

ASSE VIARIO MARCHE - UMBRIA E QUADRILATERO DI PENETRAZIONE INTERNA

Sublotto 2.2: Intervalliva Macerata - allaccio funzionale della SS77
alla città di Macerata alle località "La Pieve" e "Mattei"

PROGETTO DEFINITIVO

IL GEOLOGO Dott. Geol. Salvatore Marino Ordine dei geologi della Regione Lazio n. 1069	I PROGETTISTI SPECIALISTICI Ing. Ambrogio Signorelli Ordine Ingegneri Provincia di Roma n. A35111 Ing. Moreno Panfili Ordine Ingegneri Provincia di Perugia n. A2657 Ing. Claudio Muller Ordine Ingegneri Provincia di Roma n. 15754 Ing. Giuseppe Resta Ordine Ingegneri Provincia di Roma n. 20629	PROGETTAZIONE ATI: (Mandataria) (Mandante) (Mandante) (Mandante) (Mandante) IL PROGETTISTA E RESPONSABILE DELL'INTEGRAZIONE DELLE PRESTAZIONI SPECIALISTICHE. (DPR207/10 ART 15 COMMA 12): Dott. Ing. GIORGIO GUIDUCCI ORDINE INGEGNERI ROMA N. 14035 Dott. Ing. GIORGIO GUIDUCCI Ordine Ingegneri Provincia di Roma n. 14035
COORDINATORE PER LA SICUREZZA IN FASE DI PROGETTAZIONE Ing. Valerio Guidobaldi Ordine Ingegneri Provincia di Roma n. A30025	ORDINE INGEGNERI ROMA N. 15754	GPI INGEGNERIA GESTIONE PROGETTI INGEGNERIA srl cooprogetti cocoprogetti engeko AIM Studio di Architettura e Ingegneria Moderna
VISTO: IL RESPONSABILE DEL PROCEDIMENTO Ing. Iginio Farotti		

OPERE D'ARTE MINORI

Paratia di pali Rotatoria Mattei

Relazione di calcolo

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OPERA	LOTTO	STATO	SETTORE	WBS		DISCIPLINA	TIPO DOC.	N° PROGRESS.	
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1. INTRODUZIONE

La presente relazione è redatta nell'ambito della redazione del Progetto Definitivo dell'asse viario Marche – Umbria e quadrilatero di penetrazione interna, sublotto 2.2: Intervalliva Macerata – allaccio funzionale della SS77 alla città di Macerata alle località "La Pieve" e "Mattei".

In questa relazione si riportano i calcoli relativi al dimensionamento ed alle verifiche di una paratia di pali per la viabilità secondaria, in seguito denominata paratia alla rotatoria Mattei.

L'opera di sostegno è realizzata mediante pali trivellati in c.a. aventi diametro $D=1000\text{mm}$ ed interasse $i=1200\text{mm}$ e presenta più livelli di ancoraggio con tiranti in trefoli di acciaio armonico e travi di ripartizione in acciaio (n.2 UPN 260 accoppiati).

Si riporta di seguito una tabella contenente le caratteristiche progettuali dei tiranti:

TABELLA TIRANTI							
Tipo	n° trefoli	L_L	L_A	L	N_0	β	$\varnothing_p$
		[m]	[m]	[m]	[kN]	[°]	[mm]
T1	4	14.0	7.0	21.0	400	15	200
T2	4	12.0	7.0	19.0	400	15	200
T3	4	8.0	7.0	15.0	400	15	200

L = Lunghezza totale
 L_L = Lunghezza libera
 L_A = Lunghezza bulbo di ancoraggio
 N_0 = Pretensione iniziale
 β = Inclinazione rispetto al piano orizzontale
 $\varnothing_p$ = Diametro perforazione tiranti

Figura 1: Tabella con caratteristiche dei tiranti

Le verifiche e i dimensionamenti sono stati condotti con riferimento al D.M. 17/01/2018 Aggiornamento delle Norme Tecniche delle Costruzioni, considerando per le opere una vita nominale di 50 anni e una classe d'uso IV.

Si riporta la sviluppata dell'opera:

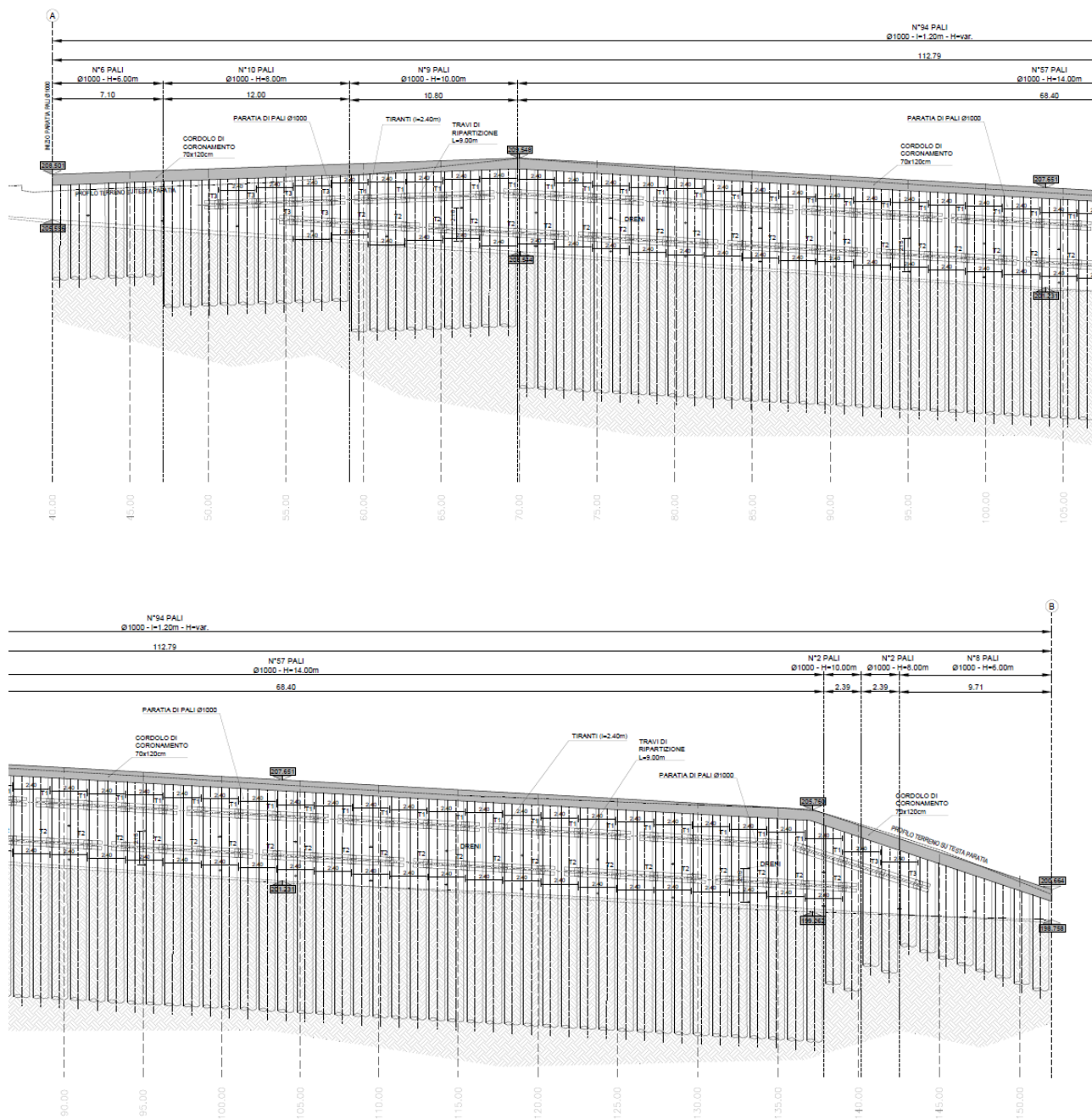


Figura 2: sviluppata della paratia di pali in rotatoria Mattei

2. NORMATIVA DI RIFERIMENTO

Le analisi strutturali e le verifiche di sicurezza sono state effettuate in accordo con le norme e circolari seguenti:

- D.M. Infrastrutture del 17.01.2018 – Aggiornamento delle Norme tecniche per le costruzioni;
- Circolare 21 gennaio 2019 n.7 "Istruzioni per l'applicazione dell'«Aggiornamento delle "Norme tecniche per le costruzioni"» di cui al decreto ministeriale 17 gennaio 2018";
- UNI EN 1537:2002 – Esecuzione di lavori geotecnici speciali - Tiranti di ancoraggio.
- UNI EN 206:2016 – "Calcestruzzo: specificazione, prestazione, produzione e conformità", Istruzioni complementari per l'applicazione delle EN 206-1

PROGETTAZIONE ATI:

3. CARATTERISTICHE DEI MATERIALI

3.1. CALCESTRUZZO

CALCESTRUZZO PER MAGRONE:

CALCESTRUZZO UNI EN 206 – 1

- Classe di resistenza: C12/15
- Classe di esposizione X0 (I)

CALCESTRUZZO PER PALI E TRAVI:

CALCESTRUZZO UNI EN 206 – 1

- Classe di resistenza: C28/35
- Classe di consistenza: S5 (per i pali)
S3 (per le travi)
- Classe di esposizione: XC2 (I), XA1 (I)
- Rapporto max a/c: 0.55
- Diametro max inerti: 32 mm
- Copriferro minimo: 50 mm
- Classe di contenuto di cloruri conforme a UNI EN 206 – 1

CALCESTRUZZO PROIETTATO

CALCESTRUZZO UNI 10834

- Classe di resistenza: CP20
- Classe di consistenza: S4/S5
- Classe di esposizione: XC2
- Diametro max inerti: 12 mm

3.2. ACCIAIO PER CEMENTO ARMATO

Si impiegano barre in acciaio B450C controllato in stabilimento, caratterizzato dalle seguenti proprietà fondamentali:

$$f_{yk} = 450 \text{ MPa}$$

$$f_{tk} = 540 \text{ MPa}$$

La resistenza di calcolo dell'acciaio f_{yd} è:

$$f_{yd} = f_{yk}/\gamma_s = 450/1.15 = 391.3 \text{ MPa}$$

Il legame costitutivo adottato è quello di cui al § 4.1.2.1.2.2 – NTC 2018, curva b. Si assume $E_s = 200000 \text{ MPa}$.

3.3. ACCIAIO ARMONICO PER TREFOLI

Si impiegano trefoli di acciaio armonico con diametro da Ø0.6" e con le seguenti proprietà fondamentali:

- Tensione caratteristica di rottura, $f_{ptk}=1860 \text{ MPa}$
- Tensione caratteristica corrisp. ad una deformazione dell'1% sotto carico, $f_{p(1)k}= 1670 \text{ MPa}$

3.4. ACCIAIO PER TRAVI DI RIPARTIZIONE

Per le travi di ripartizione si utilizzano due profili UPN260 accoppiati di acciaio S355, con spessore minore di 40 mm e caratterizzato dalle seguenti proprietà fondamentali:

- Resistenza caratteristica allo snervamento $f_{yk}=355 \text{ MPa}$;
- Resistenza caratteristica ultima $f_{uk}=510 \text{ MPa}$;

PROGETTAZIONE ATI:

- Modulo elastico $E=210000$ MPa;
- Coefficiente di Poisson $\nu=0.3$;
- Coefficiente di espansione termica lineare $\alpha=12 \times 10^{-6}$ per $^{\circ}\text{C}^{-1}$;
- Densità $\rho=7850$ kg/cm³.

3.5. MISCELE DI INIEZIONE

Si utilizzano miscele cementizie per le iniezioni dei tiranti, con le seguenti caratteristiche:

- Cemento tipo II A-L 42,5R con filler
- Rapporto $a/c \leq 0.5$
- Classe C20/25
- Additivo antiritiro

3.6. DRENAGGI

Si utilizzano tubi in PVC, rivestiti con tessuto – non – tessuto 500 gr/mq.

4. CRITERI DI VALUTAZIONE DELLE CONDIZIONI DI SICUREZZA (SLU)

4.1. INTRODUZIONE

Per ogni stato limite ultimo che preveda il raggiungimento della resistenza di un elemento strutturale (STR) o del terreno (GEO), deve essere rispettata la condizione:

$$E_d \leq R_d$$

essendo E_d il valore di progetto dell'azione o dell'effetto dell'azione, definito da una delle seguenti espressioni:

$$E_d = E \left[\gamma_F F_k; \frac{X_k}{\gamma_M}; a_d \right]$$

$$E_d = \gamma_E \cdot E \left[F_k; \frac{X_k}{\gamma_M}; a_d \right]$$

R_d è il valore di progetto della resistenza del sistema geotecnico, definito come:

$$R_d = \frac{1}{\gamma_R} R \left[\gamma_F F_k; \frac{X_k}{\gamma_M}; a_d \right]$$

Dove $\gamma_F F_k$, X_k/γ_M e a_d rappresentano rispettivamente le azioni di progetto, i parametri geotecnici di progetto e i parametri geometrici di progetto.

La verifica della suddetta condizione deve essere effettuata impiegando diverse combinazioni di gruppi di coefficienti parziali, rispettivamente definiti per le azioni (A1 e A2), per i parametri geotecnici (M1 e M2) e per le resistenze (R1, R2 e R3).

I diversi gruppi di coefficienti di sicurezza parziali sono scelti nell'ambito di due approcci progettuali distinti e alternativi.

Nel primo approccio progettuale (Approccio 1) sono previste due diverse combinazioni di gruppi di coefficienti: la prima combinazione è generalmente più severa nei confronti del dimensionamento strutturale delle opere a contatto con il terreno, mentre la seconda combinazione è generalmente più severa nei riguardi del dimensionamento geotecnico.

Nel secondo approccio progettuale (Approccio 2) è prevista un'unica combinazione di gruppi di coefficienti, da adottare sia nelle verifiche strutturali sia nelle verifiche geotecniche.

Azioni

I coefficienti parziali γ_F relativi alle azioni sono indicati nella Tab. 6.2.I delle NTC-2018. Ad essi deve essere fatto riferimento con le precisazioni riportate nel § 2.6.1 delle NTC-2018. Si deve comunque intendere che il terreno e l'acqua costituiscono carichi permanenti (strutturali) quando, nella modellazione utilizzata, contribuiscono al comportamento dell'opera con le loro caratteristiche di peso, resistenza e rigidità.

Nella valutazione della combinazione delle azioni i coefficienti di combinazione ψ_{ij} devono essere assunti come specificato nel Cap. 2 delle NTC-2018.

Tab. 6.2.I – Coefficienti parziali per le azioni o per l'effetto delle azioni

	Effetto	Coefficiente Parziale γ_F (o γ_E)	EQU	(A1)	(A2)
Carichi permanenti G_1	Favorevole	γ_{G1}	0,9	1,0	1,0
	Sfavorevole		1,1	1,3	1,0
Carichi permanenti $G_2^{(1)}$	Favorevole	γ_{G2}	0,8	0,8	0,8
	Sfavorevole		1,5	1,5	1,3
Azioni variabili Q	Favorevole	γ_Q	0,0	0,0	0,0
	Sfavorevole		1,5	1,5	1,3

⁽¹⁾ Per i carichi permanenti G_2 si applica quanto indicato alla Tabella 2.6.I. Per la spinta delle terre si fa riferimento ai coefficienti γ_{G3}

Figura 3: tabella contenete i coefficienti parziali per le azioni o per l'effetto delle azioni

PROGETTAZIONE ATI:

In caso di analisi in condizione sismica, si adottano i seguenti coefficienti parziali

Coefficienti parziali per le azioni o per l'effetto delle azioni:

Carichi	Effetto		A1	A2
Permanenti	Favorevole	γ_{Gfav}	1.00	1.00
Permanenti	Sfavorevole	γ_{Gsfav}	1.00	1.00
Variabili	Favorevole	γ_{Qfav}	0.00	0.00
Variabili	Sfavorevole	γ_{Qsfav}	1.00	1.00

Resistenze

Il valore di progetto della resistenza R_d può essere determinato:

- in modo analitico, con riferimento al valore caratteristico dei parametri geotecnici del terreno, diviso per il valore del coefficiente parziale γ_M specificato nella successiva Tab. 6.2.II delle NTC-2018 e tenendo conto, ove necessario, dei coefficienti parziali γ_R specificati nei paragrafi relativi a ciascun tipo di opera;
- in modo analitico, con riferimento a correlazioni con i risultati di prove in sito, tenendo conto dei coefficienti parziali γ_R riportati nelle tabelle contenute nei paragrafi relativi a ciascun tipo di opera;
- sulla base di misure dirette su prototipi, tenendo conto dei coefficienti parziali γ_R riportati nelle tabelle contenute nei paragrafi relativi a ciascun tipo di opera.

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

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

Figura 4: tabella contenete i coefficienti parziali per i parametri geotecnici del terreno

Per le rocce, al valore caratteristico della resistenza a compressione uniassiale q_u deve essere applicato un coefficiente parziale $\gamma_{qu}=1,6$.

Per gli ammassi rocciosi e per i terreni a struttura complessa, nella valutazione della resistenza caratteristica occorre tener conto della natura e delle caratteristiche geometriche e di resistenza delle discontinuità strutturali.

In caso di analisi in condizione sismica, si adottano i seguenti coefficienti parziali

Coefficienti parziali per i parametri geotecnici del terreno:

Parametri		M1	M2
Tangente dell'angolo di attrito	$\gamma_{\tan\phi'}$	1.00	1.25
Coesione efficace	$\gamma_{c'}$	1.00	1.25
Resistenza non drenata	γ_{cu}	1.00	1.40
Resistenza a compressione uniassiale	γ_{qu}	1.00	1.60
Peso dell'unità di volume	γ_γ	1.00	1.00

Nelle sezioni che seguono saranno descritte in maggiore dettaglio le metodologie applicate ai casi esaminati: stabilità globale dell'insieme terreno - opera e opere di sostegno.

4.2. OPERE DI SOSTEGNO – PARATIE

4.2.1. CRITERI DI ANALISI

Le analisi sono condotte con riferimento alle Norme Tecniche 2018.

La verifica di stabilità globale dell'insieme terreno-opera è effettuata secondo l'Approccio 1:

- Combinazione 2: (A2+M2+R2)

tenendo conto dei coefficienti parziali riportati nelle Tabelle 6.2.I e 6.2.II e 6.8.I.

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 6.2.I, 6.2.II e adottando valori unitari per i coefficienti γ_R del gruppo R1.

Per le paratie, i calcoli di progetto devono comprendere la verifica degli ancoraggi.

Per il dimensionamento geotecnico, deve risultare rispettata la condizione con specifico riferimento ad uno stato limite di sfilamento della fondazione dell'ancoraggio. La verifica di tale condizione può essere effettuata con riferimento alla combinazione A1+M1+R3 tenendo conto dei coefficienti parziali riportati nelle Tab. 6.2.I, 6.2.II e 6.6.I.

Tab. 6.6.I - Coefficienti parziali per la resistenza degli ancoraggi

	Simbolo	Coefficiente parziale
Temporanei	γ_R	1,1
Permanenti	γ_R	1,2

Figura 5: tabella contenete i coefficienti parziali per la resistenza degli ancoraggi

La resistenza caratteristica allo sfilamento R_{ak} dell'ancoraggio può essere dedotta da:

- risultati di prove di progetto su ancoraggi di prova;
- metodi di calcolo analitici, dove R_{ak} è calcolata a partire dai valori caratteristici dei parametri geotecnici.

Nel caso in esame si è utilizzato l'approccio b), in cui il valore della resistenza caratteristica R_{ak} è il minore dei valori derivanti dall'applicazione dei fattori di correlazione ξ_{a3} e ξ_{a4} rispettivamente al valor medio e al valor minimo delle resistenze $R_{a,c}$ ottenute dal calcolo.

Per la valutazione dei fattori ξ_{a3} e ξ_{a4} , si deve tenere conto che i profili di indagine sono solo quelli che consentono la completa identificazione del modello geotecnico di sottosuolo per il terreno di fondazione dell'ancoraggio.

$$R_{ak} = \min \left\{ \frac{(R_{a,c})_{medio}}{\xi_{a3}}; \frac{(R_{a,c})_{min}}{\xi_{a4}} \right\}$$

Tab. 6.6.II

Numero degli ancoraggi di prova	1	2	> 2
ξ_{a1}	1,5	1,4	1,3
ξ_{a2}	1,5	1,3	1,2

Figura 6: tabella contenete i fattori di correlazione da applicare al valor medio e al valor minimo delle resistenze di calcolo

PROGETTAZIONE ATI:

Nel caso in esame è stato considerato 1 profilo di indagine ed è stato assunto $\xi_{a3} = 1.80$ e $\xi_{a4} = 1.80$. Per la valutazione della resistenza caratteristica allo sfilamento, si è fatto ricorso al metodo di Bustamante e Doix.

La resistenza laterale R_k è così determinata:

$$R_k = \tau_{lim} \cdot \pi \cdot D_e \cdot L$$

in cui:

- τ_{lim} = resistenza caratteristica lungo la superficie laterale del bulbo;
- $D_e = \alpha D$
- D = diametro di perforazione
- α = coefficiente che tiene conto dell'amplificazione del bulbo per effetto dell'iniezione
- L = lunghezza del bulbo

Per i terreni in cui ricade l'opera in oggetto si adottano i seguenti parametri, validi per iniezione ripetuta e selettiva (IRS):

- $\tau_{lim} = 250$ kPa
- $D_e = \alpha D = 0.28$ m
- $D = 0.2$ m
- $\alpha = 1.4$;
- $L = 7$ m

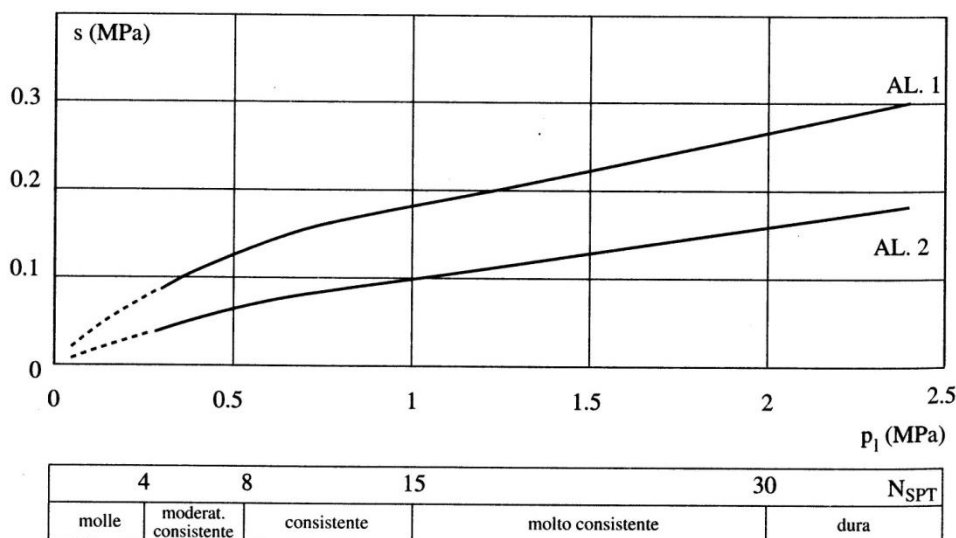


Figura 7: abaco di Bustamante & Doix (1985) per limi ed argille per il calcolo della resistenza caratteristica lungo la superficie laterale del bulbo

5. AZIONE SISMICA

La pericolosità sismica è definita in termini di accelerazione orizzontale massima attesa a_g in condizioni di campo libero su sito di riferimento rigido con superficie topografica orizzontale, nonché di ordinate dello spettro di risposta elastico in accelerazione ad essa corrispondente $S_e(T)$, con riferimento a prefissate probabilità di eccedenza P_{VR} , nel periodo di riferimento V_R .

Il periodo di riferimento V_R è dato per ciascun tipo di costruzione dalla seguente relazione:

$$V_R = V_N \cdot C_U$$

dove:

V_N vita nominale della costruzione (vedi tab. 2.4.I del DM 14/01/2008);

C_U coefficiente d'uso, definito al variare della classe d'uso.

TIPI DI COSTRUZIONE		Vita Nominale V_N (in anni)
1	Opere provvisorie – Opere provvisionali – Strutture in fase costruttiva	≤ 10
2	Opere ordinarie, ponti, opere infrastrutturali e dighe di dimensioni contenute o di importanza normale	≥ 50
3	Grandi opere, ponti, opere infrastrutturali e dighe di grandi dimensioni o di importanza strategica	≥ 100

Figura 8: tabella vita nominale della costruzione

CLASSE D'USO	I	II	III	IV
COEFFICIENTE C_U	0,7	1,0	1,5	2,0

Figura 9: per il coefficiente definito dalla classe d'uso della costruzione

L'accelerazione di picco a_{max} , è espressa dalla relazione:

$$a_{max} = S_S \cdot S_T \cdot a_g$$

con

S_S coefficiente che tiene conto dell'amplificazione stratigrafica;

S_T coefficiente di amplificazione topografica;

a_g accelerazione orizzontale massima attesa su sito di riferimento.

Il valore dell'accelerazione orizzontale massima è valutato in funzione della ubicazione geografica del sito (comune di appartenenza) e in funzione del periodo di riferimento V_R (pari al prodotto della vita nominale V_N per il coefficiente di utilizzo C_U).

Nel caso in esame si ha:

Vita nominale	50
Classe d'uso	IV
Categoria di sottosuolo	C
Categoria topografica	T2

Le verifiche dell'opera sono state svolte nei confronti dello Stato Limite di Salvaguardia della Vita (SLV) caratterizzato da tempo di ritorno $T_R = 949$ anni.

Si ha quindi:

$$a_g = 0.23g$$

PROGETTAZIONE ATI:

S_s 1.36

S_T 1.2

La componente orizzontale a_h dell'accelerazione equivalente può essere legata all'accelerazione di picco a_{max} attesa nel volume di terreno significativo per l'opera mediante la relazione:

$$a_h = k_h \cdot g \cdot \alpha \cdot \beta \cdot a_{max}$$

dove g è l'accelerazione di gravità, k_h è il coefficiente sismico in direzione orizzontale, a $\alpha \leq 1$ è un coefficiente che tiene conto della deformabilità dei terreni interagenti con l'opera e $\beta \leq 1$ è un coefficiente funzione della capacità dell'opera di subire spostamenti senza cadute di resistenza.

Per le paratie si può porre $a_v = 0$.

Il valore del coefficiente α può essere ricavato a partire dall'altezza complessiva H della paratia e dalla categoria di sottosuolo mediante il diagramma di Figura 7.11.2. delle NTC 2018

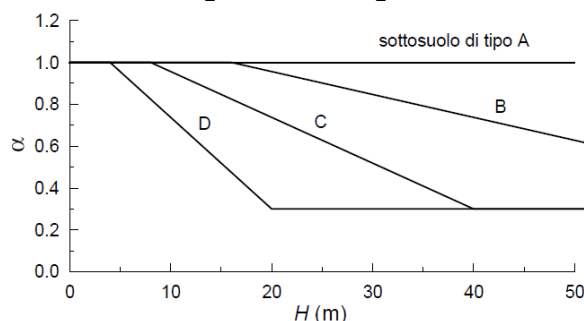


Figura 10: grafico per ricavare il coefficiente α

Il valore del coefficiente β può essere ricavato dal diagramma di Figura 7.11.3 delle NTC 2018, in funzione del massimo spostamento u_s che l'opera può tollerare senza riduzioni di resistenza.

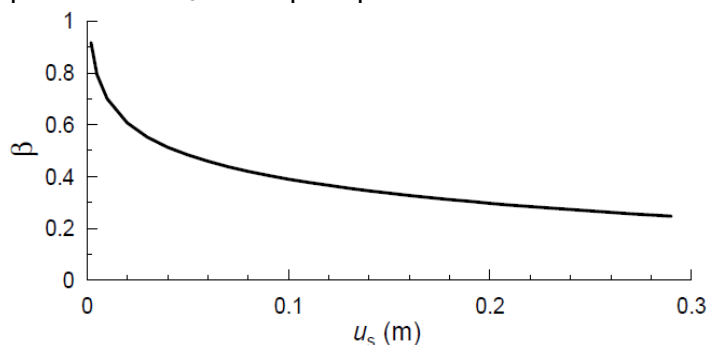


Figura 11: grafico per ricavare il coefficiente β

Si assume come spostamento massimo che l'opera può tollerare senza riduzioni di resistenza $u_s = 4\text{cm}$.

6. INQUADRAMENTO GEOLOGICO – GEOTECNICO

Ai fini dei calcoli progettuali delle opere in esame è stata utilizzata la seguente caratterizzazione geotecnica delle unità geotecniche interessate dalle opere.

Parametri geotecnici caratteristici	LS4	AMA
Peso di volume γ [kN/m ³]	19.0	20.0
Angolo di resistenza a taglio ϕ [°]	22.0	25.0
Coesione efficace c [kPa]	15.0	25.0
Modulo di Young E [MPa]	10.0	25.0

Figura 12: tabella riassuntiva caratteristiche meccaniche terreni in sito

La stratigrafia di calcolo, a partire dal piano campagna, è costituita da:

- Unità LS4, con spessore pari a circa 22 m;
- Unità AMA

In asse della paratia, la falda si trova ad una profondità di circa 8 m dalla testa dell'opera.

7. RISULTATI DELLE ANALISI – PARATIA ROTATORIA MATTEI

La paratia è costituita da pali Ø1000, con interasse di 1.2 m, armati in direzione longitudinale con 16Ø16 (acciaio B450C) e trasversalmente con staffe Ø12 con passo di 20 cm. Per il dimensionamento della paratia è stata considerata una sezione di calcolo, con altezza di scavo pari a 6.6 m (comprensivo di ulteriori 0.50 metri di scavo per posa della struttura stradale) e lunghezza massima dei pali pari a 14 m, contrastata da due ordini di tiranti e connessi alla palificata mediante travi di collegamento in acciaio (S355).

Si analizza la sola sezione con massima altezza di scavo, pari a 6.6 m, con lunghezza dei pali 14.0 m e due livelli di tiranti.

Nel seguito si riportano le verifiche strutturali e geotecniche eseguite per l'opera; la verifica di stabilità globale dell'insieme terreno-opera è riportata nella relazione geotecnica generale allegata al presente progetto.

Nel calcolo sono state considerate le seguenti fasi:

1. Inizializzazione del modello con fase geostatica e realizzazione dei pali;
2. Scavo per la realizzazione del primo ordine di tiranti;
3. Inserimento del primo ordine di tiranti;
4. Scavo per la realizzazione del secondo ordine di tiranti;
5. Inserimento del secondo ordine di tiranti;
6. Scavo finale di 6.6 metri;
7. Aggiunta della pavimentazione stradale di 0.50 metri;
8. Inserimento sisma.

Le fasi sopra riportate, nel calcolo sono ripetute per le diverse combinazioni:

SLE

SLU: A1 + M1 + R1 (R3 per tiranti)

SLU: A2 + M2 + R2

SLD

SLV

Si riportano, di seguito, i risultati delle analisi numeriche condotte sulla paratia. I calcoli sono stati effettuati con l'ausilio del programma Paratie Plus di Ce.A.S s.r.l..

7.1. VERIFICHE STRUTTURALI PALI

Si riportano i grafici delle varie sollecitazioni ottenuti dal programma di calcolo per le combinazioni strutturali in condizioni statiche e sismiche.

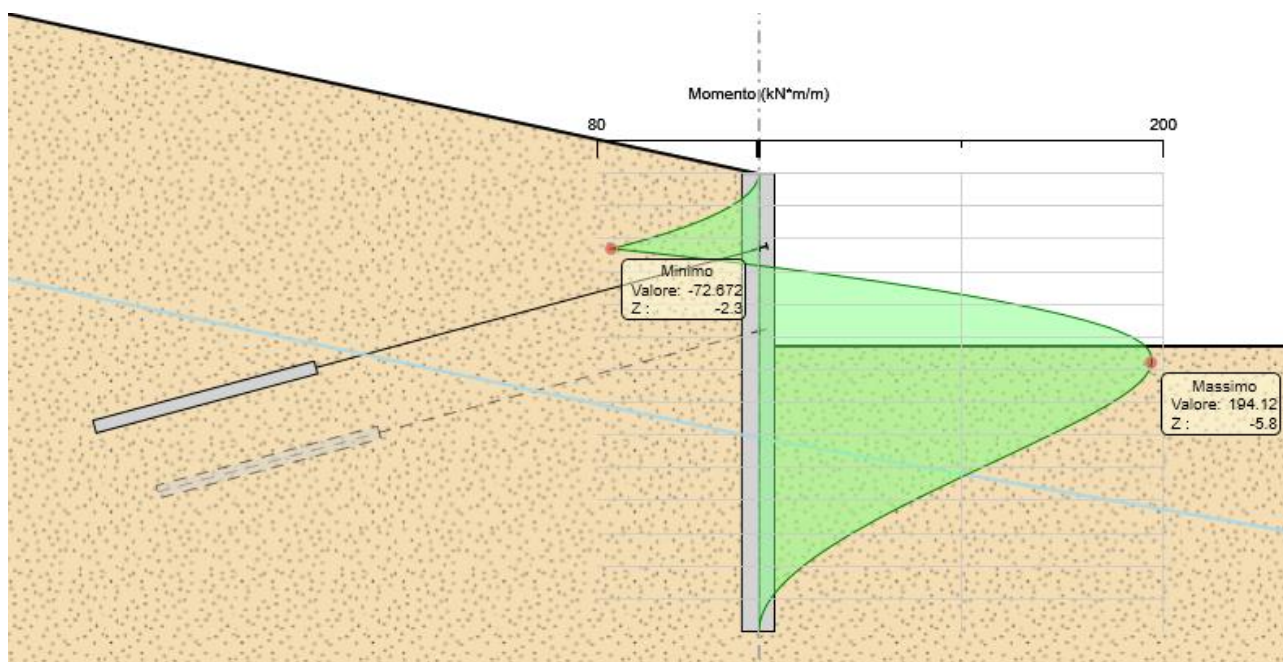


Figura 13: momento flettente per la combinazione A1+M1+R1 allo step 4 (Scavo per la realizzazione del secondo ordine di tiranti)

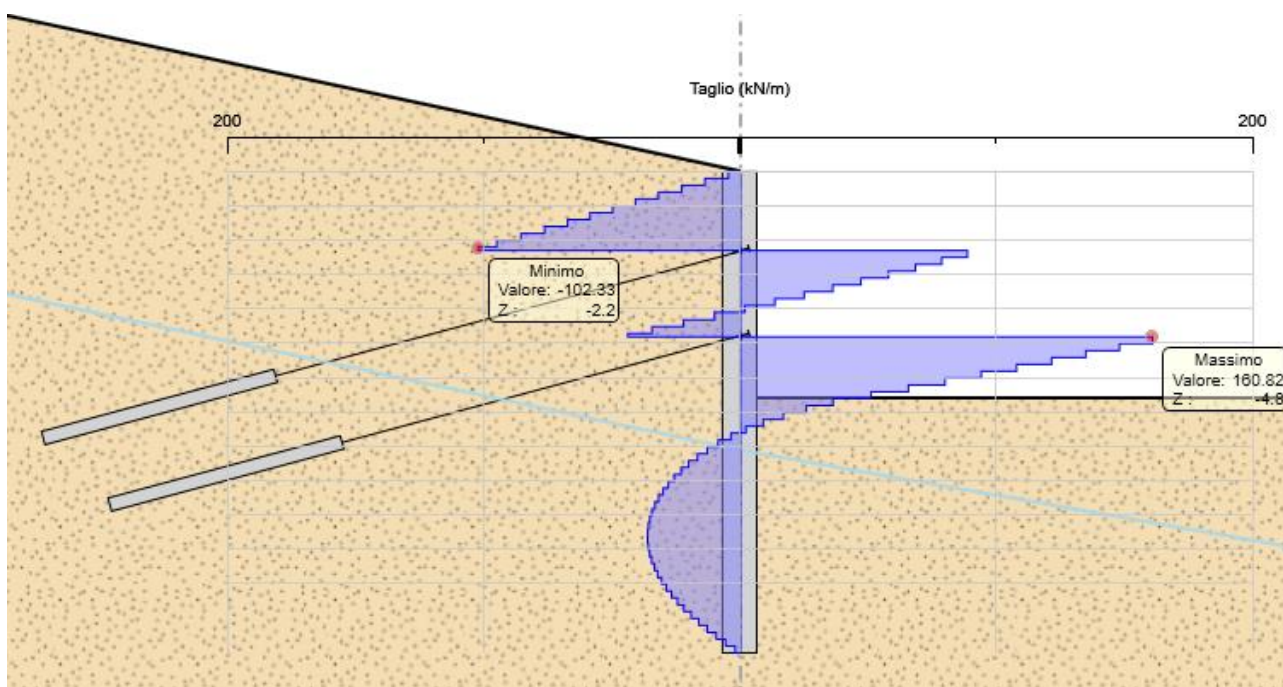


Figura 14: taglio per la combinazione A1+M1+R1 allo step 6 (Scavo finale in assenza di pavimentazione stradale)

PROGETTAZIONE ATI:

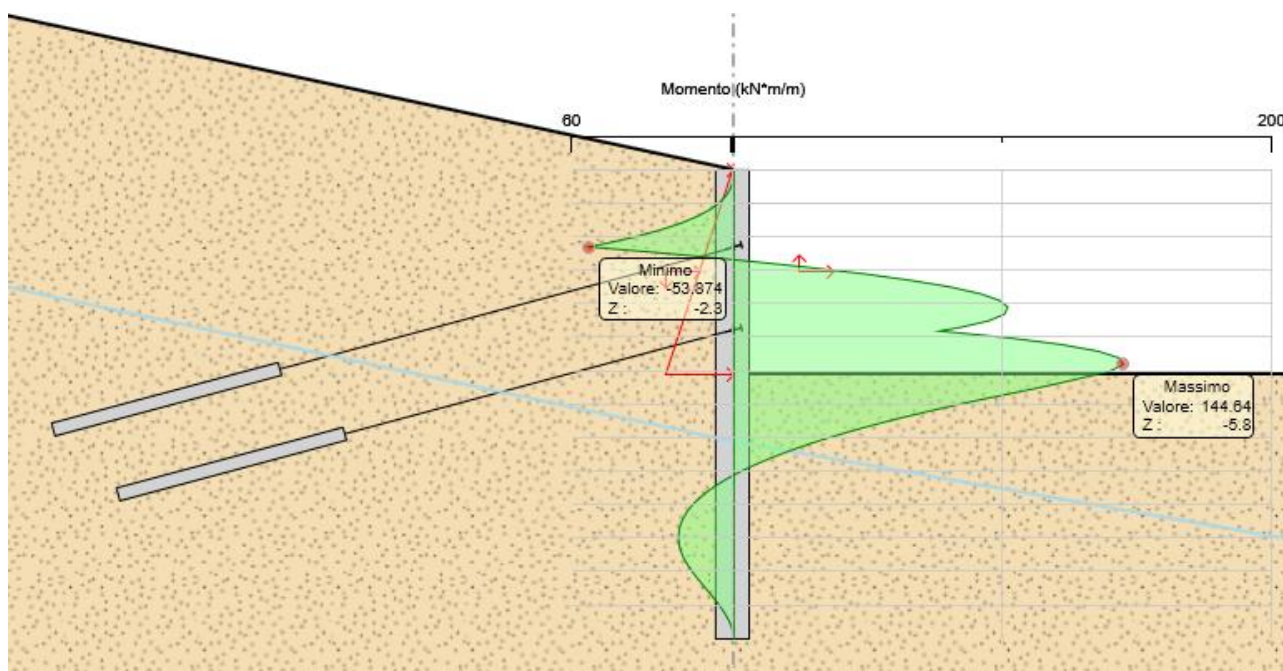


Figura 15: momento flettente per lo SLV allo step 8 (inserimento sisma)

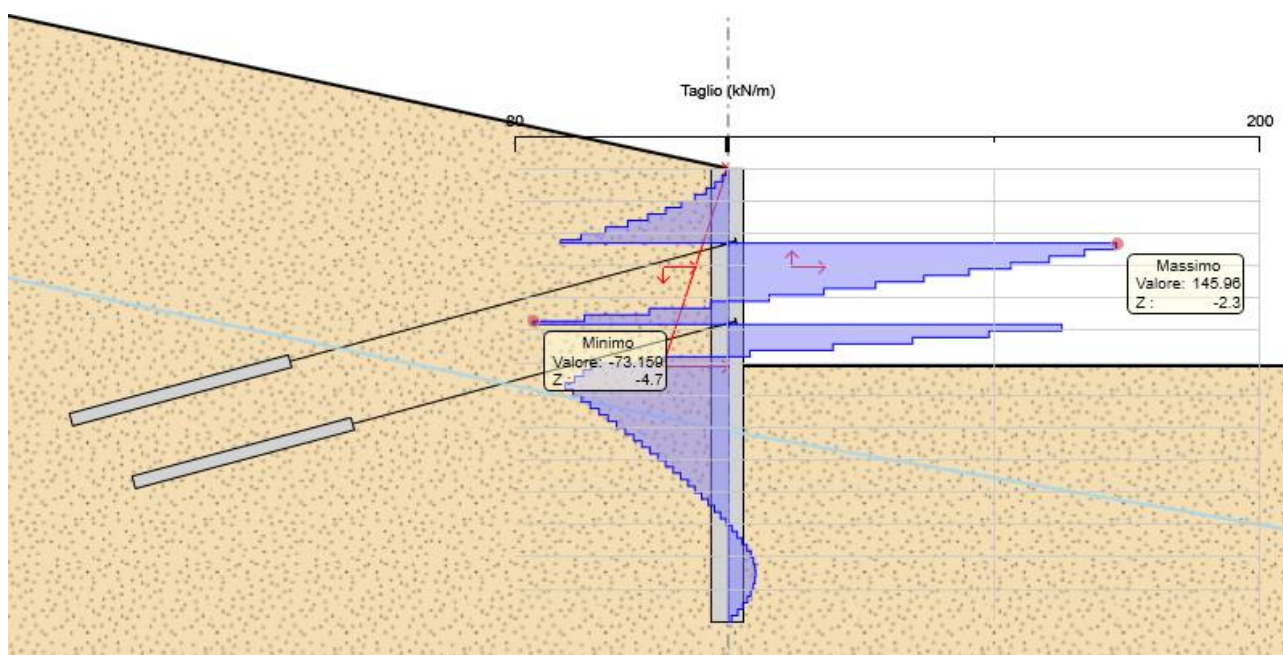


Figura 16: taglio per lo SLV allo step 8 (inserimento sisma)

A metro lineare, le massime sollecitazioni di calcolo sono pari a:

$$M_d = 194.12 \text{ kNm/m (A1+M1+R1 – step 4)}$$

$$V_d = 160.8 \text{ kN/m (A1+M1+R1 – step 6)}$$

Sul singolo palo (interasse 1.2 m):

$$M_d = 232.94 \text{ kNm}$$

$$V_d = 193 \text{ kN}$$

PROGETTAZIONE ATI:

7.1.1. VERIFICA A PRESSOFLESSIONE

I pali Ø1000 verranno realizzati con calcestruzzo C28/35 e armato in direzione longitudinale con 16Ø16 (acciaio B450C).

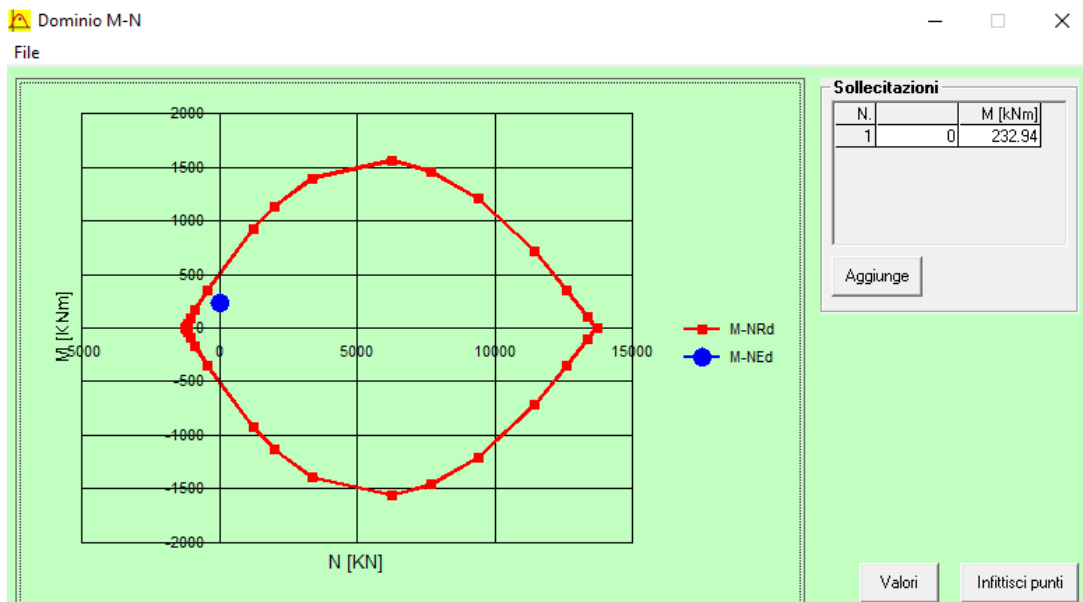


Figura 17: dominio M-N con momento flettente massimo agente sul singolo palo

La verifica è soddisfatta.

7.1.2. VERIFICA A TAGLIO

Si considera la sezione quadrata inscritta nel palo, armata con staffe Ø12 e passo 20 cm (acciaio B450C).

Taglio resistente nelle sezioni con armatura trasversale a taglio					PALO C.A.
Taglio agente	$V_{Ed} = 193 \text{ kN}$				
Altezza della sezione	$h =$	700	mm		
Copriferro della sezione	$\delta =$	50	mm		
Altezza utile della sezione	$d =$	650	mm		
Diametro delle staffe	$d_w =$	12	mm		
Numero di braccia	$n_w =$	2			
Area totale staffe	$A_{sw} =$	226.08	mm ²		
Passo delle staffe	$s =$	200	mm		
Inclinazione delle staffe	$\alpha =$	90	deg		
Inclinazione delle bielle compresse	$\theta =$	45	deg	$\cot(\theta) = 1.00$	
Larghezza minima della sezione	$b_w =$	700	mm		
Coeff. maggiorativo per sezioni compresse	$\alpha_c =$	1			
Resistenza di calcolo a "taglio-trazione"	$V_{Rsd} =$	258.8	kN	$V_{Rsd} = 0,9 \cdot d \cdot \frac{A_{sw}}{s} \cdot f_{yd} \cdot (\cot \alpha + \cot \theta) \cdot \sin \alpha$	
Resistenza di calcolo a "taglio-comprensione"	$V_{Rcd} =$	1685.3	kN	$V_{Rcd} = 0,9 \cdot d \cdot b_w \cdot \alpha_c \cdot f'_{cd} \cdot (\cot \alpha + \cot \theta) / (1 + \cot^2 \theta)$	
Resistenza a taglio della sezione	$V_{Rd} =$	258.8	kN	$V_{Rd} = \min (V_{Rsd}, V_{Rcd})$	
Esito della verifica	soddisfatta				

Figura 18: verifica a taglio

La verifica è soddisfatta.

7.2. VERIFICHE TIRANTI

Si riporta un prospetto riassuntivo dei tiranti

ordine	Distanza dalla testa del palo [m]	i [m]	n trefoli	α [°]	N_0 [kN]	N_{ml} [kN/m]	N_{max} [kN]	L_L [m]	L_A [m]	L_{tot} [m]	ϕ_p (mm)
T1	2.3	2.4	4	15	400	224.5	538.9	14	7	21	200
T2	4.8	2.4	4	15	400	226.1	542.6	12	7	19	200

Figura 19: tabella riassuntiva caratteristiche dei tiranti e sollecitazioni agenti

dove:

i = interasse della fila di tiranti;

α = angolo di inclinazione rispetto al piano orizzontale;

N_0 = pretensione iniziale;

N_{ml} = massima sollecitazione nel tirante a metro lineare;

N_{max} = massima sollecitazione nel tirante;

L_L = lunghezza libera;

L_A = lunghezza del bulbo di ancoraggio

ϕ_p = diametro di perforazione.

La lunghezza libera di ancoraggio in condizioni sismiche deve risultare almeno pari a:

$$L_L = L_s \left(1 + 1.5 \frac{a_{max}}{g} \right)$$

Con

- L_s lunghezza di ancoraggio calcolata per le condizioni statiche, pari a 9.02 m per il tiro T1 e 7.55 m per T2;
- $a_{max}/g = 0.37$.

Si ottiene quindi una lunghezza minima, L_L pari a 14.0 m per i tiranti del livello T1 e 11.7 m per quelli del livello T2.

La massima sollecitazione di tiro si ha nello step 8, in combinazione SLV:

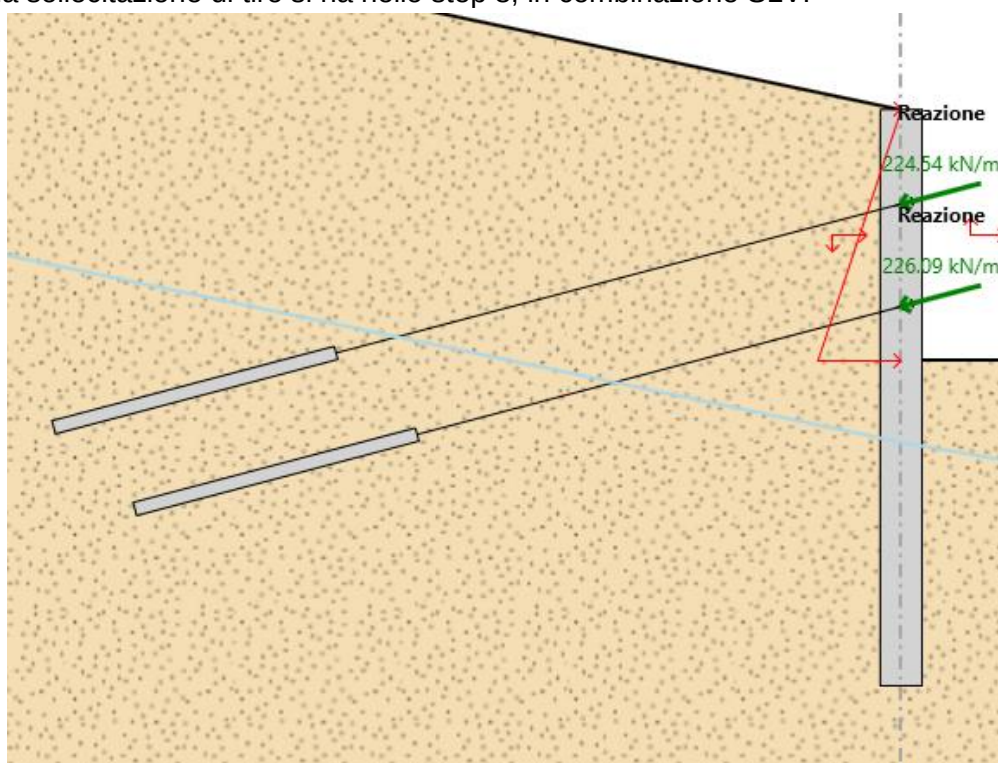


Figura 20: massimi tiri agenti nei due ordini di tiranti, per lo SLV nello step 8 (inserimento sisma)

7.2.1. VERIFICHE GEOTECNICHE

Si riportano di seguito le verifiche geotecniche dei tiranti, secondo la combinazione A1 + M1 + R3, considerando i seguenti coefficienti:

$$\xi = 1.8$$

$$\gamma_R = 1.2 \text{ (tiranti permanenti)}$$

Nei due ancoraggi, la resistenza allo sfilamento dal terreno del bulbo è pari a:

$$L_A \cdot \pi \cdot D_s \cdot s_d = 708 \text{ kN}$$

PROGETTAZIONE ATI:

Maggiore della massima sollecitazione agente con:

- D_s diametro di calcolo, pari:
 $\alpha \phi_p = 0.28 \text{ m}$, con α coefficiente moltiplicativo pari a 1.4
- s_d tensione unitaria di progetto aderenza malta – terreno, pari a:
 $s/\xi \gamma_R = 0.115 \text{ MPa}$, con $s = 0.250 \text{ MPa}$.

7.2.2. VERIFICHE STRUTTURALI

Si riportano di seguito le verifiche strutturali dei tiranti.

$$N_{es} \leq 0.65 \cdot f_{ptk} \cdot n \cdot A_t = 672.2 \text{ kN} \quad (\text{UNI EN 1537})$$

Con

- $A_t = 139 \text{ mm}^2$, area del singolo trefolo
- n numero di trefoli utilizzati, pari a 4
- $f_{ptk} = 1860 \text{ MPa}$ tensione caratteristica a rottura dei trefoli

La verifica è soddisfatta.

7.3. TRAVI DI RIPARTIZIONE IN ACCIAIO

I cordoli in acciaio (S355) per la ripartizione dell'azione dei tiranti maggiormente sollecitati sono costituiti da n. 2 UPN260 accoppiati.

La massima sollecitazione di calcolo è pari a:

$$p_d = 226.1 \text{ kN/m}$$

Considerando uno schema statico di trave su tre appoggi, con luce pari a 2.4 m, si ricavano le azioni massime pari a:

$$M_{Ed} = q l^2 / 8 = 162.79 \text{ kNm}$$

$$V_{Ed} = 5 q l / 8 = 339.15 \text{ kN}$$

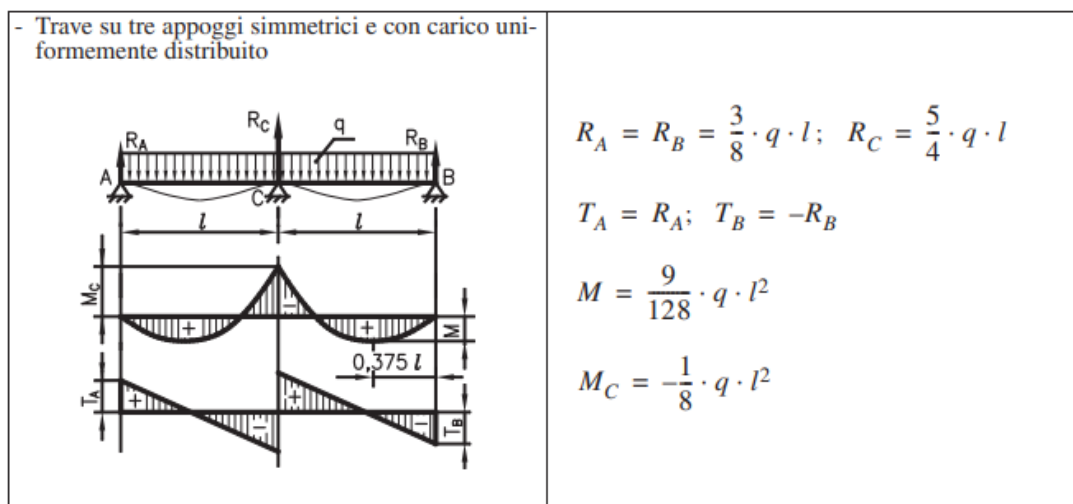


Figura 21: schema statico considerato per lo studio delle travi di ripartizione

Verifica a flessione

$$M_{pl,Rd} = 2 \times W_{pl} f_{yk} / \gamma_{M0} = 298.9 \text{ kNm}$$

in cui

$$W_{pl} = 442 \text{ cm}^3$$

$$f_{yk} = 355 \text{ MPa}$$

$$\gamma_{M0} = 1.05$$

Risulta: $M_{Ed} / M_{pl,Rd} = 0.54 < 1.00 \rightarrow$ Verifica soddisfatta.

Verifica a taglio

$$V_{c,Rd} = 2 \times A_v f_{yk} / (\gamma_{M0} \sqrt{3}) = 1109 \text{ kN}$$

in cui

$$A_v = 28.42 \text{ cm}^2$$

$$f_{yk} = 355 \text{ MPa}$$

$$\gamma_{M0} = 1.05$$

Risulta: $V_{Ed} / V_{c,Rd} = 0.31 < 1.00 \rightarrow$ Verifica soddisfatta.

7.4. CONDIZIONI DI ESERCIZIO (SLE)

Si ha un massimo spostamento di circa 12mm al piede dell'opera.

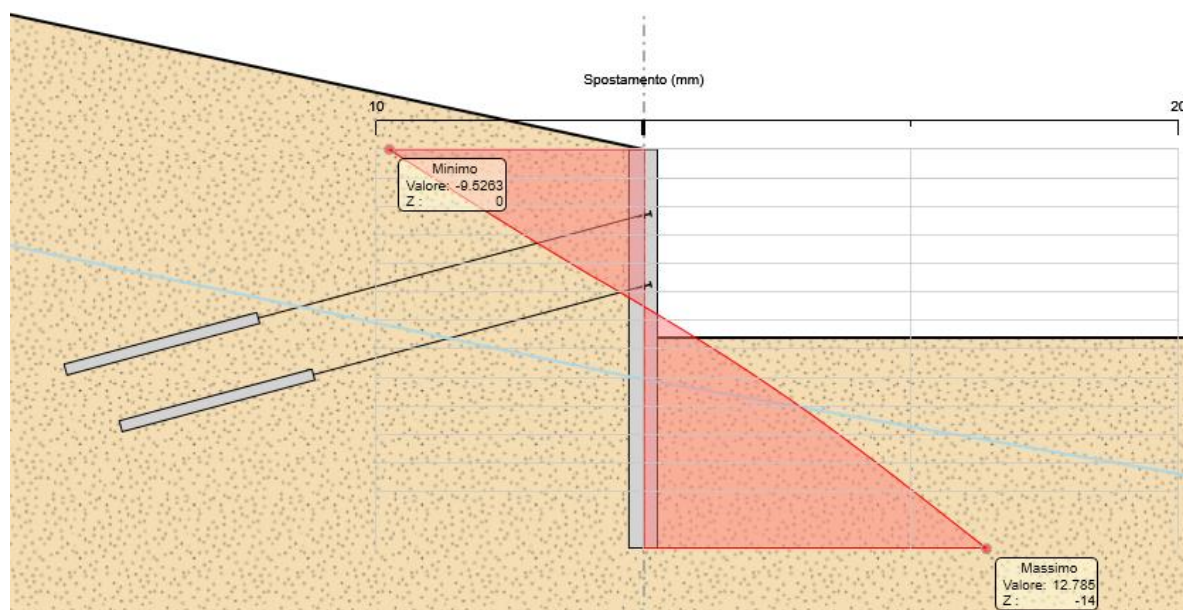


Figura 22: deformata della paratia di pali in condizioni di esercizio

Tensione massima di compressione del calcestruzzo nelle condizioni di esercizio

La massima tensione di compressione del calcestruzzo $\sigma_{c,max}$ deve rispettare la limitazione seguente:

$$\sigma_{c,max} \leq 0.6 f_{ck} \text{ per combinazione caratteristica (rara)}$$

$$\sigma_{c,max} \leq 0.45 f_{ck} \text{ per combinazione quasi permanente}$$

con f_{ck} resistenza cilindrica caratteristica del calcestruzzo, pari a 29.05 MPa.

PROGETTAZIONE ATI:

Tensione massima dell'acciaio in condizioni di esercizio

La tensione massima, $\sigma_{s,max}$, per effetto delle azioni dovute alla combinazione caratteristica deve rispettare la limitazione seguente:

$$\sigma_{s,max} \leq 0.8 f_{yk}$$

Con f_{yk} tensione caratteristica di snervamento dell'acciaio, pari a 450 MPa.

La massima tensione di compressione nel cls e la massima tensione di trazione nell'acciaio, valgono rispettivamente:

$\sigma_{c,max} = 3.48 \text{ Mpa}$, che risulta minore dei limiti di normativa, pari:

$$0.6 f_{ck} = 17.43 \text{ Mpa}$$

$$0.45 f_{ck} = 12.07 \text{ MPa}$$

$$\sigma_{s,max} = 160.4 \text{ MPa} < 0.8 f_{yk} = 360 \text{ MPa}$$

7.5. SPOSTAMENTI ALLO STATO LIMITE DI DANNO (SLD)

Si ha uno spostamento massimo di circa 10 mm al piede della paratia.

Di seguito si riporta la deformata ottenuta per lo stato limite di danno.

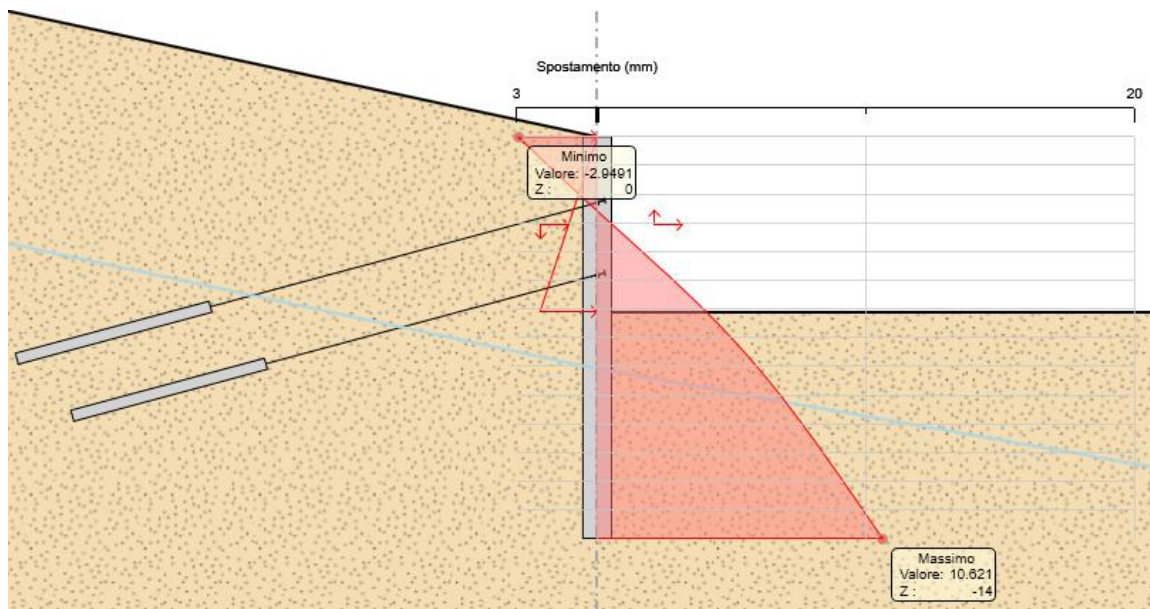


Figura 23: deformata della paratia di pali allo SLD

8. ALLEGATI DI CALCOLO

PARATIE^{plus}™

Report di Calcolo

PROGETTAZIONE ATI:

Sommario

Contenuto Sommario

PROGETTAZIONE ATI:

Descrizione della Stratigrafia e degli Strati di Terreno

Tipo : POLYLINE

Punti

(-80;17.0045)
 (-60;12.7534)
 (-45;9.565)
 (-30;6.3767)
 (0;0)
 (24.85;-5.282)
 (30;-5.282)
 (45;-5.282)
 (60;-5.282)
 (80;-5.282)
 (80;-30)
 (-80;-30)

OCR : 1

Tipo : POLYLINE

Punti

(-80;-4.7955)
 (-60;-9.0466)
 (-45;-12.2341)
 (-30;-15.4233)
 (0;-21.8)
 (30;-21.8)
 (45;-21.8)
 (60;-21.8)
 (80;-21.8)
 (80;-30)
 (-80;-30)

OCR : 1

Strato di Terreno	Terreno	γ dry	γ sat	ϕ'	ϕ	c'	Su	Modulo	Elastico	Eu	Evc	Eur	Ah	Av	exp	Pa	Rur/Rvc	Rvc	Ku	Kvc	Kur
		kN/m ³	kN/m ³	°	°	kPa	kPa				kPa	kPa				kPa			kPa	kN/m ³	kN/m ³
1	LS4	19	19	22		15		Constant			10000	16000									
2	AMA	20	20	25		25		Constant			25000	75000									

PROGETTAZIONE ATI:

Descrizione Pareti

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Muro di sinistra

Sezione : pali

Area equivalente : 0.654498469497874 m

Inerzia equivalente : 0.0409 m⁴/m

Materiale calcestruzzo : C28/35

Tipo sezione : Tangent

Spaziatura : 1.2 m

Diametro : 1 m

Efficacia : 1

PROGETTAZIONE ATI:

Fasi di Calcolo

Stage 1

Stage 1

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : 0 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;0)

(24.85;-5.282)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

PROGETTAZIONE ATI:

Stage 2

Stage 2

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2.8 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-2.8)

(13.173;-2.8)

(24.85;-5.282)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

PROGETTAZIONE ATI:

Stage 3

Stage 3

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -2.8 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-2.8)

(13.173;-2.8)

(24.85;-5.282)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

PROGETTAZIONE ATI:

Sezione : UPN300

UPN 260

Materiale : S355

PROGETTAZIONE ATI:

Stage 4

Stage 4

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -5.3 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-5.3)

(19.7594;-5.3)

(24.85;-5.282)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

PROGETTAZIONE ATI:

Sezione : UPN300

UPN 260

Materiale : S355

PROGETTAZIONE ATI:

Stage 5

Stage 5

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -5.3 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-5.3)

(19.7594;-5.3)

(24.85;-5.282)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

PROGETTAZIONE ATI:

Sezione : UPN300
UPN 260
Materiale : S355

Tirante : Tieback_New
X : 0 m
Z : -4.8 m
Lunghezza bulbo : 7 m
Diametro bulbo : 0.2 m
Lunghezza libera : 12 m
Spaziatura orizzontale : 2.4 m
Precarico : 400 kN
Angolo : 15 °
Sezione : Trefoli
Tipo di barre : Barre trefoli
Numero di barre : 4
Diametro : 0.01331 m
Area : 0.000556 m²

Trave di Ripartizione : Default Waler
Sezione : UPN300
UPN 260
Materiale : S355

PROGETTAZIONE ATI:

Stage 6

Stage 6

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.6 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-6.6)

(27.2869;-6.6)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

PROGETTAZIONE ATI:

UPN 260

Materiale : S355

Tirante : Tieback_New

X : 0 m

Z : -4.8 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 12 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

UPN 260

Materiale : S355

PROGETTAZIONE ATI:

Stage 7

Stage 7

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.1 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-6.1)

(27.2869;-6.1)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

PROGETTAZIONE ATI:

UPN 260

Materiale : S355

Tirante : Tieback_New

X : 0 m

Z : -4.8 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 12 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

UPN 260

Materiale : S355

PROGETTAZIONE ATI:

Stage 8

Stage 8

Scavo

Muro di sinistra

Lato monte : 0 m

Lato valle : -6.1 m

Linea di scavo di sinistra (Irregolare)

(-80;17.0045)

(-60;12.7534)

(-45;9.5659)

(-30;6.3767)

(0;0)

Linea di scavo di destra (Irregolare)

(0;-6.1)

(27.2869;-6.1)

(30;-5.282)

(45;-5.282)

(60;-5.282)

(80;-5.282)

Elementi strutturali

Paratia : WallElement

X : 0 m

Quota in alto : 0 m

Quota di fondo : -14 m

Sezione : pali

Tirante : Tieback

X : 0 m

Z : -2.3 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 14 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

PROGETTAZIONE ATI:

UPN 260

Materiale : S355

Tirante : Tieback_New

X : 0 m

Z : -4.8 m

Lunghezza bulbo : 7 m

Diametro bulbo : 0.2 m

Lunghezza libera : 12 m

Spaziatura orizzontale : 2.4 m

Precarico : 400 kN

Angolo : 15 °

Sezione : Trefoli

Tipo di barre : Barre trefoli

Numero di barre : 4

Diametro : 0.01331 m

Area : 0.000556 m²

Trave di Ripartizione : Default Waler

Sezione : UPN300

UPN 260

Materiale : S355

PROGETTAZIONE ATI:

Descrizione Coefficienti Design Assumption

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli (F_dead_load _unfavour)	Carichi Permanenti Favorevoli (F_dead_loa d_favour)	Carichi Variabili Sfavorevoli (F_live_load _unfavour)	Carichi Variabili Favorevoli (F_live_loa d_favour)	Carico Sismico (F_seis m_load)	Pressio ni Acqua Lato Monte	Pressio ni Acqua Valle	Carichi Permane nti Destabili zzanti (F_UPL_ GStab)	Carichi Permane nti Stabilizz anti (F_UPL_ GStab)	Carichi Variabili Destabili zzanti (F_UPL_ QDStab)	Carichi Permane nti Destabili zzanti (F_HYD_ GStab)	Carichi Permane nti Stabilizz anti (F_HYD_ GStab)	Carichi Variabili Destabili zzanti (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/Frequ ente/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

PROGETTAZIONE ATI:

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}	
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

PROGETTAZIONE ATI:

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

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 1	0	0	
Stage 1	-0.2	0	
Stage 1	-0.4	0	
Stage 1	-0.6	0	
Stage 1	-0.8	0	
Stage 1	-1	0	
Stage 1	-1.2	0	
Stage 1	-1.4	0	
Stage 1	-1.6	0	
Stage 1	-1.8	0	
Stage 1	-2	0	
Stage 1	-2.2	0	
Stage 1	-2.3	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	-4.8	0	
Stage 1	-5	0	
Stage 1	-5.2	0	
Stage 1	-5.4	0	
Stage 1	-5.6	0.01	
Stage 1	-5.8	0.01	
Stage 1	-6	0.01	
Stage 1	-6.2	0.01	
Stage 1	-6.4	0.01	
Stage 1	-6.6	0.01	
Stage 1	-6.8	0.01	
Stage 1	-7	0.01	
Stage 1	-7.2	0.01	
Stage 1	-7.4	0.01	
Stage 1	-7.6	0.01	
Stage 1	-7.8	0.01	
Stage 1	-8	0.01	
Stage 1	-8.2	0.01	
Stage 1	-8.4	0.01	
Stage 1	-8.6	0.01	
Stage 1	-8.8	0.01	
Stage 1	-9	0.01	
Stage 1	-9.2	0.01	
Stage 1	-9.4	0.01	
Stage 1	-9.6	0.01	
Stage 1	-9.8	0.01	
Stage 1	-10	0.01	
Stage 1	-10.2	0.01	
Stage 1	-10.4	0.01	
Stage 1	-10.6	0.01	
Stage 1	-10.8	0.01	
Stage 1	-11	0.01	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 1	-11.2	0.01	
Stage 1	-11.4	0.01	
Stage 1	-11.6	0.01	
Stage 1	-11.8	0.01	
Stage 1	-12	0.01	
Stage 1	-12.2	0.01	
Stage 1	-12.4	0.01	
Stage 1	-12.6	0.01	
Stage 1	-12.8	0.01	
Stage 1	-13	0.01	
Stage 1	-13.2	0.01	
Stage 1	-13.4	0.01	
Stage 1	-13.6	0.01	
Stage 1	-13.8	0.01	
Stage 1	-14	0.01	

PROGETTAZIONE ATI:

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	-0.01
Stage 1	-0.6	-0.01	-0.02
Stage 1	-0.8	-0.01	-0.03
Stage 1	-1	-0.02	-0.04
Stage 1	-1.2	-0.03	-0.05
Stage 1	-1.4	-0.04	-0.05
Stage 1	-1.6	-0.06	-0.06
Stage 1	-1.8	-0.07	-0.06
Stage 1	-2	-0.08	-0.07
Stage 1	-2.2	-0.1	-0.07
Stage 1	-2.3	-0.1	-0.07
Stage 1	-2.5	-0.12	-0.07
Stage 1	-2.7	-0.13	-0.07
Stage 1	-2.9	-0.14	-0.07
Stage 1	-3.1	-0.16	-0.06
Stage 1	-3.3	-0.17	-0.06
Stage 1	-3.5	-0.18	-0.05
Stage 1	-3.7	-0.19	-0.05
Stage 1	-3.9	-0.2	-0.04
Stage 1	-4.1	-0.2	-0.03
Stage 1	-4.3	-0.2	-0.02
Stage 1	-4.5	-0.21	-0.01
Stage 1	-4.7	-0.2	0.01
Stage 1	-4.8	-0.2	0.02
Stage 1	-5	-0.2	0.03
Stage 1	-5.2	-0.19	0.05
Stage 1	-5.4	-0.17	0.06
Stage 1	-5.6	-0.16	0.08
Stage 1	-5.8	-0.14	0.11
Stage 1	-6	-0.11	0.13
Stage 1	-6.2	-0.08	0.15
Stage 1	-6.4	-0.04	0.18
Stage 1	-6.6	0	0.2
Stage 1	-6.8	0.04	0.23
Stage 1	-7	0.1	0.26
Stage 1	-7.2	0.15	0.3
Stage 1	-7.4	0.22	0.33
Stage 1	-7.6	0.29	0.36
Stage 1	-7.8	0.37	0.4
Stage 1	-8	0.46	0.44
Stage 1	-8.2	0.56	0.48
Stage 1	-8.4	0.63	0.39
Stage 1	-8.6	0.7	0.31
Stage 1	-8.8	0.74	0.24
Stage 1	-9	0.78	0.17
Stage 1	-9.2	0.8	0.11
Stage 1	-9.4	0.81	0.05
Stage 1	-9.6	0.81	0
Stage 1	-9.8	0.8	-0.05
Stage 1	-10	0.78	-0.09
Stage 1	-10.2	0.75	-0.13
Stage 1	-10.4	0.72	-0.16
Stage 1	-10.6	0.68	-0.19
Stage 1	-10.8	0.64	-0.22
Stage 1	-11	0.59	-0.23
Stage 1	-11.2	0.54	-0.25

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 1	-11.4	0.49	-0.26	
Stage 1	-11.6	0.44	-0.27	
Stage 1	-11.8	0.38	-0.27	
Stage 1	-12	0.33	-0.27	
Stage 1	-12.2	0.28	-0.26	
Stage 1	-12.4	0.23	-0.25	
Stage 1	-12.6	0.18	-0.24	
Stage 1	-12.8	0.14	-0.22	
Stage 1	-13	0.1	-0.19	
Stage 1	-13.2	0.07	-0.17	
Stage 1	-13.4	0.04	-0.14	
Stage 1	-13.6	0.02	-0.1	
Stage 1	-13.8	0	-0.07	
Stage 1	-14	0	-0.02	

PROGETTAZIONE ATI:

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 2	0	2.29	
Stage 2	-0.2	2.26	
Stage 2	-0.4	2.23	
Stage 2	-0.6	2.2	
Stage 2	-0.8	2.18	
Stage 2	-1	2.15	
Stage 2	-1.2	2.12	
Stage 2	-1.4	2.09	
Stage 2	-1.6	2.06	
Stage 2	-1.8	2.03	
Stage 2	-2	2	
Stage 2	-2.2	1.98	
Stage 2	-2.3	1.96	
Stage 2	-2.5	1.93	
Stage 2	-2.7	1.9	
Stage 2	-2.9	1.88	
Stage 2	-3.1	1.85	
Stage 2	-3.3	1.82	
Stage 2	-3.5	1.79	
Stage 2	-3.7	1.76	
Stage 2	-3.9	1.74	
Stage 2	-4.1	1.71	
Stage 2	-4.3	1.68	
Stage 2	-4.5	1.66	
Stage 2	-4.7	1.63	
Stage 2	-4.8	1.62	
Stage 2	-5	1.6	
Stage 2	-5.2	1.57	
Stage 2	-5.4	1.55	
Stage 2	-5.6	1.53	
Stage 2	-5.8	1.51	
Stage 2	-6	1.49	
Stage 2	-6.2	1.47	
Stage 2	-6.4	1.45	
Stage 2	-6.6	1.43	
Stage 2	-6.8	1.41	
Stage 2	-7	1.39	
Stage 2	-7.2	1.38	
Stage 2	-7.4	1.36	
Stage 2	-7.6	1.34	
Stage 2	-7.8	1.33	
Stage 2	-8	1.32	
Stage 2	-8.2	1.3	
Stage 2	-8.4	1.29	
Stage 2	-8.6	1.28	
Stage 2	-8.8	1.26	
Stage 2	-9	1.25	
Stage 2	-9.2	1.24	
Stage 2	-9.4	1.23	
Stage 2	-9.6	1.22	
Stage 2	-9.8	1.21	
Stage 2	-10	1.2	
Stage 2	-10.2	1.19	
Stage 2	-10.4	1.18	
Stage 2	-10.6	1.17	
Stage 2	-10.8	1.16	
Stage 2	-11	1.15	
Stage 2	-11.2	1.14	
Stage 2	-11.4	1.13	
Stage 2	-11.6	1.13	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 2	-11.8	1.12	
Stage 2	-12	1.11	
Stage 2	-12.2	1.1	
Stage 2	-12.4	1.09	
Stage 2	-12.6	1.09	
Stage 2	-12.8	1.08	
Stage 2	-13	1.07	
Stage 2	-13.2	1.06	
Stage 2	-13.4	1.06	
Stage 2	-13.6	1.05	
Stage 2	-13.8	1.04	
Stage 2	-14	1.03	

PROGETTAZIONE ATI:

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	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	0	0
Stage 2	-1.8	-0.09	-0.43
Stage 2	-2	-0.34	-1.26
Stage 2	-2.2	-0.84	-2.52
Stage 2	-2.3	-1.22	-3.77
Stage 2	-2.5	-2.25	-5.18
Stage 2	-2.7	-3.75	-7.47
Stage 2	-2.9	-5.78	-10.18
Stage 2	-3.1	-7.81	-10.11
Stage 2	-3.3	-9.74	-9.69
Stage 2	-3.5	-11.56	-9.1
Stage 2	-3.7	-13.25	-8.42
Stage 2	-3.9	-14.79	-7.7
Stage 2	-4.1	-16.18	-6.96
Stage 2	-4.3	-17.42	-6.2
Stage 2	-4.5	-18.51	-5.45
Stage 2	-4.7	-19.45	-4.72
Stage 2	-4.8	-19.87	-4.18
Stage 2	-5	-20.6	-3.65
Stage 2	-5.2	-21.19	-2.96
Stage 2	-5.4	-21.65	-2.3
Stage 2	-5.6	-21.99	-1.67
Stage 2	-5.8	-22.2	-1.06
Stage 2	-6	-22.29	-0.49
Stage 2	-6.2	-22.28	0.06
Stage 2	-6.4	-22.17	0.57
Stage 2	-6.6	-21.96	1.06
Stage 2	-6.8	-21.66	1.51
Stage 2	-7	-21.27	1.94
Stage 2	-7.2	-20.8	2.33
Stage 2	-7.4	-20.26	2.7
Stage 2	-7.6	-19.65	3.04
Stage 2	-7.8	-18.98	3.35
Stage 2	-8	-18.25	3.64
Stage 2	-8.2	-17.47	3.9
Stage 2	-8.4	-16.67	4.02
Stage 2	-8.6	-15.85	4.1
Stage 2	-8.8	-15.02	4.17
Stage 2	-9	-14.17	4.21
Stage 2	-9.2	-13.33	4.24
Stage 2	-9.4	-12.48	4.24
Stage 2	-9.6	-11.63	4.23
Stage 2	-9.8	-10.79	4.19

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 2	-10	-9.97	4.14	
Stage 2	-10.2	-9.15	4.08	
Stage 2	-10.4	-8.35	3.99	
Stage 2	-10.6	-7.57	3.89	
Stage 2	-10.8	-6.82	3.78	
Stage 2	-11	-6.09	3.65	
Stage 2	-11.2	-5.38	3.51	
Stage 2	-11.4	-4.71	3.35	
Stage 2	-11.6	-4.08	3.19	
Stage 2	-11.8	-3.48	3	
Stage 2	-12	-2.91	2.81	
Stage 2	-12.2	-2.39	2.6	
Stage 2	-12.4	-1.92	2.38	
Stage 2	-12.6	-1.49	2.15	
Stage 2	-12.8	-1.11	1.9	
Stage 2	-13	-0.78	1.64	
Stage 2	-13.2	-0.51	1.37	
Stage 2	-13.4	-0.29	1.09	
Stage 2	-13.6	-0.13	0.79	
Stage 2	-13.8	-0.03	0.49	
Stage 2	-14	0	0.17	

PROGETTAZIONE ATI:

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 3	0	-3.61	
Stage 3	-0.2	-3.49	
Stage 3	-0.4	-3.37	
Stage 3	-0.6	-3.25	
Stage 3	-0.8	-3.14	
Stage 3	-1	-3.02	
Stage 3	-1.2	-2.9	
Stage 3	-1.4	-2.78	
Stage 3	-1.6	-2.66	
Stage 3	-1.8	-2.54	
Stage 3	-2	-2.41	
Stage 3	-2.2	-2.29	
Stage 3	-2.3	-2.23	
Stage 3	-2.5	-2.1	
Stage 3	-2.7	-1.97	
Stage 3	-2.9	-1.84	
Stage 3	-3.1	-1.71	
Stage 3	-3.3	-1.58	
Stage 3	-3.5	-1.46	
Stage 3	-3.7	-1.33	
Stage 3	-3.9	-1.2	
Stage 3	-4.1	-1.08	
Stage 3	-4.3	-0.96	
Stage 3	-4.5	-0.84	
Stage 3	-4.7	-0.72	
Stage 3	-4.8	-0.66	
Stage 3	-5	-0.55	
Stage 3	-5.2	-0.44	
Stage 3	-5.4	-0.33	
Stage 3	-5.6	-0.23	
Stage 3	-5.8	-0.13	
Stage 3	-6	-0.03	
Stage 3	-6.2	0.06	
Stage 3	-6.4	0.15	
Stage 3	-6.6	0.24	
Stage 3	-6.8	0.33	
Stage 3	-7	0.41	
Stage 3	-7.2	0.49	
Stage 3	-7.4	0.56	
Stage 3	-7.6	0.63	
Stage 3	-7.8	0.7	
Stage 3	-8	0.77	
Stage 3	-8.2	0.83	
Stage 3	-8.4	0.89	
Stage 3	-8.6	0.95	
Stage 3	-8.8	1	
Stage 3	-9	1.05	
Stage 3	-9.2	1.1	
Stage 3	-9.4	1.15	
Stage 3	-9.6	1.2	
Stage 3	-9.8	1.24	
Stage 3	-10	1.28	
Stage 3	-10.2	1.33	
Stage 3	-10.4	1.36	
Stage 3	-10.6	1.4	
Stage 3	-10.8	1.44	
Stage 3	-11	1.48	
Stage 3	-11.2	1.51	
Stage 3	-11.4	1.54	
Stage 3	-11.6	1.58	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 3	-11.8	1.61	
Stage 3	-12	1.64	
Stage 3	-12.2	1.67	
Stage 3	-12.4	1.7	
Stage 3	-12.6	1.73	
Stage 3	-12.8	1.76	
Stage 3	-13	1.79	
Stage 3	-13.2	1.82	
Stage 3	-13.4	1.85	
Stage 3	-13.6	1.88	
Stage 3	-13.8	1.91	
Stage 3	-14	1.94	

PROGETTAZIONE ATI:

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	-2.34
Stage 3	-0.2	-0.47	-2.34
Stage 3	-0.4	-1.88	-7.06
Stage 3	-0.6	-4.24	-11.8
Stage 3	-0.8	-7.55	-16.56
Stage 3	-1	-11.82	-21.35
Stage 3	-1.2	-17.06	-26.17
Stage 3	-1.4	-23.26	-31.01
Stage 3	-1.6	-30.43	-35.88
Stage 3	-1.8	-38.64	-41.03
Stage 3	-2	-47.93	-46.46
Stage 3	-2.2	-58.37	-52.18
Stage 3	-2.3	-64.03	-56.68
Stage 3	-2.5	-44.09	99.74
Stage 3	-2.7	-25.42	93.32
Stage 3	-2.9	-8.1	86.63
Stage 3	-3.1	7.83	79.65
Stage 3	-3.3	22.31	72.4
Stage 3	-3.5	35.41	65.49
Stage 3	-3.7	47.21	58.97
Stage 3	-3.9	57.77	52.82
Stage 3	-4.1	67.17	47
Stage 3	-4.3	75.47	41.49
Stage 3	-4.5	82.73	36.28
Stage 3	-4.7	89	31.36
Stage 3	-4.8	91.78	27.87
Stage 3	-5	96.68	24.48
Stage 3	-5.2	100.72	20.21
Stage 3	-5.4	103.96	16.19
Stage 3	-5.6	106.44	12.41
Stage 3	-5.8	108.21	8.85
Stage 3	-6	109.31	5.51
Stage 3	-6.2	109.79	2.38
Stage 3	-6.4	109.69	-0.51
Stage 3	-6.6	109.06	-3.16
Stage 3	-6.8	107.94	-5.59
Stage 3	-7	106.38	-7.79
Stage 3	-7.2	104.42	-9.79
Stage 3	-7.4	102.11	-11.58
Stage 3	-7.6	99.47	-13.19
Stage 3	-7.8	96.55	-14.6
Stage 3	-8	93.38	-15.85
Stage 3	-8.2	90	-16.92
Stage 3	-8.4	86.4	-17.95
Stage 3	-8.6	82.64	-18.84
Stage 3	-8.8	78.72	-19.57
Stage 3	-9	74.69	-20.16
Stage 3	-9.2	70.57	-20.62
Stage 3	-9.4	66.38	-20.95
Stage 3	-9.6	62.15	-21.15
Stage 3	-9.8	57.9	-21.23
Stage 3	-10	53.66	-21.2
Stage 3	-10.2	49.45	-21.05
Stage 3	-10.4	45.29	-20.8
Stage 3	-10.6	41.2	-20.45
Stage 3	-10.8	37.2	-20
Stage 3	-11	33.31	-19.45
Stage 3	-11.2	29.55	-18.8

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 3	-11.4	25.94	-18.07	
Stage 3	-11.6	22.49	-17.25	
Stage 3	-11.8	19.22	-16.34	
Stage 3	-12	16.15	-15.34	
Stage 3	-12.2	13.3	-14.26	
Stage 3	-12.4	10.68	-13.1	
Stage 3	-12.6	8.31	-11.86	
Stage 3	-12.8	6.2	-10.54	
Stage 3	-13	4.37	-9.13	
Stage 3	-13.2	2.84	-7.65	
Stage 3	-13.4	1.62	-6.09	
Stage 3	-13.6	0.73	-4.45	
Stage 3	-13.8	0.19	-2.73	
Stage 3	-14	0	-0.94	

PROGETTAZIONE ATI:

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 4	0	-2.99	
Stage 4	-0.2	-2.79	
Stage 4	-0.4	-2.6	
Stage 4	-0.6	-2.4	
Stage 4	-0.8	-2.2	
Stage 4	-1	-2.01	
Stage 4	-1.2	-1.81	
Stage 4	-1.4	-1.62	
Stage 4	-1.6	-1.42	
Stage 4	-1.8	-1.22	
Stage 4	-2	-1.02	
Stage 4	-2.2	-0.82	
Stage 4	-2.3	-0.72	
Stage 4	-2.5	-0.52	
Stage 4	-2.7	-0.32	
Stage 4	-2.9	-0.11	
Stage 4	-3.1	0.09	
Stage 4	-3.3	0.29	
Stage 4	-3.5	0.49	
Stage 4	-3.7	0.69	
Stage 4	-3.9	0.89	
Stage 4	-4.1	1.08	
Stage 4	-4.3	1.28	
Stage 4	-4.5	1.46	
Stage 4	-4.7	1.65	
Stage 4	-4.8	1.74	
Stage 4	-5	1.92	
Stage 4	-5.2	2.09	
Stage 4	-5.4	2.26	
Stage 4	-5.6	2.42	
Stage 4	-5.8	2.58	
Stage 4	-6	2.74	
Stage 4	-6.2	2.89	
Stage 4	-6.4	3.04	
Stage 4	-6.6	3.18	
Stage 4	-6.8	3.32	
Stage 4	-7	3.45	
Stage 4	-7.2	3.58	
Stage 4	-7.4	3.71	
Stage 4	-7.6	3.83	
Stage 4	-7.8	3.95	
Stage 4	-8	4.06	
Stage 4	-8.2	4.18	
Stage 4	-8.4	4.28	
Stage 4	-8.6	4.39	
Stage 4	-8.8	4.49	
Stage 4	-9	4.59	
Stage 4	-9.2	4.69	
Stage 4	-9.4	4.78	
Stage 4	-9.6	4.88	
Stage 4	-9.8	4.97	
Stage 4	-10	5.06	
Stage 4	-10.2	5.14	
Stage 4	-10.4	5.23	
Stage 4	-10.6	5.31	
Stage 4	-10.8	5.4	
Stage 4	-11	5.48	
Stage 4	-11.2	5.56	
Stage 4	-11.4	5.64	
Stage 4	-11.6	5.71	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 4	-11.8	5.79	
Stage 4	-12	5.87	
Stage 4	-12.2	5.95	
Stage 4	-12.4	6.02	
Stage 4	-12.6	6.1	
Stage 4	-12.8	6.17	
Stage 4	-13	6.25	
Stage 4	-13.2	6.32	
Stage 4	-13.4	6.4	
Stage 4	-13.6	6.47	
Stage 4	-13.8	6.55	
Stage 4	-14	6.62	

PROGETTAZIONE ATI:

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	-2.13
Stage 4	-0.2	-0.43	-2.13
Stage 4	-0.4	-1.7	-6.38
Stage 4	-0.6	-3.82	-10.6
Stage 4	-0.8	-6.78	-14.79
Stage 4	-1	-10.57	-18.95
Stage 4	-1.2	-15.19	-23.09
Stage 4	-1.4	-20.63	-27.2
Stage 4	-1.6	-26.89	-31.29
Stage 4	-1.8	-34.01	-35.61
Stage 4	-2	-42.04	-40.16
Stage 4	-2.2	-51.03	-44.95
Stage 4	-2.3	-55.9	-48.71
Stage 4	-2.5	-33.47	112.13
Stage 4	-2.7	-12.12	106.78
Stage 4	-2.9	8.12	101.19
Stage 4	-3.1	27.2	95.38
Stage 4	-3.3	45.06	89.34
Stage 4	-3.5	61.68	83.07
Stage 4	-3.7	76.99	76.58
Stage 4	-3.9	90.96	69.85
Stage 4	-4.1	103.54	62.89
Stage 4	-4.3	114.68	55.7
Stage 4	-4.5	124.34	48.27
Stage 4	-4.7	132.46	40.6
Stage 4	-4.8	135.93	34.67
Stage 4	-5	141.66	28.65
Stage 4	-5.2	145.73	20.37
Stage 4	-5.4	148.1	11.84
Stage 4	-5.6	149.23	5.66
Stage 4	-5.8	149.32	0.44
Stage 4	-6	148.5	-4.11
Stage 4	-6.2	146.88	-8.11
Stage 4	-6.4	144.55	-11.62
Stage 4	-6.6	141.62	-14.65
Stage 4	-6.8	138.17	-17.26
Stage 4	-7	134.28	-19.47
Stage 4	-7.2	130.01	-21.31
Stage 4	-7.4	125.46	-22.8
Stage 4	-7.6	120.66	-23.96
Stage 4	-7.8	115.7	-24.81
Stage 4	-8	110.63	-25.36
Stage 4	-8.2	105.49	-25.71
Stage 4	-8.4	100.28	-26.05
Stage 4	-8.6	95.02	-26.29
Stage 4	-8.8	89.74	-26.41
Stage 4	-9	84.45	-26.43
Stage 4	-9.2	79.18	-26.35
Stage 4	-9.4	73.95	-26.17
Stage 4	-9.6	68.77	-25.9
Stage 4	-9.8	63.66	-25.55
Stage 4	-10	58.64	-25.1
Stage 4	-10.2	53.72	-24.57
Stage 4	-10.4	48.93	-23.96
Stage 4	-10.6	44.28	-23.27
Stage 4	-10.8	39.78	-22.5
Stage 4	-11	35.45	-21.66
Stage 4	-11.2	31.3	-20.74

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 4	-11.4	27.35	-19.76	
Stage 4	-11.6	23.61	-18.7	
Stage 4	-11.8	20.09	-17.57	
Stage 4	-12	16.82	-16.38	
Stage 4	-12.2	13.79	-15.12	
Stage 4	-12.4	11.03	-13.8	
Stage 4	-12.6	8.55	-12.41	
Stage 4	-12.8	6.36	-10.96	
Stage 4	-13	4.47	-9.45	
Stage 4	-13.2	2.89	-7.87	
Stage 4	-13.4	1.65	-6.23	
Stage 4	-13.6	0.74	-4.53	
Stage 4	-13.8	0.19	-2.77	
Stage 4	-14	0	-0.94	

PROGETTAZIONE ATI:

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 5	0	-8.94	
Stage 5	-0.2	-8.69	
Stage 5	-0.4	-8.44	
Stage 5	-0.6	-8.19	
Stage 5	-0.8	-7.94	
Stage 5	-1	-7.69	
Stage 5	-1.2	-7.44	
Stage 5	-1.4	-7.19	
Stage 5	-1.6	-6.94	
Stage 5	-1.8	-6.69	
Stage 5	-2	-6.43	
Stage 5	-2.2	-6.18	
Stage 5	-2.3	-6.05	
Stage 5	-2.5	-5.78	
Stage 5	-2.7	-5.52	
Stage 5	-2.9	-5.26	
Stage 5	-3.1	-4.99	
Stage 5	-3.3	-4.72	
Stage 5	-3.5	-4.45	
Stage 5	-3.7	-4.18	
Stage 5	-3.9	-3.91	
Stage 5	-4.1	-3.64	
Stage 5	-4.3	-3.36	
Stage 5	-4.5	-3.09	
Stage 5	-4.7	-2.81	
Stage 5	-4.8	-2.68	
Stage 5	-5	-2.4	
Stage 5	-5.2	-2.12	
Stage 5	-5.4	-1.84	
Stage 5	-5.6	-1.56	
Stage 5	-5.8	-1.29	
Stage 5	-6	-1.01	
Stage 5	-6.2	-0.74	
Stage 5	-6.4	-0.47	
Stage 5	-6.6	-0.2	
Stage 5	-6.8	0.07	
Stage 5	-7	0.34	
Stage 5	-7.2	0.6	
Stage 5	-7.4	0.86	
Stage 5	-7.6	1.11	
Stage 5	-7.8	1.36	
Stage 5	-8	1.61	
Stage 5	-8.2	1.86	
Stage 5	-8.4	2.1	
Stage 5	-8.6	2.34	
Stage 5	-8.8	2.58	
Stage 5	-9	2.82	
Stage 5	-9.2	3.05	
Stage 5	-9.4	3.28	
Stage 5	-9.6	3.5	
Stage 5	-9.8	3.73	
Stage 5	-10	3.95	
Stage 5	-10.2	4.17	
Stage 5	-10.4	4.38	
Stage 5	-10.6	4.6	
Stage 5	-10.8	4.81	
Stage 5	-11	5.03	
Stage 5	-11.2	5.24	
Stage 5	-11.4	5.45	
Stage 5	-11.6	5.65	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 5	-11.8	5.86	
Stage 5	-12	6.07	
Stage 5	-12.2	6.27	
Stage 5	-12.4	6.48	
Stage 5	-12.6	6.68	
Stage 5	-12.8	6.89	
Stage 5	-13	7.09	
Stage 5	-13.2	7.3	
Stage 5	-13.4	7.5	
Stage 5	-13.6	7.7	
Stage 5	-13.8	7.91	
Stage 5	-14	8.11	

PROGETTAZIONE ATI:

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	-3.46
Stage 5	-0.2	-0.69	-3.46
Stage 5	-0.4	-2.76	-10.36
Stage 5	-0.6	-6.21	-17.22
Stage 5	-0.8	-11.02	-24.06
Stage 5	-1	-17.19	-30.87
Stage 5	-1.2	-24.72	-37.65
Stage 5	-1.4	-33.6	-44.39
Stage 5	-1.6	-43.83	-51.11
Stage 5	-1.8	-55.44	-58.06
Stage 5	-2	-68.49	-65.24
Stage 5	-2.2	-83.01	-72.64
Stage 5	-2.3	-90.85	-78.36
Stage 5	-2.5	-77.35	67.52
Stage 5	-2.7	-65.43	59.56
Stage 5	-2.9	-55.16	51.37
Stage 5	-3.1	-46.56	42.97
Stage 5	-3.3	-39.7	34.34
Stage 5	-3.5	-34.6	25.5
Stage 5	-3.7	-31.31	16.44
Stage 5	-3.9	-29.88	7.16
Stage 5	-4.1	-30.34	-2.34
Stage 5	-4.3	-32.76	-12.06
Stage 5	-4.5	-37.16	-22
Stage 5	-4.7	-43.59	-32.15
Stage 5	-4.8	-47.58	-39.94
Stage 5	-5	-24.94	113.22
Stage 5	-5.2	-4.44	102.51
Stage 5	-5.4	13.88	91.58
Stage 5	-5.6	29.98	80.51
Stage 5	-5.8	44.09	70.52
Stage 5	-6	56.34	61.3
Stage 5	-6.2	66.89	52.73
Stage 5	-6.4	75.84	44.74
Stage 5	-6.6	83.3	37.29
Stage 5	-6.8	89.37	30.36
Stage 5	-7	94.16	23.98
Stage 5	-7.2	97.79	18.14
Stage 5	-7.4	100.36	12.83
Stage 5	-7.6	101.96	8.01
Stage 5	-7.8	102.7	3.68
Stage 5	-8	102.66	-0.19
Stage 5	-8.2	101.92	-3.68
Stage 5	-8.4	100.52	-7
Stage 5	-8.6	98.52	-10.02
Stage 5	-8.8	95.96	-12.77
Stage 5	-9	92.91	-15.24
Stage 5	-9.2	89.43	-17.44
Stage 5	-9.4	85.55	-19.37
Stage 5	-9.6	81.34	-21.04
Stage 5	-9.8	76.86	-22.44
Stage 5	-10	72.14	-23.59
Stage 5	-10.2	67.24	-24.48
Stage 5	-10.4	62.22	-25.12
Stage 5	-10.6	57.11	-25.52
Stage 5	-10.8	51.98	-25.66
Stage 5	-11	46.87	-25.57
Stage 5	-11.2	41.82	-25.23

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 5	-11.4	36.89	-24.66	
Stage 5	-11.6	32.12	-23.84	
Stage 5	-11.8	27.56	-22.8	
Stage 5	-12	23.25	-21.56	
Stage 5	-12.2	19.21	-20.18	
Stage 5	-12.4	15.48	-18.66	
Stage 5	-12.6	12.08	-16.99	
Stage 5	-12.8	9.04	-15.18	
Stage 5	-13	6.4	-13.23	
Stage 5	-13.2	4.17	-11.14	
Stage 5	-13.4	2.39	-8.91	
Stage 5	-13.6	1.08	-6.54	
Stage 5	-13.8	0.27	-4.02	
Stage 5	-14	0	-1.37	

PROGETTAZIONE ATI:

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

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 6	0	-9.53	
Stage 6	-0.2	-9.2	
Stage 6	-0.4	-8.87	
Stage 6	-0.6	-8.53	
Stage 6	-0.8	-8.2	
Stage 6	-1	-7.87	
Stage 6	-1.2	-7.54	
Stage 6	-1.4	-7.21	
Stage 6	-1.6	-6.88	
Stage 6	-1.8	-6.54	
Stage 6	-2	-6.2	
Stage 6	-2.2	-5.87	
Stage 6	-2.3	-5.7	
Stage 6	-2.5	-5.35	
Stage 6	-2.7	-5.01	
Stage 6	-2.9	-4.66	
Stage 6	-3.1	-4.31	
Stage 6	-3.3	-3.96	
Stage 6	-3.5	-3.61	
Stage 6	-3.7	-3.26	
Stage 6	-3.9	-2.91	
Stage 6	-4.1	-2.55	
Stage 6	-4.3	-2.2	
Stage 6	-4.5	-1.84	
Stage 6	-4.7	-1.48	
Stage 6	-4.8	-1.31	
Stage 6	-5	-0.95	
Stage 6	-5.2	-0.59	
Stage 6	-5.4	-0.23	
Stage 6	-5.6	0.13	
Stage 6	-5.8	0.49	
Stage 6	-6	0.84	
Stage 6	-6.2	1.19	
Stage 6	-6.4	1.54	
Stage 6	-6.6	1.89	
Stage 6	-6.8	2.23	
Stage 6	-7	2.57	
Stage 6	-7.2	2.91	
Stage 6	-7.4	3.24	
Stage 6	-7.6	3.57	
Stage 6	-7.8	3.9	
Stage 6	-8	4.22	
Stage 6	-8.2	4.54	
Stage 6	-8.4	4.85	
Stage 6	-8.6	5.17	
Stage 6	-8.8	5.47	
Stage 6	-9	5.78	
Stage 6	-9.2	6.08	
Stage 6	-9.4	6.38	
Stage 6	-9.6	6.68	
Stage 6	-9.8	6.97	
Stage 6	-10	7.26	
Stage 6	-10.2	7.55	
Stage 6	-10.4	7.84	
Stage 6	-10.6	8.12	
Stage 6	-10.8	8.4	
Stage 6	-11	8.68	
Stage 6	-11.2	8.96	
Stage 6	-11.4	9.24	
Stage 6	-11.6	9.52	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 6	-11.8	9.79	
Stage 6	-12	10.07	
Stage 6	-12.2	10.34	
Stage 6	-12.4	10.61	
Stage 6	-12.6	10.88	
Stage 6	-12.8	11.16	
Stage 6	-13	11.43	
Stage 6	-13.2	11.7	
Stage 6	-13.4	11.97	
Stage 6	-13.6	12.24	
Stage 6	-13.8	12.51	
Stage 6	-14	12.79	

PROGETTAZIONE ATI:

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	-3.56
Stage 6	-0.2	-0.71	-3.56
Stage 6	-0.4	-2.84	-10.63
Stage 6	-0.6	-6.36	-17.64
Stage 6	-0.8	-11.28	-24.59
Stage 6	-1	-17.58	-31.48
Stage 6	-1.2	-25.24	-38.32
Stage 6	-1.4	-34.26	-45.1
Stage 6	-1.6	-44.63	-51.83
Stage 6	-1.8	-56.38	-58.74
Stage 6	-2	-69.55	-65.84
Stage 6	-2.2	-84.17	-73.12
Stage 6	-2.3	-92.04	-78.71
Stage 6	-2.5	-78.41	68.17
Stage 6	-2.7	-66.32	60.44
Stage 6	-2.9	-55.81	52.53
Stage 6	-3.1	-46.92	44.45
Stage 6	-3.3	-39.69	36.19
Stage 6	-3.5	-34.14	27.75
Stage 6	-3.7	-30.31	19.14
Stage 6	-3.9	-28.24	10.36
Stage 6	-4.1	-27.96	1.4
Stage 6	-4.3	-29.5	-7.73
Stage 6	-4.5	-32.91	-17.04
Stage 6	-4.7	-38.22	-26.53
Stage 6	-4.8	-41.59	-33.77
Stage 6	-5	-16.85	123.71
Stage 6	-5.2	5.91	113.78
Stage 6	-5.4	26.64	103.68
Stage 6	-5.6	45.32	93.39
Stage 6	-5.8	61.91	82.93
Stage 6	-6	76.36	72.28
Stage 6	-6.2	88.65	61.45
Stage 6	-6.4	98.74	50.43
Stage 6	-6.6	106.58	39.22
Stage 6	-6.8	112.14	27.83
Stage 6	-7	116.11	19.82
Stage 6	-7.2	118.69	12.92
Stage 6	-7.4	120.07	6.9
Stage 6	-7.6	120.41	1.67
Stage 6	-7.8	119.84	-2.83
Stage 6	-8	118.51	-6.66
Stage 6	-8.2	116.52	-9.95
Stage 6	-8.4	113.94	-12.89
Stage 6	-8.6	110.85	-15.46
Stage 6	-8.8	107.29	-17.77
Stage 6	-9	103.33	-19.83
Stage 6	-9.2	99	-21.64
Stage 6	-9.4	94.36	-23.2
Stage 6	-9.6	89.45	-24.54
Stage 6	-9.8	84.33	-25.63
Stage 6	-10	79.02	-26.51
Stage 6	-10.2	73.59	-27.16
Stage 6	-10.4	68.07	-27.59
Stage 6	-10.6	62.51	-27.81
Stage 6	-10.8	56.95	-27.82
Stage 6	-11	51.42	-27.62
Stage 6	-11.2	45.98	-27.22

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 6	-11.4	40.66	-26.61	
Stage 6	-11.6	35.49	-25.81	
Stage 6	-11.8	30.53	-24.81	
Stage 6	-12	25.81	-23.62	
Stage 6	-12.2	21.36	-22.23	
Stage 6	-12.4	17.23	-20.65	
Stage 6	-12.6	13.46	-18.88	
Stage 6	-12.8	10.07	-16.93	
Stage 6	-13	7.11	-14.78	
Stage 6	-13.2	4.62	-12.45	
Stage 6	-13.4	2.64	-9.94	
Stage 6	-13.6	1.19	-7.24	
Stage 6	-13.8	0.3	-4.43	
Stage 6	-14	0	-1.51	

PROGETTAZIONE ATI:

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 7

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 7	0	-9.41	
Stage 7	-0.2	-9.1	
Stage 7	-0.4	-8.79	
Stage 7	-0.6	-8.47	
Stage 7	-0.8	-8.16	
Stage 7	-1	-7.85	
Stage 7	-1.2	-7.54	
Stage 7	-1.4	-7.22	
Stage 7	-1.6	-6.91	
Stage 7	-1.8	-6.59	
Stage 7	-2	-6.28	
Stage 7	-2.2	-5.96	
Stage 7	-2.3	-5.8	
Stage 7	-2.5	-5.47	
Stage 7	-2.7	-5.15	
Stage 7	-2.9	-4.82	
Stage 7	-3.1	-4.49	
Stage 7	-3.3	-4.16	
Stage 7	-3.5	-3.82	
Stage 7	-3.7	-3.49	
Stage 7	-3.9	-3.16	
Stage 7	-4.1	-2.82	
Stage 7	-4.3	-2.49	
Stage 7	-4.5	-2.15	
Stage 7	-4.7	-1.81	
Stage 7	-4.8	-1.64	
Stage 7	-5	-1.3	
Stage 7	-5.2	-0.96	
Stage 7	-5.4	-0.62	
Stage 7	-5.6	-0.28	
Stage 7	-5.8	0.06	
Stage 7	-6	0.39	
Stage 7	-6.2	0.73	
Stage 7	-6.4	1.06	
Stage 7	-6.6	1.39	
Stage 7	-6.8	1.72	
Stage 7	-7	2.04	
Stage 7	-7.2	2.36	
Stage 7	-7.4	2.68	
Stage 7	-7.6	2.99	
Stage 7	-7.8	3.3	
Stage 7	-8	3.61	
Stage 7	-8.2	3.91	
Stage 7	-8.4	4.21	
Stage 7	-8.6	4.51	
Stage 7	-8.8	4.8	
Stage 7	-9	5.09	
Stage 7	-9.2	5.38	
Stage 7	-9.4	5.66	
Stage 7	-9.6	5.95	
Stage 7	-9.8	6.23	
Stage 7	-10	6.51	
Stage 7	-10.2	6.78	
Stage 7	-10.4	7.06	
Stage 7	-10.6	7.33	
Stage 7	-10.8	7.6	
Stage 7	-11	7.87	
Stage 7	-11.2	8.13	
Stage 7	-11.4	8.4	
Stage 7	-11.6	8.66	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 7	-11.8	8.93	
Stage 7	-12	9.19	
Stage 7	-12.2	9.45	
Stage 7	-12.4	9.71	
Stage 7	-12.6	9.97	
Stage 7	-12.8	10.23	
Stage 7	-13	10.5	
Stage 7	-13.2	10.76	
Stage 7	-13.4	11.02	
Stage 7	-13.6	11.27	
Stage 7	-13.8	11.53	
Stage 7	-14	11.79	

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage:
Stage 7

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	0	0	-3.53
Stage 7	-0.2	-0.71	-3.53
Stage 7	-0.4	-2.81	-10.54
Stage 7	-0.6	-6.31	-17.5
Stage 7	-0.8	-11.2	-24.42
Stage 7	-1	-17.45	-31.29
Stage 7	-1.2	-25.08	-38.11
Stage 7	-1.4	-34.05	-44.89
Stage 7	-1.6	-44.38	-51.62
Stage 7	-1.8	-56.09	-58.55
Stage 7	-2	-69.22	-65.68
Stage 7	-2.2	-83.83	-73
Stage 7	-2.3	-91.69	-78.64
Stage 7	-2.5	-78.1	67.96
Stage 7	-2.7	-66.07	60.16
Stage 7	-2.9	-55.63	52.17
Stage 7	-3.1	-46.83	43.99
Stage 7	-3.3	-39.71	35.63
Stage 7	-3.5	-34.29	27.08
Stage 7	-3.7	-30.62	18.35
Stage 7	-3.9	-28.74	9.43
Stage 7	-4.1	-28.67	0.32
Stage 7	-4.3	-30.47	-8.97
Stage 7	-4.5	-34.15	-18.44
Stage 7	-4.7	-39.78	-28.11
Stage 7	-4.8	-43.33	-35.5
Stage 7	-5	-19.14	120.91
Stage 7	-5.2	3.01	110.78
Stage 7	-5.4	23.1	100.45
Stage 7	-5.6	41.09	89.94
Stage 7	-5.8	56.94	79.24
Stage 7	-6	70.61	68.34
Stage 7	-6.2	82.06	57.25
Stage 7	-6.4	91.24	45.9
Stage 7	-6.6	98.18	34.72
Stage 7	-6.8	102.92	23.72
Stage 7	-7	106.34	17.07
Stage 7	-7.2	108.57	11.16
Stage 7	-7.4	109.75	5.93
Stage 7	-7.6	110.02	1.34
Stage 7	-7.8	109.49	-2.64
Stage 7	-8	108.29	-6.04
Stage 7	-8.2	106.49	-8.96
Stage 7	-8.4	104.17	-11.6
Stage 7	-8.6	101.39	-13.9
Stage 7	-8.8	98.2	-15.98
Stage 7	-9	94.63	-17.83
Stage 7	-9.2	90.74	-19.47
Stage 7	-9.4	86.56	-20.9
Stage 7	-9.6	82.14	-22.11
Stage 7	-9.8	77.51	-23.13
Stage 7	-10	72.72	-23.94
Stage 7	-10.2	67.81	-24.56
Stage 7	-10.4	62.81	-24.99
Stage 7	-10.6	57.77	-25.22
Stage 7	-10.8	52.71	-25.27
Stage 7	-11	47.69	-25.13
Stage 7	-11.2	42.72	-24.81

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 7	-11.4	37.86	-24.31	
Stage 7	-11.6	33.13	-23.64	
Stage 7	-11.8	28.58	-22.78	
Stage 7	-12	24.23	-21.75	
Stage 7	-12.2	20.12	-20.55	
Stage 7	-12.4	16.28	-19.18	
Stage 7	-12.6	12.75	-17.64	
Stage 7	-12.8	9.57	-15.92	
Stage 7	-13	6.77	-13.99	
Stage 7	-13.2	4.4	-11.84	
Stage 7	-13.4	2.51	-9.47	
Stage 7	-13.6	1.13	-6.89	
Stage 7	-13.8	0.29	-4.21	
Stage 7	-14	0	-1.44	

PROGETTAZIONE ATI:

Tabella Spostamento NTC2018: SLE (Rara/Frequente/Quasi Permanente) - LEFT Stage: Stage 8

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 8	0	-9.41	
Stage 8	-0.2	-9.1	
Stage 8	-0.4	-8.79	
Stage 8	-0.6	-8.48	
Stage 8	-0.8	-8.16	
Stage 8	-1	-7.85	
Stage 8	-1.2	-7.54	
Stage 8	-1.4	-7.23	
Stage 8	-1.6	-6.91	
Stage 8	-1.8	-6.59	
Stage 8	-2	-6.28	
Stage 8	-2.2	-5.96	
Stage 8	-2.3	-5.8	
Stage 8	-2.5	-5.47	
Stage 8	-2.7	-5.15	
Stage 8	-2.9	-4.82	
Stage 8	-3.1	-4.49	
Stage 8	-3.3	-4.16	
Stage 8	-3.5	-3.83	
Stage 8	-3.7	-3.49	
Stage 8	-3.9	-3.16	
Stage 8	-4.1	-2.82	
Stage 8	-4.3	-2.49	
Stage 8	-4.5	-2.15	
Stage 8	-4.7	-1.81	
Stage 8	-4.8	-1.64	
Stage 8	-5	-1.3	
Stage 8	-5.2	-0.96	
Stage 8	-5.4	-0.62	
Stage 8	-5.6	-0.28	
Stage 8	-5.8	0.06	
Stage 8	-6	0.39	
Stage 8	-6.2	0.73	
Stage 8	-6.4	1.06	
Stage 8	-6.6	1.39	
Stage 8	-6.8	1.71	
Stage 8	-7	2.04	
Stage 8	-7.2	2.36	
Stage 8	-7.4	2.67	
Stage 8	-7.6	2.99	
Stage 8	-7.8	3.3	
Stage 8	-8	3.6	
Stage 8	-8.2	3.91	
Stage 8	-8.4	4.21	
Stage 8	-8.6	4.51	
Stage 8	-8.8	4.8	
Stage 8	-9	5.09	
Stage 8	-9.2	5.38	
Stage 8	-9.4	5.66	
Stage 8	-9.6	5.95	
Stage 8	-9.8	6.23	
Stage 8	-10	6.51	
Stage 8	-10.2	6.78	
Stage 8	-10.4	7.05	
Stage 8	-10.6	7.33	
Stage 8	-10.8	7.6	
Stage 8	-11	7.87	
Stage 8	-11.2	8.13	
Stage 8	-11.4	8.4	
Stage 8	-11.6	8.66	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)	Spostamento (mm)	
Stage 8	-11.8	8.93	
Stage 8	-12	9.19	
Stage 8	-12.2	9.45	
Stage 8	-12.4	9.71	
Stage 8	-12.6	9.97	
Stage 8	-12.8	10.23	
Stage 8	-13	10.49	
Stage 8	-13.2	10.76	
Stage 8	-13.4	11.02	
Stage 8	-13.6	11.27	
Stage 8	-13.8	11.53	
Stage 8	-14	11.79	

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SLE (Rara/Frequente/Quasi Permanente) - Left Wall - Stage:
Stage 8

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	0	0	-3.53
Stage 8	-0.2	-0.71	-3.53
Stage 8	-0.4	-2.81	-10.54
Stage 8	-0.6	-6.31	-17.5
Stage 8	-0.8	-11.2	-24.42
Stage 8	-1	-17.45	-31.29
Stage 8	-1.2	-25.08	-38.12
Stage 8	-1.4	-34.06	-44.89
Stage 8	-1.6	-44.38	-51.62
Stage 8	-1.8	-56.09	-58.56
Stage 8	-2	-69.23	-65.69
Stage 8	-2.2	-83.83	-73.01
Stage 8	-2.3	-91.7	-78.65
Stage 8	-2.5	-78.11	67.95
Stage 8	-2.7	-66.08	60.14
Stage 8	-2.9	-55.65	52.16
Stage 8	-3.1	-46.85	43.98
Stage 8	-3.3	-39.73	35.62
Stage 8	-3.5	-34.32	27.07
Stage 8	-3.7	-30.65	18.33
Stage 8	-3.9	-28.77	9.41
Stage 8	-4.1	-28.7	0.31
Stage 8	-4.3	-30.5	-8.98
Stage 8	-4.5	-34.19	-18.46
Stage 8	-4.7	-39.82	-28.13
Stage 8	-4.8	-43.37	-35.52
Stage 8	-5	-19.19	120.89
Stage 8	-5.2	2.96	110.75
Stage 8	-5.4	23.04	100.43
Stage 8	-5.6	41.03	89.92
Stage 8	-5.8	56.87	79.21
Stage 8	-6	70.53	68.31
Stage 8	-6.2	81.98	57.22
Stage 8	-6.4	91.16	45.93
Stage 8	-6.6	98.11	34.75
Stage 8	-6.8	102.86	23.75
Stage 8	-7	106.28	17.1
Stage 8	-7.2	108.52	11.18
Stage 8	-7.4	109.71	5.95
Stage 8	-7.6	109.98	1.36
Stage 8	-7.8	109.45	-2.62
Stage 8	-8	108.25	-6.02
Stage 8	-8.2	106.46	-8.94
Stage 8	-8.4	104.14	-11.58
Stage 8	-8.6	101.37	-13.89
Stage 8	-8.8	98.17	-15.96
Stage 8	-9	94.61	-17.82
Stage 8	-9.2	90.72	-19.46
Stage 8	-9.4	86.54	-20.88
Stage 8	-9.6	82.12	-22.1
Stage 8	-9.8	77.5	-23.12
Stage 8	-10	72.71	-23.94
Stage 8	-10.2	67.8	-24.55
Stage 8	-10.4	62.8	-24.98
Stage 8	-10.6	57.76	-25.22
Stage 8	-10.8	52.71	-25.26
Stage 8	-11	47.68	-25.13
Stage 8	-11.2	42.72	-24.81

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente) Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	-11.4	37.86	-24.31
Stage 8	-11.6	33.13	-23.63
Stage 8	-11.8	28.58	-22.78
Stage 8	-12	24.23	-21.75
Stage 8	-12.2	20.12	-20.55
Stage 8	-12.4	16.28	-19.18
Stage 8	-12.6	12.75	-17.63
Stage 8	-12.8	9.57	-15.92
Stage 8	-13	6.77	-13.99
Stage 8	-13.2	4.4	-11.84
Stage 8	-13.4	2.51	-9.47
Stage 8	-13.6	1.13	-6.89
Stage 8	-13.8	0.29	-4.21
Stage 8	-14	0	-1.44

PROGETTAZIONE ATI:

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

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

Stage	Forza (kN/m)
Stage 3	166.7
Stage 4	170.5001
Stage 5	157.0434
Stage 6	157.9292
Stage 7	157.6765
Stage 8	157.6735

PROGETTAZIONE ATI:

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

Stage	Forza (kN/m)
Stage 5	166.7
Stage 6	170.6054
Stage 7	169.6476
Stage 8	169.644

PROGETTAZIONE ATI:

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	-0.02
Stage 1	-0.6	-0.01	-0.03
Stage 1	-0.8	-0.02	-0.04
Stage 1	-1	-0.03	-0.05
Stage 1	-1.2	-0.04	-0.06
Stage 1	-1.4	-0.06	-0.07
Stage 1	-1.6	-0.07	-0.08
Stage 1	-1.8	-0.09	-0.08
Stage 1	-2	-0.11	-0.09
Stage 1	-2.2	-0.12	-0.09
Stage 1	-2.3	-0.13	-0.09
Stage 1	-2.5	-0.15	-0.09
Stage 1	-2.7	-0.17	-0.09
Stage 1	-2.9	-0.19	-0.09
Stage 1	-3.1	-0.2	-0.08
Stage 1	-3.3	-0.22	-0.08
Stage 1	-3.5	-0.23	-0.07
Stage 1	-3.7	-0.24	-0.06
Stage 1	-3.9	-0.25	-0.05
Stage 1	-4.1	-0.26	-0.04
Stage 1	-4.3	-0.27	-0.02
Stage 1	-4.5	-0.27	-0.01
Stage 1	-4.7	-0.27	0.01
Stage 1	-4.8	-0.26	0.02
Stage 1	-5	-0.26	0.04
Stage 1	-5.2	-0.24	0.06
Stage 1	-5.4	-0.23	0.08
Stage 1	-5.6	-0.2	0.11
Stage 1	-5.8	-0.18	0.14
Stage 1	-6	-0.14	0.17
Stage 1	-6.2	-0.1	0.2
Stage 1	-6.4	-0.06	0.23
Stage 1	-6.6	0	0.27
Stage 1	-6.8	0.06	0.3
Stage 1	-7	0.12	0.34
Stage 1	-7.2	0.2	0.38
Stage 1	-7.4	0.29	0.43
Stage 1	-7.6	0.38	0.47
Stage 1	-7.8	0.48	0.52
Stage 1	-8	0.6	0.57
Stage 1	-8.2	0.72	0.62
Stage 1	-8.4	0.82	0.51
Stage 1	-8.6	0.9	0.41
Stage 1	-8.8	0.97	0.31
Stage 1	-9	1.01	0.22
Stage 1	-9.2	1.04	0.14
Stage 1	-9.4	1.05	0.06
Stage 1	-9.6	1.05	0
Stage 1	-9.8	1.04	-0.07
Stage 1	-10	1.01	-0.12
Stage 1	-10.2	0.98	-0.17
Stage 1	-10.4	0.94	-0.21
Stage 1	-10.6	0.89	-0.25
Stage 1	-10.8	0.83	-0.28
Stage 1	-11	0.77	-0.31

PROGETTAZIONE ATI:

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	-11.2	0.71	-0.32	
Stage 1	-11.4	0.64	-0.34	
Stage 1	-11.6	0.57	-0.35	
Stage 1	-11.8	0.5	-0.35	
Stage 1	-12	0.43	-0.35	
Stage 1	-12.2	0.36	-0.34	
Stage 1	-12.4	0.3	-0.32	
Stage 1	-12.6	0.24	-0.31	
Stage 1	-12.8	0.18	-0.28	
Stage 1	-13	0.13	-0.25	
Stage 1	-13.2	0.09	-0.22	
Stage 1	-13.4	0.05	-0.18	
Stage 1	-13.6	0.02	-0.13	
Stage 1	-13.8	0.01	-0.08	
Stage 1	-14	0	-0.03	

PROGETTAZIONE ATI:

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	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	0	-0.01
Stage 2	-1.8	-0.11	-0.55
Stage 2	-2	-0.44	-1.64
Stage 2	-2.2	-1.09	-3.27
Stage 2	-2.3	-1.58	-4.9
Stage 2	-2.5	-2.93	-6.73
Stage 2	-2.7	-4.87	-9.71
Stage 2	-2.9	-7.52	-13.23
Stage 2	-3.1	-10.15	-13.15
Stage 2	-3.3	-12.67	-12.59
Stage 2	-3.5	-15.03	-11.83
Stage 2	-3.7	-17.22	-10.95
Stage 2	-3.9	-19.22	-10.01
Stage 2	-4.1	-21.03	-9.04
Stage 2	-4.3	-22.65	-8.06
Stage 2	-4.5	-24.06	-7.09
Stage 2	-4.7	-25.29	-6.13
Stage 2	-4.8	-25.83	-5.43
Stage 2	-5	-26.78	-4.74
Stage 2	-5.2	-27.55	-3.85
Stage 2	-5.4	-28.15	-2.99
Stage 2	-5.6	-28.58	-2.16
Stage 2	-5.8	-28.86	-1.38
Stage 2	-6	-28.98	-0.63
Stage 2	-6.2	-28.97	0.08
Stage 2	-6.4	-28.82	0.74
Stage 2	-6.6	-28.54	1.37
Stage 2	-6.8	-28.15	1.96
Stage 2	-7	-27.65	2.52
Stage 2	-7.2	-27.04	3.03
Stage 2	-7.4	-26.34	3.51
Stage 2	-7.6	-25.55	3.95
Stage 2	-7.8	-24.68	4.36
Stage 2	-8	-23.73	4.73
Stage 2	-8.2	-22.72	5.08
Stage 2	-8.4	-21.67	5.22
Stage 2	-8.6	-20.6	5.34
Stage 2	-8.8	-19.52	5.42
Stage 2	-9	-18.42	5.48
Stage 2	-9.2	-17.32	5.51
Stage 2	-9.4	-16.22	5.51
Stage 2	-9.6	-15.12	5.49
Stage 2	-9.8	-14.03	5.45
Stage 2	-10	-12.95	5.39
Stage 2	-10.2	-11.89	5.3

PROGETTAZIONE ATI:

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	-10.4	-10.86	5.19	
Stage 2	-10.6	-9.84	5.06	
Stage 2	-10.8	-8.86	4.91	
Stage 2	-11	-7.91	4.75	
Stage 2	-11.2	-7	4.56	
Stage 2	-11.4	-6.13	4.36	
Stage 2	-11.6	-5.3	4.14	
Stage 2	-11.8	-4.52	3.9	
Stage 2	-12	-3.79	3.65	
Stage 2	-12.2	-3.11	3.38	
Stage 2	-12.4	-2.49	3.09	
Stage 2	-12.6	-1.94	2.79	
Stage 2	-12.8	-1.44	2.47	
Stage 2	-13	-1.02	2.13	
Stage 2	-13.2	-0.66	1.78	
Stage 2	-13.4	-0.38	1.42	
Stage 2	-13.6	-0.17	1.03	
Stage 2	-13.8	-0.04	0.63	
Stage 2	-14	0	0.22	

PROGETTAZIONE ATI:

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	-3.05
Stage 3	-0.2	-0.61	-3.05
Stage 3	-0.4	-2.44	-9.18
Stage 3	-0.6	-5.51	-15.34
Stage 3	-0.8	-9.82	-21.53
Stage 3	-1	-15.37	-27.76
Stage 3	-1.2	-22.17	-34.02
Stage 3	-1.4	-30.24	-40.31
Stage 3	-1.6	-39.56	-46.64
Stage 3	-1.8	-50.23	-53.33
Stage 3	-2	-62.31	-60.4
Stage 3	-2.2	-75.88	-67.83
Stage 3	-2.3	-83.25	-73.68
Stage 3	-2.5	-57.31	129.66
Stage 3	-2.7	-33.05	121.32
Stage 3	-2.9	-10.53	112.62
Stage 3	-3.1	10.18	103.55
Stage 3	-3.3	29.01	94.13
Stage 3	-3.5	46.04	85.13
Stage 3	-3.7	61.37	76.66
Stage 3	-3.9	75.1	68.66
Stage 3	-4.1	87.32	61.1
Stage 3	-4.3	98.11	53.94
Stage 3	-4.5	107.54	47.17
Stage 3	-4.7	115.7	40.77
Stage 3	-4.8	119.32	36.23
Stage 3	-5	125.68	31.82
Stage 3	-5.2	130.94	26.27
Stage 3	-5.4	135.15	21.05
Stage 3	-5.6	138.37	16.13
Stage 3	-5.8	140.67	11.5
Stage 3	-6	142.11	7.17
Stage 3	-6.2	142.73	3.1
Stage 3	-6.4	142.6	-0.66
Stage 3	-6.6	141.77	-4.11
Stage 3	-6.8	140.32	-7.26
Stage 3	-7	138.3	-10.13
Stage 3	-7.2	135.75	-12.73
Stage 3	-7.4	132.74	-15.06
Stage 3	-7.6	129.31	-17.14
Stage 3	-7.8	125.51	-18.99
Stage 3	-8	121.39	-20.6
Stage 3	-8.2	116.99	-21.99
Stage 3	-8.4	112.33	-23.34
Stage 3	-8.6	107.43	-24.49
Stage 3	-8.8	102.34	-25.44
Stage 3	-9	97.1	-26.21
Stage 3	-9.2	91.74	-26.81
Stage 3	-9.4	86.29	-27.23
Stage 3	-9.6	80.79	-27.49
Stage 3	-9.8	75.27	-27.6
Stage 3	-10	69.76	-27.56
Stage 3	-10.2	64.28	-27.37
Stage 3	-10.4	58.88	-27.04
Stage 3	-10.6	53.56	-26.59
Stage 3	-10.8	48.36	-26
Stage 3	-11	43.3	-25.28
Stage 3	-11.2	38.41	-24.44
Stage 3	-11.4	33.72	-23.49
Stage 3	-11.6	29.23	-22.42

PROGETTAZIONE ATI:

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	-11.8	24.98	-21.24	
Stage 3	-12	21	-19.94	
Stage 3	-12.2	17.29	-18.54	
Stage 3	-12.4	13.88	-17.03	
Stage 3	-12.6	10.8	-15.42	
Stage 3	-12.8	8.06	-13.7	
Stage 3	-13	5.68	-11.87	
Stage 3	-13.2	3.7	-9.95	
Stage 3	-13.4	2.11	-7.92	
Stage 3	-13.6	0.95	-5.79	
Stage 3	-13.8	0.24	-3.55	
Stage 3	-14	0	-1.22	

PROGETTAZIONE ATI:

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	-2.77	
Stage 4	-0.2	-0.56	-2.77	
Stage 4	-0.4	-2.21	-8.29	
Stage 4	-0.6	-4.97	-13.77	
Stage 4	-0.8	-8.81	-19.22	
Stage 4	-1	-13.74	-24.64	
Stage 4	-1.2	-19.74	-30.02	
Stage 4	-1.4	-26.82	-35.36	
Stage 4	-1.6	-34.95	-40.68	
Stage 4	-1.8	-44.21	-46.29	
Stage 4	-2	-54.65	-52.21	
Stage 4	-2.2	-66.34	-58.43	
Stage 4	-2.3	-72.67	-63.32	
Stage 4	-2.5	-43.52	145.78	
Stage 4	-2.7	-15.75	138.81	
Stage 4	-2.9	10.56	131.55	
Stage 4	-3.1	35.35	123.99	
Stage 4	-3.3	58.58	116.14	
Stage 4	-3.5	80.18	108	
Stage 4	-3.7	100.09	99.55	
Stage 4	-3.9	118.25	90.81	
Stage 4	-4.1	134.61	81.76	
Stage 4	-4.3	149.09	72.41	
Stage 4	-4.5	161.64	62.75	
Stage 4	-4.7	172.2	52.79	
Stage 4	-4.8	176.7	45.07	
Stage 4	-5	184.15	37.24	
Stage 4	-5.2	189.45	26.48	
Stage 4	-5.4	192.53	15.4	
Stage 4	-5.6	194	7.36	
Stage 4	-5.8	194.12	0.58	
Stage 4	-6	193.05	-5.34	
Stage 4	-6.2	190.94	-10.55	
Stage 4	-6.4	187.92	-15.1	
Stage 4	-6.6	184.11	-19.05	
Stage 4	-6.8	179.62	-22.44	
Stage 4	-7	174.56	-25.31	
Stage 4	-7.2	169.02	-27.7	
Stage 4	-7.4	163.09	-29.64	
Stage 4	-7.6	156.86	-31.15	
Stage 4	-7.8	150.41	-32.25	
Stage 4	-8	143.82	-32.96	
Stage 4	-8.2	137.13	-33.42	
Stage 4	-8.4	130.36	-33.87	
Stage 4	-8.6	123.53	-34.17	
Stage 4	-8.8	116.66	-34.33	
Stage 4	-9	109.79	-34.36	
Stage 4	-9.2	102.94	-34.26	
Stage 4	-9.4	96.13	-34.03	
Stage 4	-9.6	89.4	-33.68	
Stage 4	-9.8	82.76	-33.21	
Stage 4	-10	76.23	-32.63	
Stage 4	-10.2	69.84	-31.94	
Stage 4	-10.4	63.61	-31.15	
Stage 4	-10.6	57.56	-30.25	
Stage 4	-10.8	51.71	-29.25	
Stage 4	-11	46.08	-28.16	
Stage 4	-11.2	40.69	-26.97	
Stage 4	-11.4	35.55	-25.68	
Stage 4	-11.6	30.69	-24.31	

PROGETTAZIONE ATI:

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	-11.8	26.12	-22.85	
Stage 4	-12	21.86	-21.3	
Stage 4	-12.2	17.93	-19.66	
Stage 4	-12.4	14.34	-17.94	
Stage 4	-12.6	11.11	-16.14	
Stage 4	-12.8	8.26	-14.25	
Stage 4	-13	5.81	-12.28	
Stage 4	-13.2	3.76	-10.23	
Stage 4	-13.4	2.14	-8.1	
Stage 4	-13.6	0.96	-5.89	
Stage 4	-13.8	0.24	-3.6	
Stage 4	-14	0	-1.22	

PROGETTAZIONE ATI:

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	-4.5	
Stage 5	-0.2	-0.9	-4.5	
Stage 5	-0.4	-3.59	-13.47	
Stage 5	-0.6	-8.07	-22.39	
Stage 5	-0.8	-14.33	-31.28	
Stage 5	-1	-22.35	-40.13	
Stage 5	-1.2	-32.14	-48.94	
Stage 5	-1.4	-43.68	-57.71	
Stage 5	-1.6	-56.97	-66.45	
Stage 5	-1.8	-72.07	-75.48	
Stage 5	-2	-89.03	-84.81	
Stage 5	-2.2	-107.92	-94.43	
Stage 5	-2.3	-118.11	-101.87	
Stage 5	-2.5	-100.55	87.78	
Stage 5	-2.7	-85.06	77.43	
Stage 5	-2.9	-71.71	66.79	
Stage 5	-3.1	-60.53	55.86	
Stage 5	-3.3	-51.6	44.65	
Stage 5	-3.5	-44.97	33.15	
Stage 5	-3.7	-40.7	21.37	
Stage 5	-3.9	-38.84	9.31	
Stage 5	-4.1	-39.45	-3.04	
Stage 5	-4.3	-42.58	-15.68	
Stage 5	-4.5	-48.3	-28.6	
Stage 5	-4.7	-56.66	-41.8	
Stage 5	-4.8	-61.85	-51.92	
Stage 5	-5	-32.42	147.18	
Stage 5	-5.2	-5.77	133.26	
Stage 5	-5.4	18.04	119.05	
Stage 5	-5.6	38.98	104.67	
Stage 5	-5.8	57.31	91.68	
Stage 5	-6	73.25	79.69	
Stage 5	-6.2	86.96	68.55	
Stage 5	-6.4	98.59	58.16	
Stage 5	-6.6	108.29	48.48	
Stage 5	-6.8	116.18	39.46	
Stage 5	-7	122.41	31.18	
Stage 5	-7.2	127.13	23.59	
Stage 5	-7.4	130.47	16.68	
Stage 5	-7.6	132.55	10.41	
Stage 5	-7.8	133.5	4.78	
Stage 5	-8	133.46	-0.24	
Stage 5	-8.2	132.5	-4.79	
Stage 5	-8.4	130.68	-9.09	
Stage 5	-8.6	128.07	-13.03	
Stage 5	-8.8	124.75	-16.6	
Stage 5	-9	120.79	-19.82	
Stage 5	-9.2	116.25	-22.67	
Stage 5	-9.4	111.22	-25.18	
Stage 5	-9.6	105.75	-27.35	
Stage 5	-9.8	99.91	-29.18	
Stage 5	-10	93.78	-30.67	
Stage 5	-10.2	87.41	-31.83	
Stage 5	-10.4	80.88	-32.66	
Stage 5	-10.6	74.25	-33.17	
Stage 5	-10.8	67.57	-33.36	
Stage 5	-11	60.93	-33.24	
Stage 5	-11.2	54.37	-32.8	
Stage 5	-11.4	47.96	-32.05	
Stage 5	-11.6	41.76	-31	

PROGETTAZIONE ATI:

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	-11.8	35.83	-29.64	
Stage 5	-12	30.22	-28.03	
Stage 5	-12.2	24.97	-26.24	
Stage 5	-12.4	20.12	-24.26	
Stage 5	-12.6	15.7	-22.09	
Stage 5	-12.8	11.76	-19.74	
Stage 5	-13	8.32	-17.2	
Stage 5	-13.2	5.42	-14.48	
Stage 5	-13.4	3.1	-11.58	
Stage 5	-13.6	1.4	-8.5	
Stage 5	-13.8	0.36	-5.23	
Stage 5	-14	0	-1.78	

PROGETTAZIONE ATI:

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	-4.63	
Stage 6	-0.2	-0.93	-4.63	
Stage 6	-0.4	-3.69	-13.82	
Stage 6	-0.6	-8.27	-22.93	
Stage 6	-0.8	-14.67	-31.96	
Stage 6	-1	-22.85	-40.93	
Stage 6	-1.2	-32.82	-49.82	
Stage 6	-1.4	-44.54	-58.63	
Stage 6	-1.6	-58.02	-67.38	
Stage 6	-1.8	-73.29	-76.36	
Stage 6	-2	-90.41	-85.59	
Stage 6	-2.2	-109.42	-95.05	
Stage 6	-2.3	-119.65	-102.33	
Stage 6	-2.5	-101.93	88.62	
Stage 6	-2.7	-86.21	78.57	
Stage 6	-2.9	-72.56	68.29	
Stage 6	-3.1	-61	57.78	
Stage 6	-3.3	-51.59	47.04	
Stage 6	-3.5	-44.38	36.08	
Stage 6	-3.7	-39.4	24.89	
Stage 6	-3.9	-36.71	13.47	
Stage 6	-4.1	-36.34	1.82	
Stage 6	-4.3	-38.35	-10.05	
Stage 6	-4.5	-42.78	-22.15	
Stage 6	-4.7	-49.68	-34.48	
Stage 6	-4.8	-54.07	-43.9	
Stage 6	-5	-21.91	160.82	
Stage 6	-5.2	7.68	147.92	
Stage 6	-5.4	34.63	134.78	
Stage 6	-5.6	58.92	121.41	
Stage 6	-5.8	80.48	107.81	
Stage 6	-6	99.27	93.96	
Stage 6	-6.2	115.25	79.88	
Stage 6	-6.4	128.36	65.56	
Stage 6	-6.6	138.55	50.98	
Stage 6	-6.8	145.79	36.17	
Stage 6	-7	150.94	25.77	
Stage 6	-7.2	154.3	16.79	
Stage 6	-7.4	156.09	8.97	
Stage 6	-7.6	156.53	2.18	
Stage 6	-7.8	155.79	-3.68	
Stage 6	-8	154.06	-8.66	
Stage 6	-8.2	151.47	-12.93	
Stage 6	-8.4	148.12	-16.76	
Stage 6	-8.6	144.1	-20.1	
Stage 6	-8.8	139.48	-23.1	
Stage 6	-9	134.33	-25.78	
Stage 6	-9.2	128.7	-28.13	
Stage 6	-9.4	122.67	-30.17	
Stage 6	-9.6	116.29	-31.9	
Stage 6	-9.8	109.62	-33.33	
Stage 6	-10	102.73	-34.46	
Stage 6	-10.2	95.67	-35.31	
Stage 6	-10.4	88.5	-35.87	
Stage 6	-10.6	81.26	-36.16	
Stage 6	-10.8	74.03	-36.17	
Stage 6	-11	66.85	-35.91	
Stage 6	-11.2	59.77	-35.39	
Stage 6	-11.4	52.85	-34.6	
Stage 6	-11.6	46.14	-33.55	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia				
Stage	Z (m)	Muro: LEFT		
		Momento (kN*m/m)	Taglio (kN/m)	
Stage 6	-11.8	39.69	-32.25	
Stage 6	-12	33.55	-30.7	
Stage 6	-12.2	27.77	-28.9	
Stage 6	-12.4	22.4	-26.85	
Stage 6	-12.6	17.49	-24.55	
Stage 6	-12.8	13.09	-22	
Stage 6	-13	9.25	-19.22	
Stage 6	-13.2	6.01	-16.19	
Stage 6	-13.4	3.43	-12.92	
Stage 6	-13.6	1.55	-9.41	
Stage 6	-13.8	0.39	-5.76	
Stage 6	-14	0	-1.97	

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 7

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia				Muro: LEFT
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)	
Stage 7	0	0	-4.59	
Stage 7	-0.2	-0.92	-4.59	
Stage 7	-0.4	-3.66	-13.7	
Stage 7	-0.6	-8.21	-22.75	
Stage 7	-0.8	-14.55	-31.74	
Stage 7	-1	-22.69	-40.67	
Stage 7	-1.2	-32.6	-49.55	
Stage 7	-1.4	-44.27	-58.36	
Stage 7	-1.6	-57.69	-67.11	
Stage 7	-1.8	-72.91	-76.12	
Stage 7	-2	-89.99	-85.39	
Stage 7	-2.2	-108.97	-94.91	
Stage 7	-2.3	-119.2	-102.23	
Stage 7	-2.5	-101.53	88.34	
Stage 7	-2.7	-85.89	78.2	
Stage 7	-2.9	-72.32	67.82	
Stage 7	-3.1	-60.89	57.19	
Stage 7	-3.3	-51.62	46.32	
Stage 7	-3.5	-44.58	35.21	
Stage 7	-3.7	-39.81	23.85	
Stage 7	-3.9	-37.36	12.26	
Stage 7	-4.1	-37.27	0.42	
Stage 7	-4.3	-39.61	-11.66	
Stage 7	-4.5	-44.4	-23.98	
Stage 7	-4.7	-51.71	-36.54	
Stage 7	-4.8	-56.32	-46.15	
Stage 7	-5	-24.89	157.18	
Stage 7	-5.2	3.92	144.01	
Stage 7	-5.4	30.03	130.59	
Stage 7	-5.6	53.42	116.92	
Stage 7	-5.8	74.02	103.01	
Stage 7	-6	91.79	88.84	
Stage 7	-6.2	106.67	74.42	
Stage 7	-6.4	118.61	59.67	
Stage 7	-6.6	127.63	45.14	
Stage 7	-6.8	133.8	30.84	
Stage 7	-7	138.24	22.19	
Stage 7	-7.2	141.14	14.5	
Stage 7	-7.4	142.68	7.7	
Stage 7	-7.6	143.03	1.74	
Stage 7	-7.8	142.34	-3.44	
Stage 7	-8	140.77	-7.85	
Stage 7	-8.2	138.44	-11.64	
Stage 7	-8.4	135.43	-15.08	
Stage 7	-8.6	131.81	-18.07	
Stage 7	-8.8	127.66	-20.77	
Stage 7	-9	123.02	-23.18	
Stage 7	-9.2	117.96	-25.31	
Stage 7	-9.4	112.53	-27.16	
Stage 7	-9.6	106.78	-28.75	
Stage 7	-9.8	100.76	-30.07	
Stage 7	-10	94.54	-31.13	
Stage 7	-10.2	88.15	-31.93	
Stage 7	-10.4	81.66	-32.48	
Stage 7	-10.6	75.1	-32.79	
Stage 7	-10.8	68.53	-32.85	
Stage 7	-11	61.99	-32.67	
Stage 7	-11.2	55.54	-32.26	
Stage 7	-11.4	49.22	-31.61	
Stage 7	-11.6	43.07	-30.73	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia			
Stage	Z (m)	Muro: LEFT Momento (kN*m/m)	Taglio (kN/m)
Stage 7	-11.8	37.15	-29.62
Stage 7	-12	31.5	-28.28
Stage 7	-12.2	26.15	-26.72
Stage 7	-12.4	21.16	-24.93
Stage 7	-12.6	16.58	-22.93
Stage 7	-12.8	12.44	-20.7
Stage 7	-13	8.8	-18.19
Stage 7	-13.2	5.72	-15.39
Stage 7	-13.4	3.26	-12.31
Stage 7	-13.6	1.47	-8.96
Stage 7	-13.8	0.37	-5.48
Stage 7	-14	0	-1.87

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: A1+M1+R1 (R3 per tiranti) - Left Wall - Stage: Stage 8

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	0	0	-4.59
Stage 8	-0.2	-0.92	-4.59
Stage 8	-0.4	-3.66	-13.7
Stage 8	-0.6	-8.21	-22.75
Stage 8	-0.8	-14.56	-31.74
Stage 8	-1	-22.69	-40.68
Stage 8	-1.2	-32.6	-49.55
Stage 8	-1.4	-44.27	-58.36
Stage 8	-1.6	-57.7	-67.11
Stage 8	-1.8	-72.92	-76.13
Stage 8	-2	-90	-85.39
Stage 8	-2.2	-108.98	-94.91
Stage 8	-2.3	-119.21	-102.24
Stage 8	-2.5	-101.54	88.33
Stage 8	-2.7	-85.9	78.19
Stage 8	-2.9	-72.34	67.8
Stage 8	-3.1	-60.91	57.17
Stage 8	-3.3	-51.65	46.3
Stage 8	-3.5	-44.61	35.19
Stage 8	-3.7	-39.84	23.83
Stage 8	-3.9	-37.4	12.24
Stage 8	-4.1	-37.32	0.4
Stage 8	-4.3	-39.65	-11.68
Stage 8	-4.5	-44.45	-24
Stage 8	-4.7	-51.76	-36.56
Stage 8	-4.8	-56.38	-46.17
Stage 8	-5	-24.95	157.15
Stage 8	-5.2	3.85	143.98
Stage 8	-5.4	29.96	130.56
Stage 8	-5.6	53.34	116.89
Stage 8	-5.8	73.93	102.98
Stage 8	-6	91.69	88.81
Stage 8	-6.2	106.57	74.38
Stage 8	-6.4	118.51	59.7
Stage 8	-6.6	127.54	45.17
Stage 8	-6.8	133.72	30.87
Stage 8	-7	138.16	22.22
Stage 8	-7.2	141.07	14.54
Stage 8	-7.4	142.62	7.73
Stage 8	-7.6	142.97	1.76
Stage 8	-7.8	142.29	-3.41
Stage 8	-8	140.72	-7.83
Stage 8	-8.2	138.4	-11.62
Stage 8	-8.4	135.39	-15.06
Stage 8	-8.6	131.78	-18.05
Stage 8	-8.8	127.63	-20.75
Stage 8	-9	122.99	-23.16
Stage 8	-9.2	117.94	-25.29
Stage 8	-9.4	112.51	-27.15
Stage 8	-9.6	106.76	-28.73
Stage 8	-9.8	100.75	-30.05
Stage 8	-10	94.53	-31.12
Stage 8	-10.2	88.14	-31.92
Stage 8	-10.4	81.65	-32.47
Stage 8	-10.6	75.09	-32.78
Stage 8	-10.8	68.52	-32.84
Stage 8	-11	61.99	-32.67
Stage 8	-11.2	55.54	-32.25
Stage 8	-11.4	49.22	-31.6
Stage 8	-11.6	43.07	-30.72

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti) Risultati Paratia			
Stage	Z (m)	Muro: LEFT Momento (kN*m/m)	Taglio (kN/m)
Stage 8	-11.8	37.15	-29.61
Stage 8	-12	31.49	-28.28
Stage 8	-12.2	26.15	-26.72
Stage 8	-12.4	21.16	-24.93
Stage 8	-12.6	16.58	-22.93
Stage 8	-12.8	12.44	-20.7
Stage 8	-13	8.8	-18.19
Stage 8	-13.2	5.72	-15.39
Stage 8	-13.4	3.26	-12.31
Stage 8	-13.6	1.47	-8.96
Stage 8	-13.8	0.37	-5.48
Stage 8	-14	0	-1.87

PROGETTAZIONE ATI:

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 3	216.71
Stage 4	221.65013
Stage 5	204.15642
Stage 6	205.30796
Stage 7	204.97945
Stage 8	204.97555

PROGETTAZIONE ATI:

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

Stage	Forza (kN/m)
Stage 5	216.71
Stage 6	221.78702
Stage 7	220.54188
Stage 8	220.5372

PROGETTAZIONE ATI:

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	-0.13
Stage 1	-0.2	-0.03	-0.13
Stage 1	-0.4	-0.18	-0.77
Stage 1	-0.6	-0.46	-1.4
Stage 1	-0.8	-0.86	-1.99
Stage 1	-1	-1.37	-2.54
Stage 1	-1.2	-1.97	-3.04
Stage 1	-1.4	-2.68	-3.5
Stage 1	-1.6	-3.46	-3.92
Stage 1	-1.8	-4.32	-4.29
Stage 1	-2	-5.24	-4.61
Stage 1	-2.2	-6.22	-4.89
Stage 1	-2.3	-6.72	-5.06
Stage 1	-2.5	-7.77	-5.22
Stage 1	-2.7	-8.84	-5.38
Stage 1	-2.9	-9.94	-5.5
Stage 1	-3.1	-11.06	-5.56
Stage 1	-3.3	-12.17	-5.58
Stage 1	-3.5	-13.28	-5.54
Stage 1	-3.7	-14.37	-5.45
Stage 1	-3.9	-15.43	-5.31
Stage 1	-4.1	-16.45	-5.1
Stage 1	-4.3	-17.42	-4.85
Stage 1	-4.5	-18.33	-4.53
Stage 1	-4.7	-19.16	-4.15
Stage 1	-4.8	-19.54	-3.81
Stage 1	-5	-20.23	-3.46
Stage 1	-5.2	-20.81	-2.91
Stage 1	-5.4	-21.27	-2.3
Stage 1	-5.6	-21.59	-1.61
Stage 1	-5.8	-21.76	-0.85
Stage 1	-6	-21.77	-0.01
Stage 1	-6.2	-21.6	0.8
Stage 1	-6.4	-21.3	1.54
Stage 1	-6.6	-20.86	2.19
Stage 1	-6.8	-20.3	2.77
Stage 1	-7	-19.65	3.27
Stage 1	-7.2	-18.91	3.69
Stage 1	-7.4	-18.11	4.03
Stage 1	-7.6	-17.25	4.3
Stage 1	-7.8	-16.35	4.49
Stage 1	-8	-15.43	4.61
Stage 1	-8.2	-14.49	4.66
Stage 1	-8.4	-13.58	4.56
Stage 1	-8.6	-12.69	4.45
Stage 1	-8.8	-11.82	4.34
Stage 1	-9	-10.98	4.22
Stage 1	-9.2	-10.16	4.09
Stage 1	-9.4	-9.37	3.96
Stage 1	-9.6	-8.6	3.82
Stage 1	-9.8	-7.87	3.68
Stage 1	-10	-7.16	3.53
Stage 1	-10.2	-6.49	3.38
Stage 1	-10.4	-5.84	3.23
Stage 1	-10.6	-5.22	3.07
Stage 1	-10.8	-4.64	2.91
Stage 1	-11	-4.09	2.75

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-11.2	-3.57	2.59
Stage 1	-11.4	-3.09	2.42
Stage 1	-11.6	-2.64	2.25
Stage 1	-11.8	-2.22	2.08
Stage 1	-12	-1.84	1.91
Stage 1	-12.2	-1.5	1.73
Stage 1	-12.4	-1.19	1.56
Stage 1	-12.6	-0.91	1.38
Stage 1	-12.8	-0.67	1.2
Stage 1	-13	-0.47	1.02
Stage 1	-13.2	-0.3	0.84
Stage 1	-13.4	-0.17	0.65
Stage 1	-13.6	-0.08	0.47
Stage 1	-13.8	-0.02	0.28
Stage 1	-14	0	0.09

PROGETTAZIONE ATI:

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	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	-0.06	-0.3
Stage 2	-1.8	-0.25	-0.96
Stage 2	-2	-0.65	-1.98
Stage 2	-2.2	-1.32	-3.35
Stage 2	-2.3	-1.78	-4.64
Stage 2	-2.5	-3	-6.07
Stage 2	-2.7	-4.67	-8.38
Stage 2	-2.9	-6.91	-11.18
Stage 2	-3.1	-9.07	-10.78
Stage 2	-3.3	-11.07	-10.03
Stage 2	-3.5	-12.9	-9.13
Stage 2	-3.7	-14.53	-8.17
Stage 2	-3.9	-15.97	-7.18
Stage 2	-4.1	-17.2	-6.19
Stage 2	-4.3	-18.25	-5.21
Stage 2	-4.5	-19.1	-4.25
Stage 2	-4.7	-19.76	-3.33
Stage 2	-4.8	-20.03	-2.67
Stage 2	-5	-20.44	-2.03
Stage 2	-5.2	-20.68	-1.22
Stage 2	-5.4	-20.77	-0.45
Stage 2	-5.6	-20.72	0.26
Stage 2	-5.8	-20.54	0.92
Stage 2	-6	-20.23	1.52
Stage 2	-6.2	-19.82	2.07
Stage 2	-6.4	-19.31	2.56
Stage 2	-6.6	-18.71	2.99
Stage 2	-6.8	-18.04	3.36
Stage 2	-7	-17.3	3.68
Stage 2	-7.2	-16.51	3.94
Stage 2	-7.4	-15.69	4.14
Stage 2	-7.6	-14.83	4.28
Stage 2	-7.8	-13.96	4.36
Stage 2	-8	-13.08	4.38
Stage 2	-8.2	-12.21	4.35
Stage 2	-8.4	-11.38	4.18
Stage 2	-8.6	-10.57	4.01
Stage 2	-8.8	-9.8	3.85
Stage 2	-9	-9.07	3.69
Stage 2	-9.2	-8.36	3.52
Stage 2	-9.4	-7.69	3.37
Stage 2	-9.6	-7.05	3.21
Stage 2	-9.8	-6.43	3.06
Stage 2	-10	-5.85	2.91
Stage 2	-10.2	-5.3	2.77

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-10.4	-4.78	2.62
Stage 2	-10.6	-4.28	2.48
Stage 2	-10.8	-3.81	2.34
Stage 2	-11	-3.37	2.2
Stage 2	-11.2	-2.96	2.06
Stage 2	-11.4	-2.58	1.92
Stage 2	-11.6	-2.22	1.79
Stage 2	-11.8	-1.89	1.66
Stage 2	-12	-1.58	1.53
Stage 2	-12.2	-1.3	1.4
Stage 2	-12.4	-1.05	1.28
Stage 2	-12.6	-0.81	1.16
Stage 2	-12.8	-0.61	1.03
Stage 2	-13	-0.43	0.89
Stage 2	-13.2	-0.28	0.75
Stage 2	-13.4	-0.16	0.6
Stage 2	-13.6	-0.07	0.44
Stage 2	-13.8	-0.02	0.27
Stage 2	-14	0	0.09

PROGETTAZIONE ATI:

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	-2.43
Stage 3	-0.2	-0.49	-2.43
Stage 3	-0.4	-1.95	-7.31
Stage 3	-0.6	-4.39	-12.21
Stage 3	-0.8	-7.82	-17.13
Stage 3	-1	-12.23	-22.06
Stage 3	-1.2	-17.63	-27.01
Stage 3	-1.4	-24.02	-31.97
Stage 3	-1.6	-31.45	-37.14
Stage 3	-1.8	-39.96	-42.55
Stage 3	-2	-49.6	-48.2
Stage 3	-2.2	-60.42	-54.08
Stage 3	-2.3	-66.28	-58.66
Stage 3	-2.5	-46.75	97.68
Stage 3	-2.7	-28.51	91.19
Stage 3	-2.9	-11.63	84.38
Stage 3	-3.1	3.81	77.25
Stage 3	-3.3	17.78	69.8
Stage 3	-3.5	30.29	62.58
Stage 3	-3.7	41.45	55.8
Stage 3	-3.9	51.34	49.43
Stage 3	-4.1	60.03	43.44
Stage 3	-4.3	67.59	37.82
Stage 3	-4.5	74.1	32.53
Stage 3	-4.7	79.61	27.58
Stage 3	-4.8	82.02	24.11
Stage 3	-5	86.17	20.75
Stage 3	-5.2	89.49	16.57
Stage 3	-5.4	92.02	12.69
Stage 3	-5.6	93.84	9.09
Stage 3	-5.8	95	5.77
Stage 3	-6	95.54	2.72
Stage 3	-6.2	95.52	-0.08
Stage 3	-6.4	95	-2.62
Stage 3	-6.6	94.02	-4.91
Stage 3	-6.8	92.62	-6.97
Stage 3	-7	90.86	-8.81
Stage 3	-7.2	88.77	-10.46
Stage 3	-7.4	86.38	-11.94
Stage 3	-7.6	83.73	-13.25
Stage 3	-7.8	80.86	-14.37
Stage 3	-8	77.79	-15.33
Stage 3	-8.2	74.57	-16.13
Stage 3	-8.4	71.2	-16.83
Stage 3	-8.6	67.74	-17.33
Stage 3	-8.8	64.21	-17.61
Stage 3	-9	60.66	-17.79
Stage 3	-9.2	57.08	-17.88
Stage 3	-9.4	53.5	-17.89
Stage 3	-9.6	49.93	-17.84
Stage 3	-9.8	46.39	-17.72
Stage 3	-10	42.88	-17.53
Stage 3	-10.2	39.43	-17.28
Stage 3	-10.4	36.04	-16.96
Stage 3	-10.6	32.72	-16.58
Stage 3	-10.8	29.5	-16.13
Stage 3	-11	26.37	-15.62
Stage 3	-11.2	23.36	-15.05
Stage 3	-11.4	20.48	-14.41
Stage 3	-11.6	17.74	-13.72

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-11.8	15.14	-12.96
Stage 3	-12	12.71	-12.15
Stage 3	-12.2	10.46	-11.27
Stage 3	-12.4	8.39	-10.34
Stage 3	-12.6	6.52	-9.34
Stage 3	-12.8	4.86	-8.29
Stage 3	-13	3.43	-7.18
Stage 3	-13.2	2.23	-6.01
Stage 3	-13.4	1.27	-4.78
Stage 3	-13.6	0.57	-3.49
Stage 3	-13.8	0.15	-2.14
Stage 3	-14	0	-0.73

PROGETTAZIONE ATI:

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	-2.22
Stage 4	-0.2	-0.44	-2.22
Stage 4	-0.4	-1.76	-6.6
Stage 4	-0.6	-3.95	-10.93
Stage 4	-0.8	-6.99	-15.2
Stage 4	-1	-10.88	-19.43
Stage 4	-1.2	-15.6	-23.61
Stage 4	-1.4	-21.14	-27.74
Stage 4	-1.6	-27.54	-32
Stage 4	-1.8	-34.83	-36.44
Stage 4	-2	-43.04	-41.04
Stage 4	-2.2	-52.2	-45.81
Stage 4	-2.3	-57.15	-49.52
Stage 4	-2.5	-34.66	112.48
Stage 4	-2.7	-13.21	107.26
Stage 4	-2.9	7.15	101.79
Stage 4	-3.1	26.36	96.07
Stage 4	-3.3	44.38	90.1
Stage 4	-3.5	61.16	83.87
Stage 4	-3.7	76.63	77.39
Stage 4	-3.9	90.76	70.64
Stage 4	-4.1	103.49	63.63
Stage 4	-4.3	114.76	56.36
Stage 4	-4.5	124.52	48.82
Stage 4	-4.7	132.72	41
Stage 4	-4.8	136.22	34.94
Stage 4	-5	141.97	28.77
Stage 4	-5.2	146.03	20.27
Stage 4	-5.4	148.28	11.29
Stage 4	-5.6	149.5	6.07
Stage 4	-5.8	149.84	1.7
Stage 4	-6	149.41	-2.13
Stage 4	-6.2	148.31	-5.52
Stage 4	-6.4	146.6	-8.55
Stage 4	-6.6	144.35	-11.26
Stage 4	-6.8	141.61	-13.69
Stage 4	-7	138.43	-15.87
Stage 4	-7.2	134.87	-17.8
Stage 4	-7.4	130.97	-19.52
Stage 4	-7.6	126.76	-21.03
Stage 4	-7.8	122.29	-22.35
Stage 4	-8	117.59	-23.49
Stage 4	-8.2	112.7	-24.46
Stage 4	-8.4	107.63	-25.34
Stage 4	-8.6	102.43	-26.04
Stage 4	-8.8	97.12	-26.54
Stage 4	-9	91.74	-26.87
Stage 4	-9.2	86.34	-27.04
Stage 4	-9.4	80.92	-27.07
Stage 4	-9.6	75.52	-27
Stage 4	-9.8	70.16	-26.82
Stage 4	-10	64.85	-26.53
Stage 4	-10.2	59.62	-26.15
Stage 4	-10.4	54.49	-25.67
Stage 4	-10.6	49.47	-25.09
Stage 4	-10.8	44.59	-24.41
Stage 4	-11	39.86	-23.63
Stage 4	-11.2	35.31	-22.77
Stage 4	-11.4	30.95	-21.8
Stage 4	-11.6	26.8	-20.75

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-11.8	22.88	-19.61
Stage 4	-12	19.2	-18.37
Stage 4	-12.2	15.8	-17.04
Stage 4	-12.4	12.67	-15.62
Stage 4	-12.6	9.85	-14.12
Stage 4	-12.8	7.34	-12.52
Stage 4	-13	5.17	-10.84
Stage 4	-13.2	3.36	-9.07
Stage 4	-13.4	1.92	-7.21
Stage 4	-13.6	0.87	-5.26
Stage 4	-13.8	0.22	-3.23
Stage 4	-14	0	-1.1

PROGETTAZIONE ATI:

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	-3.51
Stage 5	-0.2	-0.7	-3.51
Stage 5	-0.4	-2.8	-10.5
Stage 5	-0.6	-6.29	-17.43
Stage 5	-0.8	-11.15	-24.32
Stage 5	-1	-17.38	-31.16
Stage 5	-1.2	-24.97	-37.95
Stage 5	-1.4	-33.91	-44.7
Stage 5	-1.6	-44.23	-51.58
Stage 5	-1.8	-55.96	-58.64
Stage 5	-2	-69.13	-65.87
Stage 5	-2.2	-83.79	-73.27
Stage 5	-2.3	-91.68	-78.95
Stage 5	-2.5	-78.2	67.4
Stage 5	-2.7	-66.29	59.54
Stage 5	-2.9	-56	51.44
Stage 5	-3.1	-47.39	43.09
Stage 5	-3.3	-40.49	34.49
Stage 5	-3.5	-35.36	25.63
Stage 5	-3.7	-32.06	16.52
Stage 5	-3.9	-30.63	7.15
Stage 5	-4.1	-31.12	-2.47
Stage 5	-4.3	-33.6	-12.36
Stage 5	-4.5	-38.1	-22.5
Stage 5	-4.7	-44.67	-32.9
Stage 5	-4.8	-48.76	-40.89
Stage 5	-5	-26.36	112.04
Stage 5	-5.2	-6.16	100.99
Stage 5	-5.4	11.75	89.56
Stage 5	-5.6	27.58	79.12
Stage 5	-5.8	41.52	69.71
Stage 5	-6	53.72	61.03
Stage 5	-6.2	64.32	52.96
Stage 5	-6.4	73.41	45.44
Stage 5	-6.6	81.09	38.43
Stage 5	-6.8	87.47	31.89
Stage 5	-7	92.63	25.79
Stage 5	-7.2	96.65	20.1
Stage 5	-7.4	99.61	14.81
Stage 5	-7.6	101.59	9.89
Stage 5	-7.8	102.65	5.34
Stage 5	-8	102.88	1.13
Stage 5	-8.2	102.33	-2.74
Stage 5	-8.4	101.06	-6.37
Stage 5	-8.6	99.13	-9.64
Stage 5	-8.8	96.62	-12.56
Stage 5	-9	93.59	-15.13
Stage 5	-9.2	90.11	-17.38
Stage 5	-9.4	86.24	-19.35
Stage 5	-9.6	82.04	-21.03
Stage 5	-9.8	77.55	-22.45
Stage 5	-10	72.82	-23.61
Stage 5	-10.2	67.92	-24.52
Stage 5	-10.4	62.88	-25.18
Stage 5	-10.6	57.76	-25.6
Stage 5	-10.8	52.61	-25.78
Stage 5	-11	47.46	-25.72
Stage 5	-11.2	42.38	-25.42
Stage 5	-11.4	37.4	-24.88
Stage 5	-11.6	32.58	-24.1

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-11.8	27.97	-23.09
Stage 5	-12	23.6	-21.84
Stage 5	-12.2	19.51	-20.45
Stage 5	-12.4	15.73	-18.91
Stage 5	-12.6	12.28	-17.23
Stage 5	-12.8	9.2	-15.41
Stage 5	-13	6.51	-13.44
Stage 5	-13.2	4.25	-11.32
Stage 5	-13.4	2.44	-9.06
Stage 5	-13.6	1.11	-6.66
Stage 5	-13.8	0.28	-4.11
Stage 5	-14	0	-1.42

PROGETTAZIONE ATI:

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	-3.56
Stage 6	-0.2	-0.71	-3.56
Stage 6	-0.4	-2.83	-10.6
Stage 6	-0.6	-6.34	-17.56
Stage 6	-0.8	-11.23	-24.46
Stage 6	-1	-17.49	-31.26
Stage 6	-1.2	-25.08	-37.97
Stage 6	-1.4	-34	-44.59
Stage 6	-1.6	-44.26	-51.31
Stage 6	-1.8	-55.89	-58.16
Stage 6	-2	-68.92	-65.14
Stage 6	-2.2	-83.37	-72.25
Stage 6	-2.3	-91.14	-77.67
Stage 6	-2.5	-77	70.7
Stage 6	-2.7	-64.35	63.25
Stage 6	-2.9	-53.23	55.59
Stage 6	-3.1	-43.68	47.73
Stage 6	-3.3	-35.75	39.66
Stage 6	-3.5	-29.48	31.37
Stage 6	-3.7	-24.9	22.88
Stage 6	-3.9	-22.07	14.17
Stage 6	-4.1	-21.02	5.25
Stage 6	-4.3	-21.79	-3.89
Stage 6	-4.5	-24.44	-13.24
Stage 6	-4.7	-29.01	-22.81
Stage 6	-4.8	-32.02	-30.16
Stage 6	-5	-6.35	128.35
Stage 6	-5.2	17.3	118.23
Stage 6	-5.4	38.85	107.78
Stage 6	-5.6	58.24	96.97
Stage 6	-5.8	75.41	85.81
Stage 6	-6	90.26	74.29
Stage 6	-6.2	102.75	62.42
Stage 6	-6.4	112.79	50.2
Stage 6	-6.6	120.32	37.63
Stage 6	-6.8	125.26	24.7
Stage 6	-7	128.74	17.4
Stage 6	-7.2	130.95	11.06
Stage 6	-7.4	132.05	5.49
Stage 6	-7.6	132.16	0.58
Stage 6	-7.8	131.39	-3.85
Stage 6	-8	129.83	-7.84
Stage 6	-8.2	127.54	-11.43
Stage 6	-8.4	124.6	-14.73
Stage 6	-8.6	121.06	-17.67
Stage 6	-8.8	117.01	-20.26
Stage 6	-9	112.51	-22.51
Stage 6	-9.2	107.62	-24.45
Stage 6	-9.4	102.4	-26.1
Stage 6	-9.6	96.9	-27.48
Stage 6	-9.8	91.18	-28.61
Stage 6	-10	85.28	-29.49
Stage 6	-10.2	79.26	-30.12
Stage 6	-10.4	73.16	-30.5
Stage 6	-10.6	67.03	-30.64
Stage 6	-10.8	60.92	-30.54
Stage 6	-11	54.88	-30.2
Stage 6	-11.2	48.96	-29.63
Stage 6	-11.4	43.19	-28.82
Stage 6	-11.6	37.63	-27.78

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-11.8	32.32	-26.56
Stage 6	-12	27.29	-25.16
Stage 6	-12.2	22.57	-23.59
Stage 6	-12.4	18.2	-21.84
Stage 6	-12.6	14.22	-19.91
Stage 6	-12.8	10.66	-17.82
Stage 6	-13	7.55	-15.55
Stage 6	-13.2	4.93	-13.11
Stage 6	-13.4	2.83	-10.5
Stage 6	-13.6	1.28	-7.72
Stage 6	-13.8	0.33	-4.77
Stage 6	-14	0	-1.65

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 7

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	0	0	-3.51
Stage 7	-0.2	-0.7	-3.51
Stage 7	-0.4	-2.79	-10.46
Stage 7	-0.6	-6.26	-17.35
Stage 7	-0.8	-11.1	-24.18
Stage 7	-1	-17.28	-30.93
Stage 7	-1.2	-24.8	-37.6
Stage 7	-1.4	-33.64	-44.19
Stage 7	-1.6	-43.82	-50.89
Stage 7	-1.8	-55.37	-57.74
Stage 7	-2	-68.31	-64.72
Stage 7	-2.2	-82.68	-71.85
Stage 7	-2.3	-90.41	-77.3
Stage 7	-2.5	-76.23	70.88
Stage 7	-2.7	-63.55	63.39
Stage 7	-2.9	-52.42	55.67
Stage 7	-3.1	-42.88	47.73
Stage 7	-3.3	-34.96	39.57
Stage 7	-3.5	-28.72	31.2
Stage 7	-3.7	-24.2	22.59
Stage 7	-3.9	-21.45	13.76
Stage 7	-4.1	-20.51	4.71
Stage 7	-4.3	-21.42	-4.57
Stage 7	-4.5	-24.24	-14.08
Stage 7	-4.7	-29.01	-23.82
Stage 7	-4.8	-32.14	-31.3
Stage 7	-5	-6.91	126.12
Stage 7	-5.2	16.25	115.8
Stage 7	-5.4	37.27	105.13
Stage 7	-5.6	56.09	94.1
Stage 7	-5.8	72.64	82.7
Stage 7	-6	86.82	70.94
Stage 7	-6.2	98.59	58.82
Stage 7	-6.4	107.85	46.33
Stage 7	-6.6	114.6	33.74
Stage 7	-6.8	118.83	21.16
Stage 7	-7	121.86	15.16
Stage 7	-7.2	123.81	9.76
Stage 7	-7.4	124.8	4.91
Stage 7	-7.6	124.91	0.57
Stage 7	-7.8	124.23	-3.41
Stage 7	-8	122.82	-7.04
Stage 7	-8.2	120.75	-10.35
Stage 7	-8.4	118.06	-13.43
Stage 7	-8.6	114.82	-16.2
Stage 7	-8.8	111.09	-18.65
Stage 7	-9	106.93	-20.81
Stage 7	-9.2	102.39	-22.68
Stage 7	-9.4	97.53	-24.31
Stage 7	-9.6	92.39	-25.7
Stage 7	-9.8	87.02	-26.87
Stage 7	-10	81.45	-27.83
Stage 7	-10.2	75.74	-28.56
Stage 7	-10.4	69.93	-29.06
Stage 7	-10.6	64.07	-29.3
Stage 7	-10.8	58.21	-29.29
Stage 7	-11	52.41	-29.02
Stage 7	-11.2	46.71	-28.49
Stage 7	-11.4	41.16	-27.72
Stage 7	-11.6	35.83	-26.69

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	-11.8	30.73	-25.48
Stage 7	-12	25.91	-24.09
Stage 7	-12.2	21.41	-22.53
Stage 7	-12.4	17.24	-20.81
Stage 7	-12.6	13.46	-18.94
Stage 7	-12.8	10.07	-16.91
Stage 7	-13	7.13	-14.73
Stage 7	-13.2	4.65	-12.4
Stage 7	-13.4	2.66	-9.92
Stage 7	-13.6	1.21	-7.28
Stage 7	-13.8	0.31	-4.49
Stage 7	-14	0	-1.55

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: A2+M2+R1 - Left Wall - Stage: Stage 8

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	0	0	-3.51
Stage 8	-0.2	-0.7	-3.51
Stage 8	-0.4	-2.79	-10.46
Stage 8	-0.6	-6.26	-17.35
Stage 8	-0.8	-11.1	-24.18
Stage 8	-1	-17.28	-30.93
Stage 8	-1.2	-24.8	-37.6
Stage 8	-1.4	-33.64	-44.19
Stage 8	-1.6	-43.82	-50.89
Stage 8	-1.8	-55.37	-57.74
Stage 8	-2	-68.31	-64.72
Stage 8	-2.2	-82.68	-71.85
Stage 8	-2.3	-90.41	-77.3
Stage 8	-2.5	-76.23	70.88
Stage 8	-2.7	-63.55	63.39
Stage 8	-2.9	-52.42	55.67
Stage 8	-3.1	-42.88	47.73
Stage 8	-3.3	-34.96	39.57
Stage 8	-3.5	-28.72	31.2
Stage 8	-3.7	-24.2	22.59
Stage 8	-3.9	-21.45	13.76
Stage 8	-4.1	-20.51	4.71
Stage 8	-4.3	-21.42	-4.57
Stage 8	-4.5	-24.24	-14.08
Stage 8	-4.7	-29.01	-23.82
Stage 8	-4.8	-32.14	-31.3
Stage 8	-5	-6.91	126.12
Stage 8	-5.2	16.25	115.8
Stage 8	-5.4	37.27	105.13
Stage 8	-5.6	56.09	94.1
Stage 8	-5.8	72.64	82.7
Stage 8	-6	86.82	70.94
Stage 8	-6.2	98.59	58.82
Stage 8	-6.4	107.85	46.33
Stage 8	-6.6	114.6	33.74
Stage 8	-6.8	118.83	21.16
Stage 8	-7	121.86	15.16
Stage 8	-7.2	123.81	9.76
Stage 8	-7.4	124.8	4.91
Stage 8	-7.6	124.91	0.57
Stage 8	-7.8	124.23	-3.41
Stage 8	-8	122.82	-7.04
Stage 8	-8.2	120.75	-10.35
Stage 8	-8.4	118.06	-13.43
Stage 8	-8.6	114.82	-16.2
Stage 8	-8.8	111.09	-18.65
Stage 8	-9	106.93	-20.81
Stage 8	-9.2	102.39	-22.68
Stage 8	-9.4	97.53	-24.31
Stage 8	-9.6	92.39	-25.7
Stage 8	-9.8	87.02	-26.87
Stage 8	-10	81.45	-27.83
Stage 8	-10.2	75.74	-28.56
Stage 8	-10.4	69.93	-29.06
Stage 8	-10.6	64.07	-29.3
Stage 8	-10.8	58.21	-29.29
Stage 8	-11	52.41	-29.02
Stage 8	-11.2	46.71	-28.49
Stage 8	-11.4	41.16	-27.72
Stage 8	-11.6	35.83	-26.69

PROGETTAZIONE ATI:

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	-11.8	30.73	-25.48
Stage 8	-12	25.91	-24.09
Stage 8	-12.2	21.41	-22.53
Stage 8	-12.4	17.24	-20.81
Stage 8	-12.6	13.46	-18.94
Stage 8	-12.8	10.07	-16.91
Stage 8	-13	7.13	-14.73
Stage 8	-13.2	4.65	-12.4
Stage 8	-13.4	2.66	-9.92
Stage 8	-13.6	1.21	-7.28
Stage 8	-13.8	0.31	-4.49
Stage 8	-14	0	-1.55

PROGETTAZIONE ATI:

Risultati Elementi strutturali - NTC2018: A2+M2+R1

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

Stage	Forza (kN/m)
Stage 3	166.7
Stage 4	171.6098
Stage 5	157.4517
Stage 6	159.2698
Stage 7	159.0984
Stage 8	159.0984

PROGETTAZIONE ATI:

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

Stage	Forza (kN/m)
Stage 5	166.7
Stage 6	171.7846
Stage 7	170.8009
Stage 8	170.8009

PROGETTAZIONE ATI:

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	-0.01
Stage 1	-0.6	-0.01	-0.02
Stage 1	-0.8	-0.01	-0.03
Stage 1	-1	-0.02	-0.04
Stage 1	-1.2	-0.03	-0.05
Stage 1	-1.4	-0.04	-0.05
Stage 1	-1.6	-0.06	-0.06
Stage 1	-1.8	-0.07	-0.06
Stage 1	-2	-0.08	-0.07
Stage 1	-2.2	-0.1	-0.07
Stage 1	-2.3	-0.1	-0.07
Stage 1	-2.5	-0.12	-0.07
Stage 1	-2.7	-0.13	-0.07
Stage 1	-2.9	-0.14	-0.07
Stage 1	-3.1	-0.16	-0.06
Stage 1	-3.3	-0.17	-0.06
Stage 1	-3.5	-0.18	-0.05
Stage 1	-3.7	-0.19	-0.05
Stage 1	-3.9	-0.2	-0.04
Stage 1	-4.1	-0.2	-0.03
Stage 1	-4.3	-0.2	-0.02
Stage 1	-4.5	-0.21	-0.01
Stage 1	-4.7	-0.2	0.01
Stage 1	-4.8	-0.2	0.02
Stage 1	-5	-0.2	0.03
Stage 1	-5.2	-0.19	0.05
Stage 1	-5.4	-0.17	0.06
Stage 1	-5.6	-0.16	0.08
Stage 1	-5.8	-0.14	0.11
Stage 1	-6	-0.11	0.13
Stage 1	-6.2	-0.08	0.15
Stage 1	-6.4	-0.04	0.18
Stage 1	-6.6	0	0.2
Stage 1	-6.8	0.04	0.23
Stage 1	-7	0.1	0.26
Stage 1	-7.2	0.15	0.3
Stage 1	-7.4	0.22	0.33
Stage 1	-7.6	0.29	0.36
Stage 1	-7.8	0.37	0.4
Stage 1	-8	0.46	0.44
Stage 1	-8.2	0.56	0.48
Stage 1	-8.4	0.63	0.39
Stage 1	-8.6	0.7	0.31
Stage 1	-8.8	0.74	0.24
Stage 1	-9	0.78	0.17
Stage 1	-9.2	0.8	0.11
Stage 1	-9.4	0.81	0.05
Stage 1	-9.6	0.81	0
Stage 1	-9.8	0.8	-0.05
Stage 1	-10	0.78	-0.09
Stage 1	-10.2	0.75	-0.13
Stage 1	-10.4	0.72	-0.16
Stage 1	-10.6	0.68	-0.19
Stage 1	-10.8	0.64	-0.22
Stage 1	-11	0.59	-0.23

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-11.2	0.54	-0.25
Stage 1	-11.4	0.49	-0.26
Stage 1	-11.6	0.44	-0.27
Stage 1	-11.8	0.38	-0.27
Stage 1	-12	0.33	-0.27
Stage 1	-12.2	0.28	-0.26
Stage 1	-12.4	0.23	-0.25
Stage 1	-12.6	0.18	-0.24
Stage 1	-12.8	0.14	-0.22
Stage 1	-13	0.1	-0.19
Stage 1	-13.2	0.07	-0.17
Stage 1	-13.4	0.04	-0.14
Stage 1	-13.6	0.02	-0.1
Stage 1	-13.8	0	-0.07
Stage 1	-14	0	-0.02

PROGETTAZIONE ATI:

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	0	
Stage 2	-0.4	0	0	
Stage 2	-0.6	0	0	
Stage 2	-0.6	0	0	
Stage 2	-0.8	0	0	
Stage 2	-0.8	0	0	
Stage 2	-1	0	0	
Stage 2	-1	0	0	
Stage 2	-1.2	0	0	
Stage 2	-1.2	0	0	
Stage 2	-1.4	0	0	
Stage 2	-1.4	0	0	
Stage 2	-1.6	0	0	
Stage 2	-1.8	-0.09	-0.43	
Stage 2	-2	-0.34	-1.26	
Stage 2	-2.2	-0.84	-2.52	
Stage 2	-2.3	-1.22	-3.77	
Stage 2	-2.5	-2.25	-5.18	
Stage 2	-2.7	-3.75	-7.47	
Stage 2	-2.9	-5.78	-10.18	
Stage 2	-3.1	-7.81	-10.11	
Stage 2	-3.3	-9.74	-9.69	
Stage 2	-3.5	-11.56	-9.1	
Stage 2	-3.7	-13.25	-8.42	
Stage 2	-3.9	-14.79	-7.7	
Stage 2	-4.1	-16.18	-6.96	
Stage 2	-4.3	-17.42	-6.2	
Stage 2	-4.5	-18.51	-5.45	
Stage 2	-4.7	-19.45	-4.72	
Stage 2	-4.8	-19.87	-4.18	
Stage 2	-5	-20.6	-3.65	
Stage 2	-5.2	-21.19	-2.96	
Stage 2	-5.4	-21.65	-2.3	
Stage 2	-5.6	-21.99	-1.67	
Stage 2	-5.8	-22.2	-1.06	
Stage 2	-6	-22.29	-0.49	
Stage 2	-6.2	-22.28	0.06	
Stage 2	-6.4	-22.17	0.57	
Stage 2	-6.6	-21.96	1.06	
Stage 2	-6.8	-21.66	1.51	
Stage 2	-7	-21.27	1.94	
Stage 2	-7.2	-20.8	2.33	
Stage 2	-7.4	-20.26	2.7	
Stage 2	-7.6	-19.65	3.04	
Stage 2	-7.8	-18.98	3.35	
Stage 2	-8	-18.25	3.64	
Stage 2	-8.2	-17.47	3.9	
Stage 2	-8.4	-16.67	4.02	
Stage 2	-8.6	-15.85	4.1	
Stage 2	-8.8	-15.02	4.17	
Stage 2	-9	-14.17	4.21	
Stage 2	-9.2	-13.33	4.24	
Stage 2	-9.4	-12.48	4.24	
Stage 2	-9.6	-11.63	4.23	
Stage 2	-9.8	-10.79	4.19	
Stage 2	-10	-9.97	4.14	
Stage 2	-10.2	-9.15	4.08	

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-10.4	-8.35	3.99
Stage 2	-10.6	-7.57	3.89
Stage 2	-10.8	-6.82	3.78
Stage 2	-11	-6.09	3.65
Stage 2	-11.2	-5.38	3.51
Stage 2	-11.4	-4.71	3.35
Stage 2	-11.6	-4.08	3.19
Stage 2	-11.8	-3.48	3
Stage 2	-12	-2.91	2.81
Stage 2	-12.2	-2.39	2.6
Stage 2	-12.4	-1.92	2.38
Stage 2	-12.6	-1.49	2.15
Stage 2	-12.8	-1.11	1.9
Stage 2	-13	-0.78	1.64
Stage 2	-13.2	-0.51	1.37
Stage 2	-13.4	-0.29	1.09
Stage 2	-13.6	-0.13	0.79
Stage 2	-13.8	-0.03	0.49
Stage 2	-14	0	0.17

PROGETTAZIONE ATI:

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	-2.34
Stage 3	-0.2	-0.47	-2.34
Stage 3	-0.4	-1.88	-7.06
Stage 3	-0.6	-4.24	-11.8
Stage 3	-0.8	-7.55	-16.56
Stage 3	-1	-11.82	-21.35
Stage 3	-1.2	-17.06	-26.17
Stage 3	-1.4	-23.26	-31.01
Stage 3	-1.6	-30.43	-35.88
Stage 3	-1.8	-38.64	-41.03
Stage 3	-2	-47.93	-46.46
Stage 3	-2.2	-58.37	-52.18
Stage 3	-2.3	-64.03	-56.68
Stage 3	-2.5	-44.09	99.74
Stage 3	-2.7	-25.42	93.32
Stage 3	-2.9	-8.1	86.63
Stage 3	-3.1	7.83	79.65
Stage 3	-3.3	22.31	72.4
Stage 3	-3.5	35.41	65.49
Stage 3	-3.7	47.21	58.97
Stage 3	-3.9	57.77	52.82
Stage 3	-4.1	67.17	47
Stage 3	-4.3	75.47	41.49
Stage 3	-4.5	82.73	36.28
Stage 3	-4.7	89	31.36
Stage 3	-4.8	91.78	27.87
Stage 3	-5	96.68	24.48
Stage 3	-5.2	100.72	20.21
Stage 3	-5.4	103.96	16.19
Stage 3	-5.6	106.44	12.41
Stage 3	-5.8	108.21	8.85
Stage 3	-6	109.31	5.51
Stage 3	-6.2	109.79	2.38
Stage 3	-6.4	109.69	-0.51
Stage 3	-6.6	109.06	-3.16
Stage 3	-6.8	107.94	-5.59
Stage 3	-7	106.38	-7.79
Stage 3	-7.2	104.42	-9.79
Stage 3	-7.4	102.11	-11.58
Stage 3	-7.6	99.47	-13.19
Stage 3	-7.8	96.55	-14.6
Stage 3	-8	93.38	-15.85
Stage 3	-8.2	90	-16.92
Stage 3	-8.4	86.4	-17.95
Stage 3	-8.6	82.64	-18.84
Stage 3	-8.8	78.72	-19.57
Stage 3	-9	74.69	-20.16
Stage 3	-9.2	70.57	-20.62
Stage 3	-9.4	66.38	-20.95
Stage 3	-9.6	62.15	-21.15
Stage 3	-9.8	57.9	-21.23
Stage 3	-10	53.66	-21.2
Stage 3	-10.2	49.45	-21.05
Stage 3	-10.4	45.29	-20.8
Stage 3	-10.6	41.2	-20.45
Stage 3	-10.8	37.2	-20
Stage 3	-11	33.31	-19.45
Stage 3	-11.2	29.55	-18.8
Stage 3	-11.4	25.94	-18.07
Stage 3	-11.6	22.49	-17.25

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-11.8	19.22	-16.34
Stage 3	-12	16.15	-15.34
Stage 3	-12.2	13.3	-14.26
Stage 3	-12.4	10.68	-13.1
Stage 3	-12.6	8.31	-11.86
Stage 3	-12.8	6.2	-10.54
Stage 3	-13	4.37	-9.13
Stage 3	-13.2	2.84	-7.65
Stage 3	-13.4	1.62	-6.09
Stage 3	-13.6	0.73	-4.45
Stage 3	-13.8	0.19	-2.73
Stage 3	-14	0	-0.94

PROGETTAZIONE ATI:

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	-2.13
Stage 4	-0.2	-0.43	-2.13
Stage 4	-0.4	-1.7	-6.38
Stage 4	-0.6	-3.82	-10.6
Stage 4	-0.8	-6.78	-14.79
Stage 4	-1	-10.57	-18.95
Stage 4	-1.2	-15.19	-23.09
Stage 4	-1.4	-20.63	-27.2
Stage 4	-1.6	-26.89	-31.29
Stage 4	-1.8	-34.01	-35.61
Stage 4	-2	-42.04	-40.16
Stage 4	-2.2	-51.03	-44.95
Stage 4	-2.3	-55.9	-48.71
Stage 4	-2.5	-33.47	112.13
Stage 4	-2.7	-12.12	106.78
Stage 4	-2.9	8.12	101.19
Stage 4	-3.1	27.2	95.38
Stage 4	-3.3	45.06	89.34
Stage 4	-3.5	61.68	83.07
Stage 4	-3.7	76.99	76.58
Stage 4	-3.9	90.96	69.85
Stage 4	-4.1	103.54	62.89
Stage 4	-4.3	114.68	55.7
Stage 4	-4.5	124.34	48.27
Stage 4	-4.7	132.46	40.6
Stage 4	-4.8	135.93	34.67
Stage 4	-5	141.66	28.65
Stage 4	-5.2	145.73	20.37
Stage 4	-5.4	148.1	11.84
Stage 4	-5.6	149.23	5.66
Stage 4	-5.8	149.32	0.44
Stage 4	-6	148.5	-4.11
Stage 4	-6.2	146.88	-8.11
Stage 4	-6.4	144.55	-11.62
Stage 4	-6.6	141.62	-14.65
Stage 4	-6.8	138.17	-17.26
Stage 4	-7	134.28	-19.47
Stage 4	-7.2	130.01	-21.31
Stage 4	-7.4	125.46	-22.8
Stage 4	-7.6	120.66	-23.96
Stage 4	-7.8	115.7	-24.81
Stage 4	-8	110.63	-25.36
Stage 4	-8.2	105.49	-25.71
Stage 4	-8.4	100.28	-26.05
Stage 4	-8.6	95.02	-26.29
Stage 4	-8.8	89.74	-26.41
Stage 4	-9	84.45	-26.43
Stage 4	-9.2	79.18	-26.35
Stage 4	-9.4	73.95	-26.17
Stage 4	-9.6	68.77	-25.9
Stage 4	-9.8	63.66	-25.55
Stage 4	-10	58.64	-25.1
Stage 4	-10.2	53.72	-24.57
Stage 4	-10.4	48.93	-23.96
Stage 4	-10.6	44.28	-23.27
Stage 4	-10.8	39.78	-22.5
Stage 4	-11	35.45	-21.66
Stage 4	-11.2	31.3	-20.74
Stage 4	-11.4	27.35	-19.76
Stage 4	-11.6	23.61	-18.7

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-11.8	20.09	-17.57
Stage 4	-12	16.82	-16.38
Stage 4	-12.2	13.79	-15.12
Stage 4	-12.4	11.03	-13.8
Stage 4	-12.6	8.55	-12.41
Stage 4	-12.8	6.36	-10.96
Stage 4	-13	4.47	-9.45
Stage 4	-13.2	2.89	-7.87
Stage 4	-13.4	1.65	-6.23
Stage 4	-13.6	0.74	-4.53
Stage 4	-13.8	0.19	-2.77
Stage 4	-14	0	-0.94

PROGETTAZIONE ATI:

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	-3.46
Stage 5	-0.2	-0.69	-3.46
Stage 5	-0.4	-2.76	-10.36
Stage 5	-0.6	-6.21	-17.22
Stage 5	-0.8	-11.02	-24.06
Stage 5	-1	-17.19	-30.87
Stage 5	-1.2	-24.72	-37.65
Stage 5	-1.4	-33.6	-44.39
Stage 5	-1.6	-43.83	-51.11
Stage 5	-1.8	-55.44	-58.06
Stage 5	-2	-68.49	-65.24
Stage 5	-2.2	-83.01	-72.64
Stage 5	-2.3	-90.85	-78.36
Stage 5	-2.5	-77.35	67.52
Stage 5	-2.7	-65.43	59.56
Stage 5	-2.9	-55.16	51.37
Stage 5	-3.1	-46.56	42.97
Stage 5	-3.3	-39.7	34.34
Stage 5	-3.5	-34.6	25.5
Stage 5	-3.7	-31.31	16.44
Stage 5	-3.9	-29.88	7.16
Stage 5	-4.1	-30.34	-2.34
Stage 5	-4.3	-32.76	-12.06
Stage 5	-4.5	-37.16	-22
Stage 5	-4.7	-43.59	-32.15
Stage 5	-4.8	-47.58	-39.94
Stage 5	-5	-24.94	113.22
Stage 5	-5.2	-4.44	102.51
Stage 5	-5.4	13.88	91.58
Stage 5	-5.6	29.98	80.51
Stage 5	-5.8	44.09	70.52
Stage 5	-6	56.34	61.3
Stage 5	-6.2	66.89	52.73
Stage 5	-6.4	75.84	44.74
Stage 5	-6.6	83.3	37.29
Stage 5	-6.8	89.37	30.36
Stage 5	-7	94.16	23.98
Stage 5	-7.2	97.79	18.14
Stage 5	-7.4	100.36	12.83
Stage 5	-7.6	101.96	8.01
Stage 5	-7.8	102.7	3.68
Stage 5	-8	102.66	-0.19
Stage 5	-8.2	101.92	-3.68
Stage 5	-8.4	100.52	-7
Stage 5	-8.6	98.52	-10.02
Stage 5	-8.8	95.96	-12.77
Stage 5	-9	92.91	-15.24
Stage 5	-9.2	89.43	-17.44
Stage 5	-9.4	85.55	-19.37
Stage 5	-9.6	81.34	-21.04
Stage 5	-9.8	76.86	-22.44
Stage 5	-10	72.14	-23.59
Stage 5	-10.2	67.24	-24.48
Stage 5	-10.4	62.22	-25.12
Stage 5	-10.6	57.11	-25.52
Stage 5	-10.8	51.98	-25.66
Stage 5	-11	46.87	-25.57
Stage 5	-11.2	41.82	-25.23
Stage 5	-11.4	36.89	-24.66
Stage 5	-11.6	32.12	-23.84

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-11.8	27.56	-22.8
Stage 5	-12	23.25	-21.56
Stage 5	-12.2	19.21	-20.18
Stage 5	-12.4	15.48	-18.66
Stage 5	-12.6	12.08	-16.99
Stage 5	-12.8	9.04	-15.18
Stage 5	-13	6.4	-13.23
Stage 5	-13.2	4.17	-11.14
Stage 5	-13.4	2.39	-8.91
Stage 5	-13.6	1.08	-6.54
Stage 5	-13.8	0.27	-4.02
Stage 5	-14	0	-1.37

PROGETTAZIONE ATI:

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	-3.56
Stage 6	-0.2	-0.71	-3.56
Stage 6	-0.4	-2.84	-10.63
Stage 6	-0.6	-6.36	-17.64
Stage 6	-0.8	-11.28	-24.59
Stage 6	-1	-17.58	-31.48
Stage 6	-1.2	-25.24	-38.32
Stage 6	-1.4	-34.26	-45.1
Stage 6	-1.6	-44.63	-51.83
Stage 6	-1.8	-56.38	-58.74
Stage 6	-2	-69.55	-65.84
Stage 6	-2.2	-84.17	-73.12
Stage 6	-2.3	-92.04	-78.71
Stage 6	-2.5	-78.41	68.17
Stage 6	-2.7	-66.32	60.44
Stage 6	-2.9	-55.81	52.53
Stage 6	-3.1	-46.92	44.45
Stage 6	-3.3	-39.69	36.19
Stage 6	-3.5	-34.14	27.75
Stage 6	-3.7	-30.31	19.14
Stage 6	-3.9	-28.24	10.36
Stage 6	-4.1	-27.96	1.4
Stage 6	-4.3	-29.5	-7.73
Stage 6	-4.5	-32.91	-17.04
Stage 6	-4.7	-38.22	-26.53
Stage 6	-4.8	-41.59	-33.77
Stage 6	-5	-16.85	123.71
Stage 6	-5.2	5.91	113.78
Stage 6	-5.4	26.64	103.68
Stage 6	-5.6	45.32	93.39
Stage 6	-5.8	61.91	82.93
Stage 6	-6	76.36	72.28
Stage 6	-6.2	88.65	61.45
Stage 6	-6.4	98.74	50.43
Stage 6	-6.6	106.58	39.22
Stage 6	-6.8	112.14	27.83
Stage 6	-7	116.11	19.82
Stage 6	-7.2	118.69	12.92
Stage 6	-7.4	120.07	6.9
Stage 6	-7.6	120.41	1.67
Stage 6	-7.8	119.84	-2.83
Stage 6	-8	118.51	-6.66
Stage 6	-8.2	116.52	-9.95
Stage 6	-8.4	113.94	-12.89
Stage 6	-8.6	110.85	-15.46
Stage 6	-8.8	107.29	-17.77
Stage 6	-9	103.33	-19.83
Stage 6	-9.2	99	-21.64
Stage 6	-9.4	94.36	-23.2
Stage 6	-9.6	89.45	-24.54
Stage 6	-9.8	84.33	-25.63
Stage 6	-10	79.02	-26.51
Stage 6	-10.2	73.59	-27.16
Stage 6	-10.4	68.07	-27.59
Stage 6	-10.6	62.51	-27.81
Stage 6	-10.8	56.95	-27.82
Stage 6	-11	51.42	-27.62
Stage 6	-11.2	45.98	-27.22
Stage 6	-11.4	40.66	-26.61
Stage 6	-11.6	35.49	-25.81

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-11.8	30.53	-24.81
Stage 6	-12	25.81	-23.62
Stage 6	-12.2	21.36	-22.23
Stage 6	-12.4	17.23	-20.65
Stage 6	-12.6	13.46	-18.88
Stage 6	-12.8	10.07	-16.93
Stage 6	-13	7.11	-14.78
Stage 6	-13.2	4.62	-12.45
Stage 6	-13.4	2.64	-9.94
Stage 6	-13.6	1.19	-7.24
Stage 6	-13.8	0.3	-4.43
Stage 6	-14	0	-1.51

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 7

Design Assumption: NTC2018: SISMICA STR Risultati Paratia			
Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	0	0	-3.53
Stage 7	-0.2	-0.71	-3.53
Stage 7	-0.4	-2.81	-10.54
Stage 7	-0.6	-6.31	-17.5
Stage 7	-0.8	-11.2	-24.42
Stage 7	-1	-17.45	-31.29
Stage 7	-1.2	-25.08	-38.11
Stage 7	-1.4	-34.05	-44.89
Stage 7	-1.6	-44.38	-51.62
Stage 7	-1.8	-56.09	-58.55
Stage 7	-2	-69.22	-65.68
Stage 7	-2.2	-83.83	-73
Stage 7	-2.3	-91.69	-78.64
Stage 7	-2.5	-78.1	67.96
Stage 7	-2.7	-66.07	60.16
Stage 7	-2.9	-55.63	52.17
Stage 7	-3.1	-46.83	43.99
Stage 7	-3.3	-39.71	35.63
Stage 7	-3.5	-34.29	27.08
Stage 7	-3.7	-30.62	18.35
Stage 7	-3.9	-28.74	9.43
Stage 7	-4.1	-28.67	0.32
Stage 7	-4.3	-30.47	-8.97
Stage 7	-4.5	-34.15	-18.44
Stage 7	-4.7	-39.78	-28.11
Stage 7	-4.8	-43.33	-35.5
Stage 7	-5	-19.14	120.91
Stage 7	-5.2	3.01	110.78
Stage 7	-5.4	23.1	100.45
Stage 7	-5.6	41.09	89.94
Stage 7	-5.8	56.94	79.24
Stage 7	-6	70.61	68.34
Stage 7	-6.2	82.06	57.25
Stage 7	-6.4	91.24	45.9
Stage 7	-6.6	98.18	34.72
Stage 7	-6.8	102.92	23.72
Stage 7	-7	106.34	17.07
Stage 7	-7.2	108.57	11.16
Stage 7	-7.4	109.75	5.93
Stage 7	-7.6	110.02	1.34
Stage 7	-7.8	109.49	-2.64
Stage 7	-8	108.29	-6.04
Stage 7	-8.2	106.49	-8.96
Stage 7	-8.4	104.17	-11.6
Stage 7	-8.6	101.39	-13.9
Stage 7	-8.8	98.2	-15.98
Stage 7	-9	94.63	-17.83
Stage 7	-9.2	90.74	-19.47
Stage 7	-9.4	86.56	-20.9
Stage 7	-9.6	82.14	-22.11
Stage 7	-9.8	77.51	-23.13
Stage 7	-10	72.72	-23.94
Stage 7	-10.2	67.81	-24.56
Stage 7	-10.4	62.81	-24.99
Stage 7	-10.6	57.77	-25.22
Stage 7	-10.8	52.71	-25.27
Stage 7	-11	47.69	-25.13
Stage 7	-11.2	42.72	-24.81
Stage 7	-11.4	37.86	-24.31
Stage 7	-11.6	33.13	-23.64

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	-11.8	28.58	-22.78
Stage 7	-12	24.23	-21.75
Stage 7	-12.2	20.12	-20.55
Stage 7	-12.4	16.28	-19.18
Stage 7	-12.6	12.75	-17.64
Stage 7	-12.8	9.57	-15.92
Stage 7	-13	6.77	-13.99
Stage 7	-13.2	4.4	-11.84
Stage 7	-13.4	2.51	-9.47
Stage 7	-13.6	1.13	-6.89
Stage 7	-13.8	0.29	-4.21
Stage 7	-14	0	-1.44

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SISMICA STR - Left Wall - Stage: Stage 8

Design Assumption: NTC2018: SISMICA STR Risultati Paratia			
Muro: LEFT			
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	0	0	-0.45
Stage 8	-0.2	-0.09	-0.45
Stage 8	-0.4	-0.53	-2.18
Stage 8	-0.6	-1.48	-4.76
Stage 8	-0.8	-3.11	-8.17
Stage 8	-1	-5.6	-12.43
Stage 8	-1.2	-9.1	-17.52
Stage 8	-1.4	-13.79	-23.45
Stage 8	-1.6	-19.83	-30.21
Stage 8	-1.8	-27.4	-37.82
Stage 8	-2	-36.65	-46.27
Stage 8	-2.2	-47.76	-55.55
Stage 8	-2.3	-53.87	-63.28
Stage 8	-2.5	-24.63	145.96
Stage 8	-2.7	2.4	135.18
Stage 8	-2.9	26.77	121.81
Stage 8	-3.1	48.2	107.19
Stage 8	-3.3	66.47	91.31
Stage 8	-3.5	81.3	74.19
Stage 8	-3.7	92.47	55.82
Stage 8	-3.9	99.71	36.19
Stage 8	-4.1	102.77	15.31
Stage 8	-4.3	101.4	-6.82
Stage 8	-4.5	95.36	-30.2
Stage 8	-4.7	84.4	-54.83
Stage 8	-4.8	76.97	-73.16
Stage 8	-5	102.11	125.72
Stage 8	-5.2	121.71	97.96
Stage 8	-5.4	135.5	68.95
Stage 8	-5.6	143.23	38.69
Stage 8	-5.8	144.64	7.17
Stage 8	-6	139.55	-25.59
Stage 8	-6.2	128.94	-53.04
Stage 8	-6.4	117.75	-55.94
Stage 8	-6.6	105.93	-59.1
Stage 8	-6.8	93.43	-62.5
Stage 8	-7	81.58	-59.25
Stage 8	-7.2	70.4	-55.91
Stage 8	-7.4	59.89	-52.52
Stage 8	-7.6	50.07	-49.12
Stage 8	-7.8	40.93	-45.72
Stage 8	-8	32.46	-42.33
Stage 8	-8.2	24.67	-38.96
Stage 8	-8.4	17.52	-35.75
Stage 8	-8.6	11	-32.58
Stage 8	-8.8	5.11	-29.46
Stage 8	-9	-0.17	-26.39
Stage 8	-9.2	-4.85	-23.38
Stage 8	-9.4	-8.93	-20.42
Stage 8	-9.6	-12.44	-17.54
Stage 8	-9.8	-15.39	-14.74
Stage 8	-10	-17.79	-12.03
Stage 8	-10.2	-19.67	-9.41
Stage 8	-10.4	-21.05	-6.89
Stage 8	-10.6	-21.94	-4.46
Stage 8	-10.8	-22.37	-2.13
Stage 8	-11	-22.35	0.1
Stage 8	-11.2	-21.9	2.23
Stage 8	-11.4	-21.05	4.25
Stage 8	-11.6	-19.82	6.18

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	-11.8	-18.22	8
Stage 8	-12	-16.33	9.42
Stage 8	-12.2	-14.25	10.41
Stage 8	-12.4	-12.06	10.97
Stage 8	-12.6	-9.83	11.12
Stage 8	-12.8	-7.67	10.83
Stage 8	-13	-5.63	10.17
Stage 8	-13.2	-3.81	9.14
Stage 8	-13.4	-2.26	7.73
Stage 8	-13.6	-1.06	5.99
Stage 8	-13.8	-0.28	3.89
Stage 8	-14	0	1.42

PROGETTAZIONE ATI:

Risultati Elementi strutturali - NTC2018: SISMICA STR

Design Assumption: NTC2018: SISMICA STR Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 3	166.7
Stage 4	170.5001
Stage 5	157.0434
Stage 6	157.9292
Stage 7	157.6765
Stage 8	224.5408

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA STR Sollecitazione Tieback_New

Stage	Forza (kN/m)
Stage 5	166.7
Stage 6	170.6054
Stage 7	169.6476
Stage 8	226.0924

PROGETTAZIONE ATI:

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	-0.01
Stage 1	-0.6	-0.01	-0.02
Stage 1	-0.8	-0.01	-0.03
Stage 1	-1	-0.02	-0.04
Stage 1	-1.2	-0.03	-0.05
Stage 1	-1.4	-0.04	-0.05
Stage 1	-1.6	-0.06	-0.06
Stage 1	-1.8	-0.07	-0.06
Stage 1	-2	-0.08	-0.07
Stage 1	-2.2	-0.1	-0.07
Stage 1	-2.3	-0.1	-0.07
Stage 1	-2.5	-0.12	-0.07
Stage 1	-2.7	-0.13	-0.07
Stage 1	-2.9	-0.14	-0.07
Stage 1	-3.1	-0.16	-0.06
Stage 1	-3.3	-0.17	-0.06
Stage 1	-3.5	-0.18	-0.05
Stage 1	-3.7	-0.19	-0.05
Stage 1	-3.9	-0.2	-0.04
Stage 1	-4.1	-0.2	-0.03
Stage 1	-4.3	-0.2	-0.02
Stage 1	-4.5	-0.21	-0.01
Stage 1	-4.7	-0.2	0.01
Stage 1	-4.8	-0.2	0.02
Stage 1	-5	-0.2	0.03
Stage 1	-5.2	-0.19	0.05
Stage 1	-5.4	-0.17	0.06
Stage 1	-5.6	-0.16	0.08
Stage 1	-5.8	-0.14	0.11
Stage 1	-6	-0.11	0.13
Stage 1	-6.2	-0.08	0.15
Stage 1	-6.4	-0.04	0.18
Stage 1	-6.6	0	0.2
Stage 1	-6.8	0.04	0.23
Stage 1	-7	0.1	0.26
Stage 1	-7.2	0.15	0.3
Stage 1	-7.4	0.22	0.33
Stage 1	-7.6	0.29	0.36
Stage 1	-7.8	0.37	0.4
Stage 1	-8	0.46	0.44
Stage 1	-8.2	0.56	0.48
Stage 1	-8.4	0.63	0.39
Stage 1	-8.6	0.7	0.31
Stage 1	-8.8	0.74	0.24
Stage 1	-9	0.78	0.17
Stage 1	-9.2	0.8	0.11
Stage 1	-9.4	0.81	0.05
Stage 1	-9.6	0.81	0
Stage 1	-9.8	0.8	-0.05
Stage 1	-10	0.78	-0.09
Stage 1	-10.2	0.75	-0.13
Stage 1	-10.4	0.72	-0.16
Stage 1	-10.6	0.68	-0.19
Stage 1	-10.8	0.64	-0.22
Stage 1	-11	0.59	-0.23

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-11.2	0.54	-0.25
Stage 1	-11.4	0.49	-0.26
Stage 1	-11.6	0.44	-0.27
Stage 1	-11.8	0.38	-0.27
Stage 1	-12	0.33	-0.27
Stage 1	-12.2	0.28	-0.26
Stage 1	-12.4	0.23	-0.25
Stage 1	-12.6	0.18	-0.24
Stage 1	-12.8	0.14	-0.22
Stage 1	-13	0.1	-0.19
Stage 1	-13.2	0.07	-0.17
Stage 1	-13.4	0.04	-0.14
Stage 1	-13.6	0.02	-0.1
Stage 1	-13.8	0	-0.07
Stage 1	-14	0	-0.02

PROGETTAZIONE ATI:

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	0
Stage 2	-0.4	0	0
Stage 2	-0.6	0	0
Stage 2	-0.6	0	0
Stage 2	-0.8	0	0
Stage 2	-0.8	0	0
Stage 2	-1	0	0
Stage 2	-1	0	0
Stage 2	-1.2	0	0
Stage 2	-1.2	0	0
Stage 2	-1.4	0	0
Stage 2	-1.4	0	0
Stage 2	-1.6	0	0
Stage 2	-1.8	-0.09	-0.43
Stage 2	-2	-0.34	-1.26
Stage 2	-2.2	-0.84	-2.52
Stage 2	-2.3	-1.22	-3.77
Stage 2	-2.5	-2.25	-5.18
Stage 2	-2.7	-3.75	-7.47
Stage 2	-2.9	-5.78	-10.18
Stage 2	-3.1	-7.81	-10.11
Stage 2	-3.3	-9.74	-9.69
Stage 2	-3.5	-11.56	-9.1
Stage 2	-3.7	-13.25	-8.42
Stage 2	-3.9	-14.79	-7.7
Stage 2	-4.1	-16.18	-6.96
Stage 2	-4.3	-17.42	-6.2
Stage 2	-4.5	-18.51	-5.45
Stage 2	-4.7	-19.45	-4.72
Stage 2	-4.8	-19.87	-4.18
Stage 2	-5	-20.6	-3.65
Stage 2	-5.2	-21.19	-2.96
Stage 2	-5.4	-21.65	-2.3
Stage 2	-5.6	-21.99	-1.67
Stage 2	-5.8	-22.2	-1.06
Stage 2	-6	-22.29	-0.49
Stage 2	-6.2	-22.28	0.06
Stage 2	-6.4	-22.17	0.57
Stage 2	-6.6	-21.96	1.06
Stage 2	-6.8	-21.66	1.51
Stage 2	-7	-21.27	1.94
Stage 2	-7.2	-20.8	2.33
Stage 2	-7.4	-20.26	2.7
Stage 2	-7.6	-19.65	3.04
Stage 2	-7.8	-18.98	3.35
Stage 2	-8	-18.25	3.64
Stage 2	-8.2	-17.47	3.9
Stage 2	-8.4	-16.67	4.02
Stage 2	-8.6	-15.85	4.1
Stage 2	-8.8	-15.02	4.17
Stage 2	-9	-14.17	4.21
Stage 2	-9.2	-13.33	4.24
Stage 2	-9.4	-12.48	4.24
Stage 2	-9.6	-11.63	4.23
Stage 2	-9.8	-10.79	4.19
Stage 2	-10	-9.97	4.14
Stage 2	-10.2	-9.15	4.08

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-10.4	-8.35	3.99
Stage 2	-10.6	-7.57	3.89
Stage 2	-10.8	-6.82	3.78
Stage 2	-11	-6.09	3.65
Stage 2	-11.2	-5.38	3.51
Stage 2	-11.4	-4.71	3.35
Stage 2	-11.6	-4.08	3.19
Stage 2	-11.8	-3.48	3
Stage 2	-12	-2.91	2.81
Stage 2	-12.2	-2.39	2.6
Stage 2	-12.4	-1.92	2.38
Stage 2	-12.6	-1.49	2.15
Stage 2	-12.8	-1.11	1.9
Stage 2	-13	-0.78	1.64
Stage 2	-13.2	-0.51	1.37
Stage 2	-13.4	-0.29	1.09
Stage 2	-13.6	-0.13	0.79
Stage 2	-13.8	-0.03	0.49
Stage 2	-14	0	0.17

PROGETTAZIONE ATI:

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	-2.34
Stage 3	-0.2	-0.47	-2.34
Stage 3	-0.4	-1.88	-7.06
Stage 3	-0.6	-4.24	-11.8
Stage 3	-0.8	-7.55	-16.56
Stage 3	-1	-11.82	-21.35
Stage 3	-1.2	-17.06	-26.17
Stage 3	-1.4	-23.26	-31.01
Stage 3	-1.6	-30.43	-35.88
Stage 3	-1.8	-38.64	-41.03
Stage 3	-2	-47.93	-46.46
Stage 3	-2.2	-58.37	-52.18
Stage 3	-2.3	-64.03	-56.68
Stage 3	-2.5	-44.09	99.74
Stage 3	-2.7	-25.42	93.32
Stage 3	-2.9	-8.1	86.63
Stage 3	-3.1	7.83	79.65
Stage 3	-3.3	22.31	72.4
Stage 3	-3.5	35.41	65.49
Stage 3	-3.7	47.21	58.97
Stage 3	-3.9	57.77	52.82
Stage 3	-4.1	67.17	47
Stage 3	-4.3	75.47	41.49
Stage 3	-4.5	82.73	36.28
Stage 3	-4.7	89	31.36
Stage 3	-4.8	91.78	27.87
Stage 3	-5	96.68	24.48
Stage 3	-5.2	100.72	20.21
Stage 3	-5.4	103.96	16.19
Stage 3	-5.6	106.44	12.41
Stage 3	-5.8	108.21	8.85
Stage 3	-6	109.31	5.51
Stage 3	-6.2	109.79	2.38
Stage 3	-6.4	109.69	-0.51
Stage 3	-6.6	109.06	-3.16
Stage 3	-6.8	107.94	-5.59
Stage 3	-7	106.38	-7.79
Stage 3	-7.2	104.42	-9.79
Stage 3	-7.4	102.11	-11.58
Stage 3	-7.6	99.47	-13.19
Stage 3	-7.8	96.55	-14.6
Stage 3	-8	93.38	-15.85
Stage 3	-8.2	90	-16.92
Stage 3	-8.4	86.4	-17.95
Stage 3	-8.6	82.64	-18.84
Stage 3	-8.8	78.72	-19.57
Stage 3	-9	74.69	-20.16
Stage 3	-9.2	70.57	-20.62
Stage 3	-9.4	66.38	-20.95
Stage 3	-9.6	62.15	-21.15
Stage 3	-9.8	57.9	-21.23
Stage 3	-10	53.66	-21.2
Stage 3	-10.2	49.45	-21.05
Stage 3	-10.4	45.29	-20.8
Stage 3	-10.6	41.2	-20.45
Stage 3	-10.8	37.2	-20
Stage 3	-11	33.31	-19.45
Stage 3	-11.2	29.55	-18.8
Stage 3	-11.4	25.94	-18.07
Stage 3	-11.6	22.49	-17.25

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 3	-11.8	19.22	-16.34
Stage 3	-12	16.15	-15.34
Stage 3	-12.2	13.3	-14.26
Stage 3	-12.4	10.68	-13.1
Stage 3	-12.6	8.31	-11.86
Stage 3	-12.8	6.2	-10.54
Stage 3	-13	4.37	-9.13
Stage 3	-13.2	2.84	-7.65
Stage 3	-13.4	1.62	-6.09
Stage 3	-13.6	0.73	-4.45
Stage 3	-13.8	0.19	-2.73
Stage 3	-14	0	-0.94

PROGETTAZIONE ATI:

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	-2.13
Stage 4	-0.2	-0.43	-2.13
Stage 4	-0.4	-1.7	-6.38
Stage 4	-0.6	-3.82	-10.6
Stage 4	-0.8	-6.78	-14.79
Stage 4	-1	-10.57	-18.95
Stage 4	-1.2	-15.19	-23.09
Stage 4	-1.4	-20.63	-27.2
Stage 4	-1.6	-26.89	-31.29
Stage 4	-1.8	-34.01	-35.61
Stage 4	-2	-42.04	-40.16
Stage 4	-2.2	-51.03	-44.95
Stage 4	-2.3	-55.9	-48.71
Stage 4	-2.5	-33.47	112.13
Stage 4	-2.7	-12.12	106.78
Stage 4	-2.9	8.12	101.19
Stage 4	-3.1	27.2	95.38
Stage 4	-3.3	45.06	89.34
Stage 4	-3.5	61.68	83.07
Stage 4	-3.7	76.99	76.58
Stage 4	-3.9	90.96	69.85
Stage 4	-4.1	103.54	62.89
Stage 4	-4.3	114.68	55.7
Stage 4	-4.5	124.34	48.27
Stage 4	-4.7	132.46	40.6
Stage 4	-4.8	135.93	34.67
Stage 4	-5	141.66	28.65
Stage 4	-5.2	145.73	20.37
Stage 4	-5.4	148.1	11.84
Stage 4	-5.6	149.23	5.66
Stage 4	-5.8	149.32	0.44
Stage 4	-6	148.5	-4.11
Stage 4	-6.2	146.88	-8.11
Stage 4	-6.4	144.55	-11.62
Stage 4	-6.6	141.62	-14.65
Stage 4	-6.8	138.17	-17.26
Stage 4	-7	134.28	-19.47
Stage 4	-7.2	130.01	-21.31
Stage 4	-7.4	125.46	-22.8
Stage 4	-7.6	120.66	-23.96
Stage 4	-7.8	115.7	-24.81
Stage 4	-8	110.63	-25.36
Stage 4	-8.2	105.49	-25.71
Stage 4	-8.4	100.28	-26.05
Stage 4	-8.6	95.02	-26.29
Stage 4	-8.8	89.74	-26.41
Stage 4	-9	84.45	-26.43
Stage 4	-9.2	79.18	-26.35
Stage 4	-9.4	73.95	-26.17
Stage 4	-9.6	68.77	-25.9
Stage 4	-9.8	63.66	-25.55
Stage 4	-10	58.64	-25.1
Stage 4	-10.2	53.72	-24.57
Stage 4	-10.4	48.93	-23.96
Stage 4	-10.6	44.28	-23.27
Stage 4	-10.8	39.78	-22.5
Stage 4	-11	35.45	-21.66
Stage 4	-11.2	31.3	-20.74
Stage 4	-11.4	27.35	-19.76
Stage 4	-11.6	23.61	-18.7

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 4	-11.8	20.09	-17.57
Stage 4	-12	16.82	-16.38
Stage 4	-12.2	13.79	-15.12
Stage 4	-12.4	11.03	-13.8
Stage 4	-12.6	8.55	-12.41
Stage 4	-12.8	6.36	-10.96
Stage 4	-13	4.47	-9.45
Stage 4	-13.2	2.89	-7.87
Stage 4	-13.4	1.65	-6.23
Stage 4	-13.6	0.74	-4.53
Stage 4	-13.8	0.19	-2.77
Stage 4	-14	0	-0.94

PROGETTAZIONE ATI:

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	-3.46
Stage 5	-0.2	-0.69	-3.46
Stage 5	-0.4	-2.76	-10.36
Stage 5	-0.6	-6.21	-17.22
Stage 5	-0.8	-11.02	-24.06
Stage 5	-1	-17.19	-30.87
Stage 5	-1.2	-24.72	-37.65
Stage 5	-1.4	-33.6	-44.39
Stage 5	-1.6	-43.83	-51.11
Stage 5	-1.8	-55.44	-58.06
Stage 5	-2	-68.49	-65.24
Stage 5	-2.2	-83.01	-72.64
Stage 5	-2.3	-90.85	-78.36
Stage 5	-2.5	-77.35	67.52
Stage 5	-2.7	-65.43	59.56
Stage 5	-2.9	-55.16	51.37
Stage 5	-3.1	-46.56	42.97
Stage 5	-3.3	-39.7	34.34
Stage 5	-3.5	-34.6	25.5
Stage 5	-3.7	-31.31	16.44
Stage 5	-3.9	-29.88	7.16
Stage 5	-4.1	-30.34	-2.34
Stage 5	-4.3	-32.76	-12.06
Stage 5	-4.5	-37.16	-22
Stage 5	-4.7	-43.59	-32.15
Stage 5	-4.8	-47.58	-39.94
Stage 5	-5	-24.94	113.22
Stage 5	-5.2	-4.44	102.51
Stage 5	-5.4	13.88	91.58
Stage 5	-5.6	29.98	80.51
Stage 5	-5.8	44.09	70.52
Stage 5	-6	56.34	61.3
Stage 5	-6.2	66.89	52.73
Stage 5	-6.4	75.84	44.74
Stage 5	-6.6	83.3	37.29
Stage 5	-6.8	89.37	30.36
Stage 5	-7	94.16	23.98
Stage 5	-7.2	97.79	18.14
Stage 5	-7.4	100.36	12.83
Stage 5	-7.6	101.96	8.01
Stage 5	-7.8	102.7	3.68
Stage 5	-8	102.66	-0.19
Stage 5	-8.2	101.92	-3.68
Stage 5	-8.4	100.52	-7
Stage 5	-8.6	98.52	-10.02
Stage 5	-8.8	95.96	-12.77
Stage 5	-9	92.91	-15.24
Stage 5	-9.2	89.43	-17.44
Stage 5	-9.4	85.55	-19.37
Stage 5	-9.6	81.34	-21.04
Stage 5	-9.8	76.86	-22.44
Stage 5	-10	72.14	-23.59
Stage 5	-10.2	67.24	-24.48
Stage 5	-10.4	62.22	-25.12
Stage 5	-10.6	57.11	-25.52
Stage 5	-10.8	51.98	-25.66
Stage 5	-11	46.87	-25.57
Stage 5	-11.2	41.82	-25.23
Stage 5	-11.4	36.89	-24.66
Stage 5	-11.6	32.12	-23.84

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 5	-11.8	27.56	-22.8
Stage 5	-12	23.25	-21.56
Stage 5	-12.2	19.21	-20.18
Stage 5	-12.4	15.48	-18.66
Stage 5	-12.6	12.08	-16.99
Stage 5	-12.8	9.04	-15.18
Stage 5	-13	6.4	-13.23
Stage 5	-13.2	4.17	-11.14
Stage 5	-13.4	2.39	-8.91
Stage 5	-13.6	1.08	-6.54
Stage 5	-13.8	0.27	-4.02
Stage 5	-14	0	-1.37

PROGETTAZIONE ATI:

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	-3.56
Stage 6	-0.2	-0.71	-3.56
Stage 6	-0.4	-2.84	-10.63
Stage 6	-0.6	-6.36	-17.64
Stage 6	-0.8	-11.28	-24.59
Stage 6	-1	-17.58	-31.48
Stage 6	-1.2	-25.24	-38.32
Stage 6	-1.4	-34.26	-45.1
Stage 6	-1.6	-44.63	-51.83
Stage 6	-1.8	-56.38	-58.74
Stage 6	-2	-69.55	-65.84
Stage 6	-2.2	-84.17	-73.12
Stage 6	-2.3	-92.04	-78.71
Stage 6	-2.5	-78.41	68.17
Stage 6	-2.7	-66.32	60.44
Stage 6	-2.9	-55.81	52.53
Stage 6	-3.1	-46.92	44.45
Stage 6	-3.3	-39.69	36.19
Stage 6	-3.5	-34.14	27.75
Stage 6	-3.7	-30.31	19.14
Stage 6	-3.9	-28.24	10.36
Stage 6	-4.1	-27.96	1.4
Stage 6	-4.3	-29.5	-7.73
Stage 6	-4.5	-32.91	-17.04
Stage 6	-4.7	-38.22	-26.53
Stage 6	-4.8	-41.59	-33.77
Stage 6	-5	-16.85	123.71
Stage 6	-5.2	5.91	113.78
Stage 6	-5.4	26.64	103.68
Stage 6	-5.6	45.32	93.39
Stage 6	-5.8	61.91	82.93
Stage 6	-6	76.36	72.28
Stage 6	-6.2	88.65	61.45
Stage 6	-6.4	98.74	50.43
Stage 6	-6.6	106.58	39.22
Stage 6	-6.8	112.14	27.83
Stage 6	-7	116.11	19.82
Stage 6	-7.2	118.69	12.92
Stage 6	-7.4	120.07	6.9
Stage 6	-7.6	120.41	1.67
Stage 6	-7.8	119.84	-2.83
Stage 6	-8	118.51	-6.66
Stage 6	-8.2	116.52	-9.95
Stage 6	-8.4	113.94	-12.89
Stage 6	-8.6	110.85	-15.46
Stage 6	-8.8	107.29	-17.77
Stage 6	-9	103.33	-19.83
Stage 6	-9.2	99	-21.64
Stage 6	-9.4	94.36	-23.2
Stage 6	-9.6	89.45	-24.54
Stage 6	-9.8	84.33	-25.63
Stage 6	-10	79.02	-26.51
Stage 6	-10.2	73.59	-27.16
Stage 6	-10.4	68.07	-27.59
Stage 6	-10.6	62.51	-27.81
Stage 6	-10.8	56.95	-27.82
Stage 6	-11	51.42	-27.62
Stage 6	-11.2	45.98	-27.22
Stage 6	-11.4	40.66	-26.61
Stage 6	-11.6	35.49	-25.81

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 6	-11.8	30.53	-24.81
Stage 6	-12	25.81	-23.62
Stage 6	-12.2	21.36	-22.23
Stage 6	-12.4	17.23	-20.65
Stage 6	-12.6	13.46	-18.88
Stage 6	-12.8	10.07	-16.93
Stage 6	-13	7.11	-14.78
Stage 6	-13.2	4.62	-12.45
Stage 6	-13.4	2.64	-9.94
Stage 6	-13.6	1.19	-7.24
Stage 6	-13.8	0.3	-4.43
Stage 6	-14	0	-1.51

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 7

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	0	0	-3.53
Stage 7	-0.2	-0.71	-3.53
Stage 7	-0.4	-2.81	-10.54
Stage 7	-0.6	-6.31	-17.5
Stage 7	-0.8	-11.2	-24.42
Stage 7	-1	-17.45	-31.29
Stage 7	-1.2	-25.08	-38.11
Stage 7	-1.4	-34.05	-44.89
Stage 7	-1.6	-44.38	-51.62
Stage 7	-1.8	-56.09	-58.55
Stage 7	-2	-69.22	-65.68
Stage 7	-2.2	-83.83	-73
Stage 7	-2.3	-91.69	-78.64
Stage 7	-2.5	-78.1	67.96
Stage 7	-2.7	-66.07	60.16
Stage 7	-2.9	-55.63	52.17
Stage 7	-3.1	-46.83	43.99
Stage 7	-3.3	-39.71	35.63
Stage 7	-3.5	-34.29	27.08
Stage 7	-3.7	-30.62	18.35
Stage 7	-3.9	-28.74	9.43
Stage 7	-4.1	-28.67	0.32
Stage 7	-4.3	-30.47	-8.97
Stage 7	-4.5	-34.15	-18.44
Stage 7	-4.7	-39.78	-28.11
Stage 7	-4.8	-43.33	-35.5
Stage 7	-5	-19.14	120.91
Stage 7	-5.2	3.01	110.78
Stage 7	-5.4	23.1	100.45
Stage 7	-5.6	41.09	89.94
Stage 7	-5.8	56.94	79.24
Stage 7	-6	70.61	68.34
Stage 7	-6.2	82.06	57.25
Stage 7	-6.4	91.24	45.9
Stage 7	-6.6	98.18	34.72
Stage 7	-6.8	102.92	23.72
Stage 7	-7	106.34	17.07
Stage 7	-7.2	108.57	11.16
Stage 7	-7.4	109.75	5.93
Stage 7	-7.6	110.02	1.34
Stage 7	-7.8	109.49	-2.64
Stage 7	-8	108.29	-6.04
Stage 7	-8.2	106.49	-8.96
Stage 7	-8.4	104.17	-11.6
Stage 7	-8.6	101.39	-13.9
Stage 7	-8.8	98.2	-15.98
Stage 7	-9	94.63	-17.83
Stage 7	-9.2	90.74	-19.47
Stage 7	-9.4	86.56	-20.9
Stage 7	-9.6	82.14	-22.11
Stage 7	-9.8	77.51	-23.13
Stage 7	-10	72.72	-23.94
Stage 7	-10.2	67.81	-24.56
Stage 7	-10.4	62.81	-24.99
Stage 7	-10.6	57.77	-25.22
Stage 7	-10.8	52.71	-25.27
Stage 7	-11	47.69	-25.13
Stage 7	-11.2	42.72	-24.81
Stage 7	-11.4	37.86	-24.31
Stage 7	-11.6	33.13	-23.64

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 7	-11.8	28.58	-22.78
Stage 7	-12	24.23	-21.75
Stage 7	-12.2	20.12	-20.55
Stage 7	-12.4	16.28	-19.18
Stage 7	-12.6	12.75	-17.64
Stage 7	-12.8	9.57	-15.92
Stage 7	-13	6.77	-13.99
Stage 7	-13.2	4.4	-11.84
Stage 7	-13.4	2.51	-9.47
Stage 7	-13.6	1.13	-6.89
Stage 7	-13.8	0.29	-4.21
Stage 7	-14	0	-1.44

PROGETTAZIONE ATI:

Tabella Risultati Paratia NTC2018: SISMICA GEO - Left Wall - Stage: Stage 8

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	0	0	-0.45
Stage 8	-0.2	-0.09	-0.45
Stage 8	-0.4	-0.53	-2.18
Stage 8	-0.6	-1.48	-4.76
Stage 8	-0.8	-3.11	-8.17
Stage 8	-1	-5.6	-12.43
Stage 8	-1.2	-9.1	-17.52
Stage 8	-1.4	-13.79	-23.45
Stage 8	-1.6	-19.83	-30.21
Stage 8	-1.8	-27.4	-37.82
Stage 8	-2	-36.65	-46.27
Stage 8	-2.2	-47.76	-55.55
Stage 8	-2.3	-53.87	-63.28
Stage 8	-2.5	-24.63	145.96
Stage 8	-2.7	2.4	135.18
Stage 8	-2.9	26.77	121.81
Stage 8	-3.1	48.2	107.19
Stage 8	-3.3	66.47	91.31
Stage 8	-3.5	81.3	74.19
Stage 8	-3.7	92.47	55.82
Stage 8	-3.9	99.71	36.19
Stage 8	-4.1	102.77	15.31
Stage 8	-4.3	101.4	-6.82
Stage 8	-4.5	95.36	-30.2
Stage 8	-4.7	84.4	-54.83
Stage 8	-4.8	76.97	-73.16
Stage 8	-5	102.11	125.72
Stage 8	-5.2	121.71	97.96
Stage 8	-5.4	135.5	68.95
Stage 8	-5.6	143.23	38.69
Stage 8	-5.8	144.64	7.17
Stage 8	-6	139.55	-25.59
Stage 8	-6.2	128.94	-53.04
Stage 8	-6.4	117.75	-55.94
Stage 8	-6.6	105.93	-59.1
Stage 8	-6.8	93.43	-62.5
Stage 8	-7	81.58	-59.25
Stage 8	-7.2	70.4	-55.91
Stage 8	-7.4	59.89	-52.52
Stage 8	-7.6	50.07	-49.12
Stage 8	-7.8	40.93	-45.72
Stage 8	-8	32.46	-42.33
Stage 8	-8.2	24.67	-38.96
Stage 8	-8.4	17.52	-35.75
Stage 8	-8.6	11	-32.58
Stage 8	-8.8	5.11	-29.46
Stage 8	-9	-0.17	-26.39
Stage 8	-9.2	-4.85	-23.38
Stage 8	-9.4	-8.93	-20.42
Stage 8	-9.6	-12.44	-17.54
Stage 8	-9.8	-15.39	-14.74
Stage 8	-10	-17.79	-12.03
Stage 8	-10.2	-19.67	-9.41
Stage 8	-10.4	-21.05	-6.89
Stage 8	-10.6	-21.94	-4.46
Stage 8	-10.8	-22.37	-2.13
Stage 8	-11	-22.35	0.1
Stage 8	-11.2	-21.9	2.23
Stage 8	-11.4	-21.05	4.25
Stage 8	-11.6	-19.82	6.18

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Risultati Paratia		Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 8	-11.8	-18.22	8
Stage 8	-12	-16.33	9.42
Stage 8	-12.2	-14.25	10.41
Stage 8	-12.4	-12.06	10.97
Stage 8	-12.6	-9.83	11.12
Stage 8	-12.8	-7.67	10.83
Stage 8	-13	-5.63	10.17
Stage 8	-13.2	-3.81	9.14
Stage 8	-13.4	-2.26	7.73
Stage 8	-13.6	-1.06	5.99
Stage 8	-13.8	-0.28	3.89
Stage 8	-14	0	1.42

PROGETTAZIONE ATI:

Risultati Elementi strutturali - NTC2018: SISMICA GEO

Design Assumption: NTC2018: SISMICA GEO Sollecitazione Tieback

Stage	Forza (kN/m)
Stage 3	166.7
Stage 4	170.5001
Stage 5	157.0434
Stage 6	157.9292
Stage 7	157.6765
Stage 8	224.5408

PROGETTAZIONE ATI:

Design Assumption: NTC2018: SISMICA GEO Sollecitazione Tieback_New

Stage	Forza (kN/m)
Stage 5	166.7
Stage 6	170.6054
Stage 7	169.6476
Stage 8	226.0924

Tabella Spostamento SLD - LEFT Stage: Stage 8

Design Assumption: Nominal Tipo Risultato: Spostamento		Muro: LEFT
Stage	Z (m)	Spostamento (mm)
Stage 8	0	-2.94
Stage 8	-0.2	-2.72
Stage 8	-0.4	-2.49
Stage 8	-0.6	-2.26
Stage 8	-0.8	-2.04
Stage 8	-1	-1.81
Stage 8	-1.2	-1.58
Stage 8	-1.4	-1.36

PROGETTAZIONE ATI:

Design Assumption: Nominal Tipo Risultato: Spostamento			Muro: LEFT
Stage	Z (m)		Spostamento (mm)
Stage 8	-1.6		-1.13
Stage 8	-1.8		-0.9
Stage 8	-2		-0.67
Stage 8	-2.2		-0.44
Stage 8	-2.3		-0.32
Stage 8	-2.5		-0.09
Stage 8	-2.7		0.15
Stage 8	-2.9		0.38
Stage 8	-3.1		0.62
Stage 8	-3.3		0.85
Stage 8	-3.5		1.09
Stage 8	-3.7		1.33
Stage 8	-3.9		1.56
Stage 8	-4.1		1.79
Stage 8	-4.3		2.03
Stage 8	-4.5		2.26
Stage 8	-4.7		2.49
Stage 8	-4.8		2.6
Stage 8	-5		2.83
Stage 8	-5.2		3.06
Stage 8	-5.4		3.29
Stage 8	-5.6		3.51
Stage 8	-5.8		3.73
Stage 8	-6		3.95
Stage 8	-6.2		4.16
Stage 8	-6.4		4.37
Stage 8	-6.6		4.58
Stage 8	-6.8		4.79
Stage 8	-7		4.99
Stage 8	-7.2		5.18
Stage 8	-7.4		5.37
Stage 8	-7.6		5.56
Stage 8	-7.8		5.75
Stage 8	-8		5.93
Stage 8	-8.2		6.11
Stage 8	-8.4		6.29
Stage 8	-8.6		6.47
Stage 8	-8.8		6.64
Stage 8	-9		6.81
Stage 8	-9.2		6.98
Stage 8	-9.4		7.14
Stage 8	-9.6		7.3
Stage 8	-9.8		7.46
Stage 8	-10		7.62
Stage 8	-10.2		7.78
Stage 8	-10.4		7.94
Stage 8	-10.6		8.09
Stage 8	-10.8		8.25
Stage 8	-11		8.4
Stage 8	-11.2		8.55
Stage 8	-11.4		8.7
Stage 8	-11.6		8.85
Stage 8	-11.8		9
Stage 8	-12		9.15
Stage 8	-12.2		9.3
Stage 8	-12.4		9.44
Stage 8	-12.6		9.59
Stage 8	-12.8		9.74
Stage 8	-13		9.89
Stage 8	-13.2		10.03
Stage 8	-13.4		10.18
Stage 8	-13.6		10.33
Stage 8	-13.8		10.47
Stage 8	-14		10.62

PROGETTAZIONE ATI:

PROGETTAZIONE ATI: