	-1.44	-4.8
Stage 6	-0.8	-2.93	-7.47
Stage 6	-1	-5	-10.33
Stage 6	-1.2	-7.68	-13.4
Stage 6	-1.4	-11.01	-16.67
Stage 6	-1.5	-12.94	-19.28
Stage 6	-1.7	-3.94	45
Stage 6	-1.9	4.29	41.13
Stage 6	-2.1	11.7	37.04
Stage 6	-2.3	18.24	32.72
Stage 6	-2.5	23.87	28.16
Stage 6	-2.7	28.54	23.32
Stage 6	-2.9	32.17	18.17
Stage 6	-3.1	34.71	12.72
Stage 6	-3.3	36.1	6.95
Stage 6	-3.5	36.28	0.88
Stage 6	-3.7	35.18	-5.49
Stage 6	-3.9	32.75	-12.15
Stage 6	-4.1	28.93	-19.11
Stage 6	-4.3	23.64	-26.46
Stage 6	-4.5	16.77	-34.35
Stage 6	-4.7	8.22	-42.72
Stage 6	-4.9	-2.08	-51.52
Stage 6	-5.1	-14.23	-60.76
Stage 6	-5.3	-28.31	-70.4
Stage 6	-5.5	-44.4	-80.45
Stage 6	-5.7	-62.58	-90.88
Stage 6	-5.9	-82.91	-101.68
Stage 6	-6.1	-105.48	-112.84
Stage 6	-6.3	-83.68	109.01
Stage 6	-6.5	-64.24	97.18
Stage 6	-6.7	-47.24	85.04
Stage 6	-6.9	-32.71	72.63
Stage 6	-7.1	-20.38	61.64
Stage 6	-7.3	-9.95	52.14
Stage 6	-7.5	-1.17	43.9
Stage 6	-7.7	6.21	36.93
Stage 6	-7.9	12.47	31.27
Stage 6	-8.1	17.87	26.99
Stage 6	-8.3	22.55	23.43
Stage 6	-8.5	26.55	19.97
Stage 6	-8.7	29.87	16.62
Stage 6	-8.9	32.71	14.2
Stage 6	-9.1	35.09	11.89
Stage 6	-9.3	37.02	9.67
Stage 6	-9.5	38.53	7.55
Stage 6	-9.7	39.63	5.47
Stage 6	-9.9	40.33	3.51
Stage 6	-10.1	40.67	1.67
Stage 6	-10.3	40.66	-0.05
Stage 6	-10.5	40.32	-1.65
Stage 6	-10.7	39.7	-3.14
Stage 6	-10.9	38.8	-4.5
Stage 6	-11.1	37.65	-5.75
Stage 6	-11.3	36.27	-6.88
Stage 6	-11.5	34.69	-7.89
Stage 6	-11.7	32.93	-8.79
Stage 6	-11.9	31.02	-9.57
Stage 6	-12.1	28.98	-10.23
Stage 6	-12.3	26.82	-10.77
Stage 6	-12.5	24.58	-11.2
Stage 6	-12.7	22.28	-11.52
Stage 6	-12.9	19.93	-11.72
Stage 6	-13.1	17.57	-11.8

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-13.3	15.22	-11.77
Stage 6	-13.5	12.89	-11.63
Stage 6	-13.7	10.62	-11.37
Stage 6	-13.9	8.42	-10.99
Stage 6	-14.1	6.32	-10.5
Stage 6	-14.3	4.34	-9.9
Stage 6	-14.5	2.5	-9.19
Stage 6	-14.7	0.83	-8.36
Stage 6	-14.9	0.05	-3.9
Stage 6	-15	0	-0.52

Tabella Grafici dei Risultati







Risultati Elementi strutturali - NTC2018: SISMICA STR

Design Assumption: NTC2018: SISMICA STR Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 2	9.064577
Stage 3	94.24399
Stage 4	104.9154
Stage 5	104.9137
Stage 6	94.78038

Design Assumption: NTC2018: SISMICA STR Sollecitazione FixedSupport	
Stage	Forza (kN/m)
Stage 5	0.03469447
Stage 6	233.355

Risultati NTC2018: SISMICA GEO

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 1

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	0	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	-1.5	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
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	-11.7	0	0
Stage 1	-11.9	0	0
Stage 1	-12.1	0	0
Stage 1	-12.3	0	0
Stage 1	-12.5	0	0

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-12.7	0	0
Stage 1	-12.9	0	0
Stage 1	-13.1	0	0
Stage 1	-13.3	0	0
Stage 1	-13.5	0	0
Stage 1	-13.7	0	0
Stage 1	-13.9	0	0
Stage 1	-14.1	0	0
Stage 1	-14.3	0	0
Stage 1	-14.5	0	0
Stage 1	-14.7	0	0
Stage 1	-14.9	0	0
Stage 1	-15	0	0

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 2

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	0	0	0
Stage 2	-0.2	0	0
Stage 2	-0.2	0	0
Stage 2	-0.4	-0.04	-0.19
Stage 2	-0.6	-0.16	-0.59
Stage 2	-0.8	-0.39	-1.18
Stage 2	-1	-0.79	-1.97
Stage 2	-1.2	-1.38	-2.97
Stage 2	-1.4	-2.21	-4.17
Stage 2	-1.5	-2.73	-5.22
Stage 2	-1.7	-2.74	-0.04
Stage 2	-1.9	-3.12	-1.9
Stage 2	-2.1	-3.92	-3.99
Stage 2	-2.3	-5.18	-6.31
Stage 2	-2.5	-6.81	-8.12
Stage 2	-2.7	-8.38	-7.85
Stage 2	-2.9	-9.84	-7.34
Stage 2	-3.1	-11.18	-6.67
Stage 2	-3.3	-12.35	-5.86
Stage 2	-3.5	-13.33	-4.93
Stage 2	-3.7	-14.11	-3.89
Stage 2	-3.9	-14.68	-2.83
Stage 2	-4.1	-15.05	-1.87
Stage 2	-4.3	-15.26	-1.02
Stage 2	-4.5	-15.31	-0.28
Stage 2	-4.7	-15.24	0.37
Stage 2	-4.9	-15.05	0.93
Stage 2	-5.1	-14.77	1.42
Stage 2	-5.3	-14.4	1.84
Stage 2	-5.5	-13.96	2.2
Stage 2	-5.7	-13.46	2.48
Stage 2	-5.9	-12.92	2.71
Stage 2	-6.1	-12.34	2.89
Stage 2	-6.3	-11.74	3.01
Stage 2	-6.5	-11.13	3.07
Stage 2	-6.7	-10.51	3.1
Stage 2	-6.9	-9.89	3.07
Stage 2	-7.1	-9.29	3.01
Stage 2	-7.3	-8.71	2.91
Stage 2	-7.5	-8.16	2.77
Stage 2	-7.7	-7.64	2.59
Stage 2	-7.9	-7.16	2.39
Stage 2	-8.1	-6.73	2.15
Stage 2	-8.3	-6.35	1.88
Stage 2	-8.5	-6.04	1.59
Stage 2	-8.7	-5.78	1.27
Stage 2	-8.9	-5.49	1.47
Stage 2	-9.1	-5.16	1.63
Stage 2	-9.3	-4.81	1.77
Stage 2	-9.5	-4.43	1.88
Stage 2	-9.7	-4.04	1.97
Stage 2	-9.9	-3.63	2.03
Stage 2	-10.1	-3.22	2.07
Stage 2	-10.3	-2.8	2.09
Stage 2	-10.5	-2.38	2.09
Stage 2	-10.7	-1.97	2.08
Stage 2	-10.9	-1.56	2.04
Stage 2	-11.1	-1.16	1.99
Stage 2	-11.3	-0.78	1.92
Stage 2	-11.5	-0.41	1.83
Stage 2	-11.7	-0.07	1.73
Stage 2	-11.9	0.26	1.61
Stage 2	-12.1	0.55	1.47
Stage 2	-12.3	0.81	1.32
Stage 2	-12.5	1.04	1.15
Stage 2	-12.7	1.24	0.96
Stage 2	-12.9	1.39	0.76

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-13.1	1.49	0.53
Stage 2	-13.3	1.55	0.29
Stage 2	-13.5	1.56	0.02
Stage 2	-13.7	1.5	-0.27
Stage 2	-13.9	1.39	-0.57
Stage 2	-14.1	1.21	-0.9
Stage 2	-14.3	0.96	-1.26
Stage 2	-14.5	0.63	-1.63
Stage 2	-14.7	0.22	-2.03
Stage 2	-14.9	0.02	-0.99
Stage 2	-15	0	-0.24

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 3

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	0	0	0
Stage 3	-0.2	0	0
Stage 3	-0.2	0	0
Stage 3	-0.4	-0.04	-0.19
Stage 3	-0.6	-0.16	-0.59
Stage 3	-0.8	-0.39	-1.18
Stage 3	-1	-0.79	-1.97
Stage 3	-1.2	-1.38	-2.97
Stage 3	-1.4	-2.21	-4.17
Stage 3	-1.5	-2.73	-5.22
Stage 3	-1.7	9.3	60.19
Stage 3	-1.9	20.97	58.33
Stage 3	-2.1	32.22	56.24
Stage 3	-2.3	43	53.92
Stage 3	-2.5	53.27	51.35
Stage 3	-2.7	62.98	48.56
Stage 3	-2.9	72.09	45.53
Stage 3	-3.1	80.54	42.27
Stage 3	-3.3	88.3	38.79
Stage 3	-3.5	95.32	35.07
Stage 3	-3.7	101.54	31.14
Stage 3	-3.9	106.94	26.97
Stage 3	-4.1	111.45	22.59
Stage 3	-4.3	115.06	18.04
Stage 3	-4.5	117.74	13.38
Stage 3	-4.7	119.46	8.62
Stage 3	-4.9	120.22	3.77
Stage 3	-5.1	119.98	-1.18
Stage 3	-5.3	118.74	-6.22
Stage 3	-5.5	116.47	-11.35
Stage 3	-5.7	113.15	-16.57
Stage 3	-5.9	108.78	-21.88
Stage 3	-6.1	103.32	-27.29
Stage 3	-6.3	96.76	-32.8
Stage 3	-6.5	89.08	-38.4
Stage 3	-6.7	80.47	-43.03
Stage 3	-6.9	71.2	-46.37
Stage 3	-7.1	61.52	-48.39
Stage 3	-7.3	51.7	-49.1
Stage 3	-7.5	42	-48.51
Stage 3	-7.7	32.68	-46.6
Stage 3	-7.9	23.81	-44.35
Stage 3	-8.1	15.39	-42.1
Stage 3	-8.3	7.42	-39.85
Stage 3	-8.5	-0.1	-37.63
Stage 3	-8.7	-7.19	-35.43
Stage 3	-8.9	-13.59	-32.01
Stage 3	-9.1	-19.32	-28.65
Stage 3	-9.3	-24.39	-25.36
Stage 3	-9.5	-28.82	-22.14
Stage 3	-9.7	-32.62	-19
Stage 3	-9.9	-35.81	-15.93
Stage 3	-10.1	-38.4	-12.94
Stage 3	-10.3	-40.4	-10.02
Stage 3	-10.5	-41.84	-7.19
Stage 3	-10.7	-42.72	-4.43
Stage 3	-10.9	-43.07	-1.75
Stage 3	-11.1	-42.9	0.86
Stage 3	-11.3	-42.22	3.39
Stage 3	-11.5	-41.06	5.84
Stage 3	-11.7	-39.41	8.22
Stage 3	-11.9	-37.31	10.52
Stage 3	-12.1	-34.81	12.51
Stage 3	-12.3	-31.98	14.12
Stage 3	-12.5	-28.91	15.35
Stage 3	-12.7	-25.68	16.19
Stage 3	-12.9	-22.35	16.65

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-13.1	-19	16.74
Stage 3	-13.3	-15.71	16.45
Stage 3	-13.5	-12.55	15.79
Stage 3	-13.7	-9.6	14.75
Stage 3	-13.9	-6.93	13.35
Stage 3	-14.1	-4.62	11.57
Stage 3	-14.3	-2.73	9.42
Stage 3	-14.5	-1.35	6.91
Stage 3	-14.7	-0.55	4.01
Stage 3	-14.9	-0.07	2.4
Stage 3	-15	0	0.67

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 4

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	0	0	0
Stage 4	-0.2	0	0
Stage 4	-0.2	0	0
Stage 4	-0.4	-0.04	-0.19
Stage 4	-0.6	-0.16	-0.59
Stage 4	-0.8	-0.39	-1.18
Stage 4	-1	-0.79	-1.97
Stage 4	-1.2	-1.38	-2.97
Stage 4	-1.4	-2.21	-4.17
Stage 4	-1.5	-2.73	-5.22
Stage 4	-1.7	10.81	67.74
Stage 4	-1.9	23.99	65.87
Stage 4	-2.1	36.75	63.79
Stage 4	-2.3	49.04	61.46
Stage 4	-2.5	60.82	58.9
Stage 4	-2.7	72.04	56.1
Stage 4	-2.9	82.65	53.08
Stage 4	-3.1	92.62	49.82
Stage 4	-3.3	101.88	46.33
Stage 4	-3.5	110.41	42.62
Stage 4	-3.7	118.14	38.68
Stage 4	-3.9	125.05	34.52
Stage 4	-4.1	131.07	30.13
Stage 4	-4.3	136.19	25.58
Stage 4	-4.5	140.38	20.93
Stage 4	-4.7	143.61	16.17
Stage 4	-4.9	145.87	11.31
Stage 4	-5.1	147.15	6.37
Stage 4	-5.3	147.41	1.33
Stage 4	-5.5	146.65	-3.8
Stage 4	-5.7	144.85	-9.02
Stage 4	-5.9	141.98	-14.34
Stage 4	-6.1	138.03	-19.75
Stage 4	-6.3	132.98	-25.25
Stage 4	-6.5	126.81	-30.85
Stage 4	-6.7	119.5	-36.54
Stage 4	-6.9	111.04	-42.33
Stage 4	-7.1	101.52	-47.58
Stage 4	-7.3	91.22	-51.52
Stage 4	-7.5	80.39	-54.15
Stage 4	-7.7	69.29	-55.47
Stage 4	-7.9	58.19	-55.49
Stage 4	-8.1	47.36	-54.2
Stage 4	-8.3	37.04	-51.59
Stage 4	-8.5	27.24	-49
Stage 4	-8.7	17.95	-46.42
Stage 4	-8.9	9.41	-42.72
Stage 4	-9.1	1.61	-39
Stage 4	-9.3	-5.45	-35.27
Stage 4	-9.5	-11.74	-31.49
Stage 4	-9.7	-17.3	-27.8
Stage 4	-9.9	-22.15	-24.21
Stage 4	-10.1	-26.29	-20.72
Stage 4	-10.3	-29.76	-17.34
Stage 4	-10.5	-32.57	-14.05
Stage 4	-10.7	-34.74	-10.87
Stage 4	-10.9	-36.3	-7.8
Stage 4	-11.1	-37.27	-4.83
Stage 4	-11.3	-37.66	-1.97
Stage 4	-11.5	-37.51	0.79
Stage 4	-11.7	-36.82	3.44
Stage 4	-11.9	-35.62	5.98
Stage 4	-12.1	-33.94	8.42
Stage 4	-12.3	-31.79	10.75
Stage 4	-12.5	-29.23	12.8
Stage 4	-12.7	-26.35	14.38
Stage 4	-12.9	-23.25	15.5

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-13.1	-20.02	16.14
Stage 4	-13.3	-16.76	16.33
Stage 4	-13.5	-13.55	16.04
Stage 4	-13.7	-10.49	15.3
Stage 4	-13.9	-7.67	14.1
Stage 4	-14.1	-5.18	12.43
Stage 4	-14.3	-3.12	10.31
Stage 4	-14.5	-1.58	7.72
Stage 4	-14.7	-0.64	4.67
Stage 4	-14.9	-0.08	2.82
Stage 4	-15	0	0.79

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 5

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	0	0	0
Stage 5	-0.2	0	0
Stage 5	-0.2	0	0
Stage 5	-0.4	-0.04	-0.2
Stage 5	-0.6	-0.16	-0.59
Stage 5	-0.8	-0.39	-1.18
Stage 5	-1	-0.79	-1.97
Stage 5	-1.2	-1.38	-2.97
Stage 5	-1.4	-2.21	-4.17
Stage 5	-1.5	-2.74	-5.22
Stage 5	-1.7	10.81	67.73
Stage 5	-1.9	23.99	65.87
Stage 5	-2.1	36.74	63.78
Stage 5	-2.3	49.03	61.46
Stage 5	-2.5	60.81	58.9
Stage 5	-2.7	72.03	56.1
Stage 5	-2.9	82.65	53.07
Stage 5	-3.1	92.61	49.81
Stage 5	-3.3	101.87	46.33
Stage 5	-3.5	110.4	42.62
Stage 5	-3.7	118.13	38.68
Stage 5	-3.9	125.04	34.52
Stage 5	-4.1	131.06	30.13
Stage 5	-4.3	136.18	25.58
Stage 5	-4.5	140.36	20.92
Stage 5	-4.7	143.59	16.16
Stage 5	-4.9	145.86	11.31
Stage 5	-5.1	147.13	6.36
Stage 5	-5.3	147.39	1.32
Stage 5	-5.5	146.63	-3.81
Stage 5	-5.7	144.83	-9.03
Stage 5	-5.9	141.96	-14.34
Stage 5	-6.1	138.01	-19.75
Stage 5	-6.3	132.96	-25.23
Stage 5	-6.5	126.79	-30.83
Stage 5	-6.7	119.49	-36.52
Stage 5	-6.9	111.03	-42.31
Stage 5	-7.1	101.52	-47.55
Stage 5	-7.3	91.22	-51.5
Stage 5	-7.5	80.39	-54.13
Stage 5	-7.7	69.3	-55.45
Stage 5	-7.9	58.21	-55.47
Stage 5	-8.1	47.37	-54.18
Stage 5	-8.3	37.06	-51.58
Stage 5	-8.5	27.26	-48.98
Stage 5	-8.7	17.98	-46.41
Stage 5	-8.9	9.44	-42.71
Stage 5	-9.1	1.64	-38.99
Stage 5	-9.3	-5.41	-35.25
Stage 5	-9.5	-11.71	-31.5
Stage 5	-9.7	-17.27	-27.81
Stage 5	-9.9	-22.12	-24.22
Stage 5	-10.1	-26.26	-20.73
Stage 5	-10.3	-29.73	-17.35
Stage 5	-10.5	-32.55	-14.06
Stage 5	-10.7	-34.72	-10.88
Stage 5	-10.9	-36.28	-7.81
Stage 5	-11.1	-37.25	-4.84
Stage 5	-11.3	-37.65	-1.98
Stage 5	-11.5	-37.49	0.78
Stage 5	-11.7	-36.81	3.43
Stage 5	-11.9	-35.61	5.97
Stage 5	-12.1	-33.93	8.41
Stage 5	-12.3	-31.78	10.74
Stage 5	-12.5	-29.22	12.8
Stage 5	-12.7	-26.35	14.38
Stage 5	-12.9	-23.25	15.49

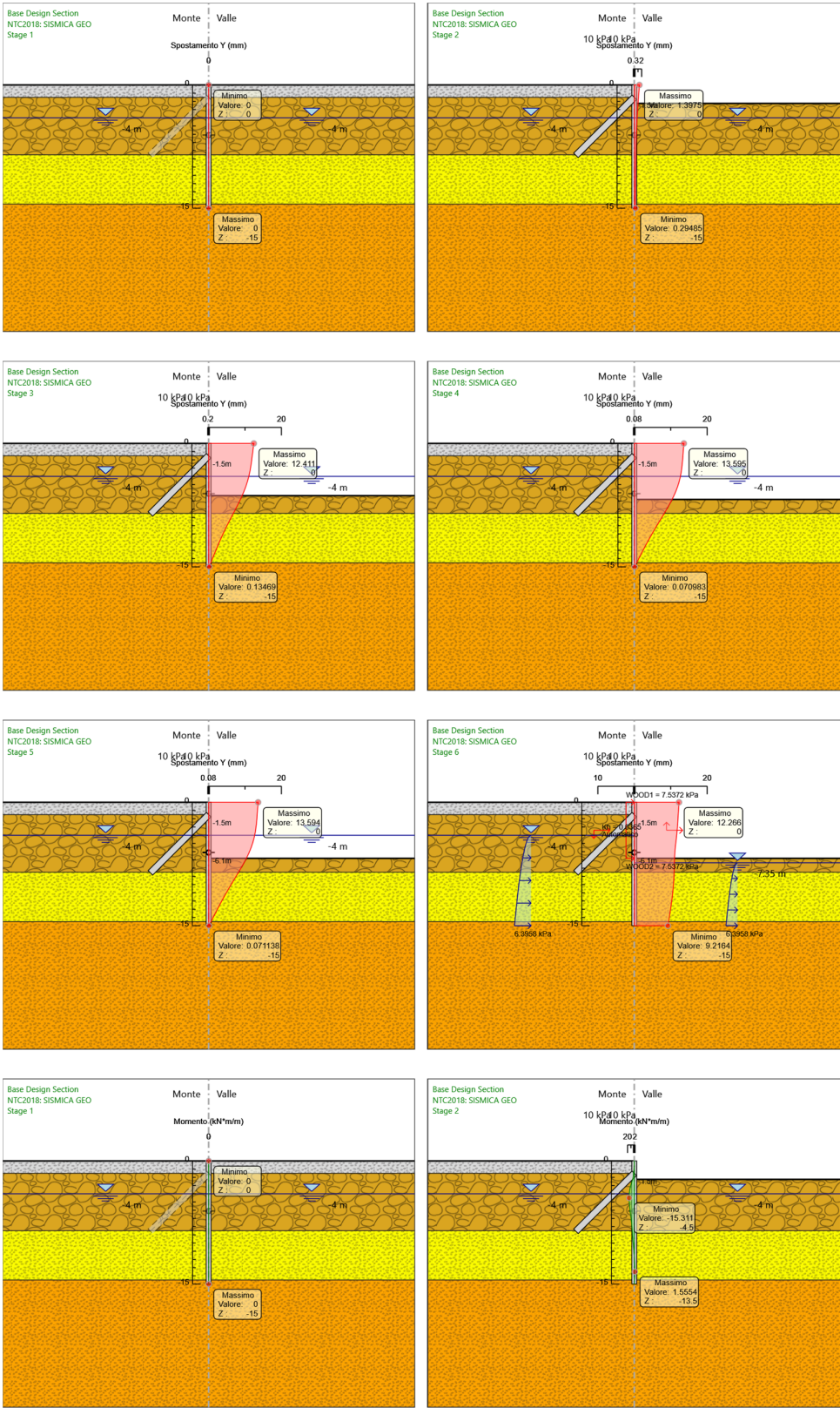
Design Assumption: NTC2018: SISMICA GEO Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-13.1	-20.02	16.14
Stage 5	-13.3	-16.75	16.32
Stage 5	-13.5	-13.55	16.04
Stage 5	-13.7	-10.49	15.3
Stage 5	-13.9	-7.67	14.1
Stage 5	-14.1	-5.18	12.43
Stage 5	-14.3	-3.12	10.3
Stage 5	-14.5	-1.58	7.72
Stage 5	-14.7	-0.64	4.67
Stage 5	-14.9	-0.08	2.82
Stage 5	-15	0	0.79

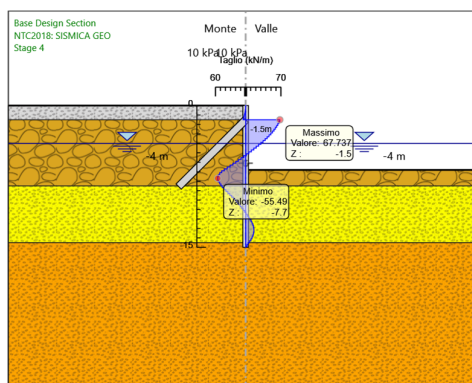
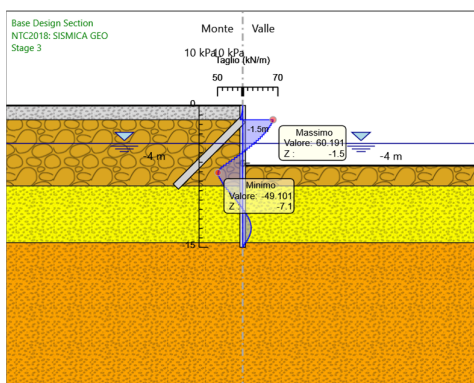
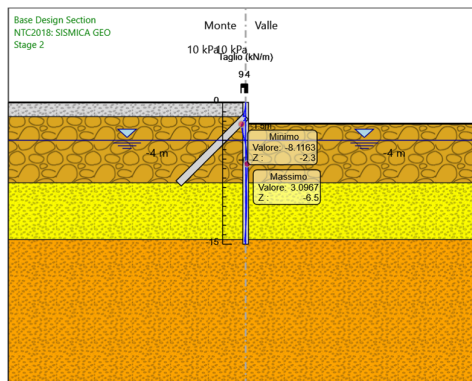
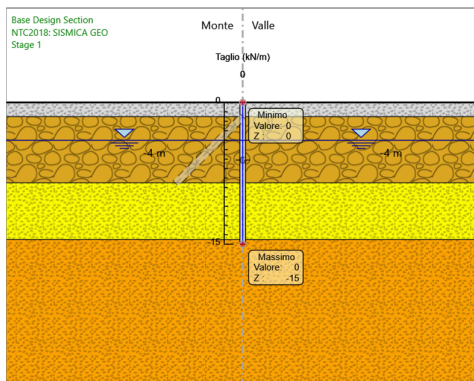
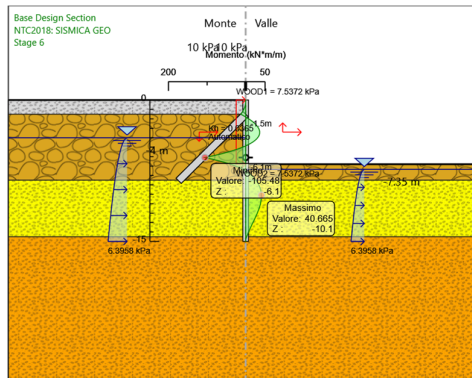
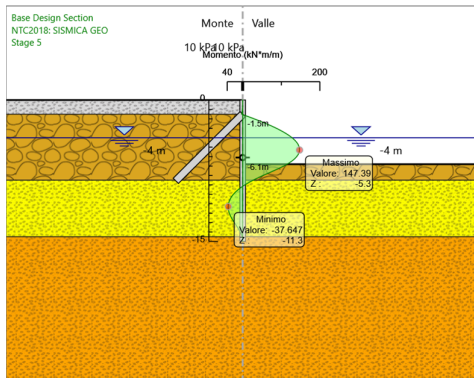
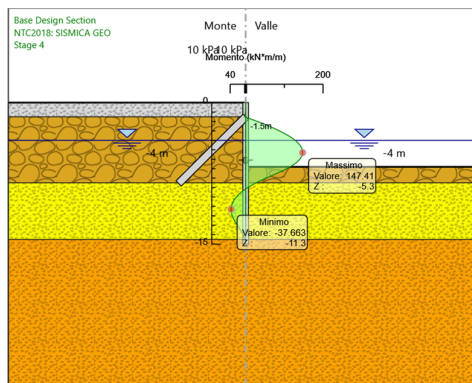
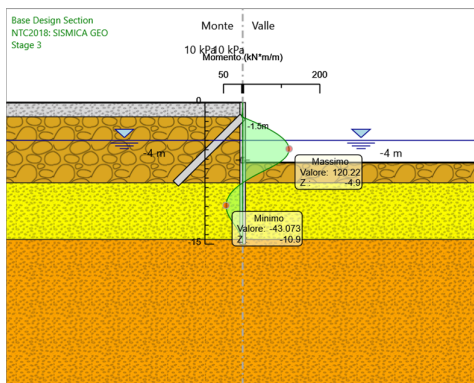
Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 6

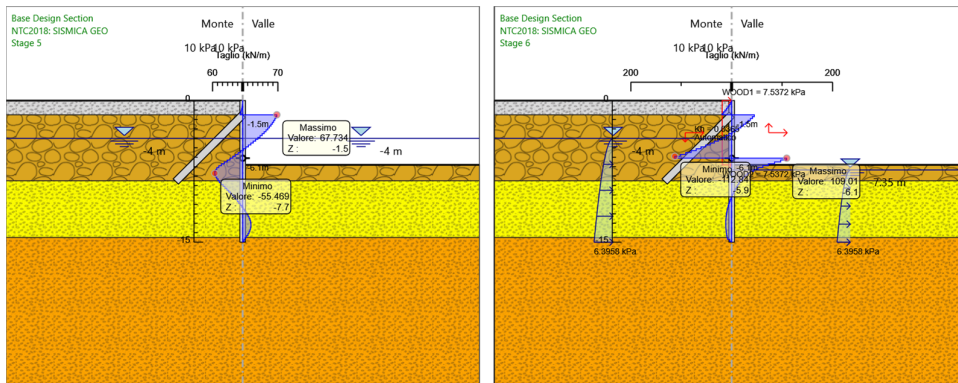
Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	0	0	-0.06
Stage 6	-0.2	-0.01	-0.06
Stage 6	-0.4	-0.48	-2.33
Stage 6	-0.6	-1.44	-4.8
Stage 6	-0.8	-2.93	-7.47
Stage 6	-1	-5	-10.33
Stage 6	-1.2	-7.68	-13.4
Stage 6	-1.4	-11.01	-16.67
Stage 6	-1.5	-12.94	-19.28
Stage 6	-1.7	-3.94	45
Stage 6	-1.9	4.29	41.13
Stage 6	-2.1	11.7	37.04
Stage 6	-2.3	18.24	32.72
Stage 6	-2.5	23.87	28.16
Stage 6	-2.7	28.54	23.32
Stage 6	-2.9	32.17	18.17
Stage 6	-3.1	34.71	12.72
Stage 6	-3.3	36.1	6.95
Stage 6	-3.5	36.28	0.88
Stage 6	-3.7	35.18	-5.49
Stage 6	-3.9	32.75	-12.15
Stage 6	-4.1	28.93	-19.11
Stage 6	-4.3	23.64	-26.46
Stage 6	-4.5	16.77	-34.35
Stage 6	-4.7	8.22	-42.72
Stage 6	-4.9	-2.08	-51.52
Stage 6	-5.1	-14.23	-60.76
Stage 6	-5.3	-28.31	-70.4
Stage 6	-5.5	-44.4	-80.45
Stage 6	-5.7	-62.58	-90.88
Stage 6	-5.9	-82.91	-101.68
Stage 6	-6.1	-105.48	-112.84
Stage 6	-6.3	-83.68	109.01
Stage 6	-6.5	-64.24	97.18
Stage 6	-6.7	-47.24	85.04
Stage 6	-6.9	-32.71	72.63
Stage 6	-7.1	-20.38	61.64
Stage 6	-7.3	-9.95	52.14
Stage 6	-7.5	-1.17	43.9
Stage 6	-7.7	6.21	36.93
Stage 6	-7.9	12.47	31.27
Stage 6	-8.1	17.87	26.99
Stage 6	-8.3	22.55	23.43
Stage 6	-8.5	26.55	19.97
Stage 6	-8.7	29.87	16.62
Stage 6	-8.9	32.71	14.2
Stage 6	-9.1	35.09	11.89
Stage 6	-9.3	37.02	9.67
Stage 6	-9.5	38.53	7.55
Stage 6	-9.7	39.63	5.47
Stage 6	-9.9	40.33	3.51
Stage 6	-10.1	40.67	1.67
Stage 6	-10.3	40.66	-0.05
Stage 6	-10.5	40.32	-1.65
Stage 6	-10.7	39.7	-3.14
Stage 6	-10.9	38.8	-4.5
Stage 6	-11.1	37.65	-5.75
Stage 6	-11.3	36.27	-6.88
Stage 6	-11.5	34.69	-7.89
Stage 6	-11.7	32.93	-8.79
Stage 6	-11.9	31.02	-9.57
Stage 6	-12.1	28.98	-10.23
Stage 6	-12.3	26.82	-10.77
Stage 6	-12.5	24.58	-11.2
Stage 6	-12.7	22.28	-11.52
Stage 6	-12.9	19.93	-11.72
Stage 6	-13.1	17.57	-11.8

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-13.3	15.22	-11.77
Stage 6	-13.5	12.89	-11.63
Stage 6	-13.7	10.62	-11.37
Stage 6	-13.9	8.42	-10.99
Stage 6	-14.1	6.32	-10.5
Stage 6	-14.3	4.34	-9.9
Stage 6	-14.5	2.5	-9.19
Stage 6	-14.7	0.83	-8.36
Stage 6	-14.9	0.05	-3.9
Stage 6	-15	0	-0.52

Tabella Grafici dei Risultati







Risultati Elementi strutturali - NTC2018: SISMICA GEO

Design Assumption: NTC2018: SISMICA GEO Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 2	9.064577
Stage 3	94.24399
Stage 4	104.9154
Stage 5	104.9137
Stage 6	94.78038

Design Assumption: NTC2018: SISMICA GEO Sollecitazione FixedSupport	
Stage	Forza (kN/m)
Stage 5	0.03469447
Stage 6	233.355