Anas
GRUPPO FS ITALIANE

Direzione Progettazione e Realizzazione Lavori

S.S. 398 "Via Val di Cornia"

Bretella di collegamento tra l'Autostrada Tirrenica A12 e il Porto di Piombino

LOTTO 1 - Svincolo di Geodetica-Gagno

PROGETTO ESECUTIVO

COD. FI2

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Sezione A
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PROTOCOLLO	DATA
	MARZO 2019

OPERE D'ARTE MINORI
TOMBINO SCATOLARE VECCHIA CORNIA 3
Relazione Tecnica e di calcolo

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA:
PROGETTO: DPFI12 LIV. PROG.: E N. PROG.: 1801	T00-TM03-STR-RE01		
CODICE ELAB. T00TM03STRRE01		A	-

REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO
A	Emissione	29/03/2019	F.Macchioni	V.Rotisciani	N.Granieri

INDICE

1. PREMESSA

Nella presente relazione vengono presentati i calcoli di verifica delle opere strutturali del tombino scatolare "Vecchia Cornia 3" da realizzarsi nell'ambito dell'intervento denominato "*SS. 398 Via Val di Cornia - Bretella di collegamento tra l'Autostrada Tirrenica A12 e il Porto di Piombino - LOTTO 1 - Svincolo di Geodetica-Gagno*".

2. NORMATIVA DI RIFERIMENTO

L. 05.11.1971, n. 1086. Norme per la disciplina delle opere in conglomerato cementizio armato, normale e precompresso ed a struttura metallica

D.M. del 09.01.1996. Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche.

D.M. del 16.01.1996. Norme Tecniche relative ai "Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi".

D.M. del 16.01.1996. Norme Tecniche per le costruzioni in zone sismiche.

Circolare Ministeriale del 04.07.1996 n. 156AA.GG./STC. Istruzioni per l'applicazione delle "Norme tecniche relative ai criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi" di cui al Decreto Ministeriale 16.01.1996.

L. 02.02.1974, n. 64. Provvedimenti per costruzioni con particolari prescrizioni per zone sismiche.

D.M. LL. PP. 11.03.1988. Norme Tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione ed il collaudo delle opere di sostegno delle terre e delle opere di fondazione.

Circolare Ministeriale del 24.07.1988, n. 30483/STC.

Legge 2 Febbraio 1974 n. 64, art. 1 - D.M. 11 Marzo 1988. Norme Tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione ed il collaudo delle opere di sostegno delle terre e delle opere di fondazione.

Circolare Ministeriale del 15.10.1996 N°252. Istruzioni per l'applicazione delle "Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle opere in cemento armato normale e precompresso e per le strutture metalliche" di cui al D.M.09.01.1996

Circolare Ministeriale del 10.04.1997 N°65/AA.GG. Istruzioni per l'applicazione delle "Norme Tecniche per le costruzioni in zone sismiche" di cui al D.M.16.01.1996

Ordinanza del Presidente del Consiglio dei Ministri N°3274 del 20.03.2003. Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica.

Ordinanza del Presidente del Consiglio dei Ministri N°3431 del 10.05.2005. Ulteriori modifiche ed integrazioni all'ordinanza N°3274.

Norme Tecniche per le Costruzioni - D.M. 14.09.2005 (TU 2005)

Norme Tecniche per le Costruzioni - D.M. 14.01.2008 (NTC 2008)

Norme Tecniche per le Costruzioni - D.M. 17.01.2018 (NTC 2018).

3. INQUADRAMENTO STRATIGRAFICO E GEOTECNICO DEL SITO

La campagna di indagini effettuata ha permesso il riconoscimento dei litotipi, la successione stratigrafica e la caratterizzazione meccanica dei terreni lungo tutto lo sviluppo del tracciato di progetto. I risultati di dette indagini sono descritti nella relazione geotecnica alla quale si rimanda per ulteriori approfondimenti.

3.1 STRATIGRAFIE DI CALCOLO

Facendo riferimento a quanto riportato nella relazione geotecnica, nella tabella che segue sono riportati i valori dei parametri meccanici degli strati interessati dal calcolo delle strutture in esame:

Litotipi		Parametri geotecnici				
Cod.	Descrizione	γ (KN/m^3)	c' (KPa)	ϕ' (deg)	C_u (KPa)	E' (MPa)
UG0	Riporti, coperture antropiche, colmate	18.5	-	35	-	15
UG1	Argille e limi lacustri organici	17.0	10	24	30	-
UG2	Argille e limi molto poco consistenti	19.5	30	25	100	-
UG3	Sabbie limose mediamente addensate	20.0	0	32	-	25
UG4b	Limi sabbioso ghiaiosi molto consistenti	20.0	20	32	-	50
UG4a	Substrato roccioso	26.0	50	40	-	100

La stratigrafia assunta nei calcoli è specificata di seguito, assumendo come quota 0.00 la quota di fondo scavo:

Da 0.00 a -1.20	Litotipo UG2 – Argille e limi poco consistenti
Da -1.20 a -3.50	Litotipo UG3 – Sabbie limose mediamente addensate
Da -3.50 a -8.00	Litotipo UG2 – Argille e limi poco consistenti
Da -8.00 a -9.00	Litotipo UG3 – Sabbie limose mediamente addensate
Da -9.00 a -	Litotipo UG2 – Argille e limi poco consistenti

La falda risulta ubicata a circa 3.00m di profondità dal piano di campagna.

Dal punto di vista sismico il sottosuolo è individuato nella categoria "C", come riportato nella Relazione geologica allegata al progetto esecutivo.

Per quanto riguarda il materiale con cui si effettua il riempimento a tergo delle opere, si assumono le seguenti caratteristiche:

Cod.	Descrizione	γ (KN/m^3)	c' (KPa)	ϕ' (deg)
R	Riempimento	18	0	35

Per maggiori dettagli sulle caratteristiche dei terreni si faccia riferimento agli elaborati di carattere geotecnico (relazione geotecnica, profili geotecnici).

4.GEOMETRIA DELL'OPERA

Il tombino in oggetto è costituito da una struttura scatolare in c.a. gettato in opera, di dimensioni interne pari a 8.50 x 4.50 m, con pareti, copertura e platea di fondazione di spessore pari a 60 cm. Lo sviluppo dell'opera è di circa 98 m.

Per il calcolo viene analizzata una porzione di struttura di lunghezza unitaria, e con i carichi spalmati su tale lunghezza di calcolo.

All'imbocco ed all'uscita del tombino sono presenti muri d'ala di altezza pari a 6.00 m e spessore di 50 cm, con altezza massima del rinterro a tergo di 5.40 m. Le strutture di fondazione, collegate a quelle del tombino, sono costituite da platee di spessore pari a 60 cm.

Per ulteriori dettagli si vedano gli elaborati grafici di progetto.

5. ANALISI DEI CARICHI

I valori dei carichi sono riepilogati di seguito.

5.1 COPERTURA TOMBINO

CARICHI PERMANENTI STRUTTURALI

Rilevato stradale (h=2.05 m, p.p = 19 kN/m^3)	38.95 kN/m^2
Carico permanente strutturale totale G_{1k}	38.95 kN/m^2

CARICHI PERMANENTI NON STRUTTURALI

Rilevato stradale (h=2.05 m, p.p = 19 kN/m^3)	38.95 kN/m^2
Pacchetto stradale (h=0.70, p.p = 20 kN/m^3)	14.00 kN/m^2
Carico permanente non strutturale totale G_{2k}	14.00 kN/m^2

CARICHI VARIABILI TRAFFICO

Per tenere conto dei carichi derivanti dal traffico stradale, considerando una larghezza della corsia convenzionale pari a 3.00 m in accordo con la Tab. 5.1.I della NTC2018, si applicano i carichi mobili tandem ed i carichi distribuiti sulla corsia, tenendo conto che il tombino è modellato con larghezza unitaria.

Pertanto, per quanto riguarda il carico distribuito, si considera applicato su 1 m di larghezza. Per il carico tandem, si considera invece la presenza di un solo asse di carico (Q_{ik} = 300 kN), in quanto si può ritenere con buona approssimazione che la larghezza di 1.00 m non consente la presenza contemporanea di più di due punti di carico sul tombino, viste le distanze tra gli assi da normativa. I due punti di carico dell'asse sono disposti, per garantire le condizioni più gravose, a distanza di 1.20 m a cavallo della mezzeria della copertura. Le entità dei carichi sono riepilogati di seguito:

Carico distribuito	9.00 kN/m
Carico tandem concentrato	2 x 150 kN

FRENATURA

L'azione dovuta alla frenatura è calcolata secondo la relazione contenuta nelle NTC2018 al par. 5.1.3.5 ed applicata sulla porzione di scatolare di larghezza pari ad 1.00 m:

$q_3 = 0.6\ (2Q_{1k}) + 0.10\ q_{1k}\ w_1\ L = 384.3$ kN

dove:

Q_{1k} = 300 kN, carico asse corsia;

q_{1k} = 9.00 kN/m^2, carico uniformemente distribuito fuori corsia;

w_1= 3.00 m, larghezza della corsia convenzionale;

L = 9.00 m, lunghezza della zona caricata.

La forza di frenatura, applicata a livello della pavimentazione stradale e lungo l'asse della corsia, è assunta uniformemente distribuita sulla lunghezza caricata. Inoltre, considerando la porzione di scatolare di larghezza pari ad 1 m, l'azione di frenatura risulta:

Q_3 = 384.3 / (9.00 x 3.00) = 14.23 kN/m^2 X 1.00 m = 14.23 kN/m

CARICHI TERMICI

Dal momento che le opere in progetto sono completamente interrate e all'interno è presente acqua si ipotizza un gradiente termico tra la faccia esterna e la faccia interna, con una distribuzione a farfalla di valore pari a +/- 15°.

5.2 PLATEA TOMBINO

CARICHI PERMANENTI STRUTTURALI

Peso dell'acqua (H_{max} = 4.50 m)	45.00 kN/m^2
Carico permanente strutturale totale G_{1k}	45.00 kN/m^2

5.3 SPINTA DEL TERRENO SULLE PARETI

Si riportano di seguito i grafici delle spinte del terreno sulle pareti del manufatto tenendo conto della presenza di materiale di riporto a tergo, per il quale si considerano le seguenti caratteristiche geomeccaniche:

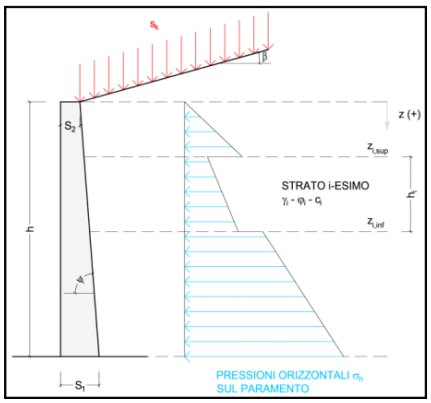
γ_k= 19,0	kN/m^3	peso di volume caratteristico;
φ'_k = 35	°	angolo di operativo attrito caratteristico.

Considerando che le strutture in esame non sono in grado di subire spostamenti sufficienti alla mobilitazione della spinta attiva le azioni agenti sulle stesse verranno calcolate per mezzo del coefficiente di spinta in quiete.

Nel calcolo delle spinte si è tenuto conto di un sovraccarico accidentale sul terreno di 20 kN/m^2.

I risultati e gli andamenti delle pressioni di progetto (comprensive dei fattori parziali di sicurezza), sono riportati nelle tabelle seguenti.

Tutti i valori sono riferiti a una striscia di larghezza unitaria.



GEOMETRIA MURO E RINTERRO

γ_M=	25	kN/m³	Peso per unità di volume
s_1=	0,5	m	Spessore alla base
s_2=	0,5	m	Spessore in testa
h_f=	0,6	m	Altezza suola fondazione
h=	5	m	Altezza paramento
β=	0	°	Ang. terrapieno sull'orizzontale (>0 antiorario)
ψ=	90	°	Ang. par. interna sull'orizzontale (>0 orario)
H=	5,6	m	Altezza totale muro

MODALITA' DI SPINTA

Spinta in quiete

PARAMETRI SISMICI

C — Categoria suolo

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15° — Caratteristiche pendio

Muro non in grado di subire spostamenti relativi rispetto al terreno — Caratteristiche pendio

a_g=	0,049	g	Accelerazione orizzontale massima su sito di riferimento rigido orizzontale (riferita all'accel. di gravità g)
F_0=	2,815		Fattore di amplificazione spettrale massima su sito di riferimento rigido orizzontale
T_c^*=	0,275	s	Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale
C_C=	1,608		Coefficiente che modifica il valore del periodo T_C
S_S=	1,500		Coefficiente di amplificazione stratigrafica
S_T=	1,000		Coefficiente di amplificazione topografica
S=	1,500		Coefficiente che tiene conto della categoria di sottosuolo
a_{max}=	0,074	g	Accelerazione massima attesa al sito (riferita all'accelerazione di gravità g)
β_m=	1,00		Coefficiente di riduzione dell'accelerazione massima attesa al sito
k_h=	0,074		Coefficiente sismico orizzontale
k_v^+=	0,037		Coefficiente sismico verticale con accelerazione diretta verso l'alto
k_v^-=	-0,037		Coefficiente sismico verticale con accelerazione diretta verso il basso
θ_A=	4,06	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso l'alto
θ_B=	4,36	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso il basso

SOVRACCARICHI SUL RINTERRO

g_{1k}	g_{2k}	q_{1k}		
0	0	20	kN/m²	Carico uniformemente distribuito a tergo del paramento
s_{g1k}	s_{g2k}	s_{q1k}		
1	1	0,3		Coefficiente di riduzione della massa del sovraccarico

Coefficiente parziali di sicurezza dei carichi

γ_{G1}	γ_{G2}	γ_Q	γ_E	
1	1	1	-	Coefficiente parziali di sicurezza dei carichi SLE
1,3	1,5	1,5	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 1 (A1) E APPROCCIO 2
1	1,3	1,3	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 2 (A2)
1	1	1	1	Coefficiente parziali di sicurezza dei carichi in combinazione sismica SLV

Coefficiente parziali di sicurezza per i parametri geotecnici del terreno

γ_γ	γ_φ	$\gamma_{c'}$	
1	1	1	Coefficiente parziali di sicurezza dei parametri geotecnici SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV
1	1,25	1,25	Coefficiente parziali di sicurezza dei parametri geotecnici - SLU - APPROCCIO 1 - COMB 2 (M2)

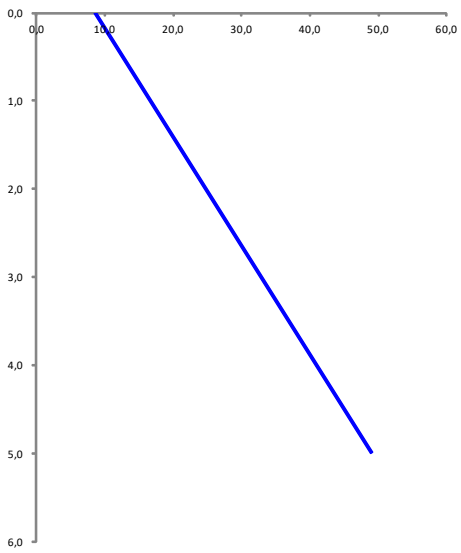
CARATTERISTICHE STRATI TERRENO

				PARAMETRI GEOTECNICI **CARATTERISTICI**				PARAMETRI GEOTECNICI DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				COEFF. DI SPINTA DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				PARAMETRI GEOTECNICI DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**				COEFF. DI SPINTA DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**			
Strato	z_{sup} [m]	z_{inf} [m]	h [m]	γ_k [kN/m³]	φ_k [°]	δ_k [°]	c_k' [kN/m²]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]
1	0,00	5,00	5,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
2	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
3	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
4	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
5	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
6	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
7	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
8	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
9	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391
10	5,00	5,00	0,00	19,00	35,00	0,00	0,00	19,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	19,00	29,26	0,00	0,00	0,511	0,343	0,388	0,391

PRESSIONI DI PROGETTO SUL PARAMENTO (INCLUDONO I FATTORI DI SICUREZZA PARZIALI DELLE AZIONI)

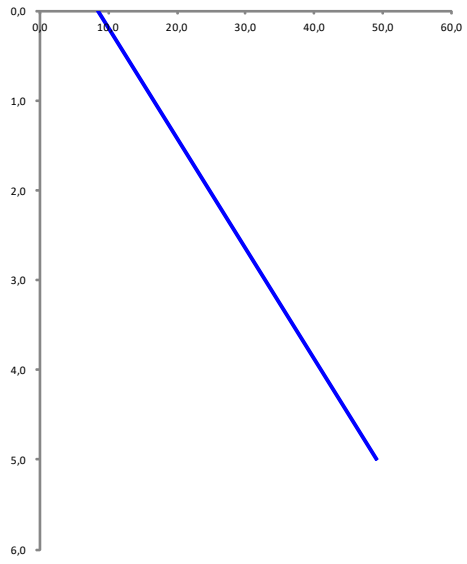
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
2	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
3	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
4	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
5	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
6	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
7	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
8	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
9	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**
10	5,00	0,43	95,0	40,51	0,00	0,00	8,53	**49,04**
	5,00		95,0	40,51	0,00	0,00	8,53	**49,04**



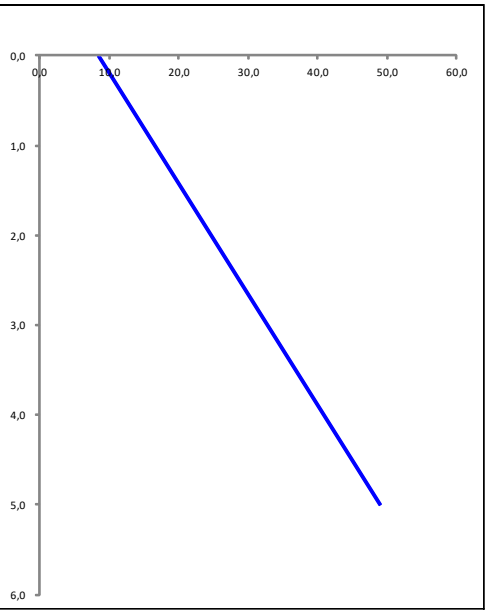
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	12,79	**12,79**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
2	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
3	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
4	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
5	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
6	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
7	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
8	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
9	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**
10	5,00	0,43	95,0	52,66	0,00	0,00	12,79	**65,46**
	5,00		95,0	52,66	0,00	0,00	12,79	**65,46**



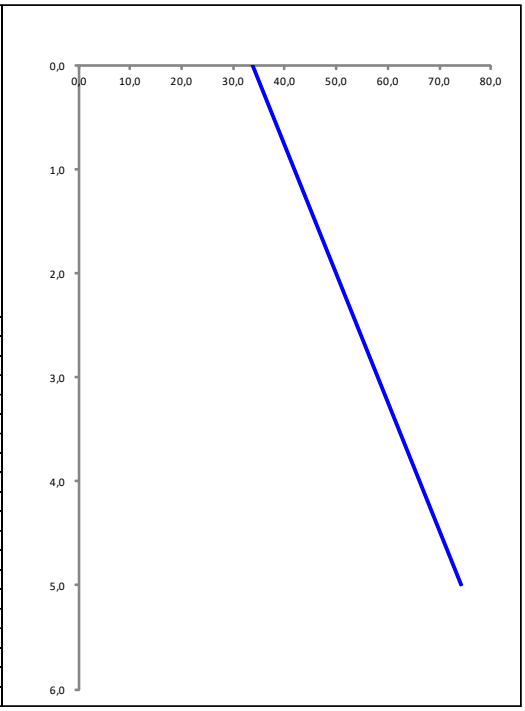
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,51	0,0	0,00	0,00	0,00	13,29	**13,29**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
2	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
3	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
4	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
5	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
6	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
7	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
8	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
9	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**
10	5,00	0,51	95,0	48,57	0,00	0,00	13,29	**61,87**
	5,00		95,0	48,57	0,00	0,00	13,29	**61,87**



PRESSIONI DI PROGETTO CONDIZIONI SISMICHE **SLV**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	Pressione della forza d'inerzia agente sul paramento [kN/m²]	Pressione dell'incremento sismico di spinta [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti non strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**33,83**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
2	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
3	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
4	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
5	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
6	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
7	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
8	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
9	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
10	5,00	0,43	95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**
	5,00		95,0	40,51	0,00	0,00	8,53	2,60	22,16	0,00	0,00	0,53	**74,34**



5.4 CRITERI DI CALCOLO DELLE AZIONI SISMICHE

Le azioni sismiche di progetto, in base alle quali valutare i diversi stati limite considerati, si definiscono a partire dalla "pericolosità sismica di base" del sito di costruzione.

Tutti i parametri che definiscono tale caratterizzazione dipendono dalla probabilità di superamento PVR dell'evento sismico nel periodo di riferimento VR.

Per il progetto in essere, in accordo con la committenza, sono stati scelti i seguenti valori dei parametri di progetto relativi alla tipologia e all'uso a cui le strutture sono destinate:

Vita nominale V_N = 50 anni

Classe d'uso II (coefficiente d'uso C_U = 1)

Periodo di riferimento per l'azione sismica $V_R = V_N \times C_U = 50 \times 1 = 50$ anni

Gli stati limite rispetto ai quali effettuare le verifiche sono:

STATI LIMITE DI ESERCIZIO (SLE)

SLO – Stato limite di operatività

SLD – Stato limite di danno

STATI LIMITE ULTIMI (SLU)

SLV – Stato limite di salvaguardia della vita

SLC – Stato limite di collasso

Per costruzioni di classe d'uso II le verifiche possono essere limitate ai soli SLD e SLV.

Per gli scopi progettuali l'azione sismica viene definita mediante forme spettrali dipendenti da tre parametri a loro volta funzione della localizzazione geografica del sito e del periodo di ritorno considerato:

a_g – Accelerazione massima orizzontale al sito

F_0 – Valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale

T^*_C – Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale

Nel caso in esame, per un periodo di ritorno pari a 475 anni (relativo allo stato SLV) risulta:

a_g = 0.0485 g

F_0 = 2.815

T^*_C = 0.275 s

Dal punto di vista sismico il suolo di fondazione è classificabile come di tipo "C".

L'amplificazione stratigrafica è descritta mediante i coefficienti S_S e S_T che assumono i seguenti valori:

S_S = 1.432

S_T = 1.0 (categoria T1 - superfici pianeggianti, pendii e rilievi isolati con pendenza < 15%)

Pertanto risulta:

$S = S_S \times S_T = 1.432 \times 1.0 = 1.432$

Lo spettro di progetto coincide con quello elastico dal momento che le strutture vengono considerate non dissipative. Pertanto il fattore di struttura impiegato nelle analisi risulta:

q= 1.00, fattore di struttura.

6. CONDIZIONI E COMBINAZIONI DI CARICO

6.1 CONDIZIONI DI CARICO

Con riferimento al D.M. 17 gennaio 2018 le condizioni di carico prese in considerazione saranno le seguenti:

Descrizione	Nome breve	Durata	Psi0	Psi1	Psi2
Pesi strutturali	Pesi	Permanente			
Permanenti portati	Port.	Permanente			
Variabile traffico	Variabile traffico	Media	0.75	0.75	0
Spinta terreno A1-M1	Spinta terreno A1-M1	Permanente	1	1	1
Spinta terreno A2-M2	Spinta terreno A2-M2	Permanente	1	1	1
Sovr accidentale A1-M1	Sovr accidentale A1-M1	Media	0.7	0.5	0.3
Sovr accidentale A2-M2	Sovr accidentale A2-M2	Media	0.7	0.5	0.3
Sisma terreno Y sx	Sisma terreno Y sx	Istantaneo	0	0	0
Sisma terreno Y dx	Sisma terreno Y dx	Istantaneo	0	0	0
Frenatura	Frenatura	Media	0	0	0
ΔT	ΔT	Media	0.6	0.5	0
Sisma X SLV	X SLV				
Sisma Y SLV	Y SLV				
Sisma Z SLV	Z SLV				
Eccentricità Y per sisma X SLV	EY SLV				
Eccentricità X per sisma Y SLV	EX SLV				
Sisma X SLD	X SLD				
Sisma Y SLD	Y SLD				
Sisma Z SLD	Z SLD				
Eccentricità Y per sisma X SLD	EY SLD				
Eccentricità X per sisma Y SLD	EX SLD				
Terreno sisma X SLV	Tr x SLV				
Terreno sisma Y SLV	Tr y SLV				
Terreno sisma Z SLV	Tr z SLV				
Terreno sisma X SLD	Tr x SLD				
Terreno sisma Y SLD	Tr y SLD				
Terreno sisma Z SLD	Tr z SLD				
Rig. Ux	R Ux				
Rig. Uy	R Uy				
Rig. Rz	R Rz				

Una rappresentazione grafica dei carichi agenti per ciascuna delle singole condizioni è fornita ai paragrafi successivi.

6.2 COMBINAZIONI DI CARICO

Le combinazioni di carico da considerare ai fini delle verifiche sono state elaborate tenendo conto di quanto riportato nel D.M.17 gennaio 2018.

- Combinazione fondamentale, generalmente impiegata per gli stati limite ultimi (SLU):

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

- Combinazione caratteristica (rara), generalmente impiegata per gli stati limite di esercizio (SLE) irreversibili:

$$G_1 + G_2 + P + Q_{k1} + \Psi_{02}\times Q_{k2} + \Psi_{03}\times Q_{k3} + \ldots$$

- Combinazione frequente, generalmente impiegata per gli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + P + \psi_{11}\cdot Q_{k1} + \psi_{22}\cdot Q_{k2} + \psi_{23}\cdot Q_{k3} + \ldots$$

- Combinazione quasi permanente (SLE), generalmente impiegata per gli effetti a lungo termine:

$$G_1 + G_2 + P + \psi_{21}\cdot Q_{k1} + \psi_{22}\cdot Q_{k2} + \psi_{23}\cdot Q_{k3} + \ldots$$

- Combinazione sismica, impiegata per gli stati limite ultimi e di esercizio connessi all'azione sismica E:

$$E + G_1 + G_2 + P + \Psi_{21}\times Q_{k1} + \Psi_{22}\times Q_{k2} + \ldots$$

γ_{G1} coefficiente parziale del peso proprio della struttura, del terreno e dell'acqua, quando pertinente;

γ_{G2} coefficiente parziale dei pesi propri degli elementi non strutturali;

γ_Q coefficiente parziale delle azioni variabili da traffico;

γ_{Qi} coefficiente parziale delle azioni variabili.

Il coefficiente parziale della precompressione si assume pari a $\gamma_P=1$

I valori dei coefficienti parziali di sicurezza sono riportati nelle tabelle seguenti.

Famiglia SLU

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLU 1	1.35	1.5	1.35	1.35	0	1.35	0	0	0	0	1.2
2	SLU 2	1.35	1.5	1.35	1.35	0	1.35	0	0	0	0	-1.2
3	SLU 3	1.35	1.5	1.35	1.35	0	1.35	0	0	0	1.2	1.2
4	SLU 4	1.35	1.5	1.35	1.35	0	1.35	0	0	0	1.2	-1.2
5	SLU 5	1	1.3	1.15	0	1	0	1	0	0	0	1
6	SLU 6	1	1.3	1.15	0	1	0	1	0	0	0	-1
7	SLU 7	1	1.3	1.15	0	1	0	1	0	0	1.15	1
8	SLU 8	1	1.3	1.15	0	1	0	1	0	0	1.15	-1
9	SLU 9	1.35	1.5	0.75	1.35	0	1.35	0	0	0	0	1.2

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
10	SLU 10	1.35	1.5	0.75	1.35	0	1.35	0	0	0	0	-1.2
11	SLU 11	1.35	1.5	0.75	1.35	0	1.35	0	0	0	1.2	1.2
12	SLU 12	1.35	1.5	0.75	1.35	0	1.35	0	0	0	1.2	-1.2
13	SLU 13	1	1.3	0.75	0	1	0	1	0	0	0	1
14	SLU 14	1	1.3	0.75	0	1	0	1	0	0	0	-1
15	SLU 15	1	1.3	0.75	0	1	0	1	0	0	1.15	1
16	SLU 16	1	1.3	0.75	0	1	0	1	0	0	1.15	-1
17	SLU 17	1.35	1.5	1.35	1.35	0	0.75	0	0	0	0	1.2
18	SLU 18	1.35	1.5	1.35	1.35	0	0.75	0	0	0	0	-1.2
19	SLU 19	1.35	1.5	1.35	1.35	0	0.75	0	0	0	1.2	1.2
20	SLU 20	1.35	1.5	1.35	1.35	0	0.75	0	0	0	1.2	-1.2
21	SLU 21	1	1.3	1.15	0	1	0	0.75	0	0	0	1
22	SLU 22	1	1.3	1.15	0	1	0	0.75	0	0	0	-1
23	SLU 23	1	1.3	1.15	0	1	0	0.75	0	0	1.15	1
24	SLU 24	1	1.3	1.15	0	1	0	0.75	0	0	1.15	-1
25	SLU 25	1.35	1.5	1.013	1.35	0	1.35	0	0	0	0	1.2
26	SLU 26	1.35	1.5	1.013	1.35	0	1.35	0	0	0	0	-1.2
27	SLU 27	1.35	1.5	1.013	1.35	0	1.35	0	0	0	1.2	1.2
28	SLU 28	1.35	1.5	1.013	1.35	0	1.35	0	0	0	1.2	-1.2
29	SLU 29	1	1.3	1.013	0	1	0	1	0	0	0	1
30	SLU 30	1	1.3	1.013	0	1	0	1	0	0	0	-1
31	SLU 31	1	1.3	1.013	0	1	0	1	0	0	1.15	1
32	SLU 32	1	1.3	1.013	0	1	0	1	0	0	1.15	-1
33	SLU 33	1.35	1.5	1.35	1.35	0	1.013	0	0	0	0	1.2
34	SLU 34	1.35	1.5	1.35	1.35	0	1.013	0	0	0	0	-1.2
35	SLU 35	1.35	1.5	1.35	1.35	0	1.013	0	0	0	1.2	1.2
36	SLU 36	1.35	1.5	1.35	1.35	0	1.013	0	0	0	1.2	-1.2
37	SLU 37	1	1.3	1.15	0	1	0	0.75	0	0	0	1
38	SLU 38	1	1.3	1.15	0	1	0	0.75	0	0	0	-1
39	SLU 39	1	1.3	1.15	0	1	0	0.75	0	0	1.15	1
40	SLU 40	1	1.3	1.15	0	1	0	0.75	0	0	1.15	-1

Famiglia SLE rara

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE RA 1	1	1	1.35	1	0	1.35	0	0	0	0	0
2	SLE RA 2	1	1	1.35	1	0	1.35	0	0	0	0	0
3	SLE RA 3	1	1	1.35	1	0	1.35	0	0	0	0	0
4	SLE RA 4	1	1	1.35	0	1	0	1.15	0	0	0	0
5	SLE RA 5	1	1	1.35	0	1	0	1.15	0	0	0	0
6	SLE RA 6	1	1	1.35	0	1	0	1.15	0	0	0	0
7	SLE RA 7	1	1	1.35	1	0	1.013	0	0	0	0	0
8	SLE RA 8	1	1	1.35	1	0	1.013	0	0	0	0	0
9	SLE RA 9	1	1	1.35	1	0	1.013	0	0	0	0	0
10	SLE RA 10	1	1	1.35	0	1	0	0.863	0	0	0	0
11	SLE RA 11	1	1	1.35	0	1	0	0.863	0	0	0	0
12	SLE RA 12	1	1	1.35	0	1	0	0.863	0	0	0	0
13	SLE RA 13	1	1	1.013	1	0	1.35	0	0	0	0	0
14	SLE RA 14	1	1	1.013	1	0	1.35	0	0	0	0	0
15	SLE RA 15	1	1	1.013	1	0	1.35	0	0	0	0	0
16	SLE RA 16	1	1	1.013	0	1	0	1.15	0	0	0	0
17	SLE RA 17	1	1	1.013	0	1	0	1.15	0	0	0	0
18	SLE RA 18	1	1	1.013	0	1	0	1.15	0	0	0	0

Famiglia SLE frequente

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE FR 1	1	1	0	0	0	0	0	0	0	0	0
2	SLE FR 2	1	1	0	0	0	0	0	0	0	0	0.5
3	SLE FR 3	1	1	0	0	0	0	0.3	0	0	0	0.5
4	SLE FR 4	1	1	0	0	0	0	0.5	0	0	0	0
5	SLE FR 5	1	1	0	0	0	0.3	0	0	0	0	0.5
6	SLE FR 6	1	1	0	0	0	0.5	0	0	0	0	0
7	SLE FR 7	1	1	0	0	1	0	0	0	0	0	0

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
8	SLE FR 8	1	1	0	0	1	0	0.3	0	0	0	0
9	SLE FR 9	1	1	0	0	1	0.3	0	0	0	0	0
10	SLE FR 10	1	1	0	1	0	0	0	0	0	0	0
11	SLE FR 11	1	1	0	1	0	0.3	0	0	0	0	0
12	SLE FR 12	1	1	0.75	0	0	0	0	0	0	0	0
13	SLE FR 13	1	1	0.75	0	0	0	0.3	0	0	0	0
14	SLE FR 14	1	1	0.75	0	0	0.3	0	0	0	0	0

Famiglia SLE quasi permanente

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura	ΔT
1	SLE QP 1	1	1	0	0	0	0	0	0	0	0	0
2	SLE QP 2	1	1	0	0	0	0	0.3	0	0	0	0
3	SLE QP 3	1	1	0	0	0	0.3	0	0	0	0	0
4	SLE QP 4	1	1	0	0	1	0	0	0	0	0	0
5	SLE QP 5	1	1	0	0	1	0	0.3	0	0	0	0
6	SLE QP 6	1	1	0	0	1	0.3	0	0	0	0	0
7	SLE QP 7	1	1	0	1	0	0	0	0	0	0	0
8	SLE QP 8	1	1	0	1	0	0.3	0	0	0	0	0

Famiglia SLV

Poiché il numero di condizioni elementari previste per le combinazioni di questa famiglia è cospicuo, la tabella verrà spezzata in più parti.

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura
1	SLV 1	1	1	0	0	1	0	0.3	1	1	0
2	SLV 2	1	1	0	0	1	0	0.3	1	1	0
3	SLV 3	1	1	0	0	1	0	0.3	1	1	0
4	SLV 4	1	1	0	0	1	0	0.3	1	1	0
5	SLV 5	1	1	0	0	1	0	0.3	1	1	0
6	SLV 6	1	1	0	0	1	0	0.3	1	1	0
7	SLV 7	1	1	0	0	1	0	0.3	1	1	0
8	SLV 8	1	1	0	0	1	0	0.3	1	1	0
9	SLV 9	1	1	0	0	1	0	0.3	1	1	0
10	SLV 10	1	1	0	0	1	0	0.3	1	1	0
11	SLV 11	1	1	0	0	1	0	0.3	1	1	0
12	SLV 12	1	1	0	0	1	0	0.3	1	1	0
13	SLV 13	1	1	0	0	1	0	0.3	1	1	0
14	SLV 14	1	1	0	0	1	0	0.3	1	1	0
15	SLV 15	1	1	0	0	1	0	0.3	1	1	0
16	SLV 16	1	1	0	0	1	0	0.3	1	1	0
17	SLV 17	1	1	0	0	1	0.3	0	1	1	0
18	SLV 18	1	1	0	0	1	0.3	0	1	1	0
19	SLV 19	1	1	0	0	1	0.3	0	1	1	0
20	SLV 20	1	1	0	0	1	0.3	0	1	1	0
21	SLV 21	1	1	0	0	1	0.3	0	1	1	0
22	SLV 22	1	1	0	0	1	0.3	0	1	1	0
23	SLV 23	1	1	0	0	1	0.3	0	1	1	0
24	SLV 24	1	1	0	0	1	0.3	0	1	1	0
25	SLV 25	1	1	0	0	1	0.3	0	1	1	0
26	SLV 26	1	1	0	0	1	0.3	0	1	1	0
27	SLV 27	1	1	0	0	1	0.3	0	1	1	0
28	SLV 28	1	1	0	0	1	0.3	0	1	1	0
29	SLV 29	1	1	0	0	1	0.3	0	1	1	0
30	SLV 30	1	1	0	0	1	0.3	0	1	1	0
31	SLV 31	1	1	0	0	1	0.3	0	1	1	0
32	SLV 32	1	1	0	0	1	0.3	0	1	1	0
33	SLV 33	1	1	0	1	0	0.3	0	1	1	0
34	SLV 34	1	1	0	1	0	0.3	0	1	1	0
35	SLV 35	1	1	0	1	0	0.3	0	1	1	0

Nome	Nome breve	Pesi	Port.	Variabile traffico	Spinta terreno A1-M1	Spinta terreno A2-M2	Sovr accidentale A1-M1	Sovr accidentale A2-M2	Sisma terreno Y sx	Sisma terreno Y dx	Frenatura
36	SLV 36	1	1	0	1	0	0.3	0	1	1	0
37	SLV 37	1	1	0	1	0	0.3	0	1	1	0
38	SLV 38	1	1	0	1	0	0.3	0	1	1	0
39	SLV 39	1	1	0	1	0	0.3	0	1	1	0
40	SLV 40	1	1	0	1	0	0.3	0	1	1	0
41	SLV 41	1	1	0	1	0	0.3	0	1	1	0
42	SLV 42	1	1	0	1	0	0.3	0	1	1	0
43	SLV 43	1	1	0	1	0	0.3	0	1	1	0
44	SLV 44	1	1	0	1	0	0.3	0	1	1	0
45	SLV 45	1	1	0	1	0	0.3	0	1	1	0
46	SLV 46	1	1	0	1	0	0.3	0	1	1	0
47	SLV 47	1	1	0	1	0	0.3	0	1	1	0
48	SLV 48	1	1	0	1	0	0.3	0	1	1	0

Nome	Nome breve	ΔT	X SLV	Y SLV	Z SLV	EY SLV	EX SLV	Tr x SLV	Tr y SLV	Tr z SLV
1	SLV 1	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
2	SLV 2	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
3	SLV 3	0	-1	0.3	0	-1	0.3	-1	0.3	0
4	SLV 4	0	-1	0.3	0	1	-0.3	-1	0.3	0
5	SLV 5	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
6	SLV 6	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
7	SLV 7	0	-0.3	1	0	-0.3	1	-0.3	1	0
8	SLV 8	0	-0.3	1	0	0.3	-1	-0.3	1	0
9	SLV 9	0	0.3	-1	0	-0.3	1	0.3	-1	0
10	SLV 10	0	0.3	-1	0	0.3	-1	0.3	-1	0
11	SLV 11	0	0.3	1	0	-0.3	1	0.3	1	0
12	SLV 12	0	0.3	1	0	0.3	-1	0.3	1	0
13	SLV 13	0	1	-0.3	0	-1	0.3	1	-0.3	0
14	SLV 14	0	1	-0.3	0	1	-0.3	1	-0.3	0
15	SLV 15	0	1	0.3	0	-1	0.3	1	0.3	0
16	SLV 16	0	1	0.3	0	1	-0.3	1	0.3	0
17	SLV 17	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
18	SLV 18	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
19	SLV 19	0	-1	0.3	0	-1	0.3	-1	0.3	0
20	SLV 20	0	-1	0.3	0	1	-0.3	-1	0.3	0
21	SLV 21	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
22	SLV 22	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
23	SLV 23	0	-0.3	1	0	-0.3	1	-0.3	1	0
24	SLV 24	0	-0.3	1	0	0.3	-1	-0.3	1	0
25	SLV 25	0	0.3	-1	0	-0.3	1	0.3	-1	0
26	SLV 26	0	0.3	-1	0	0.3	-1	0.3	-1	0
27	SLV 27	0	0.3	1	0	-0.3	1	0.3	1	0
28	SLV 28	0	0.3	1	0	0.3	-1	0.3	1	0
29	SLV 29	0	1	-0.3	0	-1	0.3	1	-0.3	0
30	SLV 30	0	1	-0.3	0	1	-0.3	1	-0.3	0
31	SLV 31	0	1	0.3	0	-1	0.3	1	0.3	0
32	SLV 32	0	1	0.3	0	1	-0.3	1	0.3	0
33	SLV 33	0	-1	-0.3	0	-1	0.3	-1	-0.3	0
34	SLV 34	0	-1	-0.3	0	1	-0.3	-1	-0.3	0
35	SLV 35	0	-1	0.3	0	-1	0.3	-1	0.3	0
36	SLV 36	0	-1	0.3	0	1	-0.3	-1	0.3	0
37	SLV 37	0	-0.3	-1	0	-0.3	1	-0.3	-1	0
38	SLV 38	0	-0.3	-1	0	0.3	-1	-0.3	-1	0
39	SLV 39	0	-0.3	1	0	-0.3	1	-0.3	1	0
40	SLV 40	0	-0.3	1	0	0.3	-1	-0.3	1	0
41	SLV 41	0	0.3	-1	0	-0.3	1	0.3	-1	0
42	SLV 42	0	0.3	-1	0	0.3	-1	0.3	-1	0
43	SLV 43	0	0.3	1	0	-0.3	1	0.3	1	0
44	SLV 44	0	0.3	1	0	0.3	-1	0.3	1	0
45	SLV 45	0	1	-0.3	0	-1	0.3	1	-0.3	0
46	SLV 46	0	1	-0.3	0	1	-0.3	1	-0.3	0
47	SLV 47	0	1	0.3	0	-1	0.3	1	0.3	0
48	SLV 48	0	1	0.3	0	1	-0.3	1	0.3	0

7. RISULTATI DELL'ANALISI

La struttura è stata modellata con analisi agli elementi finiti (FEM), mediante il software Sismicad 12.13 della Concrete.

Si riportano di seguito i risultati della modellazione ed i dati di input utilizzati.

7.1 MODELLAZIONE: INPUT

Si riportano di seguito i dati di input del modello di calcolo.

1 Dati generali
1.1 Materiali
1.1.1 Materiali c.a.
Descrizione: descrizione o nome assegnato all'elemento.
Rck: resistenza caratteristica cubica; valore medio nel caso di edificio esistente. [kN/m²]
E: modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [kN/m²]
G: modulo di elasticità tangenziale del materiale, viene impiegato nella modellazione di aste e di elementi guscio a comportamento ortotropo. [kN/m²]
Poisson: coefficiente di Poisson. Il valore è adimensionale.
γ: peso specifico del materiale. [kN/m³]
α: coefficiente longitudinale di dilatazione termica. [°C-1]

Descrizione	Rck	E	G	Poisson	γ	α
C32/40	40000	33642778	Default (15292172)	0.1	25	0.00001

1.1.2 Curve di materiali c.a.
Descrizione: descrizione o nome assegnato all'elemento.
Curva: curva caratteristica.
Reaz.traz.: reagisce a trazione.
Comp.frag.: ha comportamento fragile.
E.compr.: modulo di elasticità a compressione. [kN/m²]
Incr.compr.: incrudimento di compressione. Il valore è adimensionale.
EpsEc: ε elastico a compressione. Il valore è adimensionale.
EpsUc: ε ultimo a compressione. Il valore è adimensionale.
E.traz.: modulo di elasticità a trazione. [kN/m²]
Incr.traz.: incrudimento di trazione. Il valore è adimensionale.
EpsEt: ε elastico a trazione. Il valore è adimensionale.
EpsUt: ε ultimo a trazione. Il valore è adimensionale.

Descrizione	Curva									
	Reaz.traz.	Comp.frag.	E.compr.	Incr.compr.	EpsEc	EpsUc	E.traz.	Incr.traz.	EpsEt	EpsUt
C32/40	No	Si	33642778	0.001	-0.002	-0.0035	33642778	0.001	0.0000645	0.0000709

1.1.3 Armature
Descrizione: descrizione o nome assegnato all'elemento.
fyk: resistenza caratteristica. [kN/m²]
σamm.: tensione ammissibile. [kN/m²]
Tipo: tipo di barra.
E: modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [kN/m²]
γ: peso specifico del materiale. [kN/m³]
Poisson: coefficiente di Poisson. Il valore è adimensionale.
α: coefficiente longitudinale di dilatazione termica. [°C-1]

Livello di conoscenza: indica se il materiale è nuovo o esistente, e in tal caso il livello di conoscenza secondo Circ. 02/02/09 n. 617 §C8A. Informazione impiegata solo in analisi D.M. 14-01-08 (N.T.C.).

Descrizione	fyk	σamm.	Tipo	E	γ	Poisson	α	Livello di conoscenza
B450C_1	450000	255000	Aderenza migliorata	206000000	78.5	0.3	0.000012	Nuovo

1.2 Sezioni

1.2.1 Sezioni C.A.

1.2.1.1 Sezioni rettangolari C.A.

Descrizione: descrizione o nome assegnato all'elemento.
Area Tx FEM: area di taglio in direzione X per l'analisi FEM. [m²]
Area Ty FEM: area di taglio in direzione Y per l'analisi FEM. [m²]
JxFEM: momento di inerzia attorno all'asse X per l'analisi FEM. [m4]
JyFEM: momento di inerzia attorno all'asse Y per l'analisi FEM. [m4]
JtFEM: momento d'inerzia torsionale corretto con il fattore di forma per l'analisi FEM. [m4]
H: altezza della sezione. [m]
B: larghezza della sezione. [m]
c.s.: copriferro superiore della sezione. [m]
c.i.: copriferro inferiore della sezione. [m]
c.l.: copriferro laterale della sezione. [m]

Descrizione	Area Tx FEM	Area Ty FEM	JxFEM	JyFEM	JtFEM	H	B	c.s.	c.i.	c.l.
R 60x100	0.5	0.5	0.05	0.018	0.044784	1	0.6	0.05	0.05	0.05
R 100x60	0.5	0.5	0.018	0.05	0.044784	0.6	1	0.05	0.05	0.05

1.2.1.2 Caratteristiche inerziali sezioni C.A.

Descrizione: descrizione o nome assegnato all'elemento.
Xg: ascissa del baricentro definita rispetto al sistema geometrico in cui sono definiti i vertici del poligono. [m]
Yg: ordinata del baricentro definita rispetto al sistema geometrico in cui sono definiti i vertici del poligono. [m]
Area: area inerziale nel sistema geometrico centrato nel baricentro. [m²]
Jx: momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [m4]
Jy: momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [m4]
Jxy: momento centrifugo rispetto al sistema di riferimento baricentrico di definizione della sezione. [m4]
Jm: momento d'inerzia attorno all'asse baricentrico principale M. [m4]
Jn: momento d'inerzia attorno all'asse baricentrico principale N. [m4]
Alfa: angolo tra gli assi del sistema di riferimento geometrico di definizione e quelli del sistema di riferimento principale. [deg]
Area Tx FEM: area di taglio in direzione X per l'analisi FEM. [m²]
Area Ty FEM: area di taglio in direzione Y per l'analisi FEM. [m²]
JxFEM: momento di inerzia attorno all'asse X per l'analisi FEM. [m4]
JyFEM: momento di inerzia attorno all'asse Y per l'analisi FEM. [m4]
JtFEM: momento d'inerzia torsionale corretto con il fattore di forma per l'analisi FEM. [m4]

Descrizione	Xg	Yg	Area	Jx	Jy	Jxy	Jm	Jn	Alfa	Area Tx FEM	Area Ty FEM	JxFEM	JyFEM	JtFEM
R 60x100	0.3	0.5	0.6	0.05	0.018	0	0.05	0.018	0	0.5	0.5	0.05	0.018	0.044784
R 100x60	0.5	0.3	0.6	0.018	0.05	0	0.018	0.05	0	0.5	0.5	0.018	0.05	0.044784

2 Preferenze commessa

2.1 Preferenze di analisi

Metodo di analisi	D.M. 17-01-18 (N.T.C.)
Tipo di costruzione	2 - Costruzioni con livelli di prestazioni ordinari
Vn	50
Classe d'uso	II

Vr	50	
Tipo di analisi	Lineare dinamica	
Località	Livorno, Piombino, Colmata; Latitudine ED50 42,9672° (42° 58' 2''); Longitudine ED50 10,5547° (10° 33' 17''); Altitudine s.l.m. 1,83 m.	
Categoria del suolo	C - Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti	
Categoria topografica	T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15°	
Ss orizzontale SLD	1.5	
Tb orizzontale SLD	0.116	[s]
Tc orizzontale SLD	0.347	[s]
Td orizzontale SLD	1.706	[s]
Ss orizzontale SLV	1.5	
Tb orizzontale SLV	0.148	[s]
Tc orizzontale SLV	0.443	[s]
Td orizzontale SLV	1.794	[s]
St	1	
PVr SLD (%)	63	
Tr SLD	50	
Ag/g SLD	0.0265	
Fo SLD	2.68	
Tc* SLD	0.191	[s]
PVr SLV (%)	10	
Tr SLV	475	
Ag/g SLV	0.0485	
Fo SLV	2.815	
Tc* SLV	0.275	[s]
Smorzamento viscoso (%)	5	
Classe di duttilità	Non dissipativa	
Rotazione del sisma	0	[deg]
Quota dello '0' sismico	0	[m]
Regolarità in pianta	No	
Regolarità in elevazione	No	
Edificio C.A.	Si	
Edificio esistente	No	
T1,x	1.9592	[s]
T1,y	0.32807	[s]
λ SLD,x	1	
λ SLD,y	1	
λ SLV,x	1	
λ SLV,y	1	
Numero modi	4	
Metodo di Ritz	non applicato	
Limite spostamenti interpiano	0.005	
Fattore di comportamento per sisma SLD X	1.5	
Fattore di comportamento per sisma SLD Y	1.5	
Fattore di comportamento per sisma SLV X	1.5	
Fattore di comportamento per sisma SLV Y	1.5	
Coefficiente di sicurezza per carico limite (fondazioni superficiali)	2.3	
Coefficiente di sicurezza per scorrimento (fondazioni superficiali)	1.1	
Coefficiente di sicurezza portanza verticale pali infissi, punta	1.15	
Coefficiente di sicurezza portanza verticale pali infissi, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale pali infissi, laterale trazione	1.25	
Coefficiente di sicurezza portanza verticale pali trivellati, punta	1.35	
Coefficiente di sicurezza portanza verticale pali trivellati, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale pali trivellati, laterale trazione	1.25	
Coefficiente di sicurezza portanza verticale micropali, punta	1.35	
Coefficiente di sicurezza portanza verticale micropali, laterale compressione	1.15	
Coefficiente di sicurezza portanza verticale micropali, laterale trazione	1.25	
Coefficiente di sicurezza portanza trasversale pali	1.3	
Fattore di correlazione resistenza caratteristica dei pali in base alle verticali indagate	1.7	
Coefficiente di sicurezza per ribaltamento (plinti superficiali)	1.15	

2.2 Preferenze di verifica

2.2.1 Normativa di verifica in uso

Norma di verifica	D.M. 17-01-18 (N.T.C.)
Cemento armato	Preferenze analisi di verifica in stato limite
Legno	Preferenze di verifica legno D.M. 17-01-18 (N.T.C.)
Acciaio	Preferenze di verifica acciaio D.M. 17-01-18 (N.T.C.)

2.2.2 Normativa di verifica C.A.

Coefficiente di omogeneizzazione	15
γs (fattore di sicurezza parziale per l'acciaio)	1.15
γc (fattore di sicurezza parziale per il calcestruzzo)	1.5
Limite σc/fck in combinazione rara	0.6
Limite σc/fck in combinazione quasi permanente	0.45
Limite σf/fyk in combinazione rara	0.8
Coefficiente di riduzione della τ per cattiva aderenza	0.7
Dimensione limite fessure w1 §4.1.2.2.4	0.0002 [m]
Dimensione limite fessure w2 §4.1.2.2.4	0.0003 [m]
Dimensione limite fessure w3 §4.1.2.2.4	0.0004 [m]
Fattori parziali di sicurezza unitari per meccanismi duttili	
di strutture esistenti con fattore q	No
Copriferro secondo EC2	No

2.2.4 Normativa di verifica acciaio

γm0	1.05
γm1	1.05
γm2	1.25
Coefficiente riduttivo per effetto vettoriale	0.7
Calcolo coefficienti C1, C2, C3 per Mcr	automatico
Coefficienti α, β per flessione deviata	unitari
Verifica semplificata conservativa	si
L/e0 iniziale per profili accoppiati compressi	500
Metodo semplificato formula (4.2.82)	si
Escludi 6.2.6.7 e 6.2.6.8 in 7.5.4.3 e 7.5.4.5	si
Applica Nota 1 del prospetto 6.2	si
Riduzione fy per tubi tondi di classe 4	no
Effettua la verifica secondo 6.2.8 con irrigidimenti superiori (piastra di base)	si
Limite spostamento relativo interpiano e monopiano colonne	0.00333
Limite spostamento relativo complessivo multipiano colonne	0.002
Considera taglio resistente estremità sagomati	no
Fattori parziali di sicurezza unitari per meccanismi duttili	
di strutture esistenti con fattore q	no

2.3 Preferenze FEM

Dimensione massima ottimale mesh pareti (default)	0.8
Dimensione massima ottimale mesh piastre (default)	0.8
Tipo di mesh dei gusci (default)	Quadrilateri o triangoli
Tipo di mesh imposta ai gusci	Specifico dell'elemento
Metodo P-Delta	non utilizzato
Analisi buckling	non utilizzata
Rapporto spessore flessionale/membranale gusci muratura verticali	0.2
Spessori membranale e flessionale pareti XLAM da sole tavole verticali	No
Moltiplicatore rigidezza connettori pannelli pareti legno a diaframma	1
Tolleranza di parallelismo	4.99
Tolleranza di unicità punti	0.1
Tolleranza generazione nodi di aste	0.01
Tolleranza di parallelismo in suddivisione aste	4.99
Tolleranza generazione nodi di gusci	0.04
Tolleranza eccentricità carichi concentrati	1
Considera deformazione a taglio delle piastre	No
Modello elastico pareti in muratura	Gusci
Concentra masse pareti nei vertici	No
Segno risultati analisi spettrale	Analisi statica
Memoria utilizzabile dal solutore	8000000
Metodo di risoluzione della matrice	Intel MKL PARDISO
Scrivi commenti nel file di input	No
Scrivi file di output in formato testo	No
Solidi colle e corpi ruvidi (default)	Solidi reali
Moltiplicatore rigidezza molla torsionale applicata ad aste di fondazione	1
Modello trave su suolo alla Winkler nel caso di modellazione lineare	Equilibrio elastico

2.4 Moltiplicatori inerziali

Tipologia: tipo di entità a cui si riferiscono i moltiplicatori inerziali.
J2: moltiplicatore inerziale di J2. Il valore è adimensionale.
J3: moltiplicatore inerziale di J3. Il valore è adimensionale.
Jt: moltiplicatore inerziale di Jt. Il valore è adimensionale.
A: moltiplicatore dell'area della sezione. Il valore è adimensionale.
A2: moltiplicatore dell'area a taglio in direzione 2. Il valore è adimensionale.
A3: moltiplicatore dell'area a taglio in direzione 3. Il valore è adimensionale.
Conci rigidi: fattore di riduzione dei tronchi rigidi. Il valore è adimensionale.

Tipologia	J2	J3	Jt	A	A2	A3	Conci rigidi
Trave C.A.	1	1	0.01	1	1	1	0.5
Pilastro C.A.	1	1	0.01	1	1	1	0.5
Trave di fondazione	1	1	0.01	1	1	1	0.5
Palo	1	1	0.01	1	1	1	0
Trave in legno	1	1	1	1	1	1	1
Colonna in legno	1	1	1	1	1	1	1
Trave in acciaio	1	1	1	1	1	1	1
Colonna in acciaio	1	1	1	1	1	1	1
Trave di reticolare in acciaio	1	1	1	1	1	1	1
Maschio in muratura	0	1	0	1	1	1	1
Trave di accoppiamento in muratura	0	1	0	1	1	1	1
Trave di scala C.A. nervata	1	1	1	1	1	1	0.5
Trave tralicciata	1	1	0.01	1	1	1	0.5

2.5 Preferenze di analisi non lineare FEM

Metodo iterativo	Secante
Tolleranza iterazione	0.00001
Numero massimo iterazioni	50

2.6 Preferenze di analisi carichi superficiali

Detrazione peso proprio solai nelle zone di sovrapposizione	non applicata
Metodo di ripartizione	a zone d'influenza
Percentuale carico calcolato a trave continua	0
Esegui smoothing diagrammi di carico	applicata
Tolleranza smoothing altezza trapezi	0.001[kN/m]
Tolleranza smoothing altezza media trapezi	0.001[kN/m]

3 Quote

3.1 Livelli

Descrizione breve: nome sintetico assegnato al livello.
Descrizione: nome assegnato al livello.
Quota: quota superiore espressa nel sistema di riferimento assoluto. [m]
Spessore: spessore del livello. [m]

Descrizione breve	Descrizione	Quota	Spessore
L1	Fondazione	0	0.6
L2	Piano 1	5.10	0.6

3.2 Tronchi

Descrizione breve: nome sintetico assegnato al tronco.
Descrizione: nome assegnato al tronco.
Quota 1: riferimento della prima quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [m]
Quota 2: riferimento della seconda quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [m]

Descrizione breve	Descrizione	Quota 1	Quota 2
T1	Fondazione - Soletta	Fondazione	Piano1

1.5 Definizioni di carichi concentrati

Nome: nome identificativo della definizione di carico.
Valori: valori associati alle condizioni di carico.
Condizione: condizione di carico a cui sono associati i valori.

Descrizione: nome assegnato alla condizione elementare.
Fx: componente X del carico concentrato. [kN]
Fy: componente Y del carico concentrato. [kN]
Fz: componente Z del carico concentrato. [kN]
*Mx: componente di momento della coppia concentrata attorno all'asse X. [kN*m]*
*My: componente di momento della coppia concentrata attorno all'asse Y. [kN*m]*
*Mz: componente di momento della coppia concentrata attorno all'asse Z. [kN*m]*

Nome	Valori						
	Condizione	Fx	Fy	Fz	Mx	My	Mz
	Descrizione						
FRENATURA	Pesi strutturali	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0
	Frenatura	0	14.23	0	0	0	0
CARICO TANDEM	Pesi strutturali	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0
	Variabile traffico	0	0	-150	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0

1.5 Definizioni di carichi lineari

Nome: nome identificativo della definizione di carico.
Valori: valori associati alle condizioni di carico.
Condizione: condizione di carico a cui sono associati i valori.
Descrizione: nome assegnato alla condizione elementare.
Fx i.: valore iniziale della forza, per unità di lunghezza, agente in direzione X. [kN/m]
Fx f.: valore finale della forza, per unità di lunghezza, agente in direzione X. [kN/m]
Fy i.: valore iniziale della forza, per unità di lunghezza, agente in direzione Y. [kN/m]
Fy f.: valore finale della forza, per unità di lunghezza, agente in direzione Y. [kN/m]
Fz i.: valore iniziale della forza, per unità di lunghezza, agente in direzione Z. [kN/m]
Fz f.: valore finale della forza, per unità di lunghezza, agente in direzione Z. [kN/m]
Mx i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse X. [kN]
Mx f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse X. [kN]
My i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse Y. [kN]
My f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse Y. [kN]
Mz i.: valore iniziale della coppia, per unità di lunghezza, agente attorno l'asse Z. [kN]
Mz f.: valore finale della coppia, per unità di lunghezza, agente attorno l'asse Z. [kN]

Nome	Valori											
	Condizione	Fx i.	Fx f.	Fy i.	Fy f.	Fz i.	Fz f.	Mx i.	Mx f.	My i.	My f.	Mz i.	Mz f.

	Descrizione												
SOLETTA SUPERIORE	Pesi strutturali	0	0	0	0	-39	-39	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	-14	-14	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
CARICO STRADALE DISTRIBUITO	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	-9	-9	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y+	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	8.5	8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	13.3	13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
SPINTA TERRENO Y-	Pesi strutturali	0	0	0	0	0	0	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	-40.5	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	-48.6	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	-8.5	-8.5	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	-13.3	-13.3	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	-22.2	-22.2	0	0	0	0	0	0	0	0
	Sisma terreno Y dx	0	0	22.2	22.2	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0
FONDAZIONE	Pesi strutturali	0	0	0	0	-45	-45	0	0	0	0	0	0
	Permanenti portati	0	0	0	0	0	0	0	0	0	0	0	0
	Variabile traffico	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Spinta terreno A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A1-M1	0	0	0	0	0	0	0	0	0	0	0	0
	Sovr accidentale A2-M2	0	0	0	0	0	0	0	0	0	0	0	0
	Sisma terreno Y sx	0	0	0	0	0	0	0	0	0	0	0	0

Nome	Valori											
	Condizione	Fx i.	Fx f.	Fy i.	Fy f.	Fz i.	Fz f.	Mx i.	Mx f.	My i.	My f.	Mz i.	Mz f.
	Descrizione												
	Sisma terreno Y dx	0	0	0	0	0	0	0	0	0	0	0	0
	Frenatura	0	0	0	0	0	0	0	0	0	0	0	0

1.6 Definizioni di carichi termici

Nome: nome identificativo della definizione di carico.

Nome
gradiente_15°
gradiente_15° (-)

Rappresentazione grafica modello input

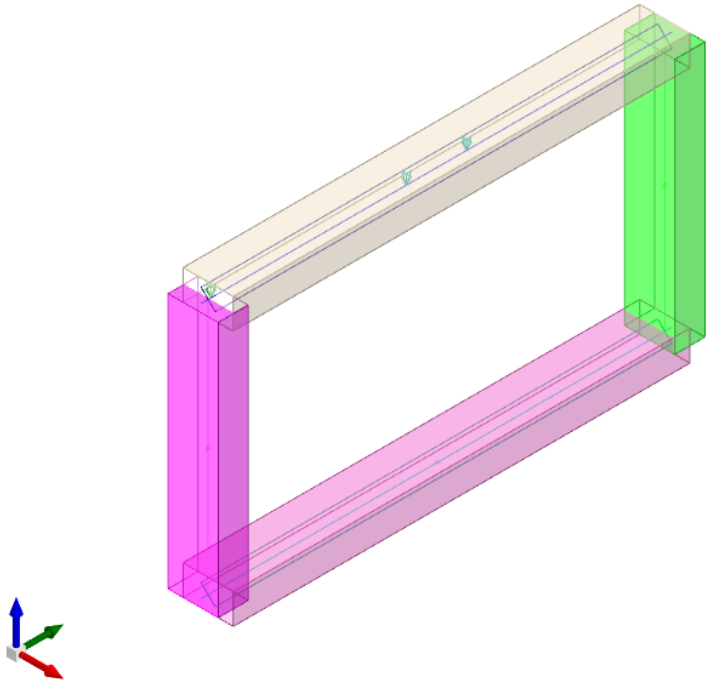


Figura 1 - Rappresentazione Grafica del Modello di Calcolo

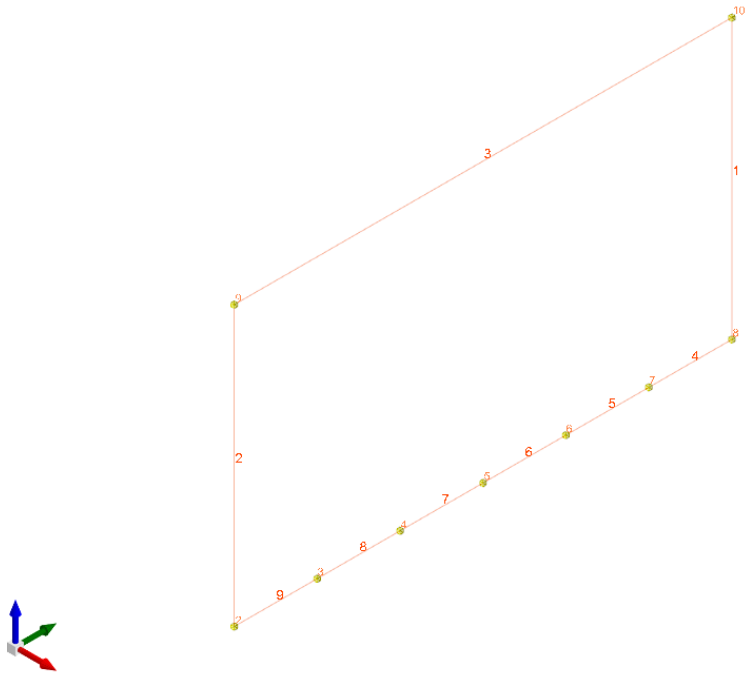


Figura 2 - Rappresentazione Grafica del Modello di Calcolo – Numerazione NODI e ASTE

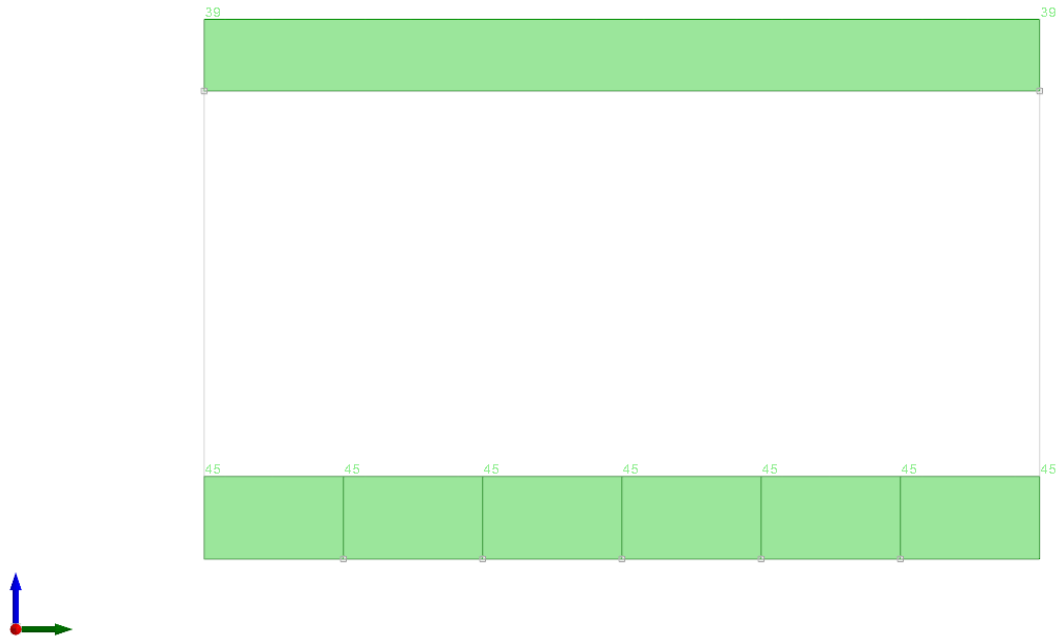


Figura 3 - Condizione permanenti strutturali

Figura 4 - Condizione permanenti NON strutturali

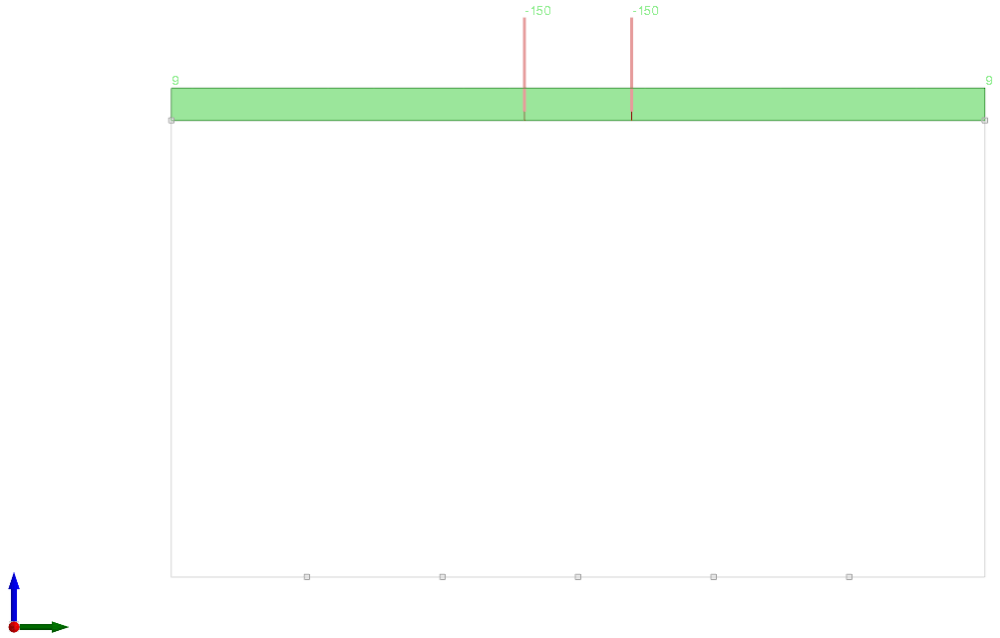


Figura 5 - Condizione sovraccarico variabile traffico

Figura 6 - Condizione spinta terreno A1-M1

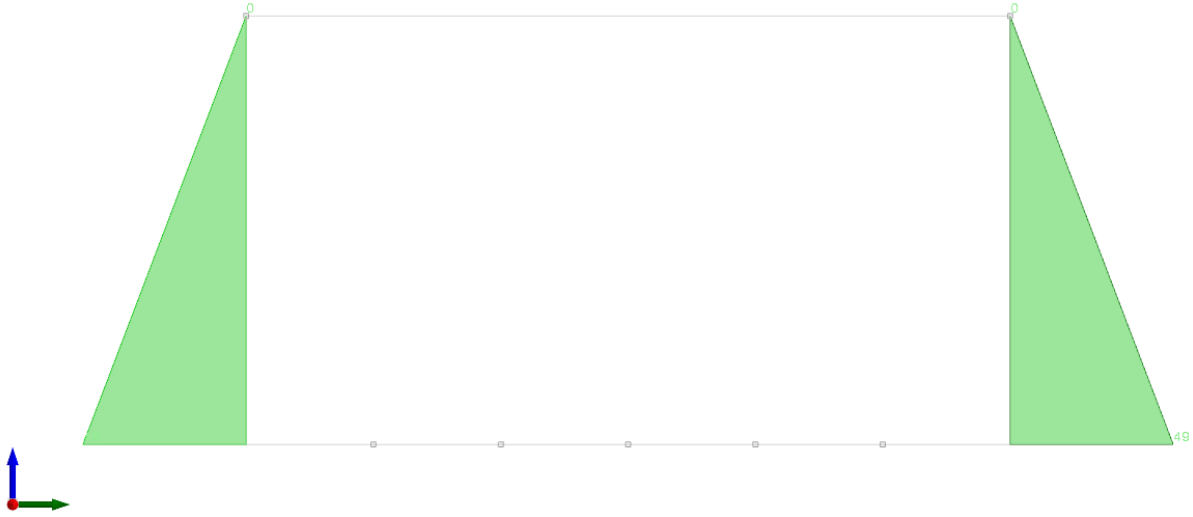


Figura 7 - Condizione spinta terreno A2-M2

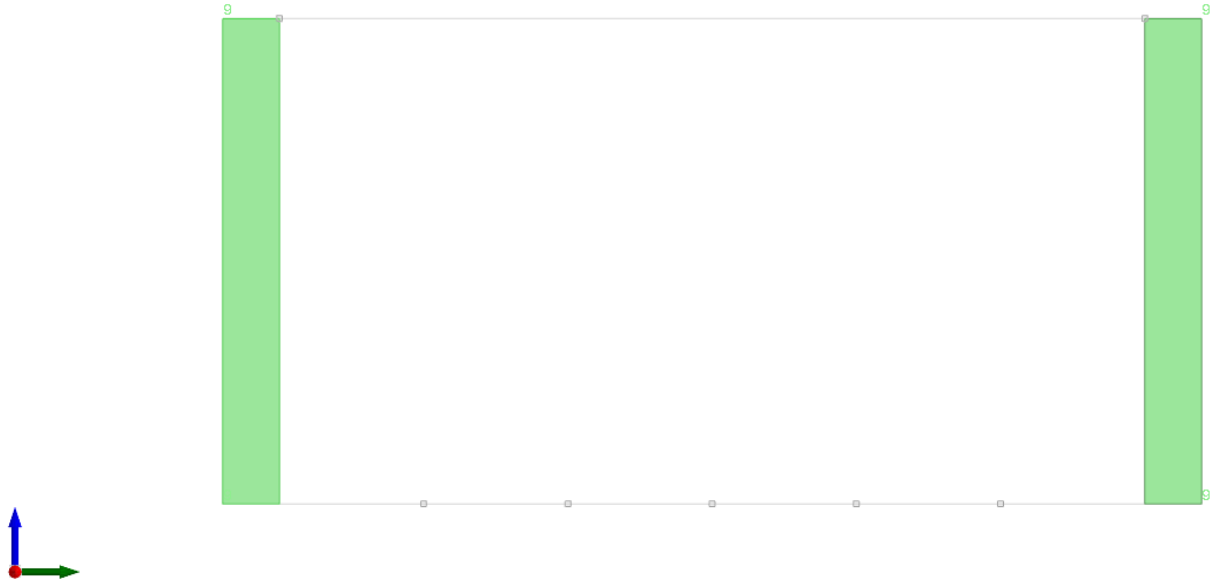


Figura 8 - Condizione sovraccarico accidentale A1-M1

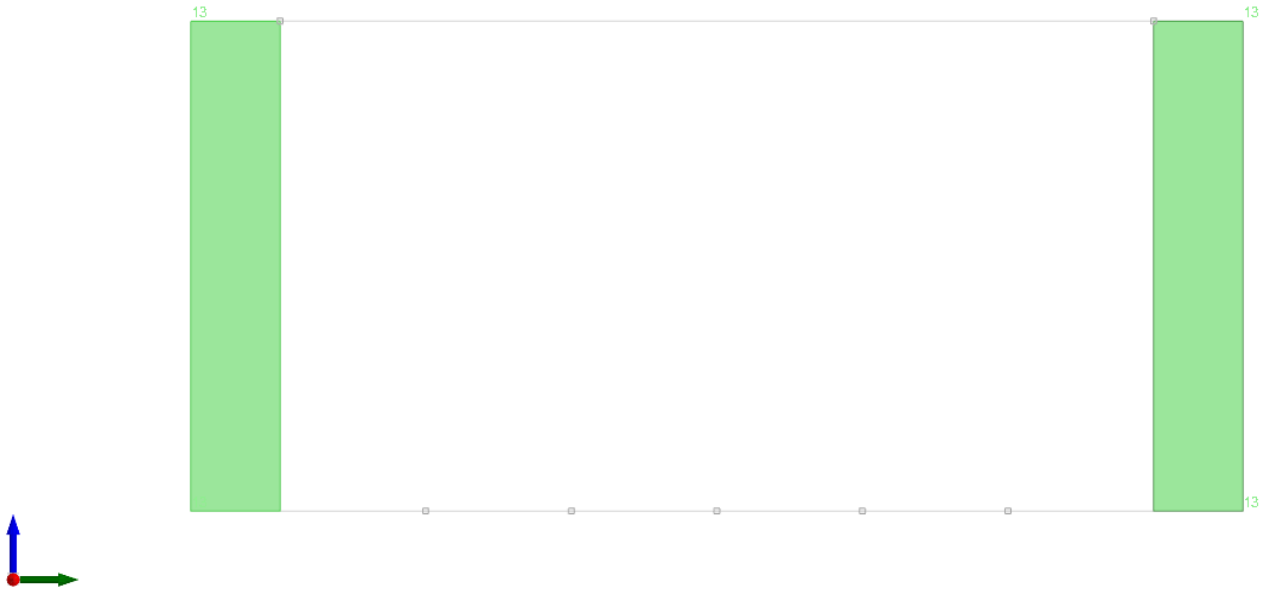


Figura 9 - Condizione sovraccarico accidentale A2-M2

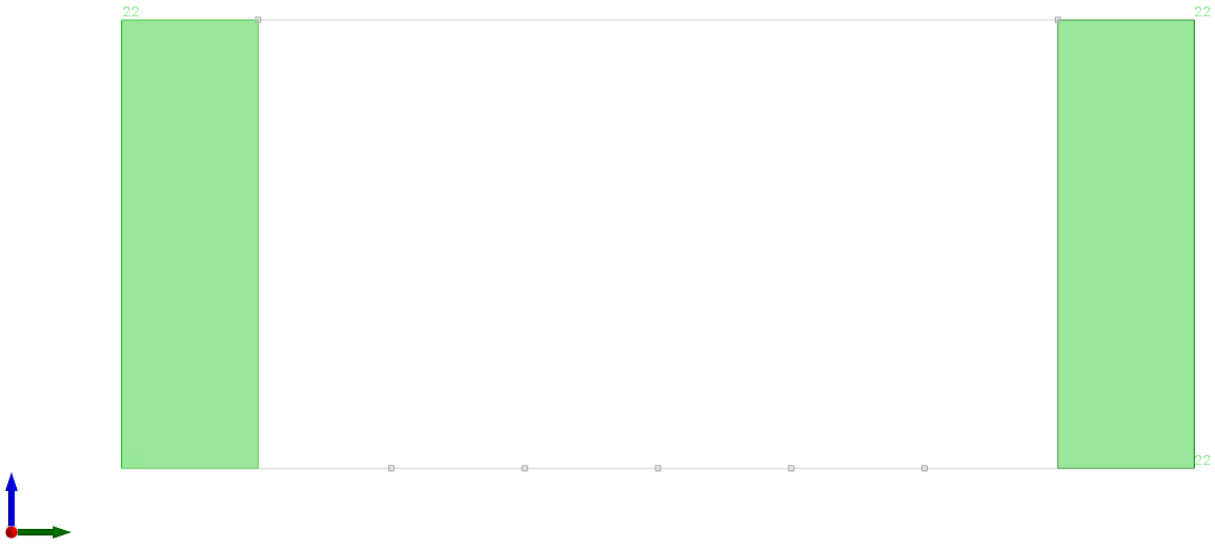


Figura 10 - Condizione sisma terreno +

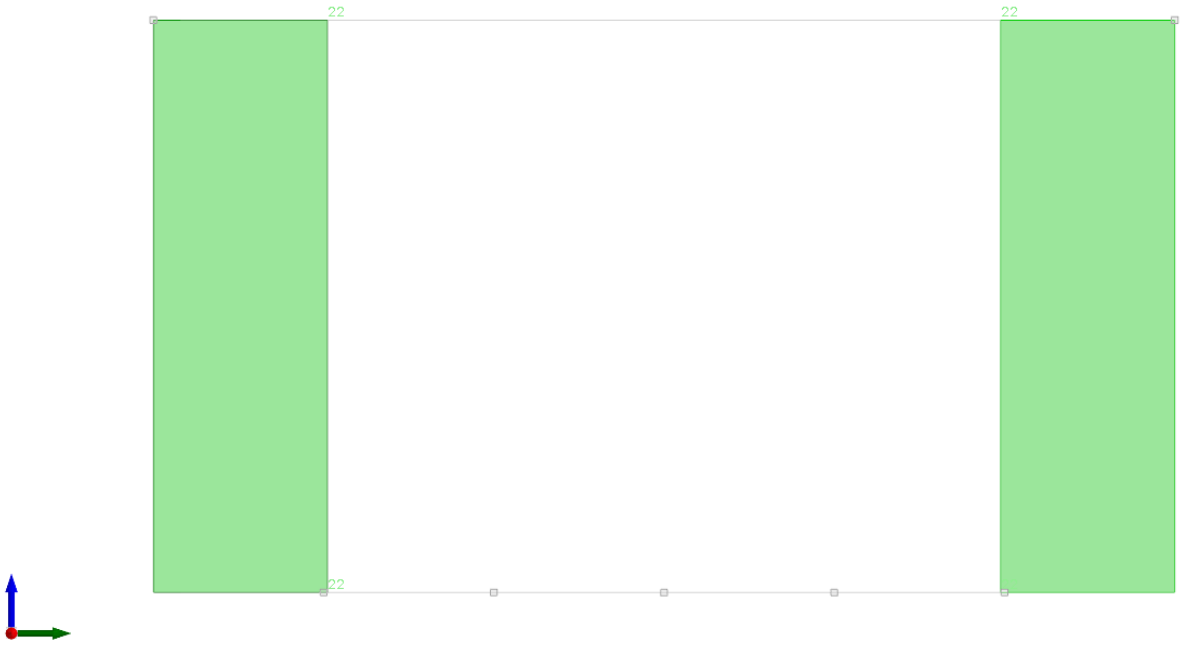


Figura 11 - Condizione sisma terreno –

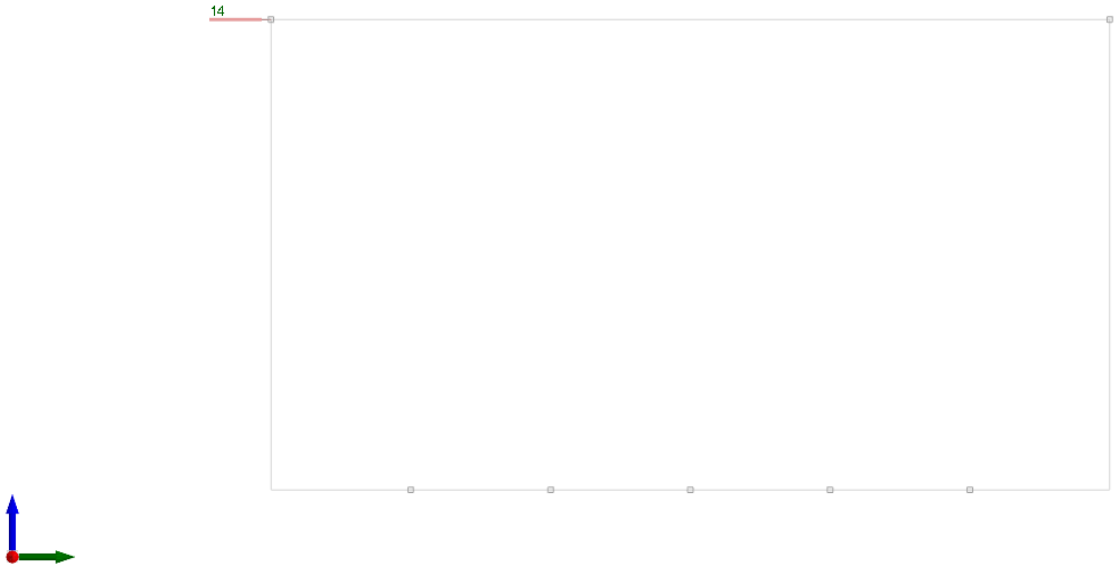


Figura 12 - Condizione frenatura

7.2 MODELLAZIONE: OUTPUT

Si riportano i risultati grafici dell'analisi agli elementi finiti. I valori massimi delle caratteristiche di sollecitazione saranno utilizzati per le successive verifiche.

7.2.1 Convenzioni relative alle caratteristiche di sollecitazione

La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

- sforzo normale F1 (N): viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di sforzo normale positivo (di trazione) viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

- F2: viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di F2 positivo viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

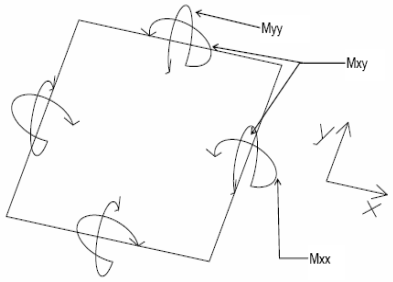
- F3: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di F3 positivo viene disegnato lungo l'asta dalla parte del semiasse 3 positivo;

- momento torcente M1 (Mt): viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di momento torcente positivo viene disegnato lungo l'asta dalla parte del semiasse 2 positivo;

- momento M2: viene rappresentato nel piano individuato dagli assi 1 e 3. Nel caso di M2 positivo viene disegnato dalla parte del semiasse 3 negativo;

- momento M3: viene rappresentato nel piano individuato dagli assi 1 e 2. Nel caso di M3 positivo viene disegnato dalla parte del semiasse 2 negativo.

In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Mxx, Myy, Mxy.



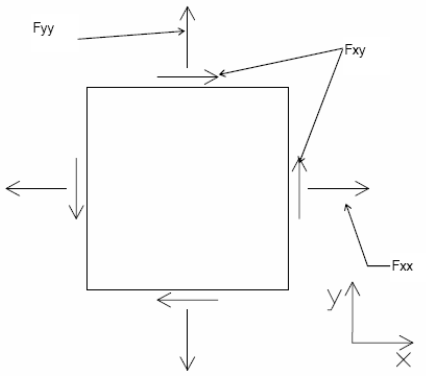
si definiscono:

Mxx: momento flettente [Forza*Lunghezza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Myy: momento flettente [Forza*Lunghezza/Lunghezza] agente sul bordo di normale y (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Mxy: momento torcente [Forza*Lunghezza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Fxx, Fyy, Fxy.



Si definiscono:

Fxx: sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Fyy: sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale all'asse y (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Fxy: sforzo di taglio [Forza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento shell:

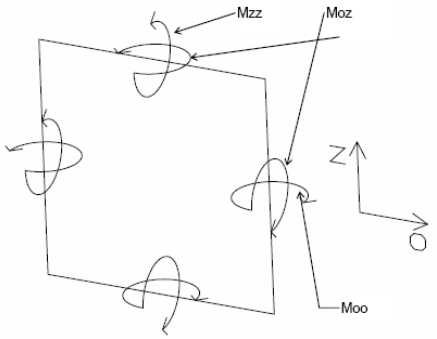
Vx: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse x (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti);

Vy: taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse y (per il segno si veda l'immagine relativa ai tagli fuori piano nel sistema locale 1, 2, 3 riportata più avanti).

Gusci verticali: pareti e muri

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: "origine appartenente al piano dell'elemento, asse O (ascisse) e z (ordinate) contenuti nel piano dell'elemento e terzo asse ortogonale al piano dell'elemento a formare una terna destrogira". In particolare l'asse O è orizzontale e l'asse z parallelo ed equiverso con l'asse Z globale. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione.

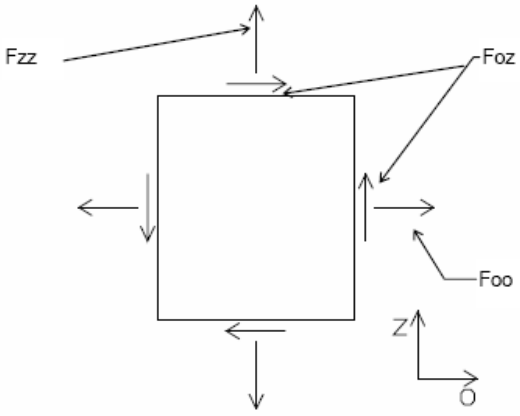
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione Moo, Mzz, Moz.



Moo: momento flettente distribuito [Forza*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Mzz: momento flettente distribuito [Forza*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);

Moz: momento "torcente" distribuito [Forza*Lunghezza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura). Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell con indicato il sistema di riferimento i parametri di sollecitazione Foo, Fzz, Foz sono rispettivamente:



Fzz: sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Foo: sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);

Foz: sforzo tagliante distribuito [Forza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

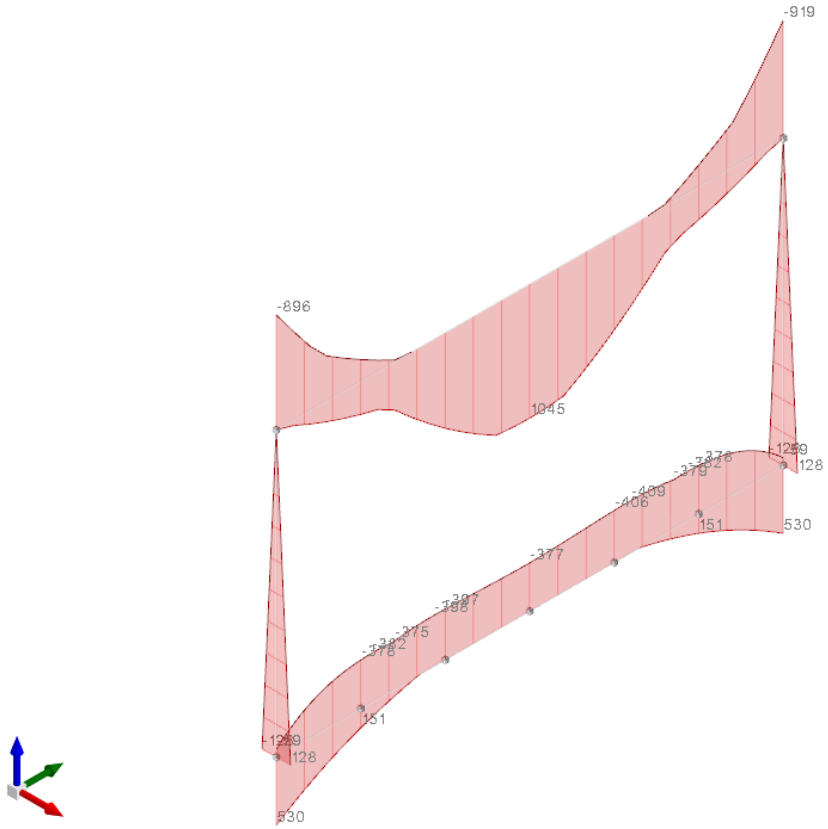


Figura 13 - Inviluppo momento flettente M3

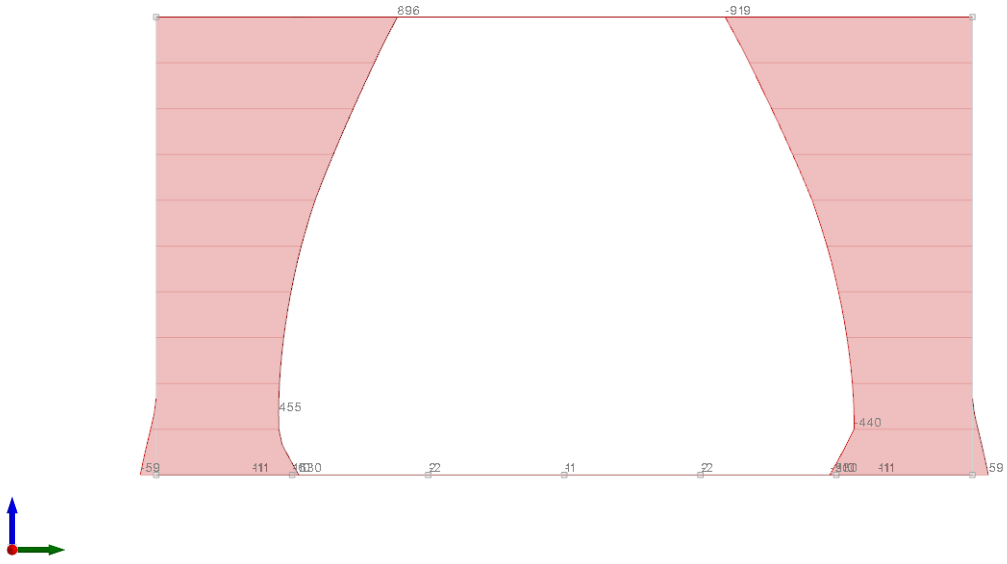


Figura 14 - Inviluppo momento flettente M2

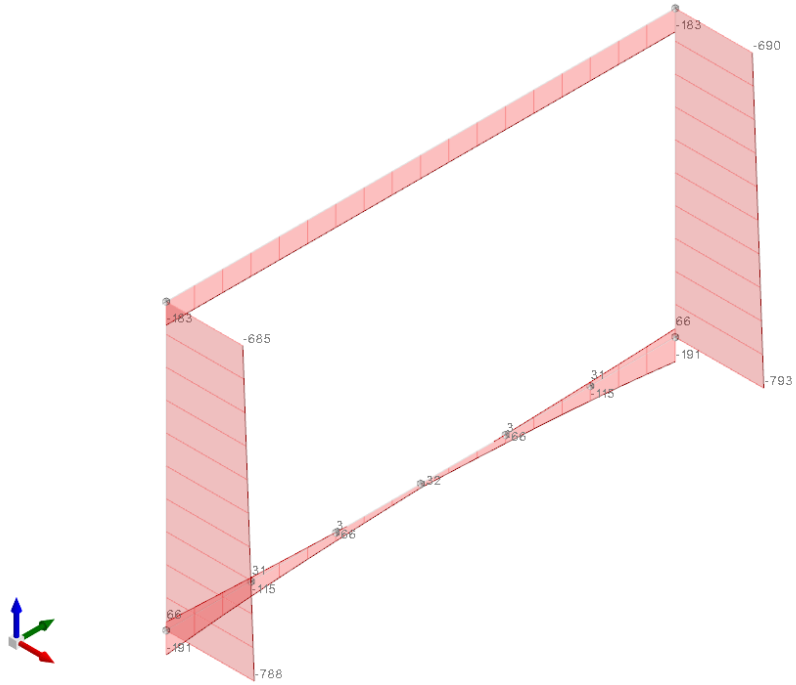


Figura 15 - Inviluppo sforzo assiale N

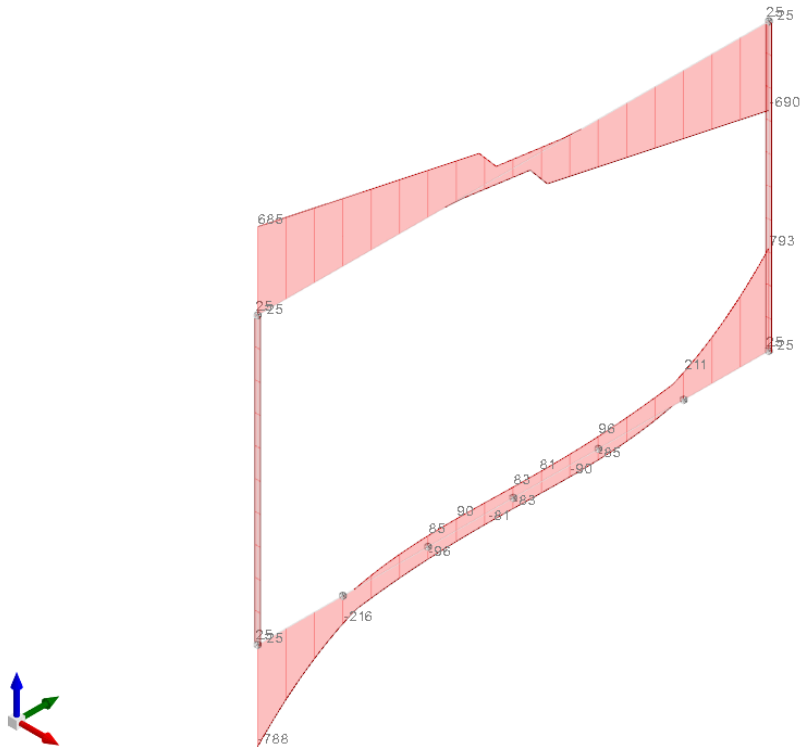


Figura 16 - Inviluppo sforzo di taglio F2

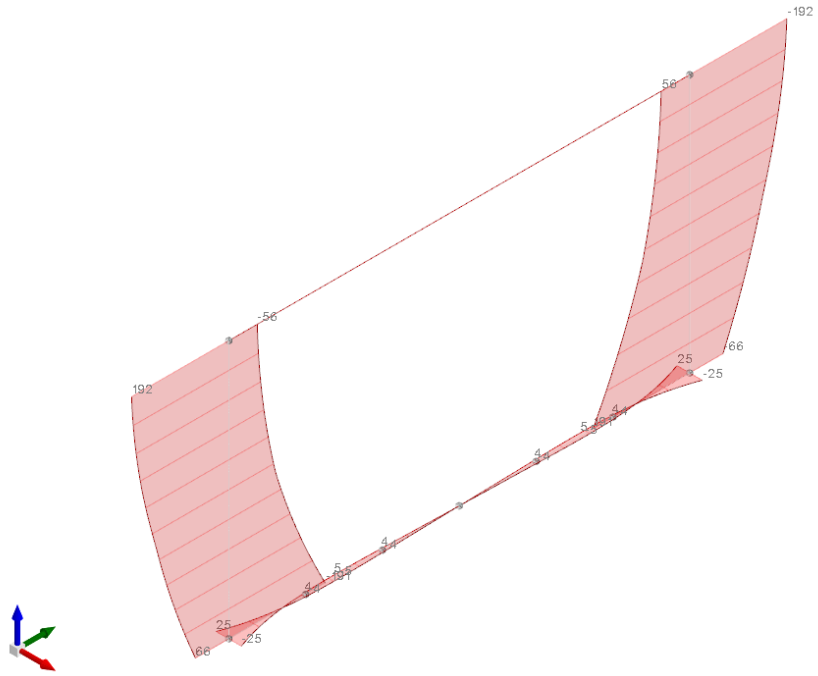


Figura 17 - Inviluppo sforzo di taglio F3

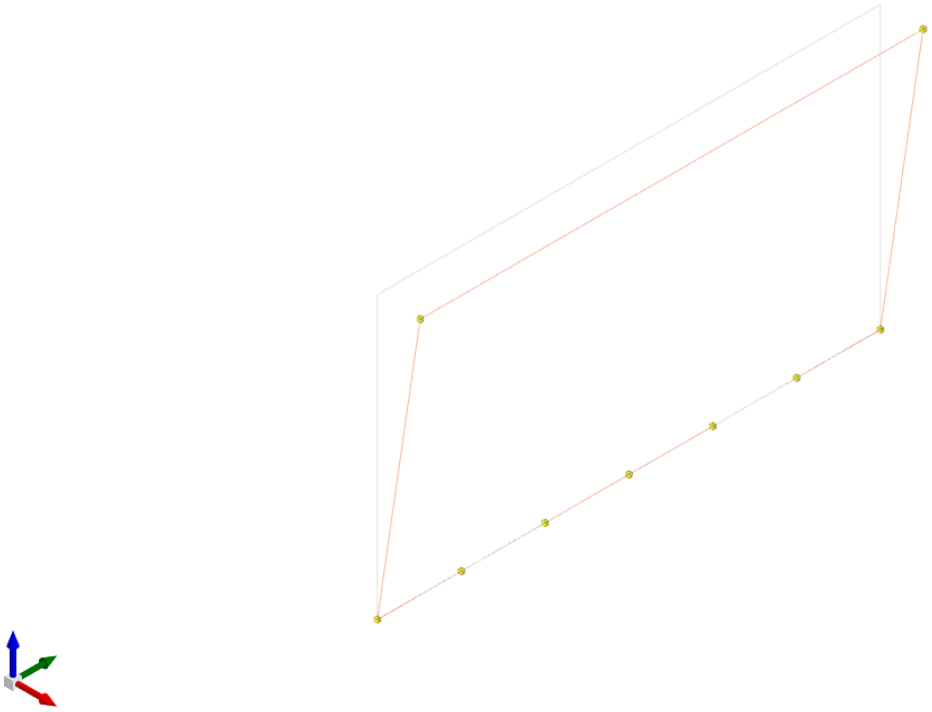


Figura 18 – Spostamenti condizione sisma X SLV

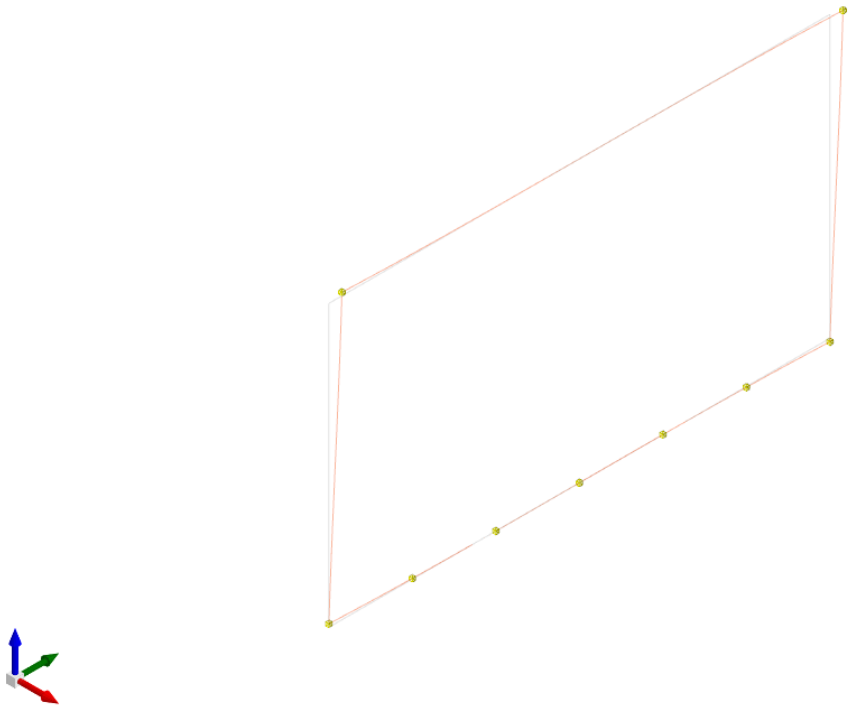


Figura 19 – Spostamenti condizione sisma Y SLV

7.3 VERIFICHE STRUTTURALI

Si riportano di seguito i tabulati di calcolo delle verifiche dei vari elementi strutturali.

7.3.1 Verifiche piedritti

Q.inf.: quota inferiore [m]
Q.sup.: quota superiore [m]
Sezione: sezione impiegata
Esistente: campata esistente
Secondaria: campata secondaria
Dissipativa: campata dissipativa
Sovraresistenza: aliquota di sovraresistenza da assicurare in verifica
Materiale CLS: materiale calcestruzzo impiegato
Materiale Acciaio: materiale/i acciaio impiegato/i
FC: fattore di confidenza riferito al materiale CLS
Posizione: posizione della barra
X: ascissa relativa della barra rispetto al baricentro della sezione [m]
Y: ordinata relativa della barra rispetto al baricentro della sezione [m]
Diametro: diametro nominale della barra [m]
Area: area nominale della barra [m^2]
Q.inf.: quota inferiore della barra [m]
Q.sup.: quota superiore della barra [m]
Materiale: materiale della barra
Quota: quota della sezione [m]

As: area complessiva delle armature verticali [m²]
%: percentuale di acciaio
At: area delle armature verticali destinata alla verifica di torsione [m²]
Pos.: posizioni barre longitudinali presenti nella sezione
*Mx: momento Mx [kN*m]*
*My: momento My [kN*m]*
N: sforzo normale [kN]
*MRdx: momento resistente in direzione X [kN*m]*
*MRdy: momento resistente in direzione Y [kN*m]*
Comb.: combinazione peggiore
Coeff.s.: coefficiente di sicurezza minimo
Verifica: stato di verifica
ε,cu: deformazione ultima utilizzata per il calcestruzzo [‰]
ε,fk: deformazione ultima utilizzata per l'acciaio [‰]
C.S.: coefficiente di sicurezza minimo
Nmin: compressione massima [kN]
Nlim: compressione limite [kN]
Comb.Nmin: combinazione in cui si ottiene la compressione massima
Ver.: stato di verifica
Staffe: staffatura presente nella sezione
Direzione X: dati della verifica a taglio in direzione X
V: taglio di verifica per la direzione considerata [kN]
N: sforzo normale per la verifica nella direzione considerata [kN]
Comb.: combinazione per la verifica nella direzione considerata
VRd: resistenza a taglio del calcestruzzo non staffato per la verifica nella direzione considerata [kN]
VRsd: resistenza a taglio delle staffe per la verifica nella direzione considerata [kN]
VRcd: resistenza a taglio delle bielle compresse per la verifica nella direzione considerata [kN]
Cot: cotagente delle bielle compresse per la verifica nella direzione considerata
c.s.: coefficiente di sicurezza per la verifica nella direzione considerata
Direzione Y: dati della verifica a taglio in direzione Y
σc,max: tensione massima sul calcestruzzo [kN/m²]
σf,max: tensione massima sull'acciaio [kN/m²]

Verifiche delle sezioni

Verifica a pressoflessione in SLU

Quota	As	%	At	Pos.	Mx	My	N	MRdx	MRdy	Comb.	Coeff.s.	Verifica
0	0.007012	2.5	0	1,2,3,4	19.8086	-461.7539	-776.81	44.8556	-1045.6172	SLU 4	2.264	Si
0.3	0.007388	2.5	0	1,2,3,4	19.6563	-455.5875	-770.84	47.3706	-1097.9391	SLU 20	2.41	Si
0.6	0.007764	2.4	0	1,3,4	19.5014	-456.8895	-764.76	48.7101	-1141.2074	SLU 20	2.498	Si
0.9	0.007917	1.3	0	3,4	19.3465	-462.7696	-758.69	48.075	-1149.9564	SLU 20	2.485	Si
1.2	0.007917	1.3	0	3,4	19.1916	-472.9478	-752.61	46.0471	-1134.7622	SLU 20	2.399	Si
1.35	0.007917	1.3	0	3,4	19.1166	-479.3145	-749.67	44.917	-1126.2129	SLU 20	2.35	Si
1.5	0.007917	1.3	0	3,4	19.0367	-487.2105	-746.54	43.6104	-1116.1326	SLU 20	2.291	Si
1.8	0.007917	1.3	0	3,4	18.8818	-505.3217	-740.46	40.9331	-1095.4689	SLU 20	2.168	Si
2.1	0.007917	1.3	0	3,4	18.7268	-526.8578	-734.39	38.1825	-1074.2208	SLU 20	2.039	Si
2.4	0.007917	1.3	0	3,4	18.6993	-553.7692	-733.31	35.5992	-1054.2487	SLU 18	1.904	Si
2.7	0.007917	1.3	0	3,4	18.5444	-583.8834	-727.23	32.7942	-1032.5485	SLU 18	1.768	Si
3	0.007917	1.3	0	3,4	18.3895	-621.7885	-721.16	29.8677	-1009.8908	SLU 17	1.624	Si
3.3	0.007917	1.3	0	3,4	18.2346	-662.7978	-715.08	27.1565	-987.0967	SLU 17	1.489	Si
3.6	0.007917	1.3	0	3,4	18.0797	-705.8399	-709.01	24.7624	-966.7385	SLU 17	1.37	Si
3.9	0.007917	1.3	0	3,4	17.9248	-750.5937	-702.93	22.6558	-948.7036	SLU 17	1.264	Si
4.2	0.007917	1.3	0	3,4	17.7698	-796.7794	-696.86	20.8045	-932.851	SLU 17	1.171	Si
4.5	0.007917	1.3	0	3,4	17.6175	-843.5325	-690.88	19.1951	-919.0658	SLU 1	1.09	Si

Verifica a pressoflessione in SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-

2018 §7.4.1

Le dilatazioni ultime utilizzate sono le dilatazioni limite elastiche

Quota	As	%	At	Pos.	Mx	My	N	ε,cu	ε,fk	MRdx	MRdy	Comb.	C.S.	Nmin	Nlim	Comb.Nmin	Ver.
0	0.007012	2.5	0	1,2,3,4	-36.1112	-474.2854	-311.32	-2.02	2.21	-54.5361	-716.2781	SLV 7	1.51				Si
0.3	0.007388	2.5	0	1,2,3,4	-33.8741	-426.5134	-306.89	-2.02	2.21	-60.7367	-764.7451	SLV 39	1.793				Si
0.6	0.007764	2.4	0	1,3,4	-31.6057	-383.7691	-302.39	-2.02	2.21	-67.1448	-815.2982	SLV 39	2.124				Si
0.9	0.007917	1.3	0	3,4	-29.3376	-344.2219	-297.89	-2.02	2.21	-72.1105	-846.0823	SLV 39	2.458				Si
1.2	0.007917	1.3	0	3,4	-27.0696	-307.6644	-293.39	-2.02	2.21	-76.0148	-863.9589	SLV 39	2.808				Si
1.35	0.007917	1.3	0	3,4	-25.9724	-290.9745	-291.22	-2.02	2.21	-77.9988	-873.8381	SLV 39	3.003				Si
1.5	0.007917	1.3	0	3,4	-24.8022	-273.935	-288.89	-2.02	2.21	-80.1575	-885.3223	SLV 39	3.232				Si
1.8	0.007917	1.3	0	3,4	-22.5358	-242.8554	-284.39	-2.02	2.21	-84.5327	-910.9615	SLV 39	3.751				Si
2.1	0.007917	1.3	0	3,4	67.7341	-210.9452	-328.71	-2.02	2.21	297.3702	-926.1036	SLV 47	4.39				Si
2.4	0.007917	1.3	0	3,4	18.1209	-250.0237	-414.92	-2.02	2.21	74.976	-1034.4851	SLV 41	4.138				Si
2.7	0.007917	1.3	0	3,4	15.8723	-296.8923	-410.42	-2.02	2.21	51.6538	-966.1857	SLV 41	3.254				Si
3	0.007917	1.3	0	3,4	13.6261	-345.4811	-405.92	-2.02	2.21	36.2242	-918.4409	SLV 41	2.658				Si
3.3	0.007917	1.3	0	3,4	11.381	-395.6288	-401.42	-2.02	2.21	25.4156	-883.5021	SLV 41	2.233				Si
3.6	0.007917	1.3	0	3,4	-8.9138	-447.1088	-396.93	-2.02	2.21	-17.0903	-857.2383	SLV 37	1.917				Si
3.9	0.007917	1.3	0	3,4	-6.6456	-499.6434	-392.43	-2.02	2.21	-11.1297	-836.7737	SLV 37	1.675				Si
4.2	0.007917	1.3	0	3,4	-4.3773	-553.0445	-387.93	-2.02	2.21	-6.4941	-820.484	SLV 37	1.484				Si
4.5	0.007917	1.3	0	3,4	-2.1448	-607.0389	-383.5	-2.02	2.21	-2.8525	-807.337	SLV 5	1.33				Si

Verifica a taglio in famiglia SLU

		Direzione X								Direzione Y								Verifica
Quota	Staffe	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	
0	2X/2Y ø10/14.1	59.32	-538.62	SLU 16	289.73	207.71	2341.67	1	4.88	0.04	-776.81	SLU 3	308.77	367.43	2535.42	1	9357.99	Si
0.3	2X/2Y ø10/14.1	42.36	-534.19	SLU 16	289.15	207.71	2340.79	1	6.83	0.04	-770.84	SLU 3	307.93	367.43	2534.16	1	9357.99	Si
0.6	2X/2Y ø10/14.1	-40.4	-769.76	SLU 17	320.24	207.71	2387.44	1	7.93	0.04	-764.76	SLU 3	307.08	367.43	2532.89	1	9357.99	Si
0.9	2X/2Y ø10/14.1	-55.35	-763.68	SLU 17	319.44	207.71	2386.23	1	5.77	0.04	-758.69	SLU 3	306.23	367.43	2531.61	1	9357.99	Si
1.2	2X/2Y ø10/14.1	-69.34	-757.61	SLU 17	318.64	207.71	2385.03	1	4.6	0.04	-752.61	SLU 3	305.38	367.43	2530.33	1	9357.99	Si
1.35	2X/2Y ø10/14.1	-75.77	-754.67	SLU 17	318.25	207.71	2384.45	1	4.2	0.04	-749.67	SLU 3	304.96	367.43	2529.72	1	9357.99	Si
1.5	2X/2Y ø10/14.1	-82.36	-751.53	SLU 17	317.83	207.71	2383.83	1	3.86	0.04	-746.54	SLU 3	304.52	367.43	2529.06	1	9357.99	Si
1.8	2X/2Y ø10/14.1	-94.39	-745.46	SLU 17	317.03	207.71	2382.62	1	3.36	0.04	-740.46	SLU 3	303.67	367.43	2527.78	1	9357.99	Si
2.1	2X/2Y ø10/14.1	-105.47	-739.38	SLU 17	316.23	207.71	2381.42	1	3	0.04	-734.39	SLU 3	302.82	367.43	2526.5	1	9357.99	Si
2.4	2X/2Y ø10/14.1	-115.8	-733.31	SLU 1	315.43	207.71	2380.22	1	2.72	0.04	-728.31	SLU 3	301.97	367.43	2525.23	1	9357.99	Si
2.7	2X/2Y ø10/14.1	-126.5	-727.23	SLU 1	314.63	207.71	2379.02	1	2.49	0.04	-722.24	SLU 3	301.12	367.43	2523.95	1	9357.99	Si
3	2X/2Y ø10/14.1	-136.25	-721.16	SLU 1	313.82	207.71	2377.81	1	2.3	0.04	-716.16	SLU 3	300.27	367.43	2522.67	1	9357.99	Si
3.3	2X/2Y ø10/14.1	-145.01	-715.08	SLU 1	313.02	207.71	2376.61	1	2.16	0.04	-710.09	SLU 3	299.42	367.43	2521.4	1	9357.99	Si
3.6	2X/2Y ø10/14.1	-152.8	-709.01	SLU 1	312.22	207.71	2375.41	1	2.04	0.04	-704.01	SLU 3	298.57	367.43	2520.12	1	9357.99	Si
3.9	2X/2Y ø10/14.1	-159.63	-702.93	SLU 1	311.42	207.71	2374.2	1	1.95	0.04	-697.94	SLU 3	297.72	367.43	2518.84	1	9357.99	Si
4.2	2X/2Y ø10/14.1	-165.51	-696.86	SLU 1	310.62	207.71	2373	1	1.88	0.04	-691.86	SLU 3	296.86	367.43	2517.57	1	9357.99	Si
4.5	2X/2Y ø10/14.1	-170.36	-690.88	SLU 1	309.83	207.71	2371.82	1	1.82	0.04	-685.89	SLU 3	296.03	367.43	2516.31	1	9357.99	Si

Verifica a taglio in famiglia SLV

		Direzione X								Direzione Y								Verifica
Quota	Staffe	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	
0	2X/2Y ø10/14.1	175.1	-311.31	SLV 11	259.73	207.71	2296.66	1	1.48	25.09	-360.17	SLV 3	250.39	367.43	2447.86	1	14.64	Si
0.3	2X/2Y ø10/14.1	160.89	-306.88	SLV 11	259.14	207.71	2295.79	1	1.61	25.09	-355.74	SLV 3	249.77	367.43	2446.93	1	14.64	Si

		Direzione X								Direzione Y								Verifica
Quota	Staffe	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	V	N	Comb.	VRd	VRsd	VRcd	Cot	c.s.	
0.6	2X/2Y ø10/14.1	147.27	-302.38	SLV 11	258.55	207.71	2294.9	1	1.76	25.09	-351.24	SLV 3	249.14	367.43	2445.99	1	14.64	Si
0.9	2X/2Y ø10/14.1	134.51	-297.88	SLV 11	257.95	207.71	2294.01	1	1.92	25.09	-346.74	SLV 3	248.51	367.43	2445.04	1	14.64	Si
1.2	2X/2Y ø10/14.1	122.59	-293.38	SLV 11	257.36	207.71	2293.11	1	2.1	25.09	-342.24	SLV 3	247.88	367.43	2444.1	1	14.64	Si
1.35	2X/2Y ø10/14.1	-125.98	-430.75	SLV 37	275.49	207.71	2320.31	1	2.19	25.09	-340.06	SLV 3	247.58	367.43	2443.64	1	14.64	Si
1.5	2X/2Y ø10/14.1	-130.53	-428.43	SLV 37	275.18	207.71	2319.85	1	2.11	25.09	-337.74	SLV 3	247.25	367.43	2443.15	1	14.64	Si
1.8	2X/2Y ø10/14.1	-138.78	-423.93	SLV 37	274.59	207.71	2318.96	1	1.98	25.09	-333.24	SLV 3	246.62	367.43	2442.2	1	14.64	Si
2.1	2X/2Y ø10/14.1	-146.84	-419.43	SLV 21	274	207.71	2318.07	1	1.87	25.09	-328.74	SLV 3	245.99	367.43	2441.26	1	14.64	Si
2.4	2X/2Y ø10/14.1	-154.95	-414.93	SLV 5	273.4	207.71	2317.18	1	1.76	25.09	-324.24	SLV 3	245.36	367.43	2440.31	1	14.64	Si
2.7	2X/2Y ø10/14.1	-162.58	-410.43	SLV 5	272.81	207.71	2316.29	1	1.68	25.09	-319.74	SLV 3	244.73	367.43	2439.37	1	14.64	Si
3	2X/2Y ø10/14.1	-169.37	-405.93	SLV 5	272.21	207.71	2315.4	1	1.61	25.09	-315.24	SLV 3	244.1	367.43	2438.42	1	14.64	Si
3.3	2X/2Y ø10/14.1	-175.27	-401.43	SLV 5	271.62	207.71	2314.51	1	1.55	25.09	-310.74	SLV 3	243.47	367.43	2437.48	1	14.64	Si
3.6	2X/2Y ø10/14.1	-180.32	-396.93	SLV 5	271.03	207.71	2313.62	1	1.5	25.09	-306.24	SLV 3	242.84	367.43	2436.53	1	14.64	Si
3.9	2X/2Y ø10/14.1	-184.51	-392.43	SLV 5	270.43	207.71	2312.72	1	1.47	25.09	-301.74	SLV 3	242.21	367.43	2435.58	1	14.64	Si
4.2	2X/2Y ø10/14.1	-187.86	-387.93	SLV 5	269.84	207.71	2311.83	1	1.44	25.09	-297.24	SLV 3	241.58	367.43	2434.64	1	14.64	Si
4.5	2X/2Y ø10/14.1	-190.33	-383.5	SLV 5	269.25	207.71	2310.96	1	1.41	25.09	-292.82	SLV 3	240.96	367.43	2433.71	1	14.64	Si

Verifica delle tensioni in combinazioni rara

Tensione limite del calcestruzzo 19920 kN/m²
Tensione limite dell'acciaio 360000 kN/m²
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	σc,max	Mx	My	N	Comb.	σf,max	Verifica
0	0.0242	-339.6694	-638.87	SLE RA 4	-7175	0.0242	-339.6694	-638.87	SLE RA 4	133573	Si
0.3	0.0484	-337.6374	-634.45	SLE RA 7	-6961	0.0484	-337.6374	-634.45	SLE RA 7	126305	Si
0.6	0.0573	-344.7727	-629.95	SLE RA 7	-6937	0.0573	-344.7727	-629.95	SLE RA 7	124899	Si
0.9	0.0661	-355.6463	-625.45	SLE RA 7	-7078	0.0661	-355.6463	-625.45	SLE RA 7	129080	Si
1.2	0.075	-370.0509	-620.95	SLE RA 7	-7349	0.075	-370.0509	-620.95	SLE RA 7	137573	Si
1.35	0.0793	-378.2118	-618.77	SLE RA 7	-7503	0.0793	-378.2118	-618.77	SLE RA 7	142354	Si
1.5	0.0838	-387.8343	-616.45	SLE RA 7	-7684	0.0838	-387.8343	-616.45	SLE RA 7	147973	Si
1.8	0.0927	-408.828	-611.95	SLE RA 7	-8079	0.0927	-408.828	-611.95	SLE RA 7	160198	Si
2.1	0.1015	-432.7058	-607.45	SLE RA 7	-8527	0.1015	-432.7058	-607.45	SLE RA 7	174072	Si
2.4	0.1104	-459.2602	-602.95	SLE RA 7	-9025	0.1104	-459.2602	-602.95	SLE RA 7	189482	Si
2.7	0.1192	-488.284	-598.45	SLE RA 7	-9568	0.1192	-488.284	-598.45	SLE RA 7	206314	Si
3	0.1281	-519.5698	-593.95	SLE RA 7	-10152	0.1281	-519.5698	-593.95	SLE RA 7	224451	Si
3.3	0.1369	-552.9753	-589.45	SLE RA 7	-10775	0.1369	-552.9753	-589.45	SLE RA 7	243813	Si
3.6	0.1458	-588.2398	-584.95	SLE RA 7	-11432	0.1458	-588.2398	-584.95	SLE RA 7	264249	Si
3.9	0.1547	-625.1194	-580.45	SLE RA 7	-12118	0.1547	-625.1194	-580.45	SLE RA 7	285622	Si
4.2	0.1635	-663.4068	-575.95	SLE RA 7	-12830	0.1635	-663.4068	-575.95	SLE RA 7	307811	Si
4.5	0.1763	-703.2847	-571.52	SLE RA 4	-13571	0.1763	-703.2847	-571.52	SLE RA 4	330910	Si

Verifica delle tensioni sul calcestruzzo in combinazioni quasi permanenti

Tensione limite del calcestruzzo 14940 kN/m²
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	σc,max	Verifica
0	0.0168	-219.952	-381.08	SLE QP 5	-4634	Si
0.3	0.0502	-215.1944	-376.66	SLE QP 1	-4425	Si
0.6	0.052	-222.7676	-372.16	SLE QP 1	-4465	Si
0.9	0.0537	-230.3407	-367.66	SLE QP 1	-4565	Si
1.2	0.0555	-237.9139	-363.16	SLE QP 1	-4705	Si
1.35	0.0563	-241.5784	-360.98	SLE QP 1	-4773	Si

Quota	Mx	My	N	Comb.	σc,max	Verifica
1.5	0.0572	-245.4871	-358.66	SLE QP 1	-4846	Si
1.8	0.0589	-253.0603	-354.16	SLE QP 1	-4986	Si
2.1	0.0607	-260.6334	-349.66	SLE QP 1	-5126	Si
2.4	0.0624	-268.2066	-345.16	SLE QP 1	-5266	Si
2.7	0.0642	-275.7798	-340.66	SLE QP 1	-5405	Si
3	0.0659	-283.353	-336.16	SLE QP 1	-5545	Si
3.3	0.0676	-290.9262	-331.66	SLE QP 1	-5684	Si
3.6	0.0694	-298.4993	-327.16	SLE QP 1	-5823	Si
3.9	0.0711	-306.0725	-322.66	SLE QP 1	-5961	Si
4.2	0.0729	-313.6457	-318.16	SLE QP 1	-6100	Si
4.5	0.0841	-325.9655	-313.73	SLE QP 5	-6327	Si

Verifica di apertura delle fessure nella famiglia di combinazioni frequente

Valore limite di controllo 0,300 mm
Coefficiente di viscosità Fi = 1.7
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	Mx,sr	My,sr	N,sr	σs	Ac,eff	ρ,eff	Sm	Wk	Fessurata	Verifica
0.6	0.0713	-305.3045	-515.37	SLE FR 12	0.0699	-299.1003	-29910.03	115328	0.122	0.0327	0.3266	0.00011	Si	Si
0.9	0.0753	-322.6457	-510.87	SLE FR 12	0.0692	-296.5416	-29654.16	123319	0.12304	0.0331	0.3176	0.000114	Si	Si
1.2	0.0793	-339.9868	-506.37	SLE FR 12	0.0683	-292.8765	-29287.65	133506	0.12432	0.0327	0.3188	0.000124	Si	Si
1.35	0.0812	-348.3777	-504.2	SLE FR 12	0.0679	-291.2633	-29126.33	138446	0.12489	0.0326	0.3193	0.000129	Si	Si
1.5	0.0833	-357.328	-501.87	SLE FR 12	0.0675	-289.6441	-28964.41	143721	0.12547	0.0325	0.3199	0.000134	Si	Si
1.8	0.0873	-374.6691	-497.37	SLE FR 12	0.0668	-286.772	-28677.2	153959	0.12649	0.0322	0.3208	0.000144	Si	Si
2.1	0.0913	-392.0103	-492.87	SLE FR 12	0.0662	-284.2032	-28420.32	164216	0.12741	0.032	0.3217	0.000154	Si	Si
2.4	0.0953	-409.3515	-488.37	SLE FR 12	0.0656	-281.8921	-28189.21	174489	0.12824	0.0317	0.3224	0.000164	Si	Si
2.7	0.0993	-426.6926	-483.87	SLE FR 12	0.0651	-279.8017	-27980.17	184777	0.129	0.0316	0.3231	0.000174	Si	Si
3	0.1033	-444.0338	-479.37	SLE FR 12	0.0646	-277.9019	-27790.19	195077	0.12969	0.0314	0.3238	0.000184	Si	Si
3.3	0.1073	-461.3749	-474.87	SLE FR 12	0.0642	-276.1677	-27616.77	205388	0.13032	0.0312	0.3243	0.000194	Si	Si
3.6	0.1112	-478.7161	-470.37	SLE FR 12	0.0638	-274.5783	-27457.83	215708	0.1309	0.0311	0.3249	0.000204	Si	Si
3.9	0.1152	-496.0572	-465.87	SLE FR 12	0.0634	-273.1165	-27311.65	226036	0.13144	0.031	0.3254	0.000218	Si	Si
4.2	0.1192	-513.3984	-461.37	SLE FR 12	0.0631	-271.7673	-27176.73	236371	0.13194	0.0309	0.3258	0.000234	Si	Si
4.5	0.1248	-530.6182	-456.95	SLE FR 13	0.0636	-270.5288	-27052.88	246635	0.1324	0.0308	0.3263	0.000251	Si	Si

Verifica di apertura delle fessure nella famiglia di combinazioni quasi permanente

Valore limite di controllo 0,200 mm
Coefficiente di viscosità Fi = 1.7
Coefficiente di omogeneizzazione impiegato 15

Quota	Mx	My	N	Comb.	Mx,sr	My,sr	N,sr	σs	Ac,eff	ρ,eff	Sm	Wk	Fessurata	Verifica
3	0.0659	-283.353	-336.16	SLE QP 1	0.0655	-281.6536	-28165.36	120999	0.12833	0.0317	0.3225	0.000114	Si	Si
3.3	0.0676	-290.9262	-331.66	SLE QP 1	0.0651	-280.0125	-28001.25	125783	0.12892	0.0316	0.323	0.000118	Si	Si
3.6	0.0694	-298.4993	-327.16	SLE QP 1	0.0647	-278.4722	-27847.22	130573	0.12948	0.0314	0.3236	0.000123	Si	Si
3.9	0.0711	-306.0725	-322.66	SLE QP 1	0.0644	-277.0238	-27702.38	135367	0.13001	0.0313	0.3241	0.000128	Si	Si
4.2	0.0729	-313.6457	-318.16	SLE QP 1	0.064	-275.6592	-27565.92	140166	0.13051	0.0312	0.3245	0.000132	Si	Si
4.5	0.0841	-325.9655	-313.73	SLE QP 5	0.0707	-273.8943	-27389.43	147645	0.13116	0.031	0.3251	0.00014	Si	Si

7.3.2 Verifiche traverso superiore

N°: indice progressivo della sezione
Descrizione: descrizione della sezione
Tipo: tipo di sezione
Base: base della sezione [m]
Altezza: altezza della sezione [m]
Copriferro sup.: distanza del bordo della staffa dalla superficie superiore del getto [m]
Copriferro inf.: distanza del bordo della staffa dalla superficie inferiore del getto [m]
Copriferro lat.: distanza del bordo della staffa dalle superfici laterali del getto [m]
x: distanza da asse appoggio sinistro [m]
A sup.: area efficace di armatura longitudinale superiore [m²]
C.b. sup.: distanza dal bordo del baricentro dell'armatura longitudinale superiore [m]
A inf.: area efficace di armatura longitudinale inferiore [m²]
C.b. inf.: distanza dal bordo del baricentro dell'armatura longitudinale inferiore [m]

*M+ela: momento flettente desunto dal solutore che tende le fibre inferiori [kN*m]*
Comb.: combinazione
*M+des: momento flettente di progetto che tende le fibre inferiori [kN*m]*
*M+ult: momento ultimo per trazione delle fibre inferiori [kN*m]*
x/d: rapporto tra posizione asse neutro e altezza utile
*M-ela: momento flettente desunto dal solutore che tende le fibre superiori [kN*m]*
*M-des: momento flettente di progetto che tende le fibre superiori [kN*m]*
*M-ult: momento ultimo per trazione delle fibre superiori [kN*m]*
Verifica: stato di verifica
A st: area di staffe per unità di lunghezza [m^2]
A sl: area di armatura longitudinale tesa per valutazione resistenza taglio in assenza di armature a taglio [m^2]
A sag: area equivalente di barre piegate per unità di lunghezza [m^2]
Vela: taglio elastico [kN]
Vdes: taglio di progetto [kN]
Vrd: resistenza a taglio della sezione senza armature [kN]
Vrcd: sforzo di taglio che produce il cedimento delle bielle [kN]
Vrsd: resistenza a taglio per la presenza delle armature [kN]
Vult: taglio ultimo [kN]
cotgθ: cotg dell'angolo di inclinazione dei puntoni in calcestruzzo
*Mela: momento elastico [kN*m]*
*Mdes: momento di progetto [kN*m]*
σ c: tensione di compressione nel calcestruzzo [kN/m^2]
σ f: tensione di trazione nell'acciaio [kN/m^2]
Rara: famiglia di combinazione di verifica
Elastica+: massima freccia a sezione interamente reagente di solo calcestruzzo [m]
Elastica-: minima freccia a sezione interamente reagente di solo calcestruzzo [m]
Fess.+: massima freccia a sezione fessurata ed omogeneizzata [m]
Fess.-: minima freccia a sezione fessurata ed omogeneizzata [m]
Quasi permanente: famiglia di combinazione di verifica
Fess. viscosa+: massima freccia a sezione fessurata ed omogeneizzata a viscosità esaurita [m]
Fess. viscosa-: minima freccia a sezione fessurata ed omogeneizzata a viscosità esaurita [m]
l/f: rapporto luce su freccia in combinazione quasi permanente
Bordo: bordo interessato dalla fessura
Rara: famiglia di combinazione per verifica inferiore
Dmax: distanza massima tra le fessure [m]
Esm: dilatazione media delle barre di armatura
Wd: valore di calcolo di apertura delle fessure [m]
Comb: combinazione
Frequente: famiglia di combinazione per verifica inferiore
Quasi permanente: famiglia di combinazione per verifica inferiore
Frequente: famiglia di combinazione di verifica

Le unità di misura delle verifiche elencate nel capitolo sono in [m, kN] ove non espressamente specificato.

Caratteristiche dei materiali

Acciaio: B450C_1 Fyk 450000

Calcestruzzo: C32/40 Rck 40000

Verifiche a flessione in famiglia SLU

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.004285	0.071	0.003142	0.07						-896.101	SLU 1	-793.4477	-815.2489	0.161	Si
0.3	0.004285	0.071	0.003142	0.07						-695.5108	SLU 1	-695.5108	-815.2489	0.161	Si
3.03	0.001571	0.07	0.005856	0.071	745.4117	SLU 20	940.7143	1091.4301	0.228						Si
6.07	0.001571	0.07	0.005856	0.071	737.7273	SLU 18	936.0052	1091.4301	0.228						Si
8.8	0.004738	0.071	0.003142	0.07						-716.6895	SLU 3	-716.6895	-896.3528	0.17	Si

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
9.1	0.004738	0.071	0.003142	0.07						-918.7709	SLU 3	-815.3719	-896.3528	0.17	Si

Verifiche a flessione in famiglia SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-2018 §7.4.1

Le dilatazioni ultime utilizzate sono le seguenti

ε,cu= 0.002

ε,fy= 0.0019

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.004285	0.071	0.003142	0.07						-665.355	SLV 5	-608.5497	-779.7929	0.287	Si
0.3	0.004285	0.071	0.003142	0.07	41.9926	SLV 43	160.8141	583.7689	0.242	-554.7684	SLV 5	-554.7684	-779.7929	0.287	Si
3.03	0.001571	0.07	0.005856	0.071	386.7886	SLV 43	394.4555	1041.894	0.347						Si
6.07	0.001571	0.07	0.005856	0.071	386.7886	SLV 37	394.4555	1041.894	0.347						Si
8.8	0.004738	0.071	0.003142	0.07	41.9926	SLV 37	160.8141	583.8316	0.24	-554.7684	SLV 11	-554.7684	-857.1309	0.301	Si
9.1	0.004738	0.071	0.003142	0.07						-665.355	SLV 11	-608.5497	-857.1309	0.301	Si

Verifiche a taglio in famiglia SLU

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0	0.004285	0	684.71	SLU 2	684.71	307.06	1543.54	0	307.06	2.5	Si
0.3	0.0000152	0.004285	0	652.91	SLU 2	652.91	307.06	1543.54	705.46	705.46	2.5	Si
3.03	0.0000152	0.005856	0	363.24	SLU 2	363.24	340.85	1544.53	705.92	705.92	2.5	Si
6.07	0.0000152	0.005856	0	-368.21	SLU 3	-368.21	-340.85	-1544.53	-705.92	-705.92	2.5	Si
8.8	0.0000152	0.004738	0	-657.88	SLU 3	-657.88	-317.48	-1543.33	-705.37	-705.37	2.5	Si
9.1	0	0.004738	0	-689.68	SLU 3	-689.68	-317.48	-1543.33	0	-317.48	2.5	Si

Verifiche a taglio in famiglia SLV

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0	0.004285	0	378.93	SLV 5	378.93	307.06	1543.54	0	307.06	2.5	Si
0.3	0.0000152	0.004285	0	358.54	SLV 5	358.54	307.06	1543.54	705.46	705.46	2.5	Si
3.03	0.0000152	0.005856	0	172.82	SLV 5	172.82	340.85	1544.53	705.92	705.92	2.5	Si
6.07	0.0000152	0.005856	0	-172.82	SLV 11	-172.82	-340.85	-1544.53	-705.92	-705.92	2.5	Si
8.8	0.0000152	0.004738	0	-358.54	SLV 11	-358.54	-317.48	-1543.33	-705.37	-705.37	2.5	Si
9.1	0	0.004738	0	-378.93	SLV 11	-378.93	-317.48	-1543.33	0	-317.48	2.5	Si

Verifiche delle tensioni in esercizio

x	Mela	Comb.	Mdes	σ c	σ f	Mela	Comb.	Mdes	σ c	Verifica	Rara	Quasi permanente
0	-750.9622	4	-665.9598	11834	19920	0.3351	3600	-347.9121	5	-3015725,58336236	53,5887096746526	149,4
0.3	-584.5222	4	-584.5222	10387	19920	0.2942	3600	-258.2569	5	-2582569,22447134	45,8916265950774	149,4
3.03	607.8086	7	787.2749	13778	19920	0.2953	3600	296.3563	1	3457814,3005015	60,5153268259765	149,4
6.07	607.747	7	787.1986	13777	19920	0.2952	3600	296.3563	1	3457814,3005015	60,5153268259766	149,4
8.8	-584.5166	4	-584.5166	10053	19920	0.2673	3600	-258.2569	5	-2582569,22447134	44,4187225621854	149,4
9.1	-750.9492	4	-665.9506	11454	19920	0.3045	3600	-347.9121	5	-3015725,58336236	51,8687657011318	149,4

Verifica di apertura delle fessure

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	
0	superiore	0.327	0.0012	0.000392	4	0.327	0.0009	0.000293	13	0.327	0.00045	0.000148	5	Si
0.3	superiore	0.327	0.001	0.000327	4	0.327	0.00074	0.000241	13	0.327	0.00038	0.000124	5	Si
3.03	inferiore	0.284	0.0011	0.000313	7	0.284	0.00088	0.000249	12	0.284	0.00041	0.000116	1	Si
6.07	inferiore	0.284	0.0011	0.000313	7	0.284	0.00088	0.000249	12	0.284	0.00041	0.000116	1	Si
8.8	superiore	0.314	0.0009	0.000283	4	0.314	0.00067	0.000209	13	0.314	0.00034	0.000108	5	Si
9.1	superiore	0.314	0.00108	0.00034	4	0.314	0.00081	0.000254	13	0.314	0.00041	0.000128	5	Si

Verifica di deformabilità

x	Rara				Frequente				Quasi permanente							Verifica
	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess.+	Fess.-	Elastica+	Elastica-	Fess. viscosa+	Comb.	Fess. viscosa-	Comb.	l/f	
0.3	0.00066	0.00055	0.00139	0.00108	0.00055	0.00031	0.001	0.00033	0.00035	0.00031	0.00101	1	0.00084	1	8971	Si
3.03	0.00788	0.00666	0.0166	0.0129	0.00622	0.00349	0.01134	0.0038	0.00378	0.00349	0.01094	1	0.00975	1	832	Si
4.55	0.00952	0.00805	0.02038	0.01587	0.00747	0.00414	0.01388	0.00461	0.00447	0.00414	0.0131	1	0.01176	1	695	Si
6.07	0.00788	0.00666	0.0166	0.0129	0.00622	0.00349	0.01135	0.0038	0.00378	0.00349	0.01094	1	0.00975	1	832	Si
8.8	0.00066	0.00055	0.00141	0.00109	0.00055	0.00031	0.00101	0.00034	0.00035	0.00031	0.00102	1	0.00085	1	8945	Si

7.3.3 Verifiche platea di fondazione

Caratteristiche dei materiali

Acciaio: B450C_1 Fyk 450000

Calcestruzzo: C32/40 Rck 40000

Verifiche a flessione in famiglia SLU

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.003142	0.07	0.003142	0.07	474.4664	SLU 4	357.4244	610.4516	0.139						Si
0.3	0.003142	0.07	0.003142	0.07	261.538	SLU 4	261.538	610.4516	0.139	140.1036	SLU 13	-124.8732	-610.4516	0.139	Si
3.03	0.003142	0.07	0.001571	0.07						-396.9385	SLU 17	-397.3165	-610.7705	0.143	Si
6.07	0.003142	0.07	0.001571	0.07						-406.2269	SLU 19	-408.5603	-610.7705	0.143	Si
8.8	0.003142	0.07	0.003142	0.07	239.5653	SLU 2	239.5653	610.4516	0.139	119.193	SLU 15	-146.2771	-610.4516	0.139	Si
9.1	0.003142	0.07	0.003142	0.07	453.5707	SLU 2	335.7065	610.4516	0.139						Si

Verifiche a flessione in famiglia SLV (domini sostanzialmente elastici)

La struttura oppure parte di essa, è stata dichiarata come non dissipativa pertanto la verifica a pressoflessione, per tutte o solo alcune sezioni, viene eseguita calcolando i momenti resistenti in campo sostanzialmente elastico secondo D.M. 17-01-2018 §7.4.1

Le dilatazioni ultime utilizzate sono le seguenti

ε,cu= 0.002

ε,fy= 0.0019

x	A sup.	C.b. sup.	A inf.	C.b. inf.	M+ela	Comb.	M+des	M+ult	x/d	M-ela	Comb.	M-des	M-ult	x/d	Verifica
0	0.003142	0.07	0.003142	0.07	529.9129	SLV 11	482.4552	583.7321	0.247	-58.9822	SLV 37	-58.9822	-583.7321	0.247	Si
0.3	0.003142	0.07	0.003142	0.07	438.7357	SLV 11	438.7357	583.7321	0.247	-177.6562	SLV 37	-322.387	-583.7321	0.247	Si
3.03	0.003142	0.07	0.001571	0.07	-49.426	SLV 11	14.554	299.8874	0.181	-311.8689	SLV 37	-357.2873	-582.9519	0.257	Si
6.07	0.003142	0.07	0.001571	0.07	-49.426	SLV 5	14.554	299.8874	0.181	-311.8689	SLV 43	-357.2873	-582.9519	0.257	Si
8.8	0.003142	0.07	0.003142	0.07	438.7574	SLV 5	438.7574	583.7321	0.247	-177.7665	SLV 43	-322.4972	-583.7321	0.247	Si
9.1	0.003142	0.07	0.003142	0.07	529.9129	SLV 5	482.4769	583.7321	0.247	-58.9822	SLV 43	-58.9822	-583.7321	0.247	Si

Verifiche a taglio in famiglia SLU

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0.0000152	0.003142	0	-787.98	SLU 2	-787.98	-277.19	-1547.23	-710.35	-710.35	2.5	Si
0.3	0.0000152	0.003142	0	-640.96	SLU 2	-640.96	-277.19	-1547.23	-710.35	-710.35	2.5	Si
3.03	0.0000152	0.003142	0	8.75	SLU 17	8.75	277.19	1547.23	710.35	710.35	2.5	Si
3.03	0.0000152	0.003142	0	-15.48	SLU 12	-15.48	-277.19	-1547.23	-710.35	-710.35	2.5	Si
6.07	0.0000152	0.003142	0	9.04	SLU 10	9.04	277.19	1547.23	710.35	710.35	2.5	Si
6.07	0.0000152	0.003142	0	-15.16	SLU 19	-15.16	-277.19	-1547.23	-710.35	-710.35	2.5	Si
8.8	0.0000152	0.003142	0	642.68	SLU 4	642.68	277.19	1547.23	710.35	710.35	2.5	Si
9.1	0.0000152	0.003142	0	792.95	SLU 3	792.95	277.19	1547.23	710.35	710.35	2.5	Si

Verifiche a taglio in famiglia SLV

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
0	0.0000152	0.003142	0	-455.43	SLV 5	-455.43	-277.19	-1547.23	-710.35	-710.35	2.5	Si
0.3	0.0000152	0.003142	0	-339.69	SLV 9	-339.69	-277.19	-1547.23	-710.35	-710.35	2.5	Si
3.03	0.0000152	0.003142	0	85.29	SLV 37	85.29	277.19	1547.23	710.35	710.35	2.5	Si
3.03	0.0000152	0.003142	0	-95.68	SLV 11	-95.68	-277.19	-1547.23	-710.35	-710.35	2.5	Si
6.07	0.0000152	0.003142	0	95.68	SLV 5	95.68	277.19	1547.23	710.35	710.35	2.5	Si
6.07	0.0000152	0.003142	0	-85.29	SLV 43	-85.29	-277.19	-1547.23	-710.35	-710.35	2.5	Si

x	A st	A sl	A sag	Vela	Comb.	Vdes	Vrd	Vrcd	Vrsd	Vult	cotgθ	Verifica
8.8	0.0000152	0.003142	0	339.69	SLV 7	339.69	277.19	1547.23	710.35	710.35	2.5	Si
9.1	0.0000152	0.003142	0	455.43	SLV 11	455.43	277.19	1547.23	710.35	710.35	2.5	Si

Verifiche delle tensioni in esercizio

x	Mela	Comb.	Mdes	σ c	σ f	Mela	Comb.	Mdes	σ c	Verifica	Rara	Quasi permanente
0	349.6622	4	253.5088	4996	19920	0.1709	3600	239.2112	5	1815572,83537136	35,7785799717974	149,4
0.3	175.3382	4	175.3382	3455	19920	0.1182	3600	134.2214	5	1342213,88112143	26,4503333324752	149,4
3.03	-318.377	7	-318.377	6808	19920	0.215	3600	-191.107	1	-1911070,46875	40,8671830336139	149,4
6.07	-318.3691	7	-318.3691	6808	19920	0.215	3600	-191.107	1	-1911070,46875	40,8671830336139	149,4
8.8	175.2496	4	175.2496	3454	19920	0.1182	3600	134.1778	5	1341778,06183417	26,4417448611572	149,4
9.1	349.6493	4	253.4172	4994	19920	0.1709	3600	239.2112	5	1815137,0160841	35,7699915004794	149,4

Verifica di apertura delle fessure

x	Bordo	Rara				Frequente				Quasi permanente				Verifica
		Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	Dmax	Esm	Wd	Comb	
0	inferiore	0.362	0.0005	0.00018	4	0.362	0.00036	0.000129	8	0.362	0.00036	0.000129	5	Si
2.73	superiore	0.359	0.00063	0.000225	7	0.359	0.00053	0.00019	12	0.359	0.00038	0.000135	1	Si
3.03	superiore	0.359	0.00063	0.000225	7	0.359	0.00053	0.00019	12	0.359	0.00038	0.000135	1	Si
6.07	superiore	0.359	0.00063	0.000225	7	0.359	0.00053	0.00019	12	0.359	0.00038	0.000135	1	Si
9.1	inferiore	0.362	0.0005	0.00018	4	0.362	0.00036	0.000129	8	0.362	0.00036	0.000129	5	Si

7.3.4 Verifica muro d'ala

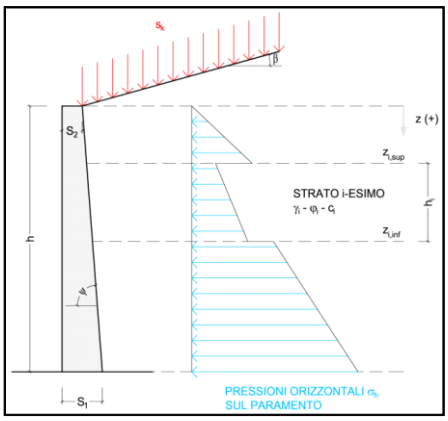
VERIFICHE SLU

Per la verifica dei muri d'ala, si tiene conto della spinta esercitata dal terreno a tergo degli stessi, costituito dal nuovo rilevato stradale (le cui caratteristiche sono riepilogate nei paragrafi precedenti), tenendo conto di un sovraccarico variabile dovuto al traffico veicolare di 20 kN/m^2.

Considerando che il muro presenta uno sviluppo limitato e che risulta strutturalmente collegato alla struttura del tombino scatolare, si può affermare che non risulta in grado di subire spostamenti rispetto al terreno, pertanto la spinta del terreno è valutata come "spinta in quiete".

Il calcolo delle spinte nelle varie combinazioni di carico è riepilogato nelle tabelle di seguito:

Tutti i valori sono riferiti a una striscia di larghezza unitaria.



GEOMETRIA MURO E RINTERRO

γ_M=	25	kN/m³	Peso per unità di volume
s_1=	0,5	m	Spessore alla base
s_2=	0,5	m	Spessore in testa
h_f=	0,6	m	Altezza suola fondazione
h=	5,4	m	Altezza paramento
β=	0	°	Ang. terrapieno sull'orizzontale (>0 antiorario)
ψ=	90	°	Ang. par. interna sull'orizzontale (>0 orario)
H=	6	m	Altezza totale muro

MODALITA' DI SPINTA

Spinta in quiete

PARAMETRI SISMICI

C — Categoria suolo

T1 - Superficie pianeggiante, pendii e rilievi isolati con inclinazione media i<=15° — Caratteristiche pendio

Muro non in grado di subire spostamenti relativi rispetto al terreno — Caratteristiche pendio

a_g=	0,049	g	Accelerazione orizzontale massima su sito di riferimento rigido orizzontale (riferita all'accel. di gravità g)
F_0=	2,815		Fattore di amplificazione spettrale massima su sito di riferimento rigido orizzontale
T_C^*=	0,275	s	Periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale
C_C=	1,608		Coefficiente che modifica il valore del periodo T_C
S_s=	1,500		Coefficiente di amplificazione stratigrafica
S_T=	1,000		Coefficiente di amplificazione topografica
S=	1,500		Coefficiente che tiene conto della categoria di sottosuolo
a_{max}=	0,073	g	Accelerazione massima attesa al sito (riferita all'accelerazione di gravità g)
β_m=	1,00		Coefficiente di riduzione dell'accelerazione massima attesa al sito
k_h=	0,073		Coefficiente sismico orizzontale
k_v^+=	0,036		Coefficiente sismico verticale con accelerazione diretta verso l'alto
k_v^-=	-0,036		Coefficiente sismico verticale con accelerazione diretta verso il basso
θ_A=	4,02	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso l'alto
θ_B=	4,32	°	Rotazione addizionale terreno-muro per accelerazione sismica verticale verso il basso

SOVRACCARICHI SUL RINTERRO

g_{1k}	g_{2k}	q_{1k}	
0	0	20	kN/m² — Carico uniformemente distribuito a tergo del paramento
s_{g1k}	s_{g2k}	s_{q1k}	
1	1	0,3	Coefficiente di riduzione della massa del sovraccarico

Coefficiente parziali di sicurezza dei carichi

γ_{G1}	γ_{G2}	γ_Q	γ_E	
1	1	1	-	Coefficiente parziali di sicurezza dei carichi SLE
1,3	1,5	1,5	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 1 (A1) E APPROCCIO 2
1	1,3	1,3	-	Coefficiente parziali di sicurezza dei carichi SLU - APPROCCIO 1 - COMB 2 (A2)
1	1	1	1	Coefficiente parziali di sicurezza dei carichi in combinazione sismica SLV

Coefficiente parziali di sicurezza per i parametri geotecnici del terreno

γ_γ	γ_φ	$\gamma_{c'}$	
1	1	1	Coefficiente parziali di sicurezza dei parametri geotecnici SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV
1	1,25	1,25	Coefficiente parziali di sicurezza dei parametri geotecnici - SLU - APPROCCIO 1 - COMB 2 (M2)

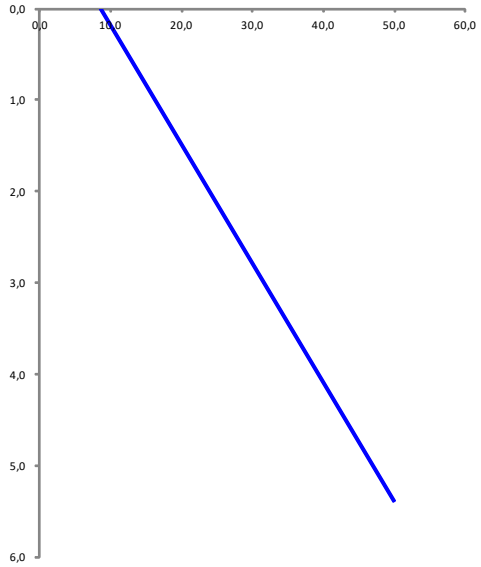
CARATTERISTICHE STRATI TERRENO

				PARAMETRI GEOTECNICI CARATTERISTICI				PARAMETRI GEOTECNICI DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				COEFF. DI SPINTA DI PROGETTO **SLE / SLU - APPROCCIO 1 - COMB 1 (M1), APPROCCIO 2 / SLV**				PARAMETRI GEOTECNICI DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**				COEFF. DI SPINTA DI PROGETTO **SLU - APPROCCIO 1 - COMB 2 (M2)**			
Strato	z_{sup} [m]	z_{inf} [m]	h [m]	γ_k [kN/m³]	φ_k [°]	δ_k [°]	c_k' [kN/m²]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]	γ_d [kN/m³]	φ_d [°]	δ_d [°]	c_d' [kN/m²]	$k_{0,d}$ [-]	$k_{s,d}$ [-]	$k_{ea,d}$ [-]	$k_{eb,d}$ [-]
1	0,00	5,40	5,40	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
2	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
3	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
4	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
5	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
6	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
7	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
8	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
9	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391
10	5,40	5,40	0,00	18,00	35,00	0,00	0,00	18,00	35,00	0,00	0,00	0,426	0,271	0,310	0,313	18,00	29,26	0,00	0,00	0,511	0,343	0,387	0,391

PRESSIONI DI PROGETTO SUL PARAMENTO (INCLUDONO I FATTORI DI SICUREZZA PARZIALI DELLE AZIONI)

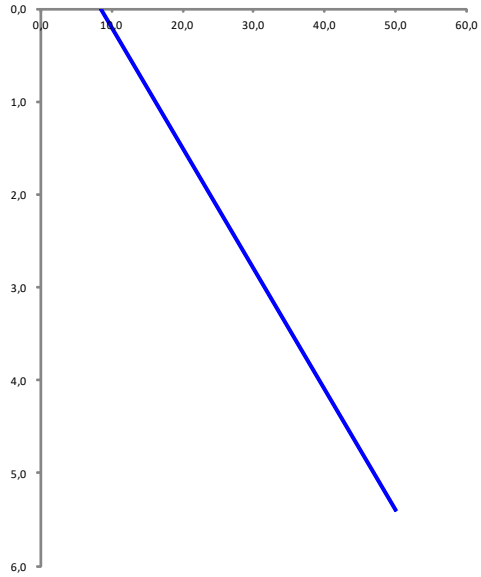
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLE**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	**8,53**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
2	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
3	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
4	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
5	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
6	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
7	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
8	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
9	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**
10	5,40	0,43	97,2	41,45	0,00	0,00	8,53	**49,98**
	5,40		97,2	41,45	0,00	0,00	8,53	**49,98**



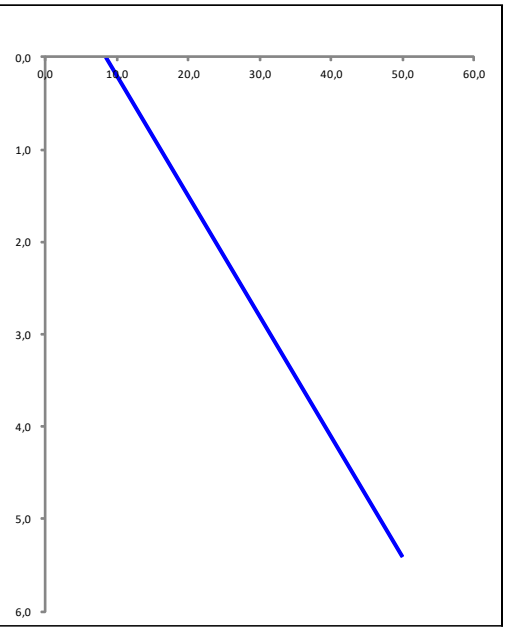
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 1 E APPROCCIO 2**

STRATO	z_{sup} / z_{inf} [m]	k_{hd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	12,79	**12,79**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
2	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
3	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
4	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
5	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
6	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
7	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
8	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
9	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**
10	5,40	0,43	97,2	53,88	0,00	0,00	12,79	**66,68**
	5,40		97,2	53,88	0,00	0,00	12,79	**66,68**



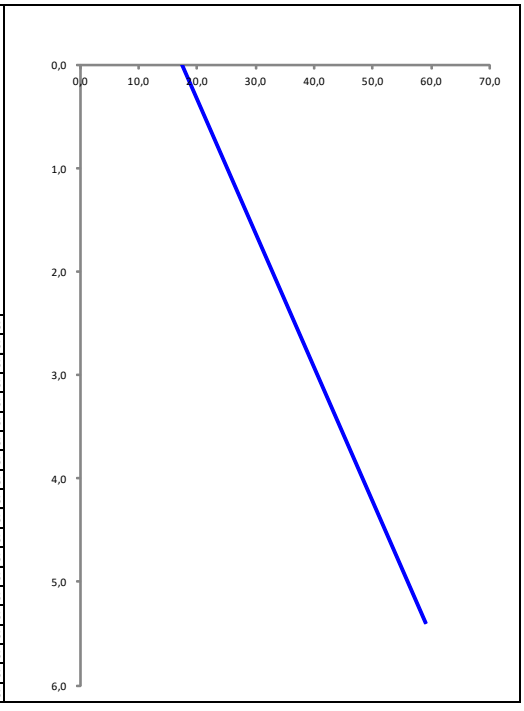
PRESSIONI DI PROGETTO CONDIZIONI STATICHE **SLU APPROCCIO 1 - COMBINAZIONE 2**

STRATO	z_{sup} / z_{inf} [m]	k_{rd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,51	0,0	0,00	0,00	0,00	13,29	**13,29**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
2	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
3	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
4	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
5	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
6	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
7	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
8	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
9	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**
10	5,40	0,51	97,2	49,70	0,00	0,00	13,29	**62,99**
	5,40		97,2	49,70	0,00	0,00	13,29	**62,99**



PRESSIONI DI PROGETTO CONDIZIONI SISMICHE **SLV**

STRATO	z_{sup} / z_{inf} [m]	k_{rd} [-]	Tensione verticale litostatica σ_{vd} [kN/m²]	σ_{hd} Terreno [kN/m²]	σ_{hd} Sovraccarichi permanenti strutturali [kN/m²]	σ_{hd} Sovraccarichi permanenti non strutturali [kN/m²]	σ_{hd} Sovraccarichi variabili [kN/m²]	Pressione della forza d'inerzia agente sul paramento [kN/m²]	Pressione dell'incremento sismico di spinta [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi permanenti non strutturali [kN/m²]	Pressione incremento sismico spinta sovraccarichi variabili [kN/m²]	**Pressione orizzontale totale di progetto $\sigma_{hd,tot}$ [kN/m²]**
1	0,00	0,43	0,0	0,00	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**17,48**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
2	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
3	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
4	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
5	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
6	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
7	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
8	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
9	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
10	5,40	0,43	97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**
	5,40		97,2	41,45	0,00	0,00	8,53	0,91	7,86	0,00	0,00	0,19	**58,93**



A partire dalle pressioni di progetto in condizioni sismiche (più gravose) si calcolano le sollecitazioni alla base del muro, considerando uno schema a mensola, caricata mediante un carico triangolare. Le caratteristiche di sollecitazione risultano:

$M_{sd} = P_{max}\, l^2/6 = 66.7 \times 5.40^2/6 = 324.16$ kNm

$V_{sd} = P_{max}\, l/2 = 66.7 \times 5.40/2 = 180.1$ kN

Considerando la sezione resistente di lunghezza unitaria 100x50 cm armata con Φ20/20 verticali, con rinforzi in zona tesa alla base Φ20/20 verticali e Φ14/20 orizzontali, si hanno le seguenti capacità resistenti:

M_{Rd} = 515.8 kNm, momento resistente

V_{Rd} = 266.9 kN, taglio resistente per elementi privi di specifica armatura

Essendo le sollecitazioni inferiori alle corrispondenti capacità resistenti, la verifica risulta soddisfatta. La medesima verifica è valida per la platea di fondazione, avendo stesse sollecitazioni (alla base della parete) e stessa sezione resistente.

VERIFICA FESSURAZIONE

Per la verifica a fessurazione occorre controllare che la massima apertura delle fessure, per le combinazioni di carico frequente e quasi permanente, siano inferiori ai limiti imposti dalla norma in base alle condizioni di aggressività dell'ambiente, come riportato nella tabella 4.1.IV delle NTC 2018:

Tab. 4.1.IV - *Criteri di scelta dello stato limite di fessurazione*

Gruppi di Esigenze	Condizioni ambientali	Combinazione di azioni	Armatura			
			Sensibile		Poco sensibile	
			Stato limite	w_k	Stato limite	w_k
A	Ordinarie	frequente	apertura fessure	$\leq w_2$	apertura fessure	$\leq w_3$
		quasi permanente	apertura fessure	$\leq w_1$	apertura fessure	$\leq w_2$
B	Aggressive	frequente	apertura fessure	$\leq w_1$	apertura fessure	$\leq w_2$
		quasi permanente	decompressione	-	apertura fessure	$\leq w_1$
C	Molto aggressive	frequente	formazione fessure	-	apertura fessure	$\leq w_1$
		quasi permanente	decompressione	-	apertura fessure	$\leq w_1$

Dove:

w_1 = 0,2 mm

w_2 = 0,3 mm

w^3 = 0,4 mm

Le sollecitazioni flettenti per le combinazioni frequente e quasi permanente, dovute alle pressioni del terreno sul paramento, risultano:

Combinazione frequente

$M_{sd\ FR} = P\ l^2/6 = 47.8 \times 5.40^2/6 = 232.3$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 41.44 \times 5.40^2/6 = 201.4$ kNm

Considerando che le condizioni ambientali risultano aggressive, le verifiche di apertura delle fessure sono riepilogate nei tabulati di seguito.

Dati materiali

Acciaio B450C			f_{yk}=	450	N/mm^2
			γ_s=	1,15	
			f_{yd}=	391,3	N/mm^2
			E_s=	2,05E+05	N/mm^2
Calcestruzzo R_{ck}=	40	N/mm^2	f_{cm}=	41,2	N/mm^2
			f_{ck}=	33,2	N/mm^2
			f_{ctm}=	3,1	N/mm^2
			f_{ctk}=	2,2	N/mm^2
			γ_c=	1,5	N/mm^2
			α_{cc}=	0,85	
			f_{cd}=	18,8	N/mm^2
			f_{ctd}=	1,4	N/mm^2
			E_{mc}=	33643	N/mm^2

Dati sezione

Combinazione frequente

M_{sd}=	232,3	kNm	Momento sollecitante
b_w=	1000	mm	Base
h=	500	mm	Altezza totale
c=	50	mm	Copriferro teso
c'=	50	mm	Copriferro compresso
d=	450	mm	Altezza utile
y=	132,8	mm	Posizione asse neutro
σ_s=	185,1	N/mm^2	Tensione agente sull'armatura tesa

Combinazione quasi permanente

M_{sd}=	201,4	kNm	Momento sollecitante
b_w=	1000	mm	Base
h=	500	mm	Altezza totale
c=	50	mm	Copriferro teso
c'=	50	mm	Copriferro compresso
d=	450	mm	Altezza utile
y=	132,8	mm	Posizione asse neutro
σ_s=	173,9	N/mm^2	Tensione agente sull'armatura tes

	ϕ1	ϕ2	ϕ3	ϕ4		
N_ϕ=	5	5	0	0		Numero barre tese
ϕ=	20	20	16	16	mm	Diametro barre tese

	ϕ1	ϕ2	ϕ3	ϕ4		
$N_{\phi'}$=	5	0	0	0		Numero barre compresse
ϕ_l=	20	16	20	20	mm	Diametro barre compresse

Φ_{eq}=	20	mm	Diametro equivalente delle barre
A_s=	**3142**	mm^2	Armatura tesa
A'_s=	**1571**	mm^2	Armatura compressa

Lunga durata — Durata del carico

k_t=	0,4		Coefficiente di durata del carico
$h_{c,eff}$=	122,4	mm	Altezza efficace
$A_{c,eff}$=	122400	mm^2	Area efficace
ρ_{eff}=	0,0257		Rapporto d'armatura efficace
α_e=	6,09		Rapporto moduli elastici

ε_{sm}= 6,30E-04 Rapporto moduli elastici ε_{sm}= 5,76E-04 Rapporto moduli elastici

Aderenza migliorata

Flessione semplice

k_1=	0,8
k_2=	0,5
k_3=	3,4
k_4=	0,425
Δ_{smax}=	302 mm

Combinazione frequente
w_d= 0,191 mm

Combinazione quasi permanente
w_d= 0,174 mm

Aggressive — Condizioni ambientali

w_1=	0,2
w_2=	0,3
w_3=	0,4

Combinazione frequente
w_{dmax}= 0,3

Combinazione quasi permanente
w_{dmax}= 0,2

Verifica

Combinazione frequente **Verifica soddisfatta**
Combinazione quasi permanente **Verifica soddisfatta**

Combinazione di carico	Asse neutro [mm]	Momento sollecitante [kNm]	Tensione acciaio [N/mm^2]	Apertura di calcolo fessure w_d [mm]	Limite normativa w [mm]
Frequente	132,8	232,3	185,1	0,191	0,3
Quasi permanente	132,8	201,4	173,9	0,174	0,2

VERIFICA TENSIONI DI ESERCIZIO

La verifica delle tensioni di esercizio viene eseguita valutando le tensioni che si generano in combinazione caratteristica (rara) e quasi permanente.

Per la verifica si deve controllare che le seguenti disuguaglianze siano verificate:

Massima tensione di compressione del calcestruzzo

$\sigma_{c,max} \leq 0{,}60\ f_{ck}$ per combinazione caratteristica

$\sigma_{c,max} \leq 0{,}45\ f_{ck}$ per combinazione quasi permanente

Massima tensione dell'acciaio

$\sigma_{s,max} \leq 0{,}8\ f_{yk}$ per combinazione caratteristica

Le sollecitazioni di momento flettente in condizioni di esercizio, dovute alle pressioni del terreno sul paramento, risultano:

Combinazione rara

$M_{sd\ RARA} = P\ l^2/6 = 49.98 \times 5.40^2/6 = 242.9$ kNm

Combinazione quasi permanente

$M_{sd\ QP} = P\ l^2/6 = 41.44 \times 5.40^2/6 = 201.4$ kNm

Le massime tensioni di compressione sul calcestruzzo e di trazione sull'acciaio a partire da tali sollecitazioni risultano:

$\sigma_{c,max} = 6.60$ N/mm^2 per combinazione caratteristica

$\sigma_{c,max} = 5.48$ N/mm^2 per combinazione quasi permanente

$\sigma_{s,max} = 193.6$ N/mm^2 per combinazione caratteristica

Pertanto per la verifica si ha:

$\sigma_{c,max} = 6.60 \leq 0{,}60\ f_{ck} = 19.2$ N/mm^2

$\sigma_{c,max} = 5.48 \leq 0{,}45\ f_{ck} = 14.4$ N/mm^2

$\sigma_{s,max} = 193.6 \leq 0{,}8\ f_{yk} = 360$ N/mm^2

Essendo le massime tensioni inferiori ai limiti imposti dalla norma, la verifica risulta soddisfatta.

8. CAPACITÀ PORTANTE DEL TERRENO

Le strutture di fondazione del tombino scatolare sono costituite da una platea in c.a. di spessore pari a 60 cm, con larghezza pari a 9.00 m e sviluppo di 98 m (lunghezza del tombino), il cui piano di posa è disposto ad una profondità di 5.60 m circa.

8.1 VALUTAZIONE DELLA COSTANTE DI SOTTOFONDO

La rigidezza delle molle, attraverso la quale viene schematizzata l'interazione terreno-struttura, viene calcolata utilizzando un coefficiente di sottofondo pari a 94000 kN/m^3.

Tale valore è stato valutato mediante la metodologia di Joseph E. Bowles, che permette di stimare la costante di Winkler verticale per fondazioni superficiali rettangolari sulla base della capacità portante (carico ultimo) della fondazione, calcolata tramite la formula di Hansen, con la seguente formula:

$k = 40 \times q_{lim}$

dove la resistenza ultima del terreno corrisponde ad un cedimento w = 2.5 cm, limite per le condizioni di esercizio di una struttura.

In relazione al valore di capacità portante calcolato nei paragrafi successivi si ottiene: k = 40 x 2319 = 92760 kN/m^3. Pertanto in sede di modellazione è stato assunto un valore della costante di sottofondo pari a 94000 kN/m^3.

8.2 VERIFICA DELLA CAPACITÀ PORTANTE DEL COMPLESSO TERRENO-FONDAZIONE

Per il calcolo del carico limite della fondazione del tombino si utilizza la formula di Brinch-Hansen. La verifica viene condotta allo stato limite ultimo secondo l'Approccio di progetto 2:

- Combo 1 : A1 + M1 + R3

In accordo con le sezioni di progetto e con i profili geotecnici, la platea di fondazione del tombino scatolare risulta interessare il litotipo UG2. Pertanto ai fini della verifica della capacità portante si impiegano le caratteristiche di questo litotipo.

I calcoli per la valutazione della pressione limite di progetto sono riepilogati nelle tabelle di seguito:

AZIONI IN TESTA ALLA FONDAZIONE

F_x=	0,00	kN	Forza di taglio in direzione X (Direzione parallela alla base)
F_y=	0,00	kN	Forza di taglio in direzione Y (Direzione parallela alla lunghezza)
F_z=	0,00	kN	Forza in direzione verticale (>0 se di compressione)
M_x=	0,00	kNm	Momento in direzione X
M_y=	0,00	kNm	Momento in direzione Y

CARATTERISTICHE FONDAZIONE

B=	9,00	m	Base
L=	98,00	m	Lunghezza
H=	0,60	m	Altezza
D=	5,60	m	Profondità piano di posa
α=	0	°	Inclinazione del piano di posa

☐ Considera peso proprio fondazione

γ_p=	25,00	kN/m³	Peso per unità di volume fondazione
P_p=	0,00	kN	Peso proprio plinto

AZIONI DALLA BASE DELLA FONDAZIONE

☐ Considera momenti di trasporto

F_{xd}=	0,00	kN	Forza di taglio in direzione X
F_{yd}=	0,00	kN	Forza di taglio in direzione Y
F_{zd}=	0,00	kN	Forza in direzione verticale (>0 se di compressione)
M_{xd}=	0,00	kNm	Momento in direzione X
M_{yd}=	0,00	kNm	Momento in direzione Y

V=	0,00	kN	Componente verticale del carico
H=	0,00	kN	Componente orizzontale del carico
θ_V=	0,00	°	Inclinazione del carico rispetto alla verticale
θ_H=	90,00	°	Inclinazione del carico orizzontale rispetto alla direzione della lunghezza

e_x=	0,00	m	Eccentricità in direzione X
e_y=	0,00	m	Eccentricità in direzione Y

CARATTERISTICHE FONDAZIONE RIDOTTA

B'=	9,00	m	Base ridotta
L'=	98,00	m	Lunghezza ridotta
A'=	882,00		Area ridotta

PARAMETRI DEL TERRENO

γ=	19,5	kN/m³	Peso per unità di volume del terreno di fondazione
φ'=	25	°	Angolo di attrito
c'=	0	kN/m²	Coesione efficace
c_u=	0	kN/m²	Coesione non drenata
γ_r=	25	kN/m³	Peso per unità di volume del terreno di riempimento laterale

K_p=	2,464		Coefficiente di spinta passiva
q=	140,00	kN/m²	Pressione litostatica alla profondità del piano di posa

PARAMETRI DI PORTANZA DELLA FONDAZIONE (BRINCH-HANSEN)

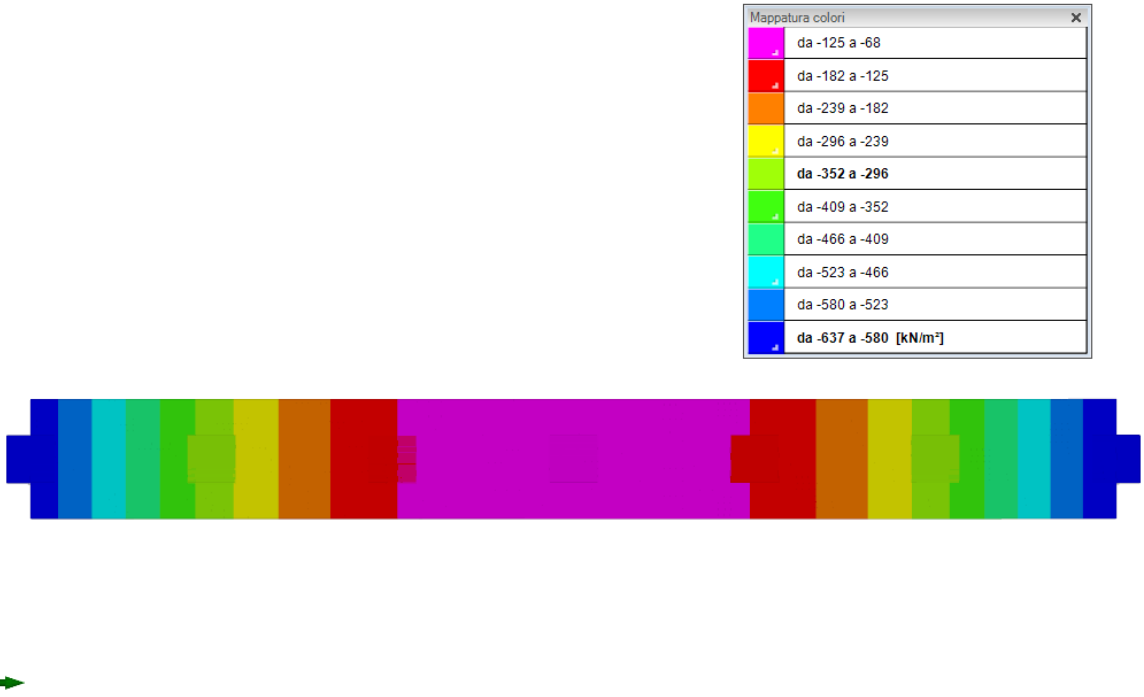
k=	0,62	Fattore di profondità
m_B=	1,92	Parametro di forma per carico agente in direzione della base
m_L=	1,08	Parametro di forma per carico agente in direzione della lunghezza
m=	1,92	Parametro di forma complessivo
N_c=	20,72	
N_q=	10,66	Fattori di capacità portante
N_γ=	9,01	
s_c=	1,04	
s_q=	1,04	Fattori di forma
s_γ=	0,97	
b_c=	1,00	
b_q=	1,00	Fattori di inclinazione del piano di posa
b_γ=	1,00	
i_c=	1,00	
i_q=	1,00	Fattori di inclinazione del carico
i_γ=	1,00	

PRESSIONI LIMITE ED AMMISSIBILI

Condizioni drenate

F.S.=	2,3		Fattore di sicurezza
q_{LIM}=	2319,570	kN/m^2	Pressione limite
$q_{R,D}$=	**1008,51**	kN/m^2	Pressione resistente di progetto

La verifica della capacità portante del complesso terreno fondazione viene effettuata confrontando le pressioni esercitate dalla struttura sul terreno, ottenute dall'analisi ad elementi finiti, con la pressione resistente limite precedentemente determinata. I valori massimi delle pressioni sul terreno sono riportati graficamente nello schema seguente:



Essendo la pressione sul terreno inferiore a quella limite di progetto la verifica risulta soddisfatta.

9. OPERE PROVVISIONALI

9.1 GEOMETRIA DELLE OPERE

Nei successivi paragrafi sono riportate le analisi e le verifiche statiche delle opere provvisionali da realizzare per lo scavo del tombino TM03, costituite da un palancolato metallico infisso nel terreno, con lo scopo sia di garantire la stabilità dello scavo sia la protezione dello stesso nei confronti delle acque di falda.

In funzione della massima profondità di scavo, sono state previste palancole metalliche tipo PU28 in acciaio S275, di lunghezza pari a 8.00 m.

Ai fini dei calcoli si analizza la sezione con altezza di scavo maggiore, pari a circa 4.00 m, che si può considerare rappresentativa di tutte le sezioni presenti, essendo in condizioni più gravose.

Il riepilogo dei risultati dei calcoli di verifica è riportato nei successivi paragrafi. Per i tabulati di calcolo completi si rimanda agli allegati in "Appendice A".

Trattandosi di opere a carattere provvisorio, le analisi e le verifiche sono eseguite in condizioni non sismiche, come previsto dalle NTC 2018.

9.2 CARATTERIZZAZIONE GEOTECNICA TERRENI

Si riportano i parametri di resistenza e deformabilità assunti nel calcolo in accordo con i risultati dei sondaggi riportati nella relazione geotecnica (cfr. paragrafo 2). La geometria delle stratigrafie di calcolo sono riportate nel paragrafo relativo alla modellazione numerica.

Da 0.00 a -2.20	UG0 – Riporti, coperture antropiche, colmate
Da -2.20 a -4.65	UG3 – Sabbie limose mediamente addensate
Da -4.65 a -7.50	UG2 – Argille e limi molto poco consistenti
Da -7.50 a -19.20	UG3 – Sabbie limose mediamente addensate

Strato di Terreno	Terreno	γ dry kN/m^3	γ sat kN/m3	ø' °	c' kPa	Modulo Elastico	Kvc kN/m^3	Kur kN/m^3
1	UG0	18.5	18.5	35	0	Winkler	3143.04	9429.13
2	UG3	20	20	32	0	Winkler	3143.04	9429.13
3	UG2	19.5	19.5	25	30	Winkler	3143.04	9429.13
4	UG3	20	20	32	0	Winkler	3143.04	9429.13

9.3 MODELLAZIONE NUMERICA

L'analisi dello stato tenso-deformativo e le verifiche strutturali della palancolata sono state eseguite mediante il software di calcolo PARATIEPLUS, programma non lineare agli elementi finiti per l'analisi di strutture di sostegno flessibili.

Si è considerato un comportamento piano nelle deformazioni, analizzando una striscia di parete di larghezza unitaria.

Si riportano di seguito i modelli di calcolo adottati per ciascuna paratia analizzata.

Nelle modellazioni è implementata la seguente successione di step:

Step 1: Condizione Geostatica – è definito il profilo del terreno ed i carichi superficiali.

Step 2: Scavo per il raggiungimento del fondo scavo provvisorio.

Stratigrafia
Tipo : POLYLINE
Punti
(-20;-0.72)
(-12.42;-0.33)
(-10.2;0.33)
(-7.1;0.47)
(-4.3;0.89)
(-3.3;0.93)
(-1.48;0.73)
(0;0)
(0.7;-0.24)
(2.9;-0.32)
(4;-0.75)
(7.27;-2.5)
(8.5;-2.55)
(9.17;-2.53)
(20;-2.28)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-20;-2.2)
(0;-2.2)
(20;-2.2)
(30;-30)
(-30;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-20;-4.65)
(0;-4.65)
(20;-4.65)

(27;-30)
(-25;-30)
OCR : 1

Tipo : POLYLINE
Punti
(-20;-7.5)
(0;-7.5)
(20;-7.5)
(27;-30)
(-25;-30)
OCR : 1

3. Descrizione Pareti
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -7.7 m
Muro di sinistra

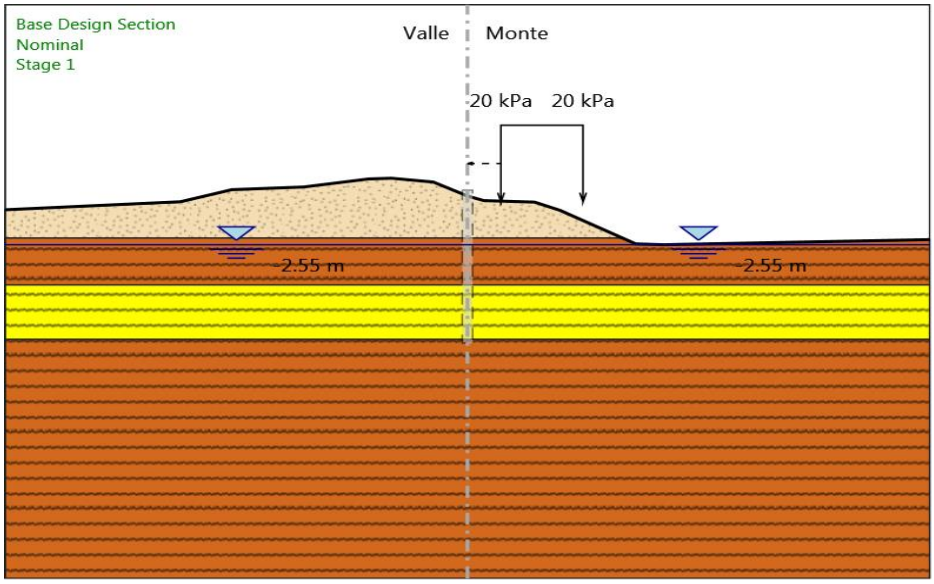
Sezione : pal
Area equivalente : 0.02161 m
Inerzia equivalente : 0.0006 m4/m
Profilo palancola : PU_28

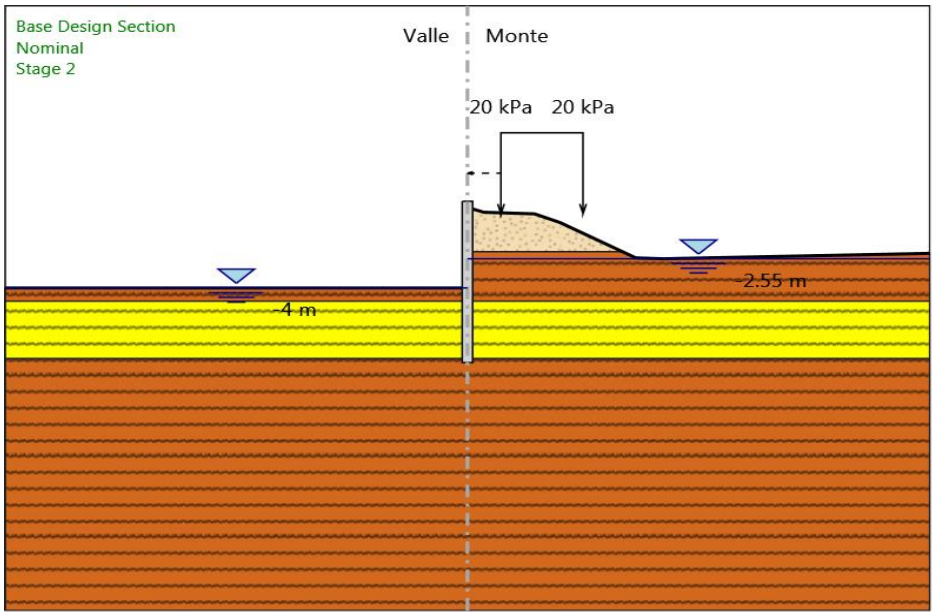
4. Fasi di Calcolo
Stage 1
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : 0 m

Linea di scavo di sinistra (Irregolare)
(-20;-0.72)
(-12.42;-0.3)
(-10.2;0.33)
(-7.1;0.47)
(-4.3;0.89)
(-3.3;0.93)
(-1.48;0.73)
(0;0)
Linea di scavo di destra (Irregolare)
(0;0)
(0.7;-0.24)
(2.9;-0.32)
(4;-0.75)
(7.27;-2.5)
(8.5;-2.55)
(9.17;-2.53)
(20;-2.28)

Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 1.45 m
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa
Stage 2
Scavo
Muro di sinistra
Lato monte : 0 m
Lato valle : -4 m

Linea di scavo di sinistra (Orizzontale)
-4 m
Linea di scavo di destra (Irregolare)
(0;0)
(0.7;-0.24)
(2.9;-0.32)
(4;-0.75)
(7.27;-2.5)
(8.5;-2.55)
(9.17;-2.53)
(20;-2.28)
Carichi
Carico lineare in superficie : SurfaceSurcharge
X iniziale : 1.45 m
X finale : 5 m
Pressione iniziale : 20 kPa
Pressione finale : 20 kPa
Elementi strutturali
Paratia : WallElement_New
X : 0 m
Quota in alto : 0.3 m
Quota di fondo : -7.7 m
Sezione : pal





9.4 ANALISI DEI CARICHI

9.4.1 Combinazioni di carico

Le verifiche di resistenza allo stato limite ultimo sono state effettuate considerando le seguenti combinazioni di carico:

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

tenendo conto dei coefficienti parziali riportati nelle tabelle 6.2.I, 6.2.II e 6.5.I delle NTC2018 e riportate nelle tabelle seguenti.

		Coefficiente γ_F	EQU	A1 STR	A2 GEO
Carichi permanenti	favorevoli sfavorevoli	γ_{G1}	0,9 1,1	1,0 1,3	1,0 1,0
Carichi permanenti non strutturali[1]	favorevoli sfavorevoli	γ_{G2}	0,0 1,5	0,0 1,5	0,0 1,3
Carichi variabili	favorevoli sfavorevoli	γ_{Qi}	0,0 1,5	0,0 1,5	0,0 1,3
[1]Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti si potranno adottare per essi gli stessi coefficienti validi per le azioni permanenti.					

Tabella 5: Coefficienti parziali per le azioni o per l'effetto delle azioni (Tab.6.2.I NTC2018)

PARAMETRO	GRANDEZZA ALLA QUALE APPLICARE IL COEFFICIENTE PARZIALE	COEFFICIENTE PARZIALE γ_M	(M1)	(M2)
Tangente dell'angolo di resistenza al taglio	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
Coesione efficace	c'_k	$\gamma_{c'}$	1,0	1,25
Resistenza non drenata	c_{uk}	γ_{cu}	1,0	1,4
Peso dell'unità di volume	γ	γ_γ	1,0	1,0

Tabella 6: Coefficienti parziali per i parametri geotecnici del terreno (Tab.6.2.II NTC2018)

Nelle verifiche per il dimensionamento geotecnico del palancolato (GEO) si considera lo sviluppo di meccanismi di collasso determinati dalla mobilitazione della resistenza del terreno e in particolare dal raggiungimento delle condizioni di equilibrio limite nel terreno interagente con la paratia. L'analisi è stata condotta con la Combinazione 2 (A2+M2+R1), in cui i parametri di resistenza del terreno sono ridotti tramite i coefficienti parziali M2 e le azioni sono amplificate tramite i coefficienti parziali A2.

Nelle verifiche strutturali (STR) si considerano gli stati limite ultimi per raggiungimento della resistenza degli elementi strutturali. Le analisi sono condotte in accordo sia con la Combinazione 1 (A1+M1+R1), in cui i parametri di resistenza del terreno (M1) sono unitari e le azioni sono amplificate mediante i coefficienti parziali A, che con la Combinazione 2 (A2+M2+R1), in cui i parametri di resistenza del terreno sono ridotti tramite i coefficienti parziali M2 e le azioni sono amplificate tramite i coefficienti parziali A2.

Per gli spostamenti si considera, inoltre, la combinazione SLE (rara, frequente e quasi permanente), in cui tutti i fattori parziali di sicurezza sono unitari (azioni e resistenze caratteristichei).

Le combinazioni di carico impiegate nelle analisi sono riepilogate di seguito.

Coefficienti A

Nome	Carichi Permanenti Sfavorevoli	Carichi Permanenti Favorevoli	Carichi Variabili Sfavorevoli	Carichi Variabili Favorevoli	Pressioni Acqua Lato Monte	Pressioni Acqua Lato Valle	Carichi Permanenti Destabilizzanti	Carichi Permanenti Stabilizzanti	Carichi Variabili Destabilizzanti	Carichi Permanenti Destabilizzanti	Carichi Permanenti Stabilizzanti	Carichi Variabili Destabilizzanti
Simbolo	γG	γG	γQ	γQ	γG	γG	γGdst	γGstb	γQdst	γGdst	γGstb	γQdst
NTC2018: SLE	1	1	1	1	1	1	1	1	1	1	1	1
NTC2018: A1+M1+R1	1.3	1	1.5	1	1.3	1	1	1	1	1.3	0.9	1
NTC2018: A2+M2+R1	1	1	1.3	1	1	1	1	1	1	1.3	0.9	1

Coefficienti M

Nome	Parziale su tan(ø')	Parziale su c'	Parziale su Su	Parziale su qu	Parziale su peso specifico
Simbolo	γφ	γc	γcu	γqu	γγ
NTC2018: SLE	1	1	1	1	1
NTC2018: A1+M1+R1	1	1	1	1	1
NTC2018: A2+M2+R1	1.25	1.25	1.4	1	1

Coefficienti R

Nome	Parziale resistenza terreno (es. Kp)	Parziale resistenza tiranti permanenti	Parziale resistenza Tiranti temporanei	Parziale elementi strutturali
Simbolo	γRe	γap	γat	
NTC2018: SLE	1	1	1	1
NTC2018: A1+M1+R1)	1	1.2	1.1	1
NTC2018: A2+M2+R1	1	1.2	1.1	1

Per tenere conto della circolazione di veicoli al tetto dello scavo, si considera un sovraccarico pari a 20 kN/m^2.

9.5 RISULTATI DELLE ANALISI

Nei paragrafi seguenti si riportano i risultati delle analisi condotte per il modello implementato, con le indicazioni dei valori massimi delle sollecitazioni flettenti e taglianti e delle rispettive profondità. I valori riportati sono relativi all'analisi al metro lineare.

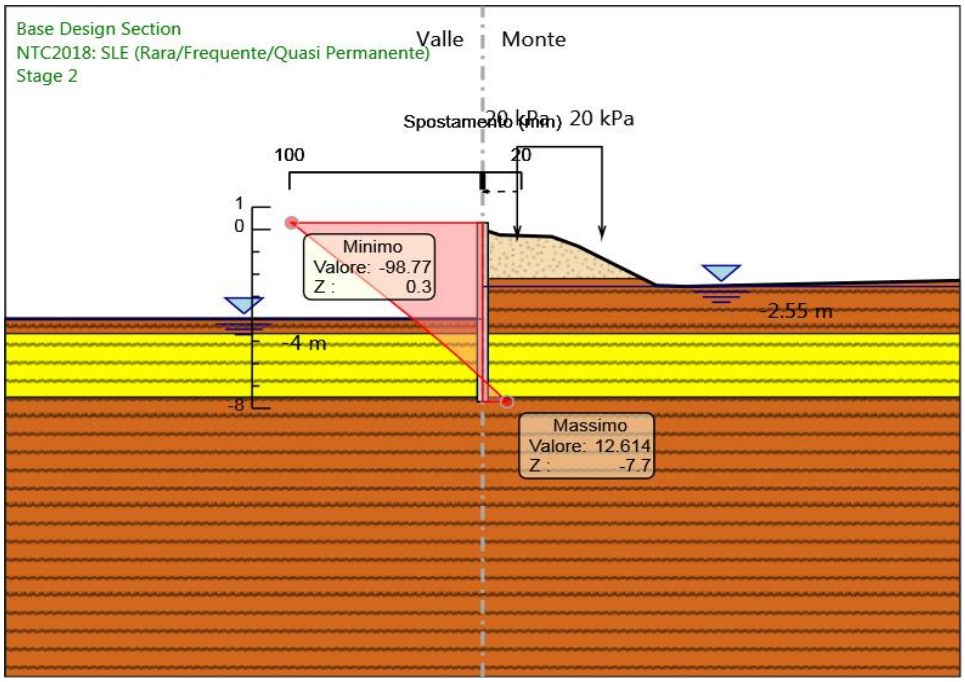


Figura 20 – SLE – Inviluppo spostamenti

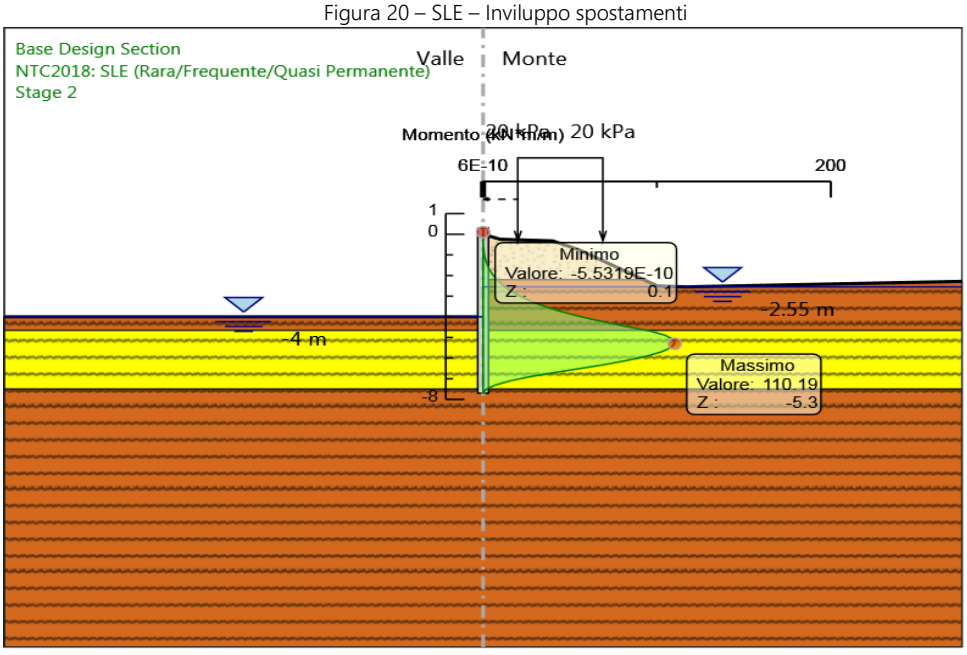


Figura 21 – SLU (A1-M1-R1) – Inviluppo momento flettente

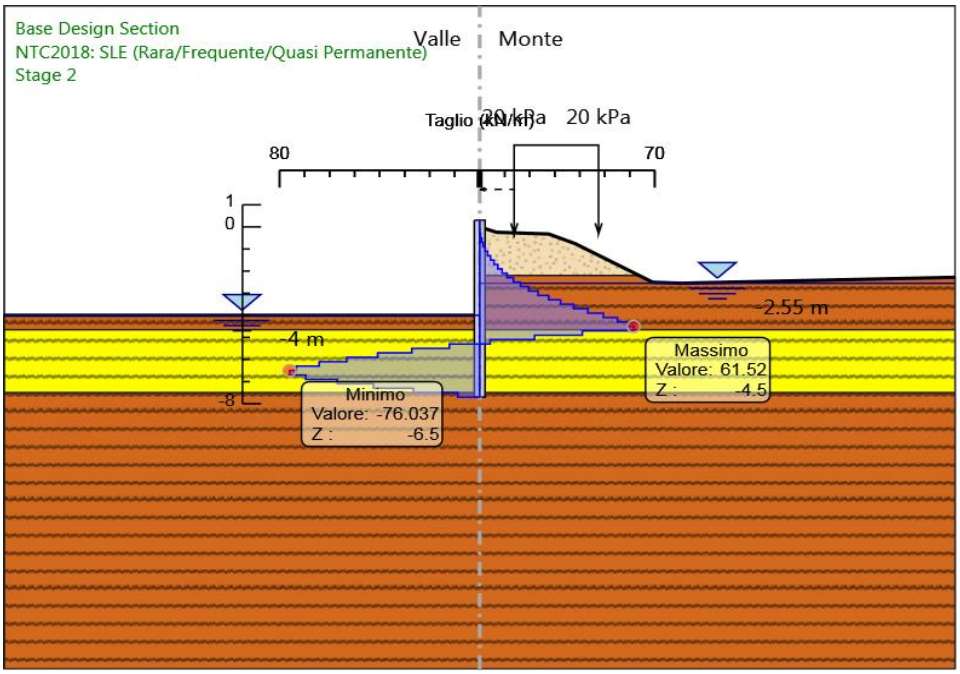


Figura 22 – SLU (A1-M1-R1) – Inviluppo taglio

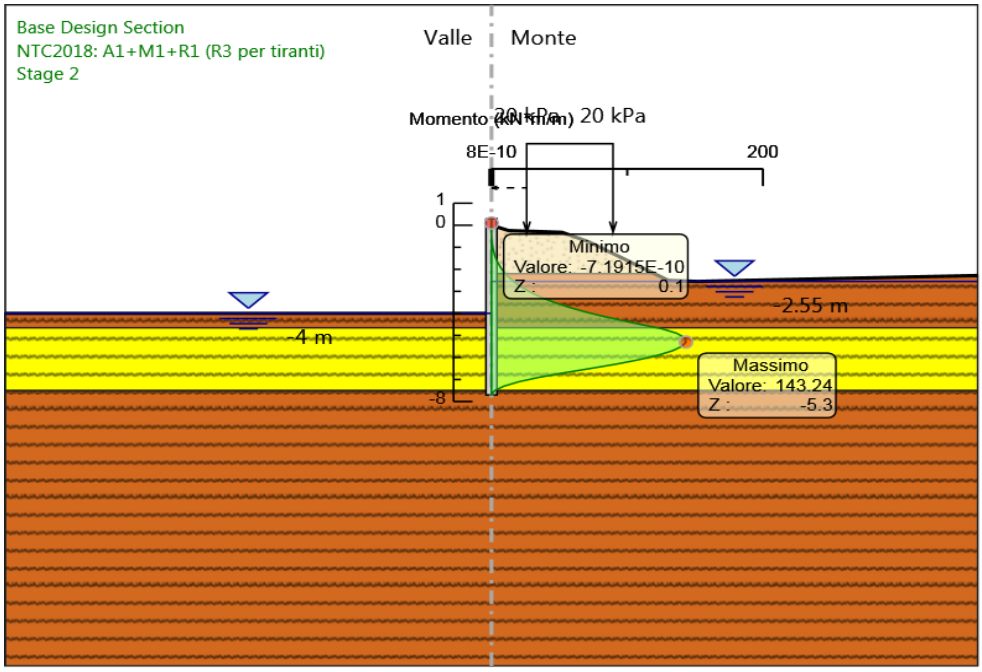


Figura 23 – SLU (A2-M2-R2) – Inviluppo momento flettente

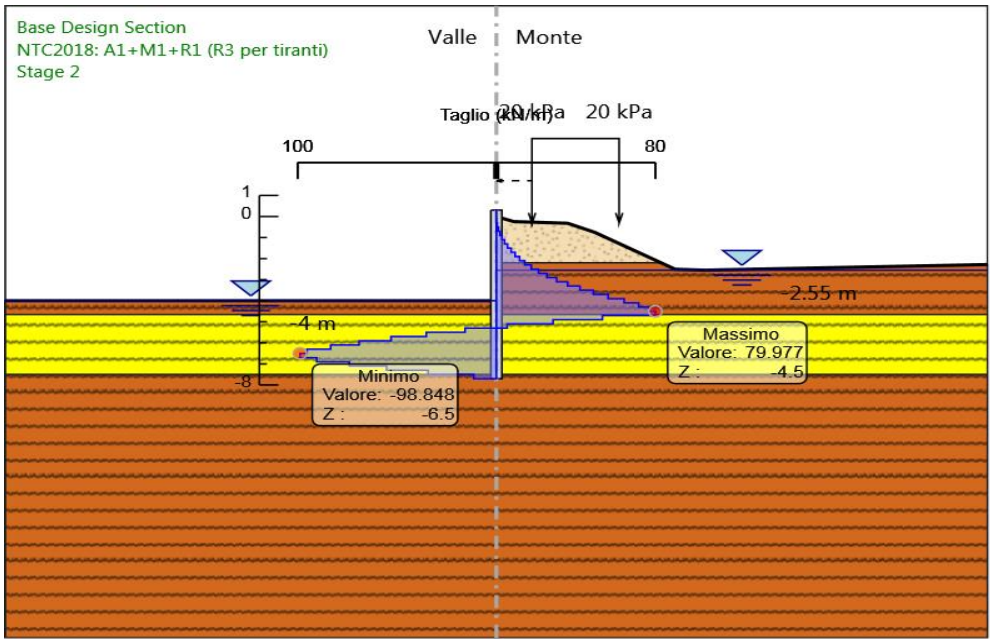


Figura 24 – SLU (A2-M2-R2) – Inviluppo taglio

9.6 VERIFICHE GEOTECNICHE

Le verifiche geotecniche sono svolte valutando il coefficiente di sicurezza in termini di rapporto di mobilitazione della spinta passiva, cioè come rapporto tra spinta passiva mobilitata al piede della paratia e la spinta passiva mobilitabile. La verifica è soddisfatta se tale rapporto è inferiore all'unità.

Max. Rapporto Spinte (Efficace/Passiva): 0.62

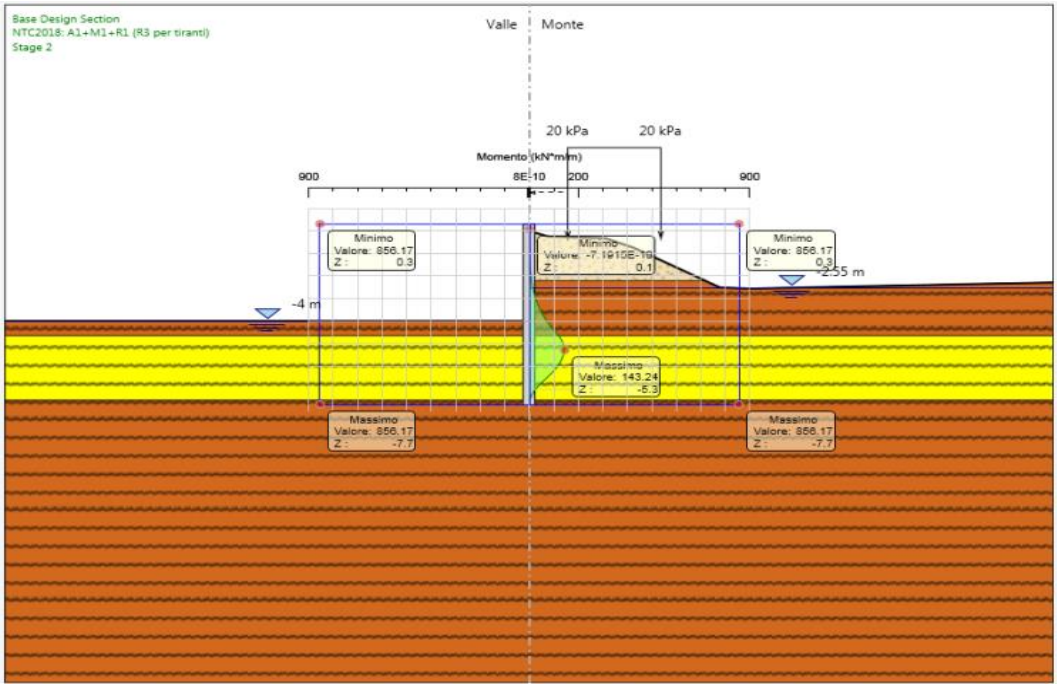
Combinazione GEO (A2-M2-R1)

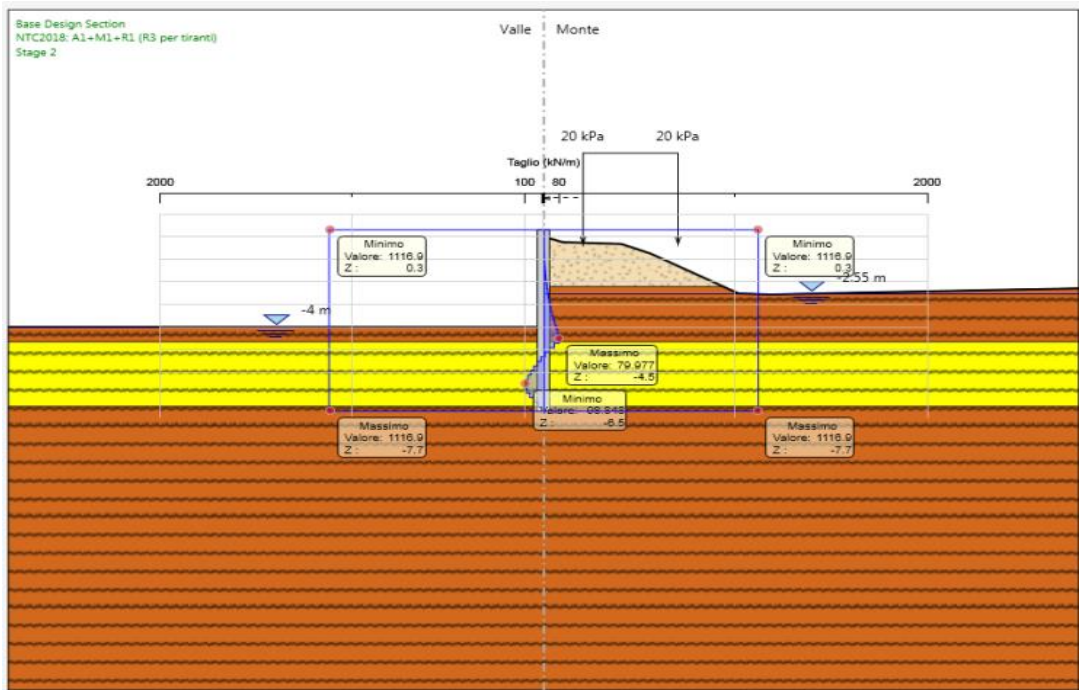
9.7 VERIFICHE STRUTTURALI

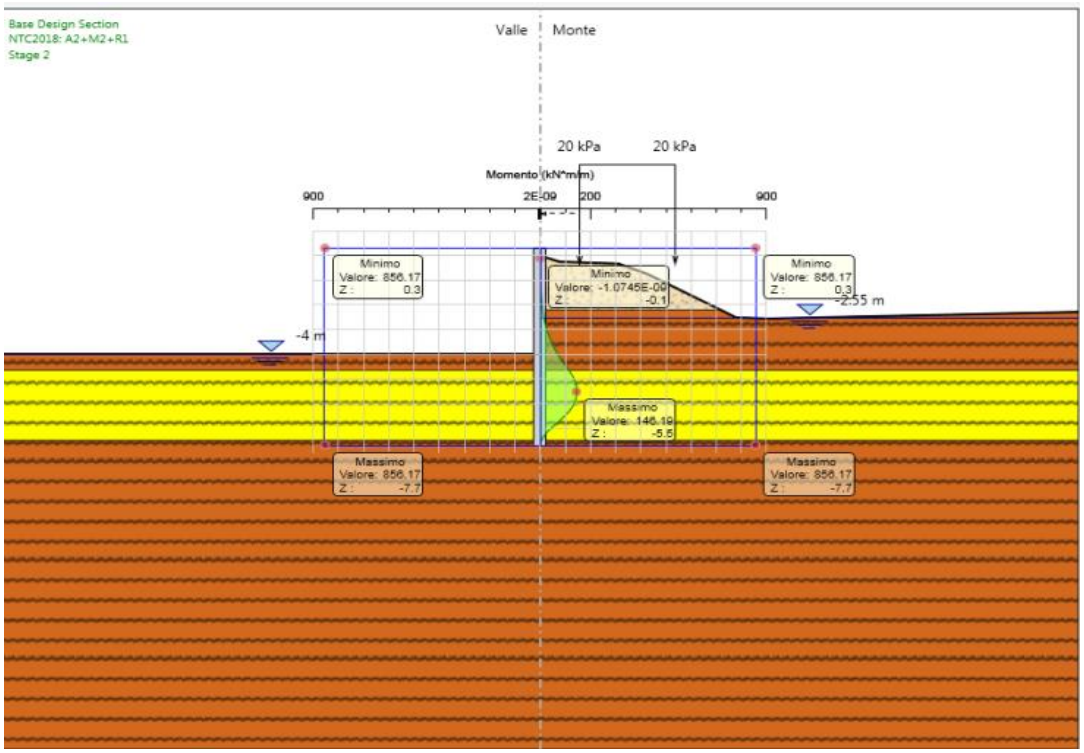
Il palancolato è previsto con profili PU28 in acciaio S275.

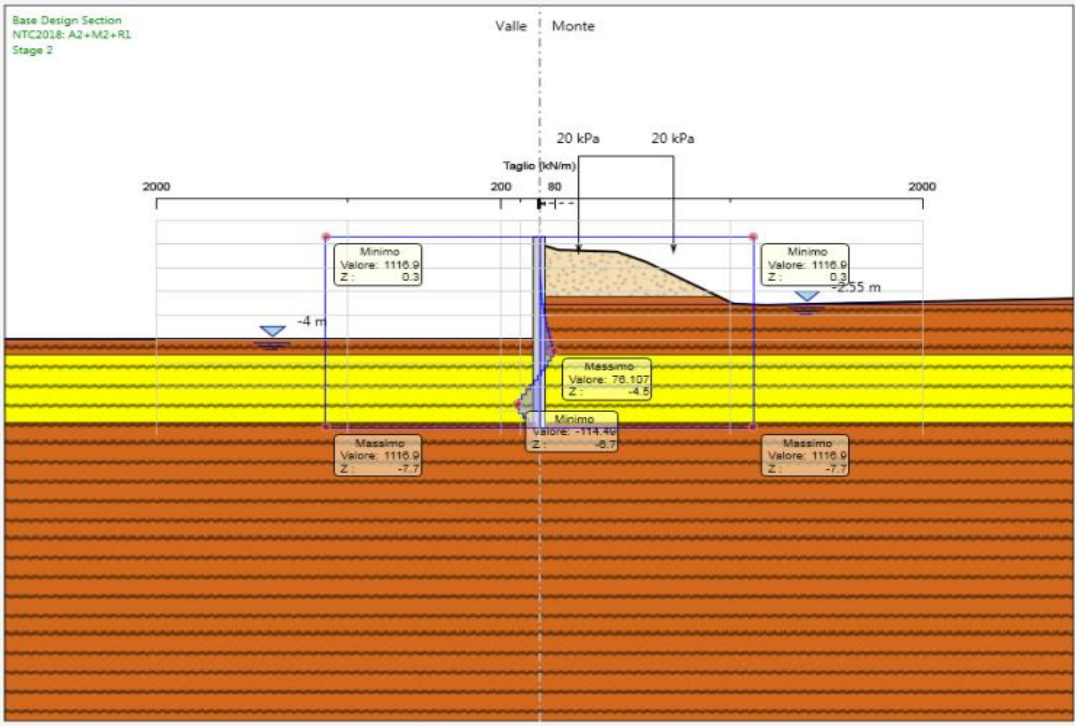
Si riporta di seguito il confronto tra le sollecitazioni massime agenti, di momento flettente e taglio, e le capacità resistenti nell'inviluppo allo SLU per entrambe le combinazioni considerate, per ciascuna paratia analizzata.

Essendo le sollecitazioni inferiori alle resistenze, le verifiche risultano soddisfatte.




Base Design Section
NTC2018: A1+M1+R1 (R3 per tiranti)
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
100
80
2000
Minimo
Valore: 1116.9
Z: 0.3
Minimo
Valore: 1116.9
Z: 0.3
-2.55 m
-4 m
Massimo
Valore: 79.977
Z: -4.5
Minimo
Z: -6.5
Massimo
Valore: 1116.9
Z: -7.7
Massimo
Valore: 1116.9
Z: -7.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Momento (kN*m/m)
900
2E-09
200
900
Minimo
Valore: 856.17
Z: 0.3
Minimo
Valore: -1.0745E-00
Z: -0.1
Minimo
Valore: 856.17
Z: 0.3
-2.55 m
-4 m
Massimo
Valore: 146.19
Z: -5.5
Massimo
Valore: 856.17
Z: -7.7
Massimo
Valore: 856.17
Z: -7.7


Base Design Section
NTC2018: A2+M2+R1
Stage 2
Valle
Monte
20 kPa
20 kPa
Taglio (kN/m)
2000
200
80
2000
Minimo
Valore: 1116.9
Z: 0.3
Minimo
Valore: 1116.9
Z: 0.3
-2.55 m
-4 m
Massimo
Valore: 76.107
Z: -4.5
Minimo
Valore: -114.4
Z: -6.7
Massimo
Valore: 1116.9
Z: -7.7
Massimo
Valore: 1116.9
Z: -7.7

APPENDICE "A" – TABULATI DI CALCOLO OPERE PROVVISIONALI

5.1. Risultati NTC2018: SLE (Rara/Frequente/Quasi Permanente)
5.1.1. 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	0.3	0
Stage 1	0.1	0
Stage 1	-0.1	0
Stage 1	-0.3	0
Stage 1	-0.5	0
Stage 1	-0.7	0
Stage 1	-0.9	0
Stage 1	-1.1	0
Stage 1	-1.3	0
Stage 1	-1.5	0
Stage 1	-1.7	0
Stage 1	-1.9	0
Stage 1	-2.1	0
Stage 1	-2.3	0
Stage 1	-2.5	0
Stage 1	-2.7	0
Stage 1	-2.9	0
Stage 1	-3.1	0
Stage 1	-3.3	0
Stage 1	-3.5	0
Stage 1	-3.7	0
Stage 1	-3.9	0
Stage 1	-4.1	0
Stage 1	-4.3	0
Stage 1	-4.5	0
Stage 1	-4.7	0
Stage 1	-4.9	0
Stage 1	-5.1	0
Stage 1	-5.3	0
Stage 1	-5.5	0
Stage 1	-5.7	0
Stage 1	-5.9	0
Stage 1	-6.1	0
Stage 1	-6.3	0
Stage 1	-6.5	0
Stage 1	-6.7	0
Stage 1	-6.9	0
Stage 1	-7.1	0
Stage 1	-7.3	0
Stage 1	-7.5	0
Stage 1	-7.7	0

5.1.2. 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	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0

5.1.3. 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	0.3	-98.77
Stage 2	0.1	-95.84
Stage 2	-0.1	-92.9
Stage 2	-0.3	-89.97
Stage 2	-0.5	-87.04
Stage 2	-0.7	-84.11
Stage 2	-0.9	-81.17
Stage 2	-1.1	-78.24
Stage 2	-1.3	-75.31
Stage 2	-1.5	-72.38
Stage 2	-1.7	-69.44
Stage 2	-1.9	-66.51
Stage 2	-2.1	-63.59
Stage 2	-2.3	-60.66
Stage 2	-2.5	-57.74
Stage 2	-2.7	-54.82
Stage 2	-2.9	-51.9
Stage 2	-3.1	-48.99
Stage 2	-3.3	-46.09
Stage 2	-3.5	-43.19
Stage 2	-3.7	-40.31
Stage 2	-3.9	-37.44
Stage 2	-4.1	-34.58
Stage 2	-4.3	-31.74
Stage 2	-4.5	-28.93
Stage 2	-4.7	-26.14
Stage 2	-4.9	-23.37
Stage 2	-5.1	-20.64
Stage 2	-5.3	-17.94
Stage 2	-5.5	-15.27
Stage 2	-5.7	-12.64
Stage 2	-5.9	-10.03
Stage 2	-6.1	-7.45
Stage 2	-6.3	-4.9
Stage 2	-6.5	-2.37
Stage 2	-6.7	0.15
Stage 2	-6.9	2.65
Stage 2	-7.1	5.15
Stage 2	-7.3	7.64
Stage 2	-7.5	10.13
Stage 2	-7.7	12.61

5.1.4. 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	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.02	0.09
Stage 2	-0.5	0.09	0.35
Stage 2	-0.7	0.24	0.78
Stage 2	-0.9	0.52	1.4
Stage 2	-1.1	0.96	2.19
Stage 2	-1.3	1.59	3.17
Stage 2	-1.5	2.46	4.34
Stage 2	-1.7	3.6	5.7
Stage 2	-1.9	5.05	7.25
Stage 2	-2.1	6.85	9
Stage 2	-2.3	9.04	10.94
Stage 2	-2.5	11.74	13.49
Stage 2	-2.7	15	16.31
Stage 2	-2.9	18.92	19.57
Stage 2	-3.1	23.58	23.33
Stage 2	-3.3	29.1	27.58
Stage 2	-3.5	35.56	32.32
Stage 2	-3.7	43.07	37.54
Stage 2	-3.9	51.72	43.25
Stage 2	-4.1	61.61	49.45
Stage 2	-4.3	72.63	55.08
Stage 2	-4.5	84.45	59.1
Stage 2	-4.7	96.75	61.52
Stage 2	-4.9	104.96	41.03
Stage 2	-5.1	109.34	21.93

Design Assumption: NTC2018: SLE (Rara/Frequente/Quasi Permanente)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-5.3	110.19	4.22
Stage 2	-5.5	107.76	-12.13
Stage 2	-5.7	102.34	-27.12
Stage 2	-5.9	94.18	-40.79
Stage 2	-6.1	83.55	-53.13
Stage 2	-6.3	70.72	-64.17
Stage 2	-6.5	56.05	-73.33
Stage 2	-6.7	40.84	-76.04
Stage 2	-6.9	26.93	-69.56
Stage 2	-7.1	15.55	-56.89
Stage 2	-7.3	7.05	-42.52
Stage 2	-7.5	1.76	-26.48
Stage 2	-7.7	0	-8.78

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

5.2.1. 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	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0

5.2.2. 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	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.02	0.11
Stage 2	-0.5	0.11	0.45
Stage 2	-0.7	0.32	1.02
Stage 2	-0.9	0.68	1.81
Stage 2	-1.1	1.25	2.85
Stage 2	-1.3	2.07	4.12
Stage 2	-1.5	3.2	5.64
Stage 2	-1.7	4.68	7.41
Stage 2	-1.9	6.57	9.43
Stage 2	-2.1	8.91	11.7
Stage 2	-2.3	11.75	14.22
Stage 2	-2.5	15.26	17.54
Stage 2	-2.7	19.5	21.21
Stage 2	-2.9	24.59	25.44
Stage 2	-3.1	30.66	30.33
Stage 2	-3.3	37.83	35.85
Stage 2	-3.5	46.23	42.01
Stage 2	-3.7	55.99	48.81

Design Assumption: NTC2018: A1+M1+R1 (R3 per tiranti)	Risultati Paratia	Muro: LEFT	
Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-3.9	67.24	56.23
Stage 2	-4.1	80.09	64.28
Stage 2	-4.3	94.41	71.6
Stage 2	-4.5	109.78	76.83
Stage 2	-4.7	125.78	79.98
Stage 2	-4.9	136.44	53.33
Stage 2	-5.1	142.14	28.51
Stage 2	-5.3	143.24	5.48
Stage 2	-5.5	140.09	-15.77
Stage 2	-5.7	133.04	-35.26
Stage 2	-5.9	122.43	-53.02
Stage 2	-6.1	108.62	-69.07
Stage 2	-6.3	91.93	-83.43
Stage 2	-6.5	72.87	-95.33
Stage 2	-6.7	53.1	-98.85
Stage 2	-6.9	35.01	-90.42
Stage 2	-7.1	20.22	-73.96
Stage 2	-7.3	9.17	-55.27
Stage 2	-7.5	2.28	-34.42
Stage 2	-7.7	0	-11.41

5.3. Risultati NTC2018: A2+M2+R1

5.3.1. 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	0.3	0	0
Stage 1	0.1	0	0
Stage 1	-0.1	0	0
Stage 1	-0.3	0	0
Stage 1	-0.5	0	0
Stage 1	-0.7	0	0
Stage 1	-0.9	0	0
Stage 1	-1.1	0	0
Stage 1	-1.3	0	0
Stage 1	-1.5	0	0
Stage 1	-1.7	0	0
Stage 1	-1.9	0	0
Stage 1	-2.1	0	0
Stage 1	-2.3	0	0
Stage 1	-2.5	0	0
Stage 1	-2.7	0	0
Stage 1	-2.9	0	0
Stage 1	-3.1	0	0
Stage 1	-3.3	0	0
Stage 1	-3.5	0	0
Stage 1	-3.7	0	0
Stage 1	-3.9	0	0
Stage 1	-4.1	0	0
Stage 1	-4.3	0	0
Stage 1	-4.5	0	0
Stage 1	-4.7	0	0
Stage 1	-4.9	0	0
Stage 1	-5.1	0	0
Stage 1	-5.3	0	0
Stage 1	-5.5	0	0
Stage 1	-5.7	0	0
Stage 1	-5.9	0	0
Stage 1	-6.1	0	0
Stage 1	-6.3	0	0
Stage 1	-6.5	0	0
Stage 1	-6.7	0	0
Stage 1	-6.9	0	0
Stage 1	-7.1	0	0
Stage 1	-7.3	0	0
Stage 1	-7.5	0	0
Stage 1	-7.7	0	0

5.3.2. 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	0.3	0	0
Stage 2	0.1	0	0
Stage 2	0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.1	0	0
Stage 2	-0.3	0.02	0.11
Stage 2	-0.5	0.11	0.43
Stage 2	-0.7	0.3	0.98
Stage 2	-0.9	0.65	1.74
Stage 2	-1.1	1.2	2.73
Stage 2	-1.3	1.99	3.95
Stage 2	-1.5	3.07	5.41
Stage 2	-1.7	4.49	7.11
Stage 2	-1.9	6.3	9.05
Stage 2	-2.1	8.55	11.22
Stage 2	-2.3	11.27	13.64

Design Assumption: NTC2018: A2+M2+R1 Risultati Paratia Muro: LEFT

Stage	Z (m)	Momento (kN*m/m)	Taglio (kN/m)
Stage 2	-2.5	14.63	16.79
Stage 2	-2.7	18.68	20.27
Stage 2	-2.9	23.53	24.22
Stage 2	-3.1	29.27	28.72
Stage 2	-3.3	36.02	33.75
Stage 2	-3.5	43.88	39.3
Stage 2	-3.7	52.96	45.37
Stage 2	-3.9	63.35	51.96
Stage 2	-4.1	75.16	59.07
Stage 2	-4.3	88.34	65.88
Stage 2	-4.5	102.65	71.56
Stage 2	-4.7	117.87	76.11
Stage 2	-4.9	129.98	60.54
Stage 2	-5.1	138.83	44.26
Stage 2	-5.3	144.28	27.26
Stage 2	-5.5	146.19	9.53
Stage 2	-5.7	144.4	-8.94
Stage 2	-5.9	138.76	-28.17
Stage 2	-6.1	129.14	-48.15
Stage 2	-6.3	115.36	-68.88
Stage 2	-6.5	97.29	-90.36
Stage 2	-6.7	76.11	-105.88
Stage 2	-6.9	53.21	-114.49
Stage 2	-7.1	32.08	-105.67
Stage 2	-7.3	15.21	-84.32
Stage 2	-7.5	4.05	-55.84
Stage 2	-7.7	0	-20.24

7. Allegati
7.1. Design Assumption : Nominal - File di Paratie - File di output (.out)

```
+------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                |
|                                                                                                                        |
|                                       NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                   Exe Time : 3 April 2019     10:25:13                                                 |
+------------------------------------------------------------------------------------------------------------------------+

                    **********************************************************
                    *                                                        *
                    *  PARATIE PLUS Non-Linear Spring Engine                 *
                    *                                                        *
                    *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM       *
                    *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES       *
                    *                                                        *
                    *          Written by Ce.A.S. s.r.l. (ITALY)             *
                    *          with the scientific supervision of            *
                    *          Roberto Nova - full professor SOIL MECHANICS  *
                    *          at Politecnico di Milano (ITALY)              *
                    *                                                        *
                    **********************************************************
                    *                                                        *
                    *  RELEASE   2018.1     *Build date:Jun 29, 2018*    *
                    *                                                        *
                    *                                                        *
                    *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE     *
                    *              VIALE   GIUSTINIANO 10                    *
                    *              20129   M I L A N O  (ITALIA)             *
                    *  TEL.        +39 02 2020221                            *
                    *                                                        *
                    *  email       bruno.becci@ceas.it                       *
                    *  Web Page    www.ceas.it      www.paratieplus.com      *
                    **********************************************************

  JOB : NewProject.BaseDesignSection_28.Nominal_64
  STARTING
 ACCEPTED    &lt;FILE,GENW                                                                        &gt;
 ACCEPTED    &lt;FILE,PLOTTER,BINARY                                                              &gt;
 ACCEPTED    &lt;SOLVE TOTAL_STRESS                                                               &gt;
 ACCEPTED    &lt;PARAM ITEMAX 40                                                                  &gt;
 ACCEPTED    &lt;CONTROL HINGES 0 0.0001 0.001                                                    &gt;


                    **********************************************************
                    *                                                        *
                    *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED   *
                    *    BY THE PROGRAM.                                     *
                    **********************************************************

 PRELIMINARY OPERATIONS CPU TIME     0.01 [sec]
```

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+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM

 New Project

NO. OF NODAL POINTS (NUMNP) ...................    41
NO. OF COORDINATES  (NCOORD)...................     2
NO. OF NODE DOFS    (NDOF).....................     2
NO. OF EQUATIONS    (NEQ)......................    82
NO. OF CONSTRAINTS CARDS (NVINC)...............     0
NO. OF ELEMENT GROUPS (NEG)....................     3
NO. OF SOLUTION STEPS (NSTE)...................     2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...     0
NO. OF RECORD FROM WALGEN .....................   100
NO. OF LONG NAMES (LASTNAME) ..................    13
LENGTH UNIT CHOICE ............................     3 (M   )
FORCE  UNIT CHOICE ............................     3 (KN  )
MAX PORE PRESSURE TABLE LENGTH.................     1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .     0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    100

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -7.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -7.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -7.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG3_4271_12_L_0 -2.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 20 10 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 0 32 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG2_4_26346_L_0 -4.65 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 19.5 9.5 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 30 25 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG3_4271_27610_L_0 -7.5 LeftWall_32
   31 : ATREST 0.531 0.5 1
```

```
  32 : WEIGHT 20 10 10
  33 : PERMEABILITY 1E-07
  34 : RESISTANCE 0 32 0 0 0
  35 : WINKLER 3143 9429.1
  36 : ENDL
  37 : MATERIAL S275_115 2.1E+08
  38 : BEAM WallElement_New_28707 LeftWall_32 -7.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
  40 : STEP Stage1_31
  41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
  42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
  43 : CHANGE UG0_2_10_L_0 U-KA=0.235 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=4.198 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.39 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=8.42 LeftWall_32
  47 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
  48 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
  49 : CHANGE UG3_4271_12_L_0 U-KA=0.279 LeftWall_32
  50 : CHANGE UG3_4271_12_L_0 U-KP=3.128 LeftWall_32
  51 : CHANGE UG3_4271_12_L_0 D-KA=0.407 LeftWall_32
  52 : CHANGE UG3_4271_12_L_0 D-KP=5.919 LeftWall_32
  53 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
  54 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
  55 : CHANGE UG2_4_26346_L_0 U-KA=0.369 LeftWall_32
  56 : CHANGE UG2_4_26346_L_0 U-KP=1.867 LeftWall_32
  57 : CHANGE UG2_4_26346_L_0 D-KA=0.501 LeftWall_32
  58 : CHANGE UG2_4_26346_L_0 D-KP=3.611 LeftWall_32
  59 : CHANGE UG3_4271_27610_L_0 U-FRICT=32 LeftWall_32
  60 : CHANGE UG3_4271_27610_L_0 D-FRICT=32 LeftWall_32
  61 : CHANGE UG3_4271_27610_L_0 U-KA=0.283 LeftWall_32
  62 : CHANGE UG3_4271_27610_L_0 U-KP=2.673 LeftWall_32
  63 : CHANGE UG3_4271_27610_L_0 D-KA=0.373 LeftWall_32
  64 : CHANGE UG3_4271_27610_L_0 D-KP=5.317 LeftWall_32
  65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
  66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
  67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
  68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
  69 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
  70 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
  72 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
  74 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
  76 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  77 : CHANGE UG3_4271_27610_L_0 U-COHE=0 LeftWall_32
  78 : CHANGE UG3_4271_27610_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG3_4271_27610_L_0 D-COHE=0 LeftWall_32
  80 : CHANGE UG3_4271_27610_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -2.55 0 -7.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
  89 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
  90 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
  91 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
  92 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
  93 : CHANGE UG3_4271_27610_L_0 D-KA=0.307 LeftWall_32
  94 : CHANGE UG3_4271_27610_L_0 D-KP=4.845 LeftWall_32
  95 : SETWALL LeftWall_32
  96 : GEOM 0 -4
  97 : SURCHARGE 0 0 0 0
  98 : WATER -2.55 1.45 -7.7 0 0
  99 : ADD WallElement_New_28707
 100 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                Exe Time : 3 April 2019     10:25:13                                                   |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
```

```
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /


+---------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)    NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                           |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                             |
|                                  Exe Time : 3 April 2019     10:25:13                                                     |
+---------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
    5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
..........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     2.000
    2    2    1   0.2000     0.000     0.000     0.000     2.000
    3    3    1   0.2000     0.000     0.000     0.000     2.000
    4    4    1   0.2000     0.000     0.000     0.000     2.000
    5    5    1   0.2000     0.000     0.000     0.000     2.000
    6    6    1   0.2000     0.000     0.000     0.000     2.000
    7    7    1   0.2000     0.000     0.000     0.000     2.000
    8    8    1   0.2000     0.000     0.000     0.000     2.000
    9    9    1   0.2000     0.000     0.000     0.000     2.000
   10   10    1   0.2000     0.000     0.000     0.000     2.000
   11   11    1   0.2000     0.000     0.000     0.000     2.000
   12   12    1   0.2000     0.000     0.000     0.000     2.000
   13   13    1   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   0.2000     0.000     0.000     0.000     2.000
   18   18    2   0.2000     0.000     0.000     0.000     2.000
   19   19    2   0.2000     0.000     0.000     0.000     2.000
   20   20    2   0.2000     0.000     0.000     0.000     2.000
   21   21    2   0.2000     0.000     0.000     0.000     2.000
   22   22    2   0.2000     0.000     0.000     0.000     2.000
   23   23    2   0.2000     0.000     0.000     0.000     2.000
   24   24    2   0.2000     0.000     0.000     0.000     2.000
   25   25    2   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
```

30	30	3	0.2000	0.000	0.000	0.000	2.000
31	31	3	0.2000	0.000	0.000	0.000	2.000
32	32	3	0.2000	0.000	0.000	0.000	2.000
33	33	3	0.2000	0.000	0.000	0.000	2.000
34	34	3	0.2000	0.000	0.000	0.000	2.000
35	35	3	0.2000	0.000	0.000	0.000	2.000
36	36	3	0.2000	0.000	0.000	0.000	2.000
37	37	3	0.2000	0.000	0.000	0.000	2.000
38	38	3	0.2000	0.000	0.000	0.000	2.000
39	39	3	0.2000	0.000	0.000	0.000	2.000
40	40	3	0.2000	0.000	0.000	0.000	2.000
41	41	4	0.1000	0.000	0.000	0.000	2.000

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                           |
|                                 Exe Time : 3 April 2019     10:25:13                                                    |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                 :
    5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
..........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data
```

el	n	mat	area	.....	.....	.....	flag
1	1	1	0.1000	0.000	0.000	0.000	1.000
2	2	1	0.2000	0.000	0.000	0.000	1.000
3	3	1	0.2000	0.000	0.000	0.000	1.000
4	4	1	0.2000	0.000	0.000	0.000	1.000
5	5	1	0.2000	0.000	0.000	0.000	1.000
6	6	1	0.2000	0.000	0.000	0.000	1.000
7	7	1	0.2000	0.000	0.000	0.000	1.000
8	8	1	0.2000	0.000	0.000	0.000	1.000
9	9	1	0.2000	0.000	0.000	0.000	1.000
10	10	1	0.2000	0.000	0.000	0.000	1.000
11	11	1	0.2000	0.000	0.000	0.000	1.000
12	12	1	0.2000	0.000	0.000	0.000	1.000
13	13	1	0.2000	0.000	0.000	0.000	1.000
14	14	2	0.2000	0.000	0.000	0.000	1.000
15	15	2	0.2000	0.000	0.000	0.000	1.000
16	16	2	0.2000	0.000	0.000	0.000	1.000
17	17	2	0.2000	0.000	0.000	0.000	1.000
18	18	2	0.2000	0.000	0.000	0.000	1.000
19	19	2	0.2000	0.000	0.000	0.000	1.000
20	20	2	0.2000	0.000	0.000	0.000	1.000
21	21	2	0.2000	0.000	0.000	0.000	1.000
22	22	2	0.2000	0.000	0.000	0.000	1.000
23	23	2	0.2000	0.000	0.000	0.000	1.000

```
   24   24    2   0.2000     0.000     0.000     0.000     1.000
   25   25    2   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
   29   29    3   0.2000     0.000     0.000     0.000     1.000
   30   30    3   0.2000     0.000     0.000     0.000     1.000
   31   31    3   0.2000     0.000     0.000     0.000     1.000
   32   32    3   0.2000     0.000     0.000     0.000     1.000
   33   33    3   0.2000     0.000     0.000     0.000     1.000
   34   34    3   0.2000     0.000     0.000     0.000     1.000
   35   35    3   0.2000     0.000     0.000     0.000     1.000
   36   36    3   0.2000     0.000     0.000     0.000     1.000
   37   37    3   0.2000     0.000     0.000     0.000     1.000
   38   38    3   0.2000     0.000     0.000     0.000     1.000
   39   39    3   0.2000     0.000     0.000     0.000     1.000
   40   40    3   0.2000     0.000     0.000     0.000     1.000
   41   41    4   0.1000     0.000     0.000     0.000     1.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                        :
   2  40   0   1   0   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
.....2D WALL ELEMENT.....
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ..... 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data

   el    na    nb  mat      erc1      erc2     thick      by-i      by-j
-------------------------------------------------------------------

    1     1     2    1     0.000     0.000    0.1978     0.000     0.000
    2     2     3    1     0.000     0.000    0.1978     0.000     0.000
    3     3     4    1     0.000     0.000    0.1978     0.000     0.000
    4     4     5    1     0.000     0.000    0.1978     0.000     0.000
    5     5     6    1     0.000     0.000    0.1978     0.000     0.000
    6     6     7    1     0.000     0.000    0.1978     0.000     0.000
    7     7     8    1     0.000     0.000    0.1978     0.000     0.000
    8     8     9    1     0.000     0.000    0.1978     0.000     0.000
    9     9    10    1     0.000     0.000    0.1978     0.000     0.000
   10    10    11    1     0.000     0.000    0.1978     0.000     0.000
   11    11    12    1     0.000     0.000    0.1978     0.000     0.000
   12    12    13    1     0.000     0.000    0.1978     0.000     0.000
   13    13    14    1     0.000     0.000    0.1978     0.000     0.000
   14    14    15    1     0.000     0.000    0.1978     0.000     0.000
   15    15    16    1     0.000     0.000    0.1978     0.000     0.000
   16    16    17    1     0.000     0.000    0.1978     0.000     0.000
   17    17    18    1     0.000     0.000    0.1978     0.000     0.000
   18    18    19    1     0.000     0.000    0.1978     0.000     0.000
   19    19    20    1     0.000     0.000    0.1978     0.000     0.000
   20    20    21    1     0.000     0.000    0.1978     0.000     0.000
   21    21    22    1     0.000     0.000    0.1978     0.000     0.000
   22    22    23    1     0.000     0.000    0.1978     0.000     0.000
   23    23    24    1     0.000     0.000    0.1978     0.000     0.000
   24    24    25    1     0.000     0.000    0.1978     0.000     0.000
   25    25    26    1     0.000     0.000    0.1978     0.000     0.000
   26    26    27    1     0.000     0.000    0.1978     0.000     0.000
   27    27    28    1     0.000     0.000    0.1978     0.000     0.000
```

```
   28   28   29    1    0.000     0.000    0.1978     0.000     0.000
   29   29   30    1    0.000     0.000    0.1978     0.000     0.000
   30   30   31    1    0.000     0.000    0.1978     0.000     0.000
   31   31   32    1    0.000     0.000    0.1978     0.000     0.000
   32   32   33    1    0.000     0.000    0.1978     0.000     0.000
   33   33   34    1    0.000     0.000    0.1978     0.000     0.000
   34   34   35    1    0.000     0.000    0.1978     0.000     0.000
   35   35   36    1    0.000     0.000    0.1978     0.000     0.000
   36   36   37    1    0.000     0.000    0.1978     0.000     0.000
   37   37   38    1    0.000     0.000    0.1978     0.000     0.000
   38   38   39    1    0.000     0.000    0.1978     0.000     0.000
   39   39   40    1    0.000     0.000    0.1978     0.000     0.000
   40   40   41    1    0.000     0.000    0.1978     0.000     0.000


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01
```

```
NO. OF DISTRIBUTED LOAD CARDS     0



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                      LOAD INPUT SECTION COMPLETED



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.39000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  8.4200     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
```

```
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.9190     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.50100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.6110     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.37300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.3170     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
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ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
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ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                 Exe Time : 3 April 2019     10:25:13                                                  |
+-----------------------------------------------------------------------------------------------------------------------+

PHASE DESCRIPTORS


STEP  NO.     1
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                           0.000         0.000
Z-WATER_TABLE                         -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 0.000         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

==========================================================================================================end of step    1


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -4.000         0.000
Z-WATER_TABLE                         -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 1.450         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
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SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

==========================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000



+----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                      |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time : 3 April 2019     10:25:13                                                |
+----------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                       -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2588

 NO. OF D.P.W  FOR THIS AREA       4848
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
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```
 RDT   =0.1019E+05 RDR   = 0.000
 RATIOT=0.6406E-16 RATIOR= 0.000
 MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
 MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
 NO. OF CONTACT CONSTRAINT VIOLATIONS     0


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
           (02)             (04)           (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p     LAYER
-------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250           V-C   3143.      -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
   4 D  0.5550       0.000       5.550       2.775       5.550       2.775           V-C   3143.      -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
   5 D   1.170       0.000       9.250       5.851       9.250       5.851           V-C   3143.      -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
   6 D   1.761       0.000       12.95       8.806       12.95       8.806           V-C   3143.      -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
   7 D   2.312       0.000       16.65       11.56       16.65       11.56           V-C   3143.      -0.9000       0.000
1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.35       14.07       20.35       14.07           V-C   3143.       -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.05       16.36       24.05       16.36           V-C   3143.       -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       27.75       18.46       27.75       18.46           V-C   3143.       -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       31.45       20.40       31.45       20.40           V-C   3143.       -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       35.15       22.24       35.15       22.24           V-C   3143.       -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       38.85       23.99       38.85       23.99           V-C   3143.       -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       42.70       27.09       42.70       27.09           V-C   3143.       -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       46.70       29.03       46.70       29.03           V-C   3143.       -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330    -1.4129E-18    49.20       30.15       49.20       30.15           V-C   3143.       -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       51.20       31.00       51.20       31.00           V-C   3143.       -2.900       3.500
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1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       53.20       31.84       53.20       31.84             V-C   3143.      -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       55.20       32.69       55.20       32.69             V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       57.20       33.54       57.20       33.54             V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181      2.8259E-18   59.20       34.40       59.20       34.40             V-C   3143.      -3.700       11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       61.20       35.27       61.20       35.27             V-C   3143.      -3.900       13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33      -2.8259E-18   63.20       36.15       63.20       36.15             V-C   3143.      -4.100       15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       65.20       37.05       65.20       37.05             V-C   3143.      -4.300       17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       67.20       37.95       67.20       37.95             V-C   3143.      -4.500       19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       69.18       38.85       69.18       38.85             V-C   3143.      -4.700       21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       71.08       39.72       71.08       39.72             V-C   3143.      -4.900       23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22      -2.8259E-18   72.97       40.59       72.97       40.59             V-C   3143.      -5.100       25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       74.87       41.48       74.87       41.48             V-C   3143.      -5.300       27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38      2.8259E-18   76.77       42.38       76.77       42.38             V-C   3143.      -5.500       29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       78.67       43.28       78.67       43.28             V-C   3143.      -5.700       31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       80.57       44.19       80.57       44.19             V-C   3143.      -5.900       33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       82.47       45.11       82.47       45.11             V-C   3143.      -6.100       35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71      -5.6518E-18   84.37       46.04       84.37       46.04             V-C   3143.      -6.300       37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       86.27       46.97       86.27       46.97             V-C   3143.      -6.500       39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       88.17       47.91       88.17       47.91             V-C   3143.      -6.700       41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       90.07       48.85       90.07       48.85             V-C   3143.      -6.900       43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06      -5.6518E-18   91.97       49.80       91.97       49.80             V-C   3143.      -7.100       45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       93.87       50.75       93.87       50.75             V-C   3143.      -7.300       47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       95.77       51.71       95.77       51.71             V-C   3143.      -7.500       49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42       5.6518E-18   97.78       52.72       97.78       52.72             V-C   3143.      -7.700       51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


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 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
 |                                                                                                                         |
 |                                      NewProject.BaseDesignSection_28.Nominal_64                                         |
 |                                  Exe Time : 3 April 2019     10:25:13                                                   |
 +-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P    N O.    2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T    T I M E    I S      1.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *    FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR     UFACTOR        Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
    1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
    2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
    3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250            V-C   3143.     -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
    4 D  0.5550       0.000       5.550       2.775       5.550       2.775            V-C   3143.     -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
    5 D   1.170       0.000       9.261       5.851       9.261       5.851            V-C   3143.     -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
    6 D   1.761       0.000       13.03       8.806       13.03       8.806            V-C   3143.     -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
    7 D   2.312       0.000       16.89       11.56       16.89       11.56            V-C   3143.     -0.9000       0.000
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1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.85       14.07       20.85       14.07          V-C   3143.      -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.89       16.36       24.89       16.36          V-C   3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       28.97       18.46       28.97       18.46          V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       33.07       20.40       33.07       20.40          V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       37.17       22.24       37.17       22.24          V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       41.25       23.99       41.25       23.99          V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       45.73       27.09       45.73       27.09          V-C   3143.      -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       50.56       29.03       50.56       29.03          V-C   3143.      -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330   1.4129E-18      53.63       30.15       53.63       30.15          V-C   3143.      -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       56.26       31.00       56.26       31.00          V-C   3143.      -2.900       3.500
1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       58.82       31.84       58.82       31.84          V-C   3143.      -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       61.20       32.69       61.20       32.69          V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       63.65       33.54       63.65       33.54          V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181  -2.8259E-18      65.95       34.40       65.95       34.40          V-C   3143.      -3.700      11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       68.32       35.27       68.32       35.27          V-C   3143.      -3.900      13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33   2.8259E-18      70.65       36.15       70.65       36.15          V-C   3143.      -4.100      15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       72.87       37.05       72.87       37.05          V-C   3143.      -4.300      17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       75.16       37.95       75.16       37.95          V-C   3143.      -4.500      19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       77.39       38.85       77.39       38.85          V-C   3143.      -4.700      21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       79.46       39.72       79.46       39.72          V-C   3143.      -4.900      23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22   2.8259E-18      81.59       40.59       81.59       40.59          V-C   3143.      -5.100      25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       83.63       41.48       83.63       41.48          V-C   3143.      -5.300      27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38  -2.8259E-18      85.31       42.38       85.31       42.38          V-C   3143.      -5.500      29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       87.01       43.28       87.01       43.28          V-C   3143.      -5.700      31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       88.71       44.19       88.71       44.19          V-C   3143.      -5.900      33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       90.43       45.11       90.43       45.11          V-C   3143.      -6.100      35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71   5.6518E-18      92.15       46.04       92.15       46.04          V-C   3143.      -6.300      37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       93.88       46.97       93.88       46.97          V-C   3143.      -6.500      39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       95.62       47.91       95.62       47.91          V-C   3143.      -6.700      41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       97.37       48.85       97.37       48.85          V-C   3143.      -6.900      43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06   5.6518E-18      99.12       49.80       99.12       49.80          V-C   3143.      -7.100      45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       100.9       50.75       100.9       50.75          V-C   3143.      -7.300      47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       102.6       51.71       102.6       51.71          V-C   3143.      -7.500      49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42  -5.6518E-18      104.5       52.72       104.5       52.72          V-C   3143.      -7.700      51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                        |
|                                 Exe Time : 3 April 2019     10:25:13                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                  :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S     1.0000

 WALL2D ELEMENT
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   EL      TA          TB          MA          MB
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***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER      0 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM= 1471.     REMNOR= 0.000     RATIO =0.4863     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.4863     RATIOR= 0.000
            MAX UN= 0.000     IEQ=    82 NODE     41 DOF   2   X-ROT. F
            MIN UN=-9.547     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      2 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM= 114.2     REMNOR=0.2251E-20 RATIO =0.1355     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.1355     RATIOR= 0.000
            MAX UN=0.1599E-09 IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
            MIN UN=-5.158     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      3 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM= 712.3     REMNOR=0.1771E-18 RATIO =0.3384     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.3384     RATIOR= 0.000
            MAX UN= 3.266     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
            MIN UN=-17.13     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      4 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM= 250.1     REMNOR=0.4917E-18 RATIO =0.2005     TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.2005     RATIOR= 0.000
            MAX UN= 8.189     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
            MIN UN=-10.41     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      5 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM=0.2950E-01 REMNOR=0.3855E-18 RATIO =0.2178E-02 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.2178E-02 RATIOR= 0.000
            MAX UN=0.1717     IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
            MIN UN=-.4938E-08 IEQ=     3 NODE      2 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      6 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM=0.1540E-02 REMNOR=0.1564E-18 RATIO =0.4975E-03 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.4975E-03 RATIOR= 0.000
            MAX UN=0.3617E-08 IEQ=     9 NODE      5 DOF   1  Y-DISPL.F
            MIN UN=-.2390E-01 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      7 RNORM = 0.000     RMNORM= 0.000
            RINORM= 6221.     RIMNOR= 0.000
            RENORM=0.1064E-03 REMNOR=0.1135E-18 RATIO =0.1308E-03 TOLER =0.1000E-03  NOT CONVERGED
            RFMAX = 19.48     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.     RDR   = 0.000
            RATIOT=0.1308E-03 RATIOR= 0.000
            MAX UN=0.4630E-02 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
            MIN UN=-.6383E-02 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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ITER      8 RNORM = 0.000      RMNORM= 0.000
            RINORM= 6221.      RIMNOR= 0.000
            RENORM=0.5553E-06 REMNOR=0.2777E-18 RATIO =0.9448E-05 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 19.48      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT    = 6221.     RDR    = 0.000
            RATIOT=0.9448E-05 RATIOR= 0.000
            MAX UN=0.7002E-03 IEQ=     81 NODE      41 DOF   1  Y-DISPL.F
            MIN UN=-.3201E-08 IEQ=     15 NODE       8 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS      0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
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New Project
SOLUTION REACHED USING      8 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)             (
    1  -9.8769767E-02   1.4664556E-02
    2  -9.5836856E-02   1.4664556E-02
    3  -9.2903944E-02   1.4664556E-02
    4  -8.9971034E-02   1.4664544E-02
    5  -8.7038131E-02   1.4664466E-02
    6  -8.4105259E-02   1.4664222E-02
    7  -8.1172464E-02   1.4663656E-02
    8  -7.8239831E-02   1.4662561E-02
    9  -7.5307492E-02   1.4660673E-02
   10  -7.2375636E-02   1.4657677E-02
   11  -6.9444521E-02   1.4653197E-02
   12  -6.6514485E-02   1.4646803E-02
   13  -6.3585960E-02   1.4638007E-02
   14  -6.0659479E-02   1.4626265E-02
   15  -5.7735694E-02   1.4610913E-02
   16  -5.4815407E-02   1.4591157E-02
   17  -5.1899585E-02   1.4566099E-02
   18  -4.8989390E-02   1.4534703E-02
   19  -4.6086205E-02   1.4495786E-02
   20  -4.3191665E-02   1.4448020E-02
   21  -4.0307671E-02   1.4389931E-02
   22  -3.7436474E-02   1.4319906E-02
   23  -3.4580636E-02   1.4236185E-02
   24  -3.1743044E-02   1.4137021E-02
   25  -2.8926952E-02   1.4020987E-02
   26  -2.6135837E-02   1.3887132E-02
   27  -2.3373109E-02   1.3738127E-02
   28  -2.0641220E-02   1.3579821E-02
   29  -1.7941453E-02   1.3417650E-02
   30  -1.5274082E-02   1.3256649E-02
   31  -1.2638406E-02   1.3101447E-02
   32  -1.0032835E-02   1.2956278E-02
   33  -7.4549830E-03   1.2824985E-02
   34  -4.9016982E-03   1.2711023E-02
   35  -2.3692196E-03   1.2617375E-02
   36   1.4672292E-04   1.2545795E-02
   37   2.6505324E-03   1.2495726E-02
   38   5.1462587E-03   1.2464339E-02
   39   7.6372347E-03   1.2447639E-02
   40   1.0125982E-02   1.2441133E-02
   41   1.2614073E-02   1.2439836E-02


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                      NewProject.BaseDesignSection_28.Nominal_64                                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
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C U R R E N T T I M E I S 2.0000

HARDENING 2D SOIL ELEMENT

****** TOTAL STRESS FORMULATION *****

EL *	FORCE	DISPL-Y	VERTICAL-P	HORIZON.-P	MAX-V-P	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER						
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3	0.000	--	--	--	--	--	REMOVED	--	-0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
4	0.000	--	--	--	--	--	REMOVED	--	-0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
5	0.000	--	--	--	--	--	REMOVED	--	-0.5000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
6	0.000	--	--	--	--	--	REMOVED	--	-0.7000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
7	0.000	--	--	--	--	--	REMOVED	--	-0.9000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
8	0.000	--	--	--	--	--	REMOVED	--	-1.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
9	0.000	--	--	--	--	--	REMOVED	--	-1.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
10	0.000	--	--	--	--	--	REMOVED	--	-1.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
11	0.000	--	--	--	--	--	REMOVED	--	-1.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
12	0.000	--	--	--	--	--	REMOVED	--	-1.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
13	0.000	--	--	--	--	--	REMOVED	--	-2.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
14	0.000	--	--	--	--	--	REMOVED	--	-2.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
15	0.000	--	--	--	--	--	REMOVED	--	-2.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
16	0.000	--	--	--	--	--	REMOVED	--	-2.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
17	0.000	--	--	--	--	--	REMOVED	--	-2.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
18	0.000	--	--	--	--	--	REMOVED	--	-3.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
19	0.000	--	--	--	--	--	REMOVED	--	-3.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
20	0.000	--	--	--	--	--	REMOVED	--	-3.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
21	0.000	--	--	--	--	--	REMOVED	--	-3.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
22	0.000	--	--	--	--	--	REMOVED	--	-3.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
23 D	1.043	3.4581E-02	0.8362	4.051	63.20	36.15	PASSIVE	0.000	-4.100	1.164	
1.000	1.000	5.215	0.000	0.000	UG3_4271_12_L_0						
24 D	3.129	3.1743E-02	2.508	12.15	65.20	37.05	PASSIVE	0.000	-4.300	3.492	
1.000	1.000	15.65	0.000	0.000	UG3_4271_12_L_0						
25 D	5.215	2.8927E-02	4.181	20.26	67.20	37.95	PASSIVE	0.000	-4.500	5.819	
1.000	1.000	26.08	0.000	0.000	UG3_4271_12_L_0						
26 D	24.09	2.6136E-02	5.828	112.3	69.18	112.3	V-C	3143.	-4.700	8.147	
1.000	1.000	120.4	0.000	0.000	UG2_4_26346_L_0						
27 D	23.03	2.3373E-02	7.400	104.7	71.08	104.7	V-C	3143.	-4.900	10.47	
1.000	1.000	115.1	0.000	0.000	UG2_4_26346_L_0						
28 D	21.98	2.0641E-02	8.973	97.08	72.97	97.08	V-C	3143.	-5.100	12.80	
1.000	1.000	109.9	0.000	0.000	UG2_4_26346_L_0						
29 D	20.94	1.7941E-02	10.55	89.59	74.87	89.59	V-C	3143.	-5.300	15.13	
1.000	1.000	104.7	0.000	0.000	UG2_4_26346_L_0						
30 D	19.93	1.5274E-02	12.12	82.19	76.77	82.19	UL-RL	9429.	-5.500	17.46	
1.000	1.000	99.65	0.000	0.000	UG2_4_26346_L_0						
31 D	18.93	1.2638E-02	13.69	74.88	78.67	74.89	UL-RL	9429.	-5.700	19.79	
1.000	1.000	94.66	0.000	0.000	UG2_4_26346_L_0						
32 D	17.95	1.0033E-02	15.26	67.65	80.57	67.68	UL-RL	9429.	-5.900	22.11	
1.000	1.000	89.76	0.000	0.000	UG2_4_26346_L_0						
33 D	16.99	7.4550E-03	16.83	60.51	82.47	60.56	UL-RL	9429.	-6.100	24.44	
1.000	1.000	84.95	0.000	0.000	UG2_4_26346_L_0						
34 D	16.04	4.9017E-03	18.41	53.44	84.37	53.51	UL-RL	9429.	-6.300	26.77	
1.000	1.000	80.21	0.000	0.000	UG2_4_26346_L_0						
35 D	14.93	2.3692E-03	19.98	45.54	86.27	46.97	UL-RL	9429.	-6.500	29.10	
1.000	1.000	74.64	0.000	0.000	UG2_4_26346_L_0						
36 D	10.85	-1.4672E-04	21.55	22.85	88.17	47.91	UL-RL	9429.	-6.700	31.42	
1.000	1.000	54.27	0.000	0.000	UG2_4_26346_L_0						
37 D	6.803	-2.6505E-03	23.12	0.2624	90.07	48.85	UL-RL	9429.	-6.900	33.75	
1.000	1.000	34.01	0.000	0.000	UG2_4_26346_L_0						
38 D	7.217	-5.1463E-03	24.70	6.1116E-03	91.97	49.80	UL-RL	9429.	-7.100	36.08	
1.000	1.000	36.09	0.000	0.000	UG2_4_26346_L_0						
39 D	7.682	-7.6372E-03	26.27	2.6731E-03	93.87	50.75	UL-RL	9429.	-7.300	38.41	
1.000	1.000	38.41	0.000	0.000	UG2_4_26346_L_0						

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  40 D   8.147     -1.0126E-02   27.84       0.000       95.77       51.71          ACTIVE   0.000       -7.500       40.73
1.000       1.000       40.73       0.000       0.000     UG2_4_26346_L_0
  41 D   5.212     -1.2614E-02   29.51       9.060       97.78       52.72          ACTIVE   0.000       -7.700       43.06
1.000       1.000       52.12       0.000       0.000     UG3_4271_27610_L_0


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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                    NewProject.BaseDesignSection_28.Nominal_64                                         |
|                                 Exe Time : 3 April 2019     10:25:13                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
----------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  8.6950E-02 -9.2904E-02   1.850      0.4347      1.850      0.9250          ACTIVE   0.000      -0.1000       0.000
1.000       1.000      0.4347       0.000       0.000     UG0_2_10_L_0
   4 D  0.2608     -8.9971E-02   5.550       1.304      5.550       2.775          ACTIVE   0.000      -0.3000       0.000
1.000       1.000       1.304       0.000       0.000     UG0_2_10_L_0
   5 D  0.4352     -8.7038E-02   9.261       2.176      9.261       5.851          ACTIVE   0.000      -0.5000       0.000
1.000       1.000       2.176       0.000       0.000     UG0_2_10_L_0
   6 D  0.6124     -8.4105E-02   13.03       3.062      13.03       8.806          ACTIVE   0.000      -0.7000       0.000
1.000       1.000       3.062       0.000       0.000     UG0_2_10_L_0
   7 D  0.7939     -8.1172E-02   16.89       3.969      16.89       11.56          ACTIVE   0.000      -0.9000       0.000
1.000       1.000       3.969       0.000       0.000     UG0_2_10_L_0
   8 D  0.9800     -7.8240E-02   20.85       4.900      20.85       14.07          ACTIVE   0.000       -1.100       0.000
1.000       1.000       4.900       0.000       0.000     UG0_2_10_L_0
   9 D   1.170     -7.5307E-02   24.89       5.848      24.89       16.36          ACTIVE   0.000       -1.300       0.000
1.000       1.000       5.848       0.000       0.000     UG0_2_10_L_0
  10 D   1.362     -7.2376E-02   28.97       6.808      28.97       18.46          ACTIVE   0.000       -1.500       0.000
1.000       1.000       6.808       0.000       0.000     UG0_2_10_L_0
  11 D   1.554     -6.9445E-02   33.07       7.772      33.07       20.40          ACTIVE   0.000       -1.700       0.000
1.000       1.000       7.772       0.000       0.000     UG0_2_10_L_0
  12 D   1.747     -6.6514E-02   37.17       8.735      37.17       22.24          ACTIVE   0.000       -1.900       0.000
1.000       1.000       8.735       0.000       0.000     UG0_2_10_L_0
  13 D   1.939     -6.3586E-02   41.25       9.694      41.25       23.99          ACTIVE   0.000       -2.100       0.000
1.000       1.000       9.694       0.000       0.000     UG0_2_10_L_0
  14 D   2.552     -6.0659E-02   45.73       12.76      45.73       27.09          ACTIVE   0.000       -2.300       0.000
1.000       1.000       12.76       0.000       0.000     UG3_4271_12_L_0
  15 D   2.821     -5.7736E-02   50.56       14.11      50.56       29.03          ACTIVE   0.000       -2.500       0.000
1.000       1.000       14.11       0.000       0.000     UG3_4271_12_L_0
  16 D   3.257     -5.4815E-02   53.87       15.03      53.87       30.28          ACTIVE   0.000       -2.700       1.254
1.000       1.000       16.28       0.000       0.000     UG3_4271_12_L_0
  17 D   3.757     -5.1900E-02   56.84       15.86      56.84       31.30          ACTIVE   0.000       -2.900       2.927
1.000       1.000       18.78       0.000       0.000     UG3_4271_12_L_0
  18 D   4.252     -4.8989E-02   59.72       16.66      59.72       32.32          ACTIVE   0.000       -3.100       4.599
1.000       1.000       21.26       0.000       0.000     UG3_4271_12_L_0
  19 D   4.738     -4.6086E-02   62.43       17.42      62.43       33.34          ACTIVE   0.000       -3.300       6.271
1.000       1.000       23.69       0.000       0.000     UG3_4271_12_L_0
  20 D   5.227     -4.3192E-02   65.20       18.19      65.20       34.37          ACTIVE   0.000       -3.500       7.944
1.000       1.000       26.13       0.000       0.000     UG3_4271_12_L_0
  21 D   5.708     -4.0308E-02   67.83       18.92      67.83       35.40          ACTIVE   0.000       -3.700       9.616
1.000       1.000       28.54       0.000       0.000     UG3_4271_12_L_0
  22 D   6.193     -3.7436E-02   70.53       19.68      70.53       36.45          ACTIVE   0.000       -3.900       11.29
1.000       1.000       30.97       0.000       0.000     UG3_4271_12_L_0
  23 D   6.676     -3.4581E-02   73.19       20.42      73.19       37.50          ACTIVE   0.000       -4.100       12.96
1.000       1.000       33.38       0.000       0.000     UG3_4271_12_L_0
  24 D   7.153     -3.1743E-02   75.74       21.13      75.74       38.57          ACTIVE   0.000       -4.300       14.63
1.000       1.000       35.76       0.000       0.000     UG3_4271_12_L_0
  25 D   7.633     -2.8927E-02   78.35       21.86      78.35       39.64          ACTIVE   0.000       -4.500       16.31
1.000       1.000       38.17       0.000       0.000     UG3_4271_12_L_0
  26 D   3.595     -2.6136E-02   80.92       0.000      80.92       40.72          ACTIVE   0.000       -4.700       17.98
1.000       1.000       17.98       0.000       0.000     UG2_4_26346_L_0
  27 D   3.930     -2.3373E-02   83.31       0.000      83.31       41.76          ACTIVE   0.000       -4.900       19.65
1.000       1.000       19.65       0.000       0.000     UG2_4_26346_L_0
  28 D   4.264     -2.0641E-02   85.76       0.000      85.76       42.81          ACTIVE   0.000       -5.100       21.32
1.000       1.000       21.32       0.000       0.000     UG2_4_26346_L_0
  29 D   4.599     -1.7941E-02   88.13       0.000      88.13       43.87          ACTIVE   0.000       -5.300       22.99
1.000       1.000       22.99       0.000       0.000     UG2_4_26346_L_0
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30 D	4.934	-1.5274E-02	90.15	1.5819E-03	90.15	44.94	UL-RL	9429.	-5.500	24.67
1.000	1.000	24.67	0.000	0.000	UG2_4_26346_L_0					
31 D	5.271	-1.2638E-02	92.17	1.7179E-02	92.17	46.02	UL-RL	9429.	-5.700	26.34
1.000	1.000	26.36	0.000	0.000	UG2_4_26346_L_0					
32 D	5.609	-1.0033E-02	94.20	3.2797E-02	94.20	47.11	UL-RL	9429.	-5.900	28.01
1.000	1.000	28.04	0.000	0.000	UG2_4_26346_L_0					
33 D	5.946	-7.4550E-03	96.25	4.8437E-02	96.25	48.20	UL-RL	9429.	-6.100	29.68
1.000	1.000	29.73	0.000	0.000	UG2_4_26346_L_0					
34 D	6.888	-4.9017E-03	98.30	3.083	98.30	49.30	UL-RL	9429.	-6.300	31.36
1.000	1.000	34.44	0.000	0.000	UG2_4_26346_L_0					
35 D	12.22	-2.3692E-03	100.4	28.07	100.4	50.41	UL-RL	9429.	-6.500	33.03
1.000	1.000	61.10	0.000	0.000	UG2_4_26346_L_0					
36 D	17.33	1.4672E-04	102.4	51.97	102.4	51.98	UL-RL	9429.	-6.700	34.70
1.000	1.000	86.67	0.000	0.000	UG2_4_26346_L_0					
37 D	19.47	2.6505E-03	104.5	60.96	104.5	60.97	UL-RL	9429.	-6.900	36.37
1.000	1.000	97.33	0.000	0.000	UG2_4_26346_L_0					
38 D	21.59	5.1463E-03	106.6	69.93	106.6	69.93	UL-RL	9429.	-7.100	38.05
1.000	1.000	108.0	0.000	0.000	UG2_4_26346_L_0					
39 D	23.72	7.6372E-03	108.7	78.88	108.7	78.89	UL-RL	9429.	-7.300	39.72
1.000	1.000	118.6	0.000	0.000	UG2_4_26346_L_0					
40 D	25.85	1.0126E-02	110.8	87.84	110.8	87.84	V-C	3143.	-7.500	41.39
1.000	1.000	129.2	0.000	0.000	UG2_4_26346_L_0					
41 D	13.99	1.2614E-02	112.9	96.84	112.9	96.84	V-C	3143.	-7.700	43.06
1.000	1.000	139.9	0.000	0.000	UG3_4271_27610_L_0					

PARATIEPLUS(TM) NLS ENGINE RELEASE 2018.1 FULL VERSION *Build date:Jun 29, 2018*

NewProject.BaseDesignSection_28.Nominal_64

Exe Time : 3 April 2019 10:25:13

New Project

S T R E S S R E S U L T S F O R G R O U P N O. 3

WallElement_New_28707 :
ELEMENT TYPE 2 NO.OF ELEMENTS. IN THIS GROUP 40
C U R R E N T T I M E I S 2.0000

WALL2D ELEMENT

EL	TA	TB	MA	MB
1	1.63436E-09	-1.63436E-09	1.64324E-10	5.53194E-10
2	-8.52456E-11	8.52456E-11	-3.99893E-10	-2.23110E-12
3	-8.69500E-02	8.69500E-02	-9.40470E-11	-1.73900E-02
4	-0.34780	0.34780	1.73900E-02	-8.69500E-02
5	-0.78305	0.78305	8.69500E-02	-0.24356
6	-1.3954	1.3954	0.24356	-0.52265
7	-2.1893	2.1893	0.52265	-0.96051
8	-3.1693	3.1693	0.96051	-1.5944
9	-4.3389	4.3389	1.5944	-2.4621
10	-5.7005	5.7005	2.4621	-3.6022
11	-7.2549	7.2549	3.6022	-5.0532
12	-9.0019	9.0019	5.0532	-6.8536
13	-10.941	10.941	6.8536	-9.0418
14	-13.493	13.493	9.0418	-11.740
15	-16.314	16.314	11.740	-15.003
16	-19.571	19.571	15.003	-18.917
17	-23.328	23.328	18.917	-23.583
18	-27.580	27.580	23.583	-29.099
19	-32.317	32.317	29.099	-35.562
20	-37.544	37.544	35.562	-43.071
21	-43.252	43.252	43.071	-51.722
22	-49.446	49.446	51.722	-61.611
23	-55.079	55.079	61.611	-72.627
24	-59.102	59.102	72.627	-84.447
25	-61.520	61.520	84.447	-96.751
26	-41.026	41.026	96.751	-104.96
27	-21.930	21.930	104.96	-109.34
28	-4.2176	4.2176	109.34	-110.19
29	12.128	-12.128	110.19	-107.76
30	27.124	-27.124	107.76	-102.34
31	40.786	-40.786	102.34	-94.178
32	53.130	-53.130	94.178	-83.552
33	64.173	-64.173	83.552	-70.718
34	73.328	-73.328	70.718	-56.052
35	76.037	-76.037	56.052	-40.845
36	69.557	-69.557	40.845	-26.933
37	56.894	-56.894	26.933	-15.555
38	42.516	-42.516	15.555	-7.0514
39	26.478	-26.478	7.0514	-1.7558
40	8.7791	-8.7791	1.7558	-8.40794E-12

```
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                                     NewProject.BaseDesignSection_28.Nominal_64                                      |
|                                 Exe Time : 3 April 2019     10:25:13                                                |

     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                      2
        2           CONVERGENCE :YES                      8


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.03 [sec]
DATABASE  CREATION CPU TIME.....    0.06 [sec]
```

7.2. Design Assumption : NTC2018: SLE (Rara/Frequente/Quasi Permanente) - File di Paratie - File di output (.out)

```
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                     |
|                                 Exe Time : 3 April 2019     10:25:13                                                |

                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
                  *                                                         *
                  *          Written by Ce.A.S. s.r.l. (ITALY)              *
                  *          with the scientific supervision of             *
                  *          Roberto Nova - full professor SOIL MECHANICS   *
                  *          at Politecnico di Milano (ITALY)               *
                  *                                                         *
                  ***********************************************************
                  *                                                         *
                  *  RELEASE   2018.1     *Build date:Jun 29, 2018*     *
                  *                                                         *
                  *                                                         *
                  *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE      *
                  *              VIALE   GIUSTINIANO 10                     *
                  *              20129   M I L A N O  (ITALIA)              *
                  *  TEL.        +39 02 2020221                             *
                  *                                                         *
                  *  email       bruno.becci@ceas.it                        *
                  *  Web Page    www.ceas.it     www.paratieplus.com        *
                  ***********************************************************



 JOB : NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


                  ***********************************************************
                  *                                                         *
                  *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED    *
                  *    BY THE PROGRAM.                                      *
                  ***********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.01 [sec]


|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                     |
```

```
|                                    Exe Time : 3 April 2019     10:25:13                                                        |
+----------------------------------------------------------------------------------------------------------------------------+


INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ..................   41
NO. OF COORDINATES  (NCOORD)..................    2
NO. OF NODE DOFS    (NDOF)....................    2
NO. OF EQUATIONS    (NEQ).....................   82
NO. OF CONSTRAINTS CARDS (NVINC)..............    0
NO. OF ELEMENT GROUPS (NEG)...................    3
NO. OF SOLUTION STEPS (NSTE)..................    2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ....................  100
NO. OF LONG NAMES (LASTNAME) .................   13
LENGTH UNIT CHOICE ...........................    3 (M   )
FORCE  UNIT CHOICE ...........................    3 (KN  )
MAX PORE PRESSURE TABLE LENGTH................    1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.



+----------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                 |
|                                                                                                                            |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                          |
|                                    Exe Time : 3 April 2019     10:25:13                                                    |
+----------------------------------------------------------------------------------------------------------------------------+
                    P R E P R O C E S S O R     D A T A

                    N O.  O F   C O M M A N D S    100

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -7.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -7.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -7.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG3_4271_12_L_0 -2.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 20 10 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 0 32 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG2_4_26346_L_0 -4.65 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 19.5 9.5 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 30 25 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG3_4271_27610_L_0 -7.5 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 20 10 10
   33 : PERMEABILITY 1E-07
```

```
  34 : RESISTANCE 0 32 0 0 0
  35 : WINKLER 3143 9429.1
  36 : ENDL
  37 : MATERIAL S275_115 2.1E+08
  38 : BEAM WallElement_New_28707 LeftWall_32 -7.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
  40 : STEP Stage1_31
  41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
  42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
  43 : CHANGE UG0_2_10_L_0 U-KA=0.235 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=4.198 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.39 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=8.42 LeftWall_32
  47 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
  48 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
  49 : CHANGE UG3_4271_12_L_0 U-KA=0.279 LeftWall_32
  50 : CHANGE UG3_4271_12_L_0 U-KP=3.128 LeftWall_32
  51 : CHANGE UG3_4271_12_L_0 D-KA=0.407 LeftWall_32
  52 : CHANGE UG3_4271_12_L_0 D-KP=5.919 LeftWall_32
  53 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
  54 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
  55 : CHANGE UG2_4_26346_L_0 U-KA=0.369 LeftWall_32
  56 : CHANGE UG2_4_26346_L_0 U-KP=1.867 LeftWall_32
  57 : CHANGE UG2_4_26346_L_0 D-KA=0.501 LeftWall_32
  58 : CHANGE UG2_4_26346_L_0 D-KP=3.611 LeftWall_32
  59 : CHANGE UG3_4271_27610_L_0 U-FRICT=32 LeftWall_32
  60 : CHANGE UG3_4271_27610_L_0 D-FRICT=32 LeftWall_32
  61 : CHANGE UG3_4271_27610_L_0 U-KA=0.283 LeftWall_32
  62 : CHANGE UG3_4271_27610_L_0 U-KP=2.673 LeftWall_32
  63 : CHANGE UG3_4271_27610_L_0 D-KA=0.373 LeftWall_32
  64 : CHANGE UG3_4271_27610_L_0 D-KP=5.317 LeftWall_32
  65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
  66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
  67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
  68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
  69 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
  70 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
  72 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
  74 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
  76 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  77 : CHANGE UG3_4271_27610_L_0 U-COHE=0 LeftWall_32
  78 : CHANGE UG3_4271_27610_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG3_4271_27610_L_0 D-COHE=0 LeftWall_32
  80 : CHANGE UG3_4271_27610_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -2.55 0 -7.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
  89 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
  90 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
  91 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
  92 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
  93 : CHANGE UG3_4271_27610_L_0 D-KA=0.307 LeftWall_32
  94 : CHANGE UG3_4271_27610_L_0 D-KP=4.845 LeftWall_32
  95 : SETWALL LeftWall_32
  96 : GEOM 0 -4
  97 : SURCHARGE 0 0 0 0
  98 : WATER -2.55 1.45 -7.7 0 0
  99 : ADD WallElement_New_28707
 100 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
```

```
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     2.000
    2    2    1   0.2000     0.000     0.000     0.000     2.000
    3    3    1   0.2000     0.000     0.000     0.000     2.000
    4    4    1   0.2000     0.000     0.000     0.000     2.000
    5    5    1   0.2000     0.000     0.000     0.000     2.000
    6    6    1   0.2000     0.000     0.000     0.000     2.000
    7    7    1   0.2000     0.000     0.000     0.000     2.000
    8    8    1   0.2000     0.000     0.000     0.000     2.000
    9    9    1   0.2000     0.000     0.000     0.000     2.000
   10   10    1   0.2000     0.000     0.000     0.000     2.000
   11   11    1   0.2000     0.000     0.000     0.000     2.000
   12   12    1   0.2000     0.000     0.000     0.000     2.000
   13   13    1   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   0.2000     0.000     0.000     0.000     2.000
   18   18    2   0.2000     0.000     0.000     0.000     2.000
   19   19    2   0.2000     0.000     0.000     0.000     2.000
   20   20    2   0.2000     0.000     0.000     0.000     2.000
   21   21    2   0.2000     0.000     0.000     0.000     2.000
   22   22    2   0.2000     0.000     0.000     0.000     2.000
   23   23    2   0.2000     0.000     0.000     0.000     2.000
   24   24    2   0.2000     0.000     0.000     0.000     2.000
   25   25    2   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
   30   30    3   0.2000     0.000     0.000     0.000     2.000
   31   31    3   0.2000     0.000     0.000     0.000     2.000
```

```
   32   32    3   0.2000     0.000     0.000     0.000     2.000
   33   33    3   0.2000     0.000     0.000     0.000     2.000
   34   34    3   0.2000     0.000     0.000     0.000     2.000
   35   35    3   0.2000     0.000     0.000     0.000     2.000
   36   36    3   0.2000     0.000     0.000     0.000     2.000
   37   37    3   0.2000     0.000     0.000     0.000     2.000
   38   38    3   0.2000     0.000     0.000     0.000     2.000
   39   39    3   0.2000     0.000     0.000     0.000     2.000
   40   40    3   0.2000     0.000     0.000     0.000     2.000
   41   41    4   0.1000     0.000     0.000     0.000     2.000


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                    :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     1.000
    2    2    1   0.2000     0.000     0.000     0.000     1.000
    3    3    1   0.2000     0.000     0.000     0.000     1.000
    4    4    1   0.2000     0.000     0.000     0.000     1.000
    5    5    1   0.2000     0.000     0.000     0.000     1.000
    6    6    1   0.2000     0.000     0.000     0.000     1.000
    7    7    1   0.2000     0.000     0.000     0.000     1.000
    8    8    1   0.2000     0.000     0.000     0.000     1.000
    9    9    1   0.2000     0.000     0.000     0.000     1.000
   10   10    1   0.2000     0.000     0.000     0.000     1.000
   11   11    1   0.2000     0.000     0.000     0.000     1.000
   12   12    1   0.2000     0.000     0.000     0.000     1.000
   13   13    1   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   0.2000     0.000     0.000     0.000     1.000
   18   18    2   0.2000     0.000     0.000     0.000     1.000
   19   19    2   0.2000     0.000     0.000     0.000     1.000
   20   20    2   0.2000     0.000     0.000     0.000     1.000
   21   21    2   0.2000     0.000     0.000     0.000     1.000
   22   22    2   0.2000     0.000     0.000     0.000     1.000
   23   23    2   0.2000     0.000     0.000     0.000     1.000
   24   24    2   0.2000     0.000     0.000     0.000     1.000
   25   25    2   0.2000     0.000     0.000     0.000     1.000
```

26	26	3	0.2000	0.000	0.000	0.000	1.000
27	27	3	0.2000	0.000	0.000	0.000	1.000
28	28	3	0.2000	0.000	0.000	0.000	1.000
29	29	3	0.2000	0.000	0.000	0.000	1.000
30	30	3	0.2000	0.000	0.000	0.000	1.000
31	31	3	0.2000	0.000	0.000	0.000	1.000
32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	0.2000	0.000	0.000	0.000	1.000
38	38	3	0.2000	0.000	0.000	0.000	1.000
39	39	3	0.2000	0.000	0.000	0.000	1.000
40	40	3	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.1000	0.000	0.000	0.000	1.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                  Exe Time : 3 April 2019     10:25:13                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                                :
   2  40   0   1   0   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
.........2D WALL ELEMENT...........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ............ 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data

   el   na   nb  mat      erc1      erc2     thick      by-i      by-j
-------------------------------------------------------------------

    1    1    2    1    0.000     0.000    0.1978     0.000     0.000
    2    2    3    1    0.000     0.000    0.1978     0.000     0.000
    3    3    4    1    0.000     0.000    0.1978     0.000     0.000
    4    4    5    1    0.000     0.000    0.1978     0.000     0.000
    5    5    6    1    0.000     0.000    0.1978     0.000     0.000
    6    6    7    1    0.000     0.000    0.1978     0.000     0.000
    7    7    8    1    0.000     0.000    0.1978     0.000     0.000
    8    8    9    1    0.000     0.000    0.1978     0.000     0.000
    9    9   10    1    0.000     0.000    0.1978     0.000     0.000
   10   10   11    1    0.000     0.000    0.1978     0.000     0.000
   11   11   12    1    0.000     0.000    0.1978     0.000     0.000
   12   12   13    1    0.000     0.000    0.1978     0.000     0.000
   13   13   14    1    0.000     0.000    0.1978     0.000     0.000
   14   14   15    1    0.000     0.000    0.1978     0.000     0.000
   15   15   16    1    0.000     0.000    0.1978     0.000     0.000
   16   16   17    1    0.000     0.000    0.1978     0.000     0.000
   17   17   18    1    0.000     0.000    0.1978     0.000     0.000
   18   18   19    1    0.000     0.000    0.1978     0.000     0.000
   19   19   20    1    0.000     0.000    0.1978     0.000     0.000
   20   20   21    1    0.000     0.000    0.1978     0.000     0.000
   21   21   22    1    0.000     0.000    0.1978     0.000     0.000
   22   22   23    1    0.000     0.000    0.1978     0.000     0.000
   23   23   24    1    0.000     0.000    0.1978     0.000     0.000
   24   24   25    1    0.000     0.000    0.1978     0.000     0.000
   25   25   26    1    0.000     0.000    0.1978     0.000     0.000
   26   26   27    1    0.000     0.000    0.1978     0.000     0.000
   27   27   28    1    0.000     0.000    0.1978     0.000     0.000
   28   28   29    1    0.000     0.000    0.1978     0.000     0.000
   29   29   30    1    0.000     0.000    0.1978     0.000     0.000
```

```
   30   30   31    1    0.000     0.000     0.1978     0.000     0.000
   31   31   32    1    0.000     0.000     0.1978     0.000     0.000
   32   32   33    1    0.000     0.000     0.1978     0.000     0.000
   33   33   34    1    0.000     0.000     0.1978     0.000     0.000
   34   34   35    1    0.000     0.000     0.1978     0.000     0.000
   35   35   36    1    0.000     0.000     0.1978     0.000     0.000
   36   36   37    1    0.000     0.000     0.1978     0.000     0.000
   37   37   38    1    0.000     0.000     0.1978     0.000     0.000
   38   38   39    1    0.000     0.000     0.1978     0.000     0.000
   39   39   40    1    0.000     0.000     0.1978     0.000     0.000
   40   40   41    1    0.000     0.000     0.1978     0.000     0.000


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                 Exe Time : 3 April 2019     10:25:13                                                  |
+-----------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS  (NLOAD) ....................    0
NO. OF LOAD CURVES  (NLCUR) ....................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                 Exe Time : 3 April 2019     10:25:13                                                  |
+-----------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                      LOAD INPUT SECTION COMPLETED



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                         |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.39000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  8.4200     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
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ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.9190     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.50100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.6110     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.37300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.3170     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
```

```
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
```

```
DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+

PHASE DESCRIPTORS


STEP  NO.     1
                                       LEFT WALL    RIGHT WALL
Y                                       0.000       -0.9990E+30
Z-PC                                    0.000         0.000
Z-EXCAVATION                            0.000         0.000
Z-WATER_TABLE                          -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
DZW_OF_THE_WATER_TABLE                  0.000         0.000
QS_ON_THE_EXCAVATION_SIDE               0.000         0.000
ZQS                                     0.000       -0.9990E+30
ZCUT                                    0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES       -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)       0.000         0.000
PORE_UPDATE_FLAG                        0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)        0.000         0.000
lateral thrusts reduction elevatio      0.000         0.000
Downhill reduction factor for effe      0.000         0.000
Downhill reduction factor for pore      0.000         0.000
Uphill reduction factor for effect      0.000         0.000
Uphill reduction factor for pore p      0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]        0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]       0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]       0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]         0.000         0.000
UPHILL DELTA/PHI RATIO                  0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
DOWNHILL DELTA/PHI RATIO                0.000         0.000
DYN.WATER BEHAVIOUR                     0.000         0.000
Excess pore pressure RATIO Ru           0.000         0.000
SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

=============================================================================================================end of step    1


STEP  NO.     2
                                       LEFT WALL    RIGHT WALL
Y                                       0.000       -0.9990E+30
Z-PC                                    0.000         0.000
Z-EXCAVATION                           -4.000         0.000
Z-WATER_TABLE                          -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
DZW_OF_THE_WATER_TABLE                  1.450         0.000
QS_ON_THE_EXCAVATION_SIDE               0.000         0.000
ZQS                                     0.000       -0.9990E+30
ZCUT                                    0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES       -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)       0.000         0.000
PORE_UPDATE_FLAG                        0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)        0.000         0.000
lateral thrusts reduction elevatio      0.000         0.000
Downhill reduction factor for effe      0.000         0.000
Downhill reduction factor for pore      0.000         0.000
Uphill reduction factor for effect      0.000         0.000
Uphill reduction factor for pore p      0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]        0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]       0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]       0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]         0.000         0.000
UPHILL DELTA/PHI RATIO                  0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
DOWNHILL DELTA/PHI RATIO                0.000         0.000
DYN.WATER BEHAVIOUR                     0.000         0.000
Excess pore pressure RATIO Ru           0.000         0.000
SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
```

```
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

==========================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000



+-----------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                       |
|                                Exe Time : 3 April 2019     10:25:13                                                   |
+-----------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F..........                -0.300000000000000
 Q-F ............                  20.0000000000000
 BETA ...........                  45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2588

 NO. OF D.P.W  FOR THIS AREA       4848
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
```

```
MAX UN=0.3553E-14 IEQ=     75 NODE      38 DOF     1  Y-DISPL.F
MIN UN=-.1776E-14 IEQ=     41 NODE      21 DOF     1  Y-DISPL.F
NO. OF CONTACT CONSTRAINT VIOLATIONS      0
```

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+------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                        |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                    Exe Time : 3 April 2019     10:25:13                                                |
+------------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F         X-ROT. F
           (02)              (04)            (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS
```

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+------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                        |
|                       NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                    Exe Time : 3 April 2019     10:25:13                                                |
+------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P   N O.    1

0_L                                                               :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T    T I M E    I S       1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****
```

EL *	FORCE	DISPL-Y	VERTICAL-P	HORIZON.-P	MAX-V-P	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E FACTOR	UFACTOR	Peq	Su_a	Su_p	LAYER
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	1.000	1.000	0.000	0.000	0.000	not available
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	1.000	1.000	0.000	0.000	0.000	not available
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0
5 D	1.170	0.000	9.250	5.851	9.250	5.851	V-C	3143.	-0.5000	0.000	1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0
6 D	1.761	0.000	12.95	8.806	12.95	8.806	V-C	3143.	-0.7000	0.000	1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0
7 D	2.312	0.000	16.65	11.56	16.65	11.56	V-C	3143.	-0.9000	0.000	1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0
8 D	2.815	0.000	20.35	14.07	20.35	14.07	V-C	3143.	-1.100	0.000	1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0
9 D	3.273	0.000	24.05	16.36	24.05	16.36	V-C	3143.	-1.300	0.000	1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0
10 D	3.692	0.000	27.75	18.46	27.75	18.46	V-C	3143.	-1.500	0.000	1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0
11 D	4.081	0.000	31.45	20.40	31.45	20.40	V-C	3143.	-1.700	0.000	1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0
12 D	4.447	0.000	35.15	22.24	35.15	22.24	V-C	3143.	-1.900	0.000	1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0
13 D	4.798	0.000	38.85	23.99	38.85	23.99	V-C	3143.	-2.100	0.000	1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0
14 D	5.418	0.000	42.70	27.09	42.70	27.09	V-C	3143.	-2.300	0.000	1.000	1.000	27.09	0.000	0.000	UG3_4271_12_L_0
15 D	5.805	0.000	46.70	29.03	46.70	29.03	V-C	3143.	-2.500	0.000	1.000	1.000	29.03	0.000	0.000	UG3_4271_12_L_0
16 D	6.330	-1.4129E-18	49.20	30.15	49.20	30.15	V-C	3143.	-2.700	1.500	1.000	1.000	31.65	0.000	0.000	UG3_4271_12_L_0
17 D	6.900	0.000	51.20	31.00	51.20	31.00	V-C	3143.	-2.900	3.500	1.000	1.000	34.50	0.000	0.000	UG3_4271_12_L_0
18 D	7.469	0.000	53.20	31.84	53.20	31.84	V-C	3143.	-3.100	5.500						

```
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       55.20       32.69       55.20       32.69             V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       57.20       33.54       57.20       33.54             V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181      2.8259E-18   59.20       34.40       59.20       34.40             V-C   3143.      -3.700       11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       61.20       35.27       61.20       35.27             V-C   3143.      -3.900       13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33      -2.8259E-18   63.20       36.15       63.20       36.15             V-C   3143.      -4.100       15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       65.20       37.05       65.20       37.05             V-C   3143.      -4.300       17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       67.20       37.95       67.20       37.95             V-C   3143.      -4.500       19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       69.18       38.85       69.18       38.85             V-C   3143.      -4.700       21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       71.08       39.72       71.08       39.72             V-C   3143.      -4.900       23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22      -2.8259E-18   72.97       40.59       72.97       40.59             V-C   3143.      -5.100       25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       74.87       41.48       74.87       41.48             V-C   3143.      -5.300       27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38      2.8259E-18   76.77       42.38       76.77       42.38             V-C   3143.      -5.500       29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       78.67       43.28       78.67       43.28             V-C   3143.      -5.700       31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       80.57       44.19       80.57       44.19             V-C   3143.      -5.900       33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       82.47       45.11       82.47       45.11             V-C   3143.      -6.100       35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71      -5.6518E-18   84.37       46.04       84.37       46.04             V-C   3143.      -6.300       37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       86.27       46.97       86.27       46.97             V-C   3143.      -6.500       39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       88.17       47.91       88.17       47.91             V-C   3143.      -6.700       41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       90.07       48.85       90.07       48.85             V-C   3143.      -6.900       43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06      -5.6518E-18   91.97       49.80       91.97       49.80             V-C   3143.      -7.100       45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       93.87       50.75       93.87       50.75             V-C   3143.      -7.300       47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       95.77       51.71       95.77       51.71             V-C   3143.      -7.500       49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42      5.6518E-18   97.78       52.72       97.78       52.72             V-C   3143.      -7.700       51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


 +-------------------------------------------------------------------------------------------------------------------------------+
 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
 |                                                                                                                               |
 |                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
 |                                  Exe Time : 3 April 2019     10:25:13                                                         |
 +-------------------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S    R E S U L T S    F O R    G R O U P    N O.    2

 0_R                                                    :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
 C U R R E N T    T I M E    I S      1.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *    FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
 FACTOR    UFACTOR        Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------------
 ------------------------------------------------------------------------------------
    1     0.000         --          --          --          --          --          REMOVED     --        0.3000       0.000
 1.000       1.000       0.000       0.000       0.000     not available
    2     0.000         --          --          --          --          --          REMOVED     --        0.1000       0.000
 1.000       1.000       0.000       0.000       0.000     not available
    3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250            V-C   3143.     -0.1000       0.000
 1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
    4 D  0.5550       0.000       5.550       2.775       5.550       2.775            V-C   3143.     -0.3000       0.000
 1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
    5 D   1.170       0.000       9.261       5.851       9.261       5.851            V-C   3143.     -0.5000       0.000
 1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
    6 D   1.761       0.000       13.03       8.806       13.03       8.806            V-C   3143.     -0.7000       0.000
 1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
    7 D   2.312       0.000       16.89       11.56       16.89       11.56            V-C   3143.     -0.9000       0.000
 1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
    8 D   2.815       0.000       20.85       14.07       20.85       14.07            V-C   3143.      -1.100       0.000
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```
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.89       16.36       24.89       16.36          V-C   3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       28.97       18.46       28.97       18.46          V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       33.07       20.40       33.07       20.40          V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       37.17       22.24       37.17       22.24          V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       41.25       23.99       41.25       23.99          V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       45.73       27.09       45.73       27.09          V-C   3143.      -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       50.56       29.03       50.56       29.03          V-C   3143.      -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330     1.4129E-18    53.63       30.15       53.63       30.15          V-C   3143.      -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       56.26       31.00       56.26       31.00          V-C   3143.      -2.900       3.500
1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       58.82       31.84       58.82       31.84          V-C   3143.      -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       61.20       32.69       61.20       32.69          V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       63.65       33.54       63.65       33.54          V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181    -2.8259E-18    65.95       34.40       65.95       34.40          V-C   3143.      -3.700       11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       68.32       35.27       68.32       35.27          V-C   3143.      -3.900       13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33     2.8259E-18    70.65       36.15       70.65       36.15          V-C   3143.      -4.100       15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       72.87       37.05       72.87       37.05          V-C   3143.      -4.300       17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       75.16       37.95       75.16       37.95          V-C   3143.      -4.500       19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       77.39       38.85       77.39       38.85          V-C   3143.      -4.700       21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       79.46       39.72       79.46       39.72          V-C   3143.      -4.900       23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22     2.8259E-18    81.59       40.59       81.59       40.59          V-C   3143.      -5.100       25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       83.63       41.48       83.63       41.48          V-C   3143.      -5.300       27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38    -2.8259E-18    85.31       42.38       85.31       42.38          V-C   3143.      -5.500       29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       87.01       43.28       87.01       43.28          V-C   3143.      -5.700       31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       88.71       44.19       88.71       44.19          V-C   3143.      -5.900       33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       90.43       45.11       90.43       45.11          V-C   3143.      -6.100       35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71     5.6518E-18    92.15       46.04       92.15       46.04          V-C   3143.      -6.300       37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       93.88       46.97       93.88       46.97          V-C   3143.      -6.500       39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       95.62       47.91       95.62       47.91          V-C   3143.      -6.700       41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       97.37       48.85       97.37       48.85          V-C   3143.      -6.900       43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06     5.6518E-18    99.12       49.80       99.12       49.80          V-C   3143.      -7.100       45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       100.9       50.75       100.9       50.75          V-C   3143.      -7.300       47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       102.6       51.71       102.6       51.71          V-C   3143.      -7.500       49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42    -5.6518E-18    104.5       52.72       104.5       52.72          V-C   3143.      -7.700       51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                       |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
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***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 1471.     REMNOR= 0.000     RATIO =0.4863     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.4863     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    82 NODE     41 DOF   2   X-ROT. F
           MIN UN=-9.547     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 114.2     REMNOR=0.2251E-20 RATIO =0.1355     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.1355     RATIOR= 0.000
           MAX UN=0.1599E-09 IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           MIN UN=-5.158     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 712.3     REMNOR=0.1771E-18 RATIO =0.3384     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.3384     RATIOR= 0.000
           MAX UN= 3.266     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
           MIN UN=-17.13     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 250.1     REMNOR=0.4917E-18 RATIO =0.2005     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.2005     RATIOR= 0.000
           MAX UN= 8.189     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
           MIN UN=-10.41     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.2950E-01 REMNOR=0.3855E-18 RATIO =0.2178E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.2178E-02 RATIOR= 0.000
           MAX UN=0.1717     IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-.4938E-08 IEQ=     3 NODE      2 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.1540E-02 REMNOR=0.1564E-18 RATIO =0.4975E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.4975E-03 RATIOR= 0.000
           MAX UN=0.3617E-08 IEQ=     9 NODE      5 DOF   1  Y-DISPL.F
           MIN UN=-.2390E-01 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.1064E-03 REMNOR=0.1135E-18 RATIO =0.1308E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.1308E-03 RATIOR= 0.000
           MAX UN=0.4630E-02 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.6383E-02 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0
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ITER      8 RNORM = 0.000      RMNORM= 0.000
            RINORM= 6221.      RIMNOR= 0.000
            RENORM=0.5553E-06 REMNOR=0.2777E-18 RATIO =0.9448E-05 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 19.48      RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   = 6221.      RDR   = 0.000
            RATIOT=0.9448E-05 RATIOR= 0.000
            MAX UN=0.7002E-03 IEQ=    81 NODE     41 DOF   1  Y-DISPL.F
            MIN UN=-.3201E-08 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
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New Project
SOLUTION REACHED USING     8 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)           (
    1  -9.8769767E-02   1.4664556E-02
    2  -9.5836856E-02   1.4664556E-02
    3  -9.2903944E-02   1.4664556E-02
    4  -8.9971034E-02   1.4664544E-02
    5  -8.7038131E-02   1.4664466E-02
    6  -8.4105259E-02   1.4664222E-02
    7  -8.1172464E-02   1.4663656E-02
    8  -7.8239831E-02   1.4662561E-02
    9  -7.5307492E-02   1.4660673E-02
   10  -7.2375636E-02   1.4657677E-02
   11  -6.9444521E-02   1.4653197E-02
   12  -6.6514485E-02   1.4646803E-02
   13  -6.3585960E-02   1.4638007E-02
   14  -6.0659479E-02   1.4626265E-02
   15  -5.7735694E-02   1.4610913E-02
   16  -5.4815407E-02   1.4591157E-02
   17  -5.1899585E-02   1.4566099E-02
   18  -4.8989390E-02   1.4534703E-02
   19  -4.6086205E-02   1.4495786E-02
   20  -4.3191665E-02   1.4448020E-02
   21  -4.0307671E-02   1.4389931E-02
   22  -3.7436474E-02   1.4319906E-02
   23  -3.4580636E-02   1.4236185E-02
   24  -3.1743044E-02   1.4137021E-02
   25  -2.8926952E-02   1.4020987E-02
   26  -2.6135837E-02   1.3887132E-02
   27  -2.3373109E-02   1.3738127E-02
   28  -2.0641220E-02   1.3579821E-02
   29  -1.7941453E-02   1.3417650E-02
   30  -1.5274082E-02   1.3256649E-02
   31  -1.2638406E-02   1.3101447E-02
   32  -1.0032835E-02   1.2956278E-02
   33  -7.4549830E-03   1.2824985E-02
   34  -4.9016982E-03   1.2711023E-02
   35  -2.3692196E-03   1.2617375E-02
   36   1.4672292E-04   1.2545795E-02
   37   2.6505324E-03   1.2495726E-02
   38   5.1462587E-03   1.2464339E-02
   39   7.6372347E-03   1.2447639E-02
   40   1.0125982E-02   1.2441133E-02
   41   1.2614073E-02   1.2439836E-02


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                      |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000
```

HARDENING 2D SOIL ELEMENT

****** TOTAL STRESS FORMULATION *****

EL * FACTOR	FORCE UFACTOR	DISPL-Y Peq	VERTICAL-P Su_a	HORIZON.-P Su_p	MAX-V-P LAYER	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3	0.000	--	--	--	--	--	REMOVED	--	-0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
4	0.000	--	--	--	--	--	REMOVED	--	-0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
5	0.000	--	--	--	--	--	REMOVED	--	-0.5000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
6	0.000	--	--	--	--	--	REMOVED	--	-0.7000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
7	0.000	--	--	--	--	--	REMOVED	--	-0.9000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
8	0.000	--	--	--	--	--	REMOVED	--	-1.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
9	0.000	--	--	--	--	--	REMOVED	--	-1.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
10	0.000	--	--	--	--	--	REMOVED	--	-1.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
11	0.000	--	--	--	--	--	REMOVED	--	-1.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
12	0.000	--	--	--	--	--	REMOVED	--	-1.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
13	0.000	--	--	--	--	--	REMOVED	--	-2.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
14	0.000	--	--	--	--	--	REMOVED	--	-2.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
15	0.000	--	--	--	--	--	REMOVED	--	-2.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
16	0.000	--	--	--	--	--	REMOVED	--	-2.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
17	0.000	--	--	--	--	--	REMOVED	--	-2.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
18	0.000	--	--	--	--	--	REMOVED	--	-3.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
19	0.000	--	--	--	--	--	REMOVED	--	-3.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
20	0.000	--	--	--	--	--	REMOVED	--	-3.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
21	0.000	--	--	--	--	--	REMOVED	--	-3.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
22	0.000	--	--	--	--	--	REMOVED	--	-3.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
23 D	1.043	3.4581E-02	0.8362	4.051	63.20	36.15	PASSIVE	0.000	-4.100	1.164	
1.000	1.000	5.215	0.000	0.000	UG3_4271_12_L_0						
24 D	3.129	3.1743E-02	2.508	12.15	65.20	37.05	PASSIVE	0.000	-4.300	3.492	
1.000	1.000	15.65	0.000	0.000	UG3_4271_12_L_0						
25 D	5.215	2.8927E-02	4.181	20.26	67.20	37.95	PASSIVE	0.000	-4.500	5.819	
1.000	1.000	26.08	0.000	0.000	UG3_4271_12_L_0						
26 D	24.09	2.6136E-02	5.828	112.3	69.18	112.3	V-C	3143.	-4.700	8.147	
1.000	1.000	120.4	0.000	0.000	UG2_4_26346_L_0						
27 D	23.03	2.3373E-02	7.400	104.7	71.08	104.7	V-C	3143.	-4.900	10.47	
1.000	1.000	115.1	0.000	0.000	UG2_4_26346_L_0						
28 D	21.98	2.0641E-02	8.973	97.08	72.97	97.08	V-C	3143.	-5.100	12.80	
1.000	1.000	109.9	0.000	0.000	UG2_4_26346_L_0						
29 D	20.94	1.7941E-02	10.55	89.59	74.87	89.59	V-C	3143.	-5.300	15.13	
1.000	1.000	104.7	0.000	0.000	UG2_4_26346_L_0						
30 D	19.93	1.5274E-02	12.12	82.19	76.77	82.19	UL-RL	9429.	-5.500	17.46	
1.000	1.000	99.65	0.000	0.000	UG2_4_26346_L_0						
31 D	18.93	1.2638E-02	13.69	74.88	78.67	74.89	UL-RL	9429.	-5.700	19.79	
1.000	1.000	94.66	0.000	0.000	UG2_4_26346_L_0						
32 D	17.95	1.0033E-02	15.26	67.65	80.57	67.68	UL-RL	9429.	-5.900	22.11	
1.000	1.000	89.76	0.000	0.000	UG2_4_26346_L_0						
33 D	16.99	7.4550E-03	16.83	60.51	82.47	60.56	UL-RL	9429.	-6.100	24.44	
1.000	1.000	84.95	0.000	0.000	UG2_4_26346_L_0						
34 D	16.04	4.9017E-03	18.41	53.44	84.37	53.51	UL-RL	9429.	-6.300	26.77	
1.000	1.000	80.21	0.000	0.000	UG2_4_26346_L_0						
35 D	14.93	2.3692E-03	19.98	45.54	86.27	46.97	UL-RL	9429.	-6.500	29.10	
1.000	1.000	74.64	0.000	0.000	UG2_4_26346_L_0						
36 D	10.85	-1.4672E-04	21.55	22.85	88.17	47.91	UL-RL	9429.	-6.700	31.42	
1.000	1.000	54.27	0.000	0.000	UG2_4_26346_L_0						
37 D	6.803	-2.6505E-03	23.12	0.2624	90.07	48.85	UL-RL	9429.	-6.900	33.75	
1.000	1.000	34.01	0.000	0.000	UG2_4_26346_L_0						
38 D	7.217	-5.1463E-03	24.70	6.1116E-03	91.97	49.80	UL-RL	9429.	-7.100	36.08	
1.000	1.000	36.09	0.000	0.000	UG2_4_26346_L_0						
39 D	7.682	-7.6372E-03	26.27	2.6731E-03	93.87	50.75	UL-RL	9429.	-7.300	38.41	
1.000	1.000	38.41	0.000	0.000	UG2_4_26346_L_0						
40 D	8.147	-1.0126E-02	27.84	0.000	95.77	51.71	ACTIVE	0.000	-7.500	40.73	
1.000	1.000	40.73	0.000	0.000	UG2_4_26346_L_0						

```
  41 D   5.212     -1.2614E-02   29.51       9.060       97.78       52.72          ACTIVE   0.000      -7.700       43.06
1.000       1.000       52.12       0.000       0.000     UG3_4271_27610_L_0


 +-------------------------------------------------------------------------------------------------------------------------+
 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
 |                                                                                                                         |
 |                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                        |
 |                                  Exe Time : 3 April 2019     10:25:13                                                   |
 +-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                                :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p      LAYER
 ------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --        0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --        0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  8.6950E-02 -9.2904E-02   1.850      0.4347       1.850      0.9250          ACTIVE   0.000      -0.1000       0.000
1.000       1.000      0.4347       0.000       0.000     UG0_2_10_L_0
   4 D  0.2608     -8.9971E-02   5.550       1.304       5.550       2.775          ACTIVE   0.000      -0.3000       0.000
1.000       1.000       1.304       0.000       0.000     UG0_2_10_L_0
   5 D  0.4352     -8.7038E-02   9.261       2.176       9.261       5.851          ACTIVE   0.000      -0.5000       0.000
1.000       1.000       2.176       0.000       0.000     UG0_2_10_L_0
   6 D  0.6124     -8.4105E-02   13.03       3.062       13.03       8.806          ACTIVE   0.000      -0.7000       0.000
1.000       1.000       3.062       0.000       0.000     UG0_2_10_L_0
   7 D  0.7939     -8.1172E-02   16.89       3.969       16.89       11.56          ACTIVE   0.000      -0.9000       0.000
1.000       1.000       3.969       0.000       0.000     UG0_2_10_L_0
   8 D  0.9800     -7.8240E-02   20.85       4.900       20.85       14.07          ACTIVE   0.000       -1.100       0.000
1.000       1.000       4.900       0.000       0.000     UG0_2_10_L_0
   9 D  1.170      -7.5307E-02   24.89       5.848       24.89       16.36          ACTIVE   0.000       -1.300       0.000
1.000       1.000       5.848       0.000       0.000     UG0_2_10_L_0
  10 D  1.362      -7.2376E-02   28.97       6.808       28.97       18.46          ACTIVE   0.000       -1.500       0.000
1.000       1.000       6.808       0.000       0.000     UG0_2_10_L_0
  11 D  1.554      -6.9445E-02   33.07       7.772       33.07       20.40          ACTIVE   0.000       -1.700       0.000
1.000       1.000       7.772       0.000       0.000     UG0_2_10_L_0
  12 D  1.747      -6.6514E-02   37.17       8.735       37.17       22.24          ACTIVE   0.000       -1.900       0.000
1.000       1.000       8.735       0.000       0.000     UG0_2_10_L_0
  13 D  1.939      -6.3586E-02   41.25       9.694       41.25       23.99          ACTIVE   0.000       -2.100       0.000
1.000       1.000       9.694       0.000       0.000     UG0_2_10_L_0
  14 D  2.552      -6.0659E-02   45.73       12.76       45.73       27.09          ACTIVE   0.000       -2.300       0.000
1.000       1.000       12.76       0.000       0.000     UG3_4271_12_L_0
  15 D  2.821      -5.7736E-02   50.56       14.11       50.56       29.03          ACTIVE   0.000       -2.500       0.000
1.000       1.000       14.11       0.000       0.000     UG3_4271_12_L_0
  16 D  3.257      -5.4815E-02   53.87       15.03       53.87       30.28          ACTIVE   0.000       -2.700       1.254
1.000       1.000       16.28       0.000       0.000     UG3_4271_12_L_0
  17 D  3.757      -5.1900E-02   56.84       15.86       56.84       31.30          ACTIVE   0.000       -2.900       2.927
1.000       1.000       18.78       0.000       0.000     UG3_4271_12_L_0
  18 D  4.252      -4.8989E-02   59.72       16.66       59.72       32.32          ACTIVE   0.000       -3.100       4.599
1.000       1.000       21.26       0.000       0.000     UG3_4271_12_L_0
  19 D  4.738      -4.6086E-02   62.43       17.42       62.43       33.34          ACTIVE   0.000       -3.300       6.271
1.000       1.000       23.69       0.000       0.000     UG3_4271_12_L_0
  20 D  5.227      -4.3192E-02   65.20       18.19       65.20       34.37          ACTIVE   0.000       -3.500       7.944
1.000       1.000       26.13       0.000       0.000     UG3_4271_12_L_0
  21 D  5.708      -4.0308E-02   67.83       18.92       67.83       35.40          ACTIVE   0.000       -3.700       9.616
1.000       1.000       28.54       0.000       0.000     UG3_4271_12_L_0
  22 D  6.193      -3.7436E-02   70.53       19.68       70.53       36.45          ACTIVE   0.000       -3.900       11.29
1.000       1.000       30.97       0.000       0.000     UG3_4271_12_L_0
  23 D  6.676      -3.4581E-02   73.19       20.42       73.19       37.50          ACTIVE   0.000       -4.100       12.96
1.000       1.000       33.38       0.000       0.000     UG3_4271_12_L_0
  24 D  7.153      -3.1743E-02   75.74       21.13       75.74       38.57          ACTIVE   0.000       -4.300       14.63
1.000       1.000       35.76       0.000       0.000     UG3_4271_12_L_0
  25 D  7.633      -2.8927E-02   78.35       21.86       78.35       39.64          ACTIVE   0.000       -4.500       16.31
1.000       1.000       38.17       0.000       0.000     UG3_4271_12_L_0
  26 D  3.595      -2.6136E-02   80.92       0.000       80.92       40.72          ACTIVE   0.000       -4.700       17.98
1.000       1.000       17.98       0.000       0.000     UG2_4_26346_L_0
  27 D  3.930      -2.3373E-02   83.31       0.000       83.31       41.76          ACTIVE   0.000       -4.900       19.65
1.000       1.000       19.65       0.000       0.000     UG2_4_26346_L_0
  28 D  4.264      -2.0641E-02   85.76       0.000       85.76       42.81          ACTIVE   0.000       -5.100       21.32
1.000       1.000       21.32       0.000       0.000     UG2_4_26346_L_0
  29 D  4.599      -1.7941E-02   88.13       0.000       88.13       43.87          ACTIVE   0.000       -5.300       22.99
1.000       1.000       22.99       0.000       0.000     UG2_4_26346_L_0
  30 D  4.934      -1.5274E-02   90.15      1.5819E-03   90.15       44.94           UL-RL   9429.       -5.500       24.67
1.000       1.000       24.67       0.000       0.000     UG2_4_26346_L_0
```

```
  31 D   5.271     -1.2638E-02   92.17      1.7179E-02   92.17       46.02          UL-RL   9429.      -5.700       26.34
1.000       1.000       26.36       0.000       0.000     UG2_4_26346_L_0
  32 D   5.609     -1.0033E-02   94.20      3.2797E-02   94.20       47.11          UL-RL   9429.      -5.900       28.01
1.000       1.000       28.04       0.000       0.000     UG2_4_26346_L_0
  33 D   5.946     -7.4550E-03   96.25      4.8437E-02   96.25       48.20          UL-RL   9429.      -6.100       29.68
1.000       1.000       29.73       0.000       0.000     UG2_4_26346_L_0
  34 D   6.888     -4.9017E-03   98.30       3.083       98.30       49.30          UL-RL   9429.      -6.300       31.36
1.000       1.000       34.44       0.000       0.000     UG2_4_26346_L_0
  35 D   12.22     -2.3692E-03   100.4       28.07       100.4       50.41          UL-RL   9429.      -6.500       33.03
1.000       1.000       61.10       0.000       0.000     UG2_4_26346_L_0
  36 D   17.33      1.4672E-04   102.4       51.97       102.4       51.98          UL-RL   9429.      -6.700       34.70
1.000       1.000       86.67       0.000       0.000     UG2_4_26346_L_0
  37 D   19.47      2.6505E-03   104.5       60.96       104.5       60.97          UL-RL   9429.      -6.900       36.37
1.000       1.000       97.33       0.000       0.000     UG2_4_26346_L_0
  38 D   21.59      5.1463E-03   106.6       69.93       106.6       69.93          UL-RL   9429.      -7.100       38.05
1.000       1.000       108.0       0.000       0.000     UG2_4_26346_L_0
  39 D   23.72      7.6372E-03   108.7       78.88       108.7       78.89          UL-RL   9429.      -7.300       39.72
1.000       1.000       118.6       0.000       0.000     UG2_4_26346_L_0
  40 D   25.85      1.0126E-02   110.8       87.84       110.8       87.84            V-C   3143.      -7.500       41.39
1.000       1.000       129.2       0.000       0.000     UG2_4_26346_L_0
  41 D   13.99      1.2614E-02   112.9       96.84       112.9       96.84            V-C   3143.      -7.700       43.06
1.000       1.000       139.9       0.000       0.000     UG3_4271_27610_L_0


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
|                                                                                                                               |
|                      NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                              |
|                                 Exe Time : 3 April 2019     10:25:13                                                          |
+-------------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S      2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-----------------------------------------------------------
    1 1.63436E-09-1.63436E-09 1.64324E-10 5.53194E-10
    2-8.52456E-11 8.52456E-11-3.99893E-10-2.23110E-12
    3-8.69500E-02 8.69500E-02-9.40470E-11-1.73900E-02
    4-0.34780     0.34780     1.73900E-02-8.69500E-02
    5-0.78305     0.78305     8.69500E-02-0.24356
    6 -1.3954      1.3954     0.24356    -0.52265
    7 -2.1893      2.1893     0.52265    -0.96051
    8 -3.1693      3.1693     0.96051     -1.5944
    9 -4.3389      4.3389      1.5944     -2.4621
   10 -5.7005      5.7005      2.4621     -3.6022
   11 -7.2549      7.2549      3.6022     -5.0532
   12 -9.0019      9.0019      5.0532     -6.8536
   13 -10.941      10.941      6.8536     -9.0418
   14 -13.493      13.493      9.0418     -11.740
   15 -16.314      16.314      11.740     -15.003
   16 -19.571      19.571      15.003     -18.917
   17 -23.328      23.328      18.917     -23.583
   18 -27.580      27.580      23.583     -29.099
   19 -32.317      32.317      29.099     -35.562
   20 -37.544      37.544      35.562     -43.071
   21 -43.252      43.252      43.071     -51.722
   22 -49.446      49.446      51.722     -61.611
   23 -55.079      55.079      61.611     -72.627
   24 -59.102      59.102      72.627     -84.447
   25 -61.520      61.520      84.447     -96.751
   26 -41.026      41.026      96.751     -104.96
   27 -21.930      21.930      104.96     -109.34
   28 -4.2176      4.2176      109.34     -110.19
   29  12.128     -12.128      110.19     -107.76
   30  27.124     -27.124      107.76     -102.34
   31  40.786     -40.786      102.34     -94.178
   32  53.130     -53.130      94.178     -83.552
   33  64.173     -64.173      83.552     -70.718
   34  73.328     -73.328      70.718     -56.052
   35  76.037     -76.037      56.052     -40.845
   36  69.557     -69.557      40.845     -26.933
   37  56.894     -56.894      26.933     -15.555
   38  42.516     -42.516      15.555     -7.0514
   39  26.478     -26.478      7.0514     -1.7558
   40  8.7791     -8.7791      1.7558    -8.40794E-12


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```

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                     NewProject.BaseDesignSection_28.NTC2018SLERaraFrequenteQuasiPermanente_1116                     |
|                                  Exe Time : 3 April 2019     10:25:13                                               |
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     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                    S U M M A R Y

     STEP                                NO. OF ITERATIONS

        1           CONVERGENCE :YES                     2
        2           CONVERGENCE :YES                     8


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.02 [sec]
DATABASE  CREATION CPU TIME.....    0.06 [sec]
```

7.3. Design Assumption : NTC2018: A1+M1+R1 (R3 per tiranti) - File di Paratie - File di output (.out)

```
+---------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                  Exe Time : 3 April 2019     10:25:13                                               |
+---------------------------------------------------------------------------------------------------------------------+

                  ***********************************************************
                  *                                                         *
                  *  PARATIE PLUS Non-Linear Spring Engine                  *
                  *                                                         *
                  *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM        *
                  *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES        *
                  *                                                         *
                  *          Written by Ce.A.S. s.r.l. (ITALY)              *
                  *          with the scientific supervision of             *
                  *          Roberto Nova - full professor SOIL MECHANICS   *
                  *          at Politecnico di Milano (ITALY)               *
                  *                                                         *
                  ***********************************************************
                  *                                                         *
                  *  RELEASE   2018.1     *Build date:Jun 29, 2018*    *    *
                  *                                                         *
                  *                                                         *
                  *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE      *
                  *              VIALE   GIUSTINIANO 10                     *
                  *              20129   M I L A N O  (ITALIA)              *
                  *  TEL.        +39 02 2020221                             *
                  *                                                         *
                  *  email       bruno.becci@ceas.it                        *
                  *  Web Page    www.ceas.it     www.paratieplus.com        *
                  ***********************************************************



 JOB : NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                    &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                          &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                           &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                              &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                                &gt;


                  ***********************************************************
                  *                                                         *
                  *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED    *
                  *    BY THE PROGRAM.                                      *
                  ***********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.00 [sec]


+---------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                  Exe Time : 3 April 2019     10:25:13                                               |
+---------------------------------------------------------------------------------------------------------------------+
```

```
INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................   41
NO. OF COORDINATES  (NCOORD)....................    2
NO. OF NODE DOFS    (NDOF).....................    2
NO. OF EQUATIONS    (NEQ)......................   82
NO. OF CONSTRAINTS CARDS (NVINC)................    0
NO. OF ELEMENT GROUPS (NEG).....................    3
NO. OF SOLUTION STEPS (NSTE)....................    2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ......................  100
NO. OF LONG NAMES (LASTNAME) ...................   13
LENGTH UNIT CHOICE .............................    3 (M   )
FORCE  UNIT CHOICE .............................    3 (KN  )
MAX PORE PRESSURE TABLE LENGTH..................    1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    100

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -7.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -7.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -7.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG3_4271_12_L_0 -2.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 20 10 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 0 32 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG2_4_26346_L_0 -4.65 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 19.5 9.5 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 30 25 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG3_4271_27610_L_0 -7.5 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 20 10 10
   33 : PERMEABILITY 1E-07
   34 : RESISTANCE 0 32 0 0 0
   35 : WINKLER 3143 9429.1
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  36 : ENDL
  37 : MATERIAL S275_115 2.1E+08
  38 : BEAM WallElement_New_28707 LeftWall_32 -7.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
  40 : STEP Stage1_31
  41 : CHANGE UG0_2_10_L_0 U-FRICT=35 LeftWall_32
  42 : CHANGE UG0_2_10_L_0 D-FRICT=35 LeftWall_32
  43 : CHANGE UG0_2_10_L_0 U-KA=0.235 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=4.198 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.39 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=8.42 LeftWall_32
  47 : CHANGE UG3_4271_12_L_0 U-FRICT=32 LeftWall_32
  48 : CHANGE UG3_4271_12_L_0 D-FRICT=32 LeftWall_32
  49 : CHANGE UG3_4271_12_L_0 U-KA=0.279 LeftWall_32
  50 : CHANGE UG3_4271_12_L_0 U-KP=3.128 LeftWall_32
  51 : CHANGE UG3_4271_12_L_0 D-KA=0.407 LeftWall_32
  52 : CHANGE UG3_4271_12_L_0 D-KP=5.919 LeftWall_32
  53 : CHANGE UG2_4_26346_L_0 U-FRICT=25 LeftWall_32
  54 : CHANGE UG2_4_26346_L_0 D-FRICT=25 LeftWall_32
  55 : CHANGE UG2_4_26346_L_0 U-KA=0.369 LeftWall_32
  56 : CHANGE UG2_4_26346_L_0 U-KP=1.867 LeftWall_32
  57 : CHANGE UG2_4_26346_L_0 D-KA=0.501 LeftWall_32
  58 : CHANGE UG2_4_26346_L_0 D-KP=3.611 LeftWall_32
  59 : CHANGE UG3_4271_27610_L_0 U-FRICT=32 LeftWall_32
  60 : CHANGE UG3_4271_27610_L_0 D-FRICT=32 LeftWall_32
  61 : CHANGE UG3_4271_27610_L_0 U-KA=0.283 LeftWall_32
  62 : CHANGE UG3_4271_27610_L_0 U-KP=2.673 LeftWall_32
  63 : CHANGE UG3_4271_27610_L_0 D-KA=0.373 LeftWall_32
  64 : CHANGE UG3_4271_27610_L_0 D-KP=5.317 LeftWall_32
  65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
  66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
  67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
  68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
  69 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
  70 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
  72 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG2_4_26346_L_0 U-COHE=30 LeftWall_32
  74 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG2_4_26346_L_0 D-COHE=30 LeftWall_32
  76 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  77 : CHANGE UG3_4271_27610_L_0 U-COHE=0 LeftWall_32
  78 : CHANGE UG3_4271_27610_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG3_4271_27610_L_0 D-COHE=0 LeftWall_32
  80 : CHANGE UG3_4271_27610_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -2.55 0 -7.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.271 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=5.879 LeftWall_32
  89 : CHANGE UG3_4271_12_L_0 D-KA=0.307 LeftWall_32
  90 : CHANGE UG3_4271_12_L_0 D-KP=4.845 LeftWall_32
  91 : CHANGE UG2_4_26346_L_0 D-KA=0.406 LeftWall_32
  92 : CHANGE UG2_4_26346_L_0 D-KP=3.222 LeftWall_32
  93 : CHANGE UG3_4271_27610_L_0 D-KA=0.307 LeftWall_32
  94 : CHANGE UG3_4271_27610_L_0 D-KP=4.845 LeftWall_32
  95 : SETWALL LeftWall_32
  96 : GEOM 0 -4
  97 : SURCHARGE 0 0 0 0
  98 : WATER -2.55 1.45 -7.7 0 0
  99 : ADD WallElement_New_28707
 100 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                             NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
|                                  Exe Time : 3 April 2019     10:25:13                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000     -1.1000     /
   9  0.0000     -1.3000     /   10  0.0000     -1.5000     /   11  0.0000     -1.7000     /   12  0.0000     -1.9000     /
  13  0.0000     -2.1000     /   14  0.0000     -2.3000     /   15  0.0000     -2.5000     /   16  0.0000     -2.7000     /
  17  0.0000     -2.9000     /   18  0.0000     -3.1000     /   19  0.0000     -3.3000     /   20  0.0000     -3.5000     /
  21  0.0000     -3.7000     /   22  0.0000     -3.9000     /   23  0.0000     -4.1000     /   24  0.0000     -4.3000     /
  25  0.0000     -4.5000     /   26  0.0000     -4.7000     /   27  0.0000     -4.9000     /   28  0.0000     -5.1000     /
  29  0.0000     -5.3000     /   30  0.0000     -5.5000     /   31  0.0000     -5.7000     /   32  0.0000     -5.9000     /
  33  0.0000     -6.1000     /   34  0.0000     -6.3000     /   35  0.0000     -6.5000     /   36  0.0000     -6.7000     /
```

```
  37  0.0000     -6.9000     /   38  0.0000     -7.1000     /   39  0.0000     -7.3000     /   40  0.0000     -7.5000     /
  41  0.0000     -7.7000     /


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                            NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                               |
|                                  Exe Time : 3 April 2019     10:25:13                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                                 :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el     n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1     1    1   0.1000     0.000     0.000     0.000     2.000
    2     2    1   0.2000     0.000     0.000     0.000     2.000
    3     3    1   0.2000     0.000     0.000     0.000     2.000
    4     4    1   0.2000     0.000     0.000     0.000     2.000
    5     5    1   0.2000     0.000     0.000     0.000     2.000
    6     6    1   0.2000     0.000     0.000     0.000     2.000
    7     7    1   0.2000     0.000     0.000     0.000     2.000
    8     8    1   0.2000     0.000     0.000     0.000     2.000
    9     9    1   0.2000     0.000     0.000     0.000     2.000
   10    10    1   0.2000     0.000     0.000     0.000     2.000
   11    11    1   0.2000     0.000     0.000     0.000     2.000
   12    12    1   0.2000     0.000     0.000     0.000     2.000
   13    13    1   0.2000     0.000     0.000     0.000     2.000
   14    14    2   0.2000     0.000     0.000     0.000     2.000
   15    15    2   0.2000     0.000     0.000     0.000     2.000
   16    16    2   0.2000     0.000     0.000     0.000     2.000
   17    17    2   0.2000     0.000     0.000     0.000     2.000
   18    18    2   0.2000     0.000     0.000     0.000     2.000
   19    19    2   0.2000     0.000     0.000     0.000     2.000
   20    20    2   0.2000     0.000     0.000     0.000     2.000
   21    21    2   0.2000     0.000     0.000     0.000     2.000
   22    22    2   0.2000     0.000     0.000     0.000     2.000
   23    23    2   0.2000     0.000     0.000     0.000     2.000
   24    24    2   0.2000     0.000     0.000     0.000     2.000
   25    25    2   0.2000     0.000     0.000     0.000     2.000
   26    26    3   0.2000     0.000     0.000     0.000     2.000
   27    27    3   0.2000     0.000     0.000     0.000     2.000
   28    28    3   0.2000     0.000     0.000     0.000     2.000
   29    29    3   0.2000     0.000     0.000     0.000     2.000
   30    30    3   0.2000     0.000     0.000     0.000     2.000
   31    31    3   0.2000     0.000     0.000     0.000     2.000
   32    32    3   0.2000     0.000     0.000     0.000     2.000
   33    33    3   0.2000     0.000     0.000     0.000     2.000
```

34	34	3	0.2000	0.000	0.000	0.000	2.000
35	35	3	0.2000	0.000	0.000	0.000	2.000
36	36	3	0.2000	0.000	0.000	0.000	2.000
37	37	3	0.2000	0.000	0.000	0.000	2.000
38	38	3	0.2000	0.000	0.000	0.000	2.000
39	39	3	0.2000	0.000	0.000	0.000	2.000
40	40	3	0.2000	0.000	0.000	0.000	2.000
41	41	4	0.1000	0.000	0.000	0.000	2.000

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time : 3 April 2019     10:25:13                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                                :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
..........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

  el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------
```

1	1	1	0.1000	0.000	0.000	0.000	1.000
2	2	1	0.2000	0.000	0.000	0.000	1.000
3	3	1	0.2000	0.000	0.000	0.000	1.000
4	4	1	0.2000	0.000	0.000	0.000	1.000
5	5	1	0.2000	0.000	0.000	0.000	1.000
6	6	1	0.2000	0.000	0.000	0.000	1.000
7	7	1	0.2000	0.000	0.000	0.000	1.000
8	8	1	0.2000	0.000	0.000	0.000	1.000
9	9	1	0.2000	0.000	0.000	0.000	1.000
10	10	1	0.2000	0.000	0.000	0.000	1.000
11	11	1	0.2000	0.000	0.000	0.000	1.000
12	12	1	0.2000	0.000	0.000	0.000	1.000
13	13	1	0.2000	0.000	0.000	0.000	1.000
14	14	2	0.2000	0.000	0.000	0.000	1.000
15	15	2	0.2000	0.000	0.000	0.000	1.000
16	16	2	0.2000	0.000	0.000	0.000	1.000
17	17	2	0.2000	0.000	0.000	0.000	1.000
18	18	2	0.2000	0.000	0.000	0.000	1.000
19	19	2	0.2000	0.000	0.000	0.000	1.000
20	20	2	0.2000	0.000	0.000	0.000	1.000
21	21	2	0.2000	0.000	0.000	0.000	1.000
22	22	2	0.2000	0.000	0.000	0.000	1.000
23	23	2	0.2000	0.000	0.000	0.000	1.000
24	24	2	0.2000	0.000	0.000	0.000	1.000
25	25	2	0.2000	0.000	0.000	0.000	1.000
26	26	3	0.2000	0.000	0.000	0.000	1.000
27	27	3	0.2000	0.000	0.000	0.000	1.000

28	28	3	0.2000	0.000	0.000	0.000	1.000
29	29	3	0.2000	0.000	0.000	0.000	1.000
30	30	3	0.2000	0.000	0.000	0.000	1.000
31	31	3	0.2000	0.000	0.000	0.000	1.000
32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	0.2000	0.000	0.000	0.000	1.000
38	38	3	0.2000	0.000	0.000	0.000	1.000
39	39	3	0.2000	0.000	0.000	0.000	1.000
40	40	3	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.1000	0.000	0.000	0.000	1.000

```
+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
|                                                                                                                               |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
|                                   Exe Time : 3 April 2019     10:25:13                                                        |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                                :
   2  40   0   1   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
.....2D WALL ELEMENT.....
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ..... 0.00000

 no. of step variable items:     1
 step  inertia multipier
-------------------------
    1   1.000
    2   1.000

 element data
```

el	na	nb	mat	erc1	erc2	thick	by-i	by-j
1	1	2	1	0.000	0.000	0.1978	0.000	0.000
2	2	3	1	0.000	0.000	0.1978	0.000	0.000
3	3	4	1	0.000	0.000	0.1978	0.000	0.000
4	4	5	1	0.000	0.000	0.1978	0.000	0.000
5	5	6	1	0.000	0.000	0.1978	0.000	0.000
6	6	7	1	0.000	0.000	0.1978	0.000	0.000
7	7	8	1	0.000	0.000	0.1978	0.000	0.000
8	8	9	1	0.000	0.000	0.1978	0.000	0.000
9	9	10	1	0.000	0.000	0.1978	0.000	0.000
10	10	11	1	0.000	0.000	0.1978	0.000	0.000
11	11	12	1	0.000	0.000	0.1978	0.000	0.000
12	12	13	1	0.000	0.000	0.1978	0.000	0.000
13	13	14	1	0.000	0.000	0.1978	0.000	0.000
14	14	15	1	0.000	0.000	0.1978	0.000	0.000
15	15	16	1	0.000	0.000	0.1978	0.000	0.000
16	16	17	1	0.000	0.000	0.1978	0.000	0.000
17	17	18	1	0.000	0.000	0.1978	0.000	0.000
18	18	19	1	0.000	0.000	0.1978	0.000	0.000
19	19	20	1	0.000	0.000	0.1978	0.000	0.000
20	20	21	1	0.000	0.000	0.1978	0.000	0.000
21	21	22	1	0.000	0.000	0.1978	0.000	0.000
22	22	23	1	0.000	0.000	0.1978	0.000	0.000
23	23	24	1	0.000	0.000	0.1978	0.000	0.000
24	24	25	1	0.000	0.000	0.1978	0.000	0.000
25	25	26	1	0.000	0.000	0.1978	0.000	0.000
26	26	27	1	0.000	0.000	0.1978	0.000	0.000
27	27	28	1	0.000	0.000	0.1978	0.000	0.000
28	28	29	1	0.000	0.000	0.1978	0.000	0.000
29	29	30	1	0.000	0.000	0.1978	0.000	0.000
30	30	31	1	0.000	0.000	0.1978	0.000	0.000
31	31	32	1	0.000	0.000	0.1978	0.000	0.000

```
   32   32   33    1    0.000     0.000     0.1978     0.000     0.000
   33   33   34    1    0.000     0.000     0.1978     0.000     0.000
   34   34   35    1    0.000     0.000     0.1978     0.000     0.000
   35   35   36    1    0.000     0.000     0.1978     0.000     0.000
   36   36   37    1    0.000     0.000     0.1978     0.000     0.000
   37   37   38    1    0.000     0.000     0.1978     0.000     0.000
   38   38   39    1    0.000     0.000     0.1978     0.000     0.000
   39   39   40    1    0.000     0.000     0.1978     0.000     0.000
   40   40   41    1    0.000     0.000     0.1978     0.000     0.000


+-------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                               NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
|                                     Exe Time : 3 April 2019     10:25:13                                                |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-------------------------------------------------------------------------------------------------------------------------+
|                    PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                               NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
|                                     Exe Time : 3 April 2019     10:25:13                                                |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time : 3 April 2019     10:25:13                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                       LOAD INPUT SECTION COMPLETED



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time : 3 April 2019     10:25:13                                                 |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS ..............................    4
NO. OF DATA PER LAYER.......................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                             |
|                                    Exe Time : 3 April 2019     10:25:13                                                 |
+-------------------------------------------------------------------------------------------------------------------------+

LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.39000     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  8.4200     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
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ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.9190     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.50100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.6110     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.37300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.3170     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.23500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  4.1980     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
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ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.27100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.8790     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.27900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.1280     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.36900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.8670     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.40600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.2220     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  10&lt;U-KA    &gt;= 0.28300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.6730     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     (BOTH WALLS)
ITEM NO.  60&lt;D-KA    &gt;= 0.30700     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.8450     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
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DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                 NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                        |
|                                       Exe Time : 3 April 2019     10:25:13                                            |
+-----------------------------------------------------------------------------------------------------------------------+

PHASE DESCRIPTORS


STEP  NO.     1
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                           0.000         0.000
Z-WATER_TABLE                         -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 0.000         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
SEISMIC PRESSURE UPPER LEVEL           0.000         0.000

================================================================================================================end of step    1


STEP  NO.     2
                                      LEFT WALL    RIGHT WALL
Y                                      0.000       -0.9990E+30
Z-PC                                   0.000         0.000
Z-EXCAVATION                          -4.000         0.000
Z-WATER_TABLE                         -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL              0.000         0.000
ZQ                                     0.000         0.000
DZW_OF_THE_WATER_TABLE                 1.450         0.000
QS_ON_THE_EXCAVATION_SIDE              0.000         0.000
ZQS                                    0.000       -0.9990E+30
ZCUT                                   0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES      -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)      0.000         0.000
PORE_UPDATE_FLAG                       0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)       0.000         0.000
lateral thrusts reduction elevatio     0.000         0.000
Downhill reduction factor for effe     0.000         0.000
Downhill reduction factor for pore     0.000         0.000
Uphill reduction factor for effect     0.000         0.000
Uphill reduction factor for pore p     0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]       0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]      0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]      0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]        0.000         0.000
UPHILL DELTA/PHI RATIO                 0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]      0.000         0.000
DOWNHILL DELTA/PHI RATIO               0.000         0.000
DYN.WATER BEHAVIOUR                    0.000         0.000
Excess pore pressure RATIO Ru          0.000         0.000
SEISMIC PRESSURE LOWER VALUE           0.000         0.000
SEISMIC PRESSURE UPPER VALUE           0.000         0.000
SEISMIC PRESSURE LOWER LEVEL           0.000         0.000
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SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

==========================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000




+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
+-----------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                       -0.300000000000000
 Q-F .....                          20.0000000000000
 BETA .....                         45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2588

 NO. OF D.P.W  FOR THIS AREA       4848
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     1 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
```

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          MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
          NO. OF CONTACT CONSTRAINT VIOLATIONS     0



+-----------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                |
|                                                                                                                             |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                 |
|                                    Exe Time : 3 April 2019     10:25:13                                                     |
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New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

         Y-DISPL.F        X-ROT. F
          (02)            (04)           (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS




+-----------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                |
|                                                                                                                             |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                 |
|                                    Exe Time : 3 April 2019     10:25:13                                                     |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR        Peq          Su_a        Su_p     LAYER
-------------------------------------------------------------------------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  0.1850       0.000       1.850      0.9250       1.850      0.9250            V-C   3143.      -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000     UG0_2_10_L_0
   4 D  0.5550       0.000       5.550       2.775       5.550       2.775            V-C   3143.      -0.3000       0.000
1.000       1.000       2.775       0.000       0.000     UG0_2_10_L_0
   5 D   1.170       0.000       9.250       5.851       9.250       5.851            V-C   3143.      -0.5000       0.000
1.000       1.000       5.851       0.000       0.000     UG0_2_10_L_0
   6 D   1.761       0.000       12.95       8.806       12.95       8.806            V-C   3143.      -0.7000       0.000
1.000       1.000       8.806       0.000       0.000     UG0_2_10_L_0
   7 D   2.312       0.000       16.65       11.56       16.65       11.56            V-C   3143.      -0.9000       0.000
1.000       1.000       11.56       0.000       0.000     UG0_2_10_L_0
   8 D   2.815       0.000       20.35       14.07       20.35       14.07            V-C   3143.       -1.100       0.000
1.000       1.000       14.07       0.000       0.000     UG0_2_10_L_0
   9 D   3.273       0.000       24.05       16.36       24.05       16.36            V-C   3143.       -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       27.75       18.46       27.75       18.46            V-C   3143.       -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       31.45       20.40       31.45       20.40            V-C   3143.       -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       35.15       22.24       35.15       22.24            V-C   3143.       -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       38.85       23.99       38.85       23.99            V-C   3143.       -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       42.70       27.09       42.70       27.09            V-C   3143.       -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       46.70       29.03       46.70       29.03            V-C   3143.       -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330    -1.4129E-18    49.20       30.15       49.20       30.15            V-C   3143.       -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       51.20       31.00       51.20       31.00            V-C   3143.       -2.900       3.500
1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       53.20       31.84       53.20       31.84            V-C   3143.       -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
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19 D	8.038	0.000	55.20	32.69	55.20	32.69	V-C	3143.	-3.300	7.500	
1.000	1.000	40.19	0.000	0.000	UG3_4271_12_L_0						
20 D	8.609	0.000	57.20	33.54	57.20	33.54	V-C	3143.	-3.500	9.500	
1.000	1.000	43.04	0.000	0.000	UG3_4271_12_L_0						
21 D	9.181	2.8259E-18	59.20	34.40	59.20	34.40	V-C	3143.	-3.700	11.50	
1.000	1.000	45.90	0.000	0.000	UG3_4271_12_L_0						
22 D	9.755	0.000	61.20	35.27	61.20	35.27	V-C	3143.	-3.900	13.50	
1.000	1.000	48.77	0.000	0.000	UG3_4271_12_L_0						
23 D	10.33	-2.8259E-18	63.20	36.15	63.20	36.15	V-C	3143.	-4.100	15.50	
1.000	1.000	51.65	0.000	0.000	UG3_4271_12_L_0						
24 D	10.91	0.000	65.20	37.05	65.20	37.05	V-C	3143.	-4.300	17.50	
1.000	1.000	54.55	0.000	0.000	UG3_4271_12_L_0						
25 D	11.49	0.000	67.20	37.95	67.20	37.95	V-C	3143.	-4.500	19.50	
1.000	1.000	57.45	0.000	0.000	UG3_4271_12_L_0						
26 D	12.07	0.000	69.18	38.85	69.18	38.85	V-C	3143.	-4.700	21.50	
1.000	1.000	60.35	0.000	0.000	UG2_4_26346_L_0						
27 D	12.64	0.000	71.08	39.72	71.08	39.72	V-C	3143.	-4.900	23.50	
1.000	1.000	63.22	0.000	0.000	UG2_4_26346_L_0						
28 D	13.22	-2.8259E-18	72.97	40.59	72.97	40.59	V-C	3143.	-5.100	25.50	
1.000	1.000	66.09	0.000	0.000	UG2_4_26346_L_0						
29 D	13.80	0.000	74.87	41.48	74.87	41.48	V-C	3143.	-5.300	27.50	
1.000	1.000	68.98	0.000	0.000	UG2_4_26346_L_0						
30 D	14.38	2.8259E-18	76.77	42.38	76.77	42.38	V-C	3143.	-5.500	29.50	
1.000	1.000	71.88	0.000	0.000	UG2_4_26346_L_0						
31 D	14.96	0.000	78.67	43.28	78.67	43.28	V-C	3143.	-5.700	31.50	
1.000	1.000	74.78	0.000	0.000	UG2_4_26346_L_0						
32 D	15.54	0.000	80.57	44.19	80.57	44.19	V-C	3143.	-5.900	33.50	
1.000	1.000	77.69	0.000	0.000	UG2_4_26346_L_0						
33 D	16.12	0.000	82.47	45.11	82.47	45.11	V-C	3143.	-6.100	35.50	
1.000	1.000	80.61	0.000	0.000	UG2_4_26346_L_0						
34 D	16.71	-5.6518E-18	84.37	46.04	84.37	46.04	V-C	3143.	-6.300	37.50	
1.000	1.000	83.54	0.000	0.000	UG2_4_26346_L_0						
35 D	17.29	0.000	86.27	46.97	86.27	46.97	V-C	3143.	-6.500	39.50	
1.000	1.000	86.47	0.000	0.000	UG2_4_26346_L_0						
36 D	17.88	0.000	88.17	47.91	88.17	47.91	V-C	3143.	-6.700	41.50	
1.000	1.000	89.41	0.000	0.000	UG2_4_26346_L_0						
37 D	18.47	0.000	90.07	48.85	90.07	48.85	V-C	3143.	-6.900	43.50	
1.000	1.000	92.35	0.000	0.000	UG2_4_26346_L_0						
38 D	19.06	-5.6518E-18	91.97	49.80	91.97	49.80	V-C	3143.	-7.100	45.50	
1.000	1.000	95.30	0.000	0.000	UG2_4_26346_L_0						
39 D	19.65	0.000	93.87	50.75	93.87	50.75	V-C	3143.	-7.300	47.50	
1.000	1.000	98.25	0.000	0.000	UG2_4_26346_L_0						
40 D	20.24	0.000	95.77	51.71	95.77	51.71	V-C	3143.	-7.500	49.50	
1.000	1.000	101.2	0.000	0.000	UG2_4_26346_L_0						
41 D	10.42	5.6518E-18	97.78	52.72	97.78	52.72	V-C	3143.	-7.700	51.50	
1.000	1.000	104.2	0.000	0.000	UG3_4271_27610_L_0						

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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****
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EL * FACTOR	FORCE UFACTOR	DISPL-Y Peq	VERTICAL-P Su_a	HORIZON.-P Su_p	MAX-V-P LAYER	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.261	5.851	9.261	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	13.03	8.806	13.03	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.89	11.56	16.89	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.85	14.07	20.85	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						

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   9 D   3.273       0.000       24.89       16.36       24.89       16.36          V-C   3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000     UG0_2_10_L_0
  10 D   3.692       0.000       28.97       18.46       28.97       18.46          V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       33.07       20.40       33.07       20.40          V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       37.17       22.24       37.17       22.24          V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       41.25       23.99       41.25       23.99          V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       45.73       27.09       45.73       27.09          V-C   3143.      -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       50.56       29.03       50.56       29.03          V-C   3143.      -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330   1.4129E-18      53.63       30.15       53.63       30.15          V-C   3143.      -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       56.26       31.00       56.26       31.00          V-C   3143.      -2.900       3.500
1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       58.82       31.84       58.82       31.84          V-C   3143.      -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       61.20       32.69       61.20       32.69          V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       63.65       33.54       63.65       33.54          V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181  -2.8259E-18      65.95       34.40       65.95       34.40          V-C   3143.      -3.700      11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       68.32       35.27       68.32       35.27          V-C   3143.      -3.900      13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33   2.8259E-18      70.65       36.15       70.65       36.15          V-C   3143.      -4.100      15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       72.87       37.05       72.87       37.05          V-C   3143.      -4.300      17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       75.16       37.95       75.16       37.95          V-C   3143.      -4.500      19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       77.39       38.85       77.39       38.85          V-C   3143.      -4.700      21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       79.46       39.72       79.46       39.72          V-C   3143.      -4.900      23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22   2.8259E-18      81.59       40.59       81.59       40.59          V-C   3143.      -5.100      25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       83.63       41.48       83.63       41.48          V-C   3143.      -5.300      27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38  -2.8259E-18      85.31       42.38       85.31       42.38          V-C   3143.      -5.500      29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       87.01       43.28       87.01       43.28          V-C   3143.      -5.700      31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       88.71       44.19       88.71       44.19          V-C   3143.      -5.900      33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       90.43       45.11       90.43       45.11          V-C   3143.      -6.100      35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71   5.6518E-18      92.15       46.04       92.15       46.04          V-C   3143.      -6.300      37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       93.88       46.97       93.88       46.97          V-C   3143.      -6.500      39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       95.62       47.91       95.62       47.91          V-C   3143.      -6.700      41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       97.37       48.85       97.37       48.85          V-C   3143.      -6.900      43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06   5.6518E-18      99.12       49.80       99.12       49.80          V-C   3143.      -7.100      45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       100.9       50.75       100.9       50.75          V-C   3143.      -7.300      47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       102.6       51.71       102.6       51.71          V-C   3143.      -7.500      49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42  -5.6518E-18      104.5       52.72       104.5       52.72          V-C   3143.      -7.700      51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                  :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
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***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 1471.     REMNOR= 0.000     RATIO =0.4863     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.4863     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    82 NODE     41 DOF   2   X-ROT. F
           MIN UN=-9.547     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 114.2     REMNOR=0.2251E-20 RATIO =0.1355     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.1355     RATIOR= 0.000
           MAX UN=0.1599E-09 IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           MIN UN=-5.158     IEQ=    47 NODE     24 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 712.3     REMNOR=0.1771E-18 RATIO =0.3384     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.3384     RATIOR= 0.000
           MAX UN= 3.266     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
           MIN UN=-17.13     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM= 250.1     REMNOR=0.4917E-18 RATIO =0.2005     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.2005     RATIOR= 0.000
           MAX UN= 8.189     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
           MIN UN=-10.41     IEQ=    61 NODE     31 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.2950E-01 REMNOR=0.3855E-18 RATIO =0.2178E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.2178E-02 RATIOR= 0.000
           MAX UN=0.1717     IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-.4938E-08 IEQ=     3 NODE      2 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.1540E-02 REMNOR=0.1564E-18 RATIO =0.4975E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.4975E-03 RATIOR= 0.000
           MAX UN=0.3617E-08 IEQ=     9 NODE      5 DOF   1  Y-DISPL.F
           MIN UN=-.2390E-01 IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6221.     RIMNOR= 0.000
           RENORM=0.1064E-03 REMNOR=0.1135E-18 RATIO =0.1308E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6221.     RDR   = 0.000
           RATIOT=0.1308E-03 RATIOR= 0.000
           MAX UN=0.4630E-02 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.6383E-02 IEQ=    55 NODE     28 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     8 RNORM = 0.000     RMNORM= 0.000
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 RINORM= 6221.     RIMNOR= 0.000
 RENORM=0.5553E-06 REMNOR=0.2777E-18 RATIO =0.9448E-05 TOLER =0.1000E-03      CONVERGED !
 RFMAX = 19.48     RMMAX = 0.000
 RTSMAL=0.1000E-03 RMSMAL= 0.000
 RDT   = 6221.     RDR   = 0.000
 RATIOT=0.9448E-05 RATIOR= 0.000
 MAX UN=0.7002E-03 IEQ=    81 NODE     41 DOF   1  Y-DISPL.F
 MIN UN=-.3201E-08 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
 NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
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New Project
SOLUTION REACHED USING     8 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)            (
    1  -9.8769767E-02   1.4664556E-02
    2  -9.5836856E-02   1.4664556E-02
    3  -9.2903944E-02   1.4664556E-02
    4  -8.9971034E-02   1.4664544E-02
    5  -8.7038131E-02   1.4664466E-02
    6  -8.4105259E-02   1.4664222E-02
    7  -8.1172464E-02   1.4663656E-02
    8  -7.8239831E-02   1.4662561E-02
    9  -7.5307492E-02   1.4660673E-02
   10  -7.2375636E-02   1.4657677E-02
   11  -6.9444521E-02   1.4653197E-02
   12  -6.6514485E-02   1.4646803E-02
   13  -6.3585960E-02   1.4638007E-02
   14  -6.0659479E-02   1.4626265E-02
   15  -5.7735694E-02   1.4610913E-02
   16  -5.4815407E-02   1.4591157E-02
   17  -5.1899585E-02   1.4566099E-02
   18  -4.8989390E-02   1.4534703E-02
   19  -4.6086205E-02   1.4495786E-02
   20  -4.3191665E-02   1.4448020E-02
   21  -4.0307671E-02   1.4389931E-02
   22  -3.7436474E-02   1.4319906E-02
   23  -3.4580636E-02   1.4236185E-02
   24  -3.1743044E-02   1.4137021E-02
   25  -2.8926952E-02   1.4020987E-02
   26  -2.6135837E-02   1.3887132E-02
   27  -2.3373109E-02   1.3738127E-02
   28  -2.0641220E-02   1.3579821E-02
   29  -1.7941453E-02   1.3417650E-02
   30  -1.5274082E-02   1.3256649E-02
   31  -1.2638406E-02   1.3101447E-02
   32  -1.0032835E-02   1.2956278E-02
   33  -7.4549830E-03   1.2824985E-02
   34  -4.9016982E-03   1.2711023E-02
   35  -2.3692196E-03   1.2617375E-02
   36   1.4672292E-04   1.2545795E-02
   37   2.6505324E-03   1.2495726E-02
   38   5.1462587E-03   1.2464339E-02
   39   7.6372347E-03   1.2447639E-02
   40   1.0125982E-02   1.2441133E-02
   41   1.2614073E-02   1.2439836E-02



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.    1

0_L                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT
```

****** TOTAL STRESS FORMULATION *****

EL * FACTOR	FORCE UFACTOR	DISPL-Y Peq	VERTICAL-P Su_a	HORIZON.-P Su_p	MAX-V-P LAYER	MAX-H-P	STATE	STIFFNESS	Z-LEVEL	PORE	E
1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3	0.000	--	--	--	--	--	REMOVED	--	-0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
4	0.000	--	--	--	--	--	REMOVED	--	-0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
5	0.000	--	--	--	--	--	REMOVED	--	-0.5000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
6	0.000	--	--	--	--	--	REMOVED	--	-0.7000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
7	0.000	--	--	--	--	--	REMOVED	--	-0.9000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
8	0.000	--	--	--	--	--	REMOVED	--	-1.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
9	0.000	--	--	--	--	--	REMOVED	--	-1.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
10	0.000	--	--	--	--	--	REMOVED	--	-1.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
11	0.000	--	--	--	--	--	REMOVED	--	-1.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
12	0.000	--	--	--	--	--	REMOVED	--	-1.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
13	0.000	--	--	--	--	--	REMOVED	--	-2.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
14	0.000	--	--	--	--	--	REMOVED	--	-2.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
15	0.000	--	--	--	--	--	REMOVED	--	-2.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
16	0.000	--	--	--	--	--	REMOVED	--	-2.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
17	0.000	--	--	--	--	--	REMOVED	--	-2.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
18	0.000	--	--	--	--	--	REMOVED	--	-3.100	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
19	0.000	--	--	--	--	--	REMOVED	--	-3.300	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
20	0.000	--	--	--	--	--	REMOVED	--	-3.500	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
21	0.000	--	--	--	--	--	REMOVED	--	-3.700	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
22	0.000	--	--	--	--	--	REMOVED	--	-3.900	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
23 D	1.043	3.4581E-02	0.8362	4.051	63.20	36.15	PASSIVE	0.000	-4.100	1.164	
1.000	1.000	5.215	0.000	0.000	UG3_4271_12_L_0						
24 D	3.129	3.1743E-02	2.508	12.15	65.20	37.05	PASSIVE	0.000	-4.300	3.492	
1.000	1.000	15.65	0.000	0.000	UG3_4271_12_L_0						
25 D	5.215	2.8927E-02	4.181	20.26	67.20	37.95	PASSIVE	0.000	-4.500	5.819	
1.000	1.000	26.08	0.000	0.000	UG3_4271_12_L_0						
26 D	24.09	2.6136E-02	5.828	112.3	69.18	112.3	V-C	3143.	-4.700	8.147	
1.000	1.000	120.4	0.000	0.000	UG2_4_26346_L_0						
27 D	23.03	2.3373E-02	7.400	104.7	71.08	104.7	V-C	3143.	-4.900	10.47	
1.000	1.000	115.1	0.000	0.000	UG2_4_26346_L_0						
28 D	21.98	2.0641E-02	8.973	97.08	72.97	97.08	V-C	3143.	-5.100	12.80	
1.000	1.000	109.9	0.000	0.000	UG2_4_26346_L_0						
29 D	20.94	1.7941E-02	10.55	89.59	74.87	89.59	V-C	3143.	-5.300	15.13	
1.000	1.000	104.7	0.000	0.000	UG2_4_26346_L_0						
30 D	19.93	1.5274E-02	12.12	82.19	76.77	82.19	UL-RL	9429.	-5.500	17.46	
1.000	1.000	99.65	0.000	0.000	UG2_4_26346_L_0						
31 D	18.93	1.2638E-02	13.69	74.88	78.67	74.89	UL-RL	9429.	-5.700	19.79	
1.000	1.000	94.66	0.000	0.000	UG2_4_26346_L_0						
32 D	17.95	1.0033E-02	15.26	67.65	80.57	67.68	UL-RL	9429.	-5.900	22.11	
1.000	1.000	89.76	0.000	0.000	UG2_4_26346_L_0						
33 D	16.99	7.4550E-03	16.83	60.51	82.47	60.56	UL-RL	9429.	-6.100	24.44	
1.000	1.000	84.95	0.000	0.000	UG2_4_26346_L_0						
34 D	16.04	4.9017E-03	18.41	53.44	84.37	53.51	UL-RL	9429.	-6.300	26.77	
1.000	1.000	80.21	0.000	0.000	UG2_4_26346_L_0						
35 D	14.93	2.3692E-03	19.98	45.54	86.27	46.97	UL-RL	9429.	-6.500	29.10	
1.000	1.000	74.64	0.000	0.000	UG2_4_26346_L_0						
36 D	10.85	-1.4672E-04	21.55	22.85	88.17	47.91	UL-RL	9429.	-6.700	31.42	
1.000	1.000	54.27	0.000	0.000	UG2_4_26346_L_0						
37 D	6.803	-2.6505E-03	23.12	0.2624	90.07	48.85	UL-RL	9429.	-6.900	33.75	
1.000	1.000	34.01	0.000	0.000	UG2_4_26346_L_0						
38 D	7.217	-5.1463E-03	24.70	6.1116E-03	91.97	49.80	UL-RL	9429.	-7.100	36.08	
1.000	1.000	36.09	0.000	0.000	UG2_4_26346_L_0						
39 D	7.682	-7.6372E-03	26.27	2.6731E-03	93.87	50.75	UL-RL	9429.	-7.300	38.41	
1.000	1.000	38.41	0.000	0.000	UG2_4_26346_L_0						
40 D	8.147	-1.0126E-02	27.84	0.000	95.77	51.71	ACTIVE	0.000	-7.500	40.73	
1.000	1.000	40.73	0.000	0.000	UG2_4_26346_L_0						
41 D	5.212	-1.2614E-02	29.51	9.060	97.78	52.72	ACTIVE	0.000	-7.700	43.06	

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1.000       1.000       52.12       0.000       0.000     UG3_4271_27610_L_0


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 |                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                    |
 |                                                                                                                               |
 |                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                                   |
 |                                    Exe Time : 3 April 2019     10:25:13                                                       |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

0_R                                                    :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR        Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3 D  8.6950E-02 -9.2904E-02   1.850      0.4347       1.850      0.9250         ACTIVE   0.000      -0.1000       0.000
1.000       1.000      0.4347       0.000       0.000     UG0_2_10_L_0
   4 D  0.2608     -8.9971E-02   5.550       1.304       5.550       2.775         ACTIVE   0.000      -0.3000       0.000
1.000       1.000       1.304       0.000       0.000     UG0_2_10_L_0
   5 D  0.4352     -8.7038E-02   9.261       2.176       9.261       5.851         ACTIVE   0.000      -0.5000       0.000
1.000       1.000       2.176       0.000       0.000     UG0_2_10_L_0
   6 D  0.6124     -8.4105E-02   13.03       3.062       13.03       8.806         ACTIVE   0.000      -0.7000       0.000
1.000       1.000       3.062       0.000       0.000     UG0_2_10_L_0
   7 D  0.7939     -8.1172E-02   16.89       3.969       16.89       11.56         ACTIVE   0.000      -0.9000       0.000
1.000       1.000       3.969       0.000       0.000     UG0_2_10_L_0
   8 D  0.9800     -7.8240E-02   20.85       4.900       20.85       14.07         ACTIVE   0.000       -1.100       0.000
1.000       1.000       4.900       0.000       0.000     UG0_2_10_L_0
   9 D   1.170     -7.5307E-02   24.89       5.848       24.89       16.36         ACTIVE   0.000       -1.300       0.000
1.000       1.000       5.848       0.000       0.000     UG0_2_10_L_0
  10 D   1.362     -7.2376E-02   28.97       6.808       28.97       18.46         ACTIVE   0.000       -1.500       0.000
1.000       1.000       6.808       0.000       0.000     UG0_2_10_L_0
  11 D   1.554     -6.9445E-02   33.07       7.772       33.07       20.40         ACTIVE   0.000       -1.700       0.000
1.000       1.000       7.772       0.000       0.000     UG0_2_10_L_0
  12 D   1.747     -6.6514E-02   37.17       8.735       37.17       22.24         ACTIVE   0.000       -1.900       0.000
1.000       1.000       8.735       0.000       0.000     UG0_2_10_L_0
  13 D   1.939     -6.3586E-02   41.25       9.694       41.25       23.99         ACTIVE   0.000       -2.100       0.000
1.000       1.000       9.694       0.000       0.000     UG0_2_10_L_0
  14 D   2.552     -6.0659E-02   45.73       12.76       45.73       27.09         ACTIVE   0.000       -2.300       0.000
1.000       1.000       12.76       0.000       0.000     UG3_4271_12_L_0
  15 D   2.821     -5.7736E-02   50.56       14.11       50.56       29.03         ACTIVE   0.000       -2.500       0.000
1.000       1.000       14.11       0.000       0.000     UG3_4271_12_L_0
  16 D   3.257     -5.4815E-02   53.87       15.03       53.87       30.28         ACTIVE   0.000       -2.700       1.254
1.000       1.000       16.28       0.000       0.000     UG3_4271_12_L_0
  17 D   3.757     -5.1900E-02   56.84       15.86       56.84       31.30         ACTIVE   0.000       -2.900       2.927
1.000       1.000       18.78       0.000       0.000     UG3_4271_12_L_0
  18 D   4.252     -4.8989E-02   59.72       16.66       59.72       32.32         ACTIVE   0.000       -3.100       4.599
1.000       1.000       21.26       0.000       0.000     UG3_4271_12_L_0
  19 D   4.738     -4.6086E-02   62.43       17.42       62.43       33.34         ACTIVE   0.000       -3.300       6.271
1.000       1.000       23.69       0.000       0.000     UG3_4271_12_L_0
  20 D   5.227     -4.3192E-02   65.20       18.19       65.20       34.37         ACTIVE   0.000       -3.500       7.944
1.000       1.000       26.13       0.000       0.000     UG3_4271_12_L_0
  21 D   5.708     -4.0308E-02   67.83       18.92       67.83       35.40         ACTIVE   0.000       -3.700       9.616
1.000       1.000       28.54       0.000       0.000     UG3_4271_12_L_0
  22 D   6.193     -3.7436E-02   70.53       19.68       70.53       36.45         ACTIVE   0.000       -3.900       11.29
1.000       1.000       30.97       0.000       0.000     UG3_4271_12_L_0
  23 D   6.676     -3.4581E-02   73.19       20.42       73.19       37.50         ACTIVE   0.000       -4.100       12.96
1.000       1.000       33.38       0.000       0.000     UG3_4271_12_L_0
  24 D   7.153     -3.1743E-02   75.74       21.13       75.74       38.57         ACTIVE   0.000       -4.300       14.63
1.000       1.000       35.76       0.000       0.000     UG3_4271_12_L_0
  25 D   7.633     -2.8927E-02   78.35       21.86       78.35       39.64         ACTIVE   0.000       -4.500       16.31
1.000       1.000       38.17       0.000       0.000     UG3_4271_12_L_0
  26 D   3.595     -2.6136E-02   80.92       0.000       80.92       40.72         ACTIVE   0.000       -4.700       17.98
1.000       1.000       17.98       0.000       0.000     UG2_4_26346_L_0
  27 D   3.930     -2.3373E-02   83.31       0.000       83.31       41.76         ACTIVE   0.000       -4.900       19.65
1.000       1.000       19.65       0.000       0.000     UG2_4_26346_L_0
  28 D   4.264     -2.0641E-02   85.76       0.000       85.76       42.81         ACTIVE   0.000       -5.100       21.32
1.000       1.000       21.32       0.000       0.000     UG2_4_26346_L_0
  29 D   4.599     -1.7941E-02   88.13       0.000       88.13       43.87         ACTIVE   0.000       -5.300       22.99
1.000       1.000       22.99       0.000       0.000     UG2_4_26346_L_0
  30 D   4.934     -1.5274E-02   90.15     1.5819E-03    90.15       44.94          UL-RL   9429.       -5.500       24.67
1.000       1.000       24.67       0.000       0.000     UG2_4_26346_L_0
  31 D   5.271     -1.2638E-02   92.17     1.7179E-02    92.17       46.02          UL-RL   9429.       -5.700       26.34
```

```
1.000       1.000       26.36       0.000       0.000     UG2_4_26346_L_0
  32 D   5.609     -1.0033E-02   94.20      3.2797E-02   94.20       47.11          UL-RL   9429.      -5.900       28.01
1.000       1.000       28.04       0.000       0.000     UG2_4_26346_L_0
  33 D   5.946     -7.4550E-03   96.25      4.8437E-02   96.25       48.20          UL-RL   9429.      -6.100       29.68
1.000       1.000       29.73       0.000       0.000     UG2_4_26346_L_0
  34 D   6.888     -4.9017E-03   98.30       3.083       98.30       49.30          UL-RL   9429.      -6.300       31.36
1.000       1.000       34.44       0.000       0.000     UG2_4_26346_L_0
  35 D   12.22     -2.3692E-03   100.4       28.07       100.4       50.41          UL-RL   9429.      -6.500       33.03
1.000       1.000       61.10       0.000       0.000     UG2_4_26346_L_0
  36 D   17.33      1.4672E-04   102.4       51.97       102.4       51.98          UL-RL   9429.      -6.700       34.70
1.000       1.000       86.67       0.000       0.000     UG2_4_26346_L_0
  37 D   19.47      2.6505E-03   104.5       60.96       104.5       60.97          UL-RL   9429.      -6.900       36.37
1.000       1.000       97.33       0.000       0.000     UG2_4_26346_L_0
  38 D   21.59      5.1463E-03   106.6       69.93       106.6       69.93          UL-RL   9429.      -7.100       38.05
1.000       1.000       108.0       0.000       0.000     UG2_4_26346_L_0
  39 D   23.72      7.6372E-03   108.7       78.88       108.7       78.89          UL-RL   9429.      -7.300       39.72
1.000       1.000       118.6       0.000       0.000     UG2_4_26346_L_0
  40 D   25.85      1.0126E-02   110.8       87.84       110.8       87.84            V-C   3143.      -7.500       41.39
1.000       1.000       129.2       0.000       0.000     UG2_4_26346_L_0
  41 D   13.99      1.2614E-02   112.9       96.84       112.9       96.84            V-C   3143.      -7.700       43.06
1.000       1.000       139.9       0.000       0.000     UG3_4271_27610_L_0


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                           |
|                                    Exe Time : 3 April 2019     10:25:13                                               |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S     2.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------
    1 1.63436E-09-1.63436E-09 1.64324E-10 5.53194E-10
    2-8.52456E-11 8.52456E-11-3.99893E-10-2.23110E-12
    3-8.69500E-02 8.69500E-02-9.40470E-11-1.73900E-02
    4-0.34780     0.34780     1.73900E-02-8.69500E-02
    5-0.78305     0.78305     8.69500E-02-0.24356
    6 -1.3954      1.3954     0.24356    -0.52265
    7 -2.1893      2.1893     0.52265    -0.96051
    8 -3.1693      3.1693     0.96051     -1.5944
    9 -4.3389      4.3389      1.5944     -2.4621
   10 -5.7005      5.7005      2.4621     -3.6022
   11 -7.2549      7.2549      3.6022     -5.0532
   12 -9.0019      9.0019      5.0532     -6.8536
   13 -10.941      10.941      6.8536     -9.0418
   14 -13.493      13.493      9.0418     -11.740
   15 -16.314      16.314      11.740     -15.003
   16 -19.571      19.571      15.003     -18.917
   17 -23.328      23.328      18.917     -23.583
   18 -27.580      27.580      23.583     -29.099
   19 -32.317      32.317      29.099     -35.562
   20 -37.544      37.544      35.562     -43.071
   21 -43.252      43.252      43.071     -51.722
   22 -49.446      49.446      51.722     -61.611
   23 -55.079      55.079      61.611     -72.627
   24 -59.102      59.102      72.627     -84.447
   25 -61.520      61.520      84.447     -96.751
   26 -41.026      41.026      96.751     -104.96
   27 -21.930      21.930      104.96     -109.34
   28 -4.2176      4.2176      109.34     -110.19
   29  12.128     -12.128      110.19     -107.76
   30  27.124     -27.124      107.76     -102.34
   31  40.786     -40.786      102.34     -94.178
   32  53.130     -53.130      94.178     -83.552
   33  64.173     -64.173      83.552     -70.718
   34  73.328     -73.328      70.718     -56.052
   35  76.037     -76.037      56.052     -40.845
   36  69.557     -69.557      40.845     -26.933
   37  56.894     -56.894      26.933     -15.555
   38  42.516     -42.516      15.555     -7.0514
   39  26.478     -26.478      7.0514     -1.7558
   40  8.7791     -8.7791      1.7558    -8.40794E-12


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
```

```
|                                                                                                                        |
|                              NewProject.BaseDesignSection_28.NTC2018A1M1R1R3pertiranti_1147                            |
|                                    Exe Time : 3 April 2019      10:25:13                                               |
+------------------------------------------------------------------------------------------------------------------------+


     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                     S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                    2
        2           CONVERGENCE :YES                    8


 END OF PROCESS FOR PROBLEM
New Project
NONLINEAR SOLUTION CPU TIME ....    0.03 [sec]
DATABASE  CREATION CPU TIME.....    0.06 [sec]
```

7.4. Design Assumption : NTC2018: A2+M2+R1 - File di Paratie - File di output (.out)

```
+------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                        |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                   Exe Time : 3 April 2019      10:25:14                                                |
+------------------------------------------------------------------------------------------------------------------------+

                   **********************************************************
                   *                                                        *
                   *  PARATIE PLUS Non-Linear Spring Engine                 *
                   *                                                        *
                   *          AN ELASTOPLASTIC FINITE ELEMENT PROGRAM       *
                   *          FOR FLEXIBLE EARTH-RETAINING STRUCTURES       *
                   *                                                        *
                   *          Written by Ce.A.S. s.r.l. (ITALY)             *
                   *          with the scientific supervision of            *
                   *          Roberto Nova - full professor SOIL MECHANICS  *
                   *          at Politecnico di Milano (ITALY)              *
                   *                                                        *
                   **********************************************************
                   *                                                        *
                   *  RELEASE   2018.1     *Build date:Jun 29, 2018*    *
                   *                                                        *
                   *                                                        *
                   *  Ce.A.S.     S.R.L   CENTRO DI ANALISI STRUTTURALE     *
                   *              VIALE   GIUSTINIANO 10                    *
                   *              20129   M I L A N O  (ITALIA)             *
                   *  TEL.        +39 02 2020221                            *
                   *                                                        *
                   *  email       bruno.becci@ceas.it                       *
                   *  Web Page    www.ceas.it     www.paratieplus.com       *
                   **********************************************************



 JOB : NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178
 STARTING
ACCEPTED   &lt;FILE,GENW                                                                   &gt;
ACCEPTED   &lt;FILE,PLOTTER,BINARY                                                         &gt;
ACCEPTED   &lt;SOLVE TOTAL_STRESS                                                          &gt;
ACCEPTED   &lt;PARAM ITEMAX 40                                                             &gt;
ACCEPTED   &lt;CONTROL HINGES 0 0.0001 0.001                                               &gt;



                   **********************************************************
                   *                                                        *
                   *  WARNING : PORE PRESSURES ARE AUTOMATICALLY COMPUTED   *
                   *    BY THE PROGRAM.                                     *
                   **********************************************************

PRELIMINARY OPERATIONS CPU TIME     0.01 [sec]


+------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                        |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                   Exe Time : 3 April 2019      10:25:14                                                |
+------------------------------------------------------------------------------------------------------------------------+
```

```
INPUT FILE HAS BEEN GENERATED BY WALGEN PROGRAM


New Project


NO. OF NODAL POINTS (NUMNP) ...................   41
NO. OF COORDINATES  (NCOORD)....................    2
NO. OF NODE DOFS    (NDOF).....................    2
NO. OF EQUATIONS    (NEQ)......................   82
NO. OF CONSTRAINTS CARDS (NVINC)................    0
NO. OF ELEMENT GROUPS (NEG).....................    3
NO. OF SOLUTION STEPS (NSTE)....................    2
NO. OF ELEMENT SETS ATTACHED TO SLAVE NODES ...    0
NO. OF RECORD FROM WALGEN ......................  100
NO. OF LONG NAMES (LASTNAME) ...................   13
LENGTH UNIT CHOICE .............................    3 (M   )
FORCE  UNIT CHOICE .............................    3 (KN  )
MAX PORE PRESSURE TABLE LENGTH..................    1
NO. OF ELEMENT GROUPS REQUIRING ADD. SLIP DOF .    0


IDOFA (01) =  2  Y-DISPL.F
IDOFA (02) =  4   X-ROT. F

 RELEVANT ITEMS UNITS

 STRESSES                  kPa
 Y-DISPLACEMENTS           m
 ROTATIONS                 RADIANS
 BEAM AND SLAB MOMENTS     kN*m/m
 BEAM SHEAR FORCES         kN/m
 ANCHOR FORCES             kN/m
 AXIAL FORCES IN TRUSSES   kN/m
 AXIAL FORCES SPRINGS      kN/m
 Y-REACTIONS               kN/m
 X-MOMENT REACTIONS        kN*m/m
 ETC.


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*               |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time : 3 April 2019     10:25:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
                   P R E P R O C E S S O R     D A T A

                   N O.  O F   C O M M A N D S    100

    1 : UNIT  m kN
    2 : TITLE New Project
    3 : DELTA 0.2
    4 : option param itemax 40
    5 : option control hinges 0 0.0001 0.001
    6 : WALL LeftWall_32 0 -7.7 0.3 -1
    7 : SOIL 0_L LeftWall_32 -7.7 0.3 2 0
    8 : SOIL 0_R LeftWall_32 -7.7 0.3 1 180
    9 : LDATA UG0_2_10_L_0 0 LeftWall_32
   10 : ATREST 0.5 0.5 1
   11 : WEIGHT 18.5 8.5 10
   12 : PERMEABILITY 0.0001
   13 : RESISTANCE 0 35 0 0 0
   14 : WINKLER 3143 9429.1
   15 : ENDL
   16 : LDATA UG3_4271_12_L_0 -2.2 LeftWall_32
   17 : ATREST 0.531 0.5 1
   18 : WEIGHT 20 10 10
   19 : PERMEABILITY 1E-07
   20 : RESISTANCE 0 32 0 0 0
   21 : WINKLER 3143 9429.1
   22 : ENDL
   23 : LDATA UG2_4_26346_L_0 -4.65 LeftWall_32
   24 : ATREST 0.531 0.5 1
   25 : WEIGHT 19.5 9.5 10
   26 : PERMEABILITY 1E-07
   27 : RESISTANCE 30 25 0 0 0
   28 : WINKLER 3143 9429.1
   29 : ENDL
   30 : LDATA UG3_4271_27610_L_0 -7.5 LeftWall_32
   31 : ATREST 0.531 0.5 1
   32 : WEIGHT 20 10 10
   33 : PERMEABILITY 1E-07
   34 : RESISTANCE 0 32 0 0 0
   35 : WINKLER 3143 9429.1
   36 : ENDL
```

```
  37 : MATERIAL S275_115 2.1E+08
  38 : BEAM WallElement_New_28707 LeftWall_32 -7.7 0.3 S275_115 0.19777 00 00 0
  39 : STRIP LeftWall_32 1 2 1.45 3.55 -0.3 20 45
  40 : STEP Stage1_31
  41 : CHANGE UG0_2_10_L_0 U-FRICT=29.256 LeftWall_32
  42 : CHANGE UG0_2_10_L_0 D-FRICT=29.256 LeftWall_32
  43 : CHANGE UG0_2_10_L_0 U-KA=0.293 LeftWall_32
  44 : CHANGE UG0_2_10_L_0 U-KP=3.015 LeftWall_32
  45 : CHANGE UG0_2_10_L_0 D-KA=0.556 LeftWall_32
  46 : CHANGE UG0_2_10_L_0 D-KP=5.571 LeftWall_32
  47 : CHANGE UG3_4271_12_L_0 U-FRICT=26.56 LeftWall_32
  48 : CHANGE UG3_4271_12_L_0 D-FRICT=26.56 LeftWall_32
  49 : CHANGE UG3_4271_12_L_0 U-KA=0.344 LeftWall_32
  50 : CHANGE UG3_4271_12_L_0 U-KP=2.33 LeftWall_32
  51 : CHANGE UG3_4271_12_L_0 D-KA=0.542 LeftWall_32
  52 : CHANGE UG3_4271_12_L_0 D-KP=4.185 LeftWall_32
  53 : CHANGE UG2_4_26346_L_0 U-FRICT=20.458 LeftWall_32
  54 : CHANGE UG2_4_26346_L_0 D-FRICT=20.458 LeftWall_32
  55 : CHANGE UG2_4_26346_L_0 U-KA=0.435 LeftWall_32
  56 : CHANGE UG2_4_26346_L_0 U-KP=1.462 LeftWall_32
  57 : CHANGE UG2_4_26346_L_0 D-KA=0.618 LeftWall_32
  58 : CHANGE UG2_4_26346_L_0 D-KP=2.809 LeftWall_32
  59 : CHANGE UG3_4271_27610_L_0 U-FRICT=26.56 LeftWall_32
  60 : CHANGE UG3_4271_27610_L_0 D-FRICT=26.56 LeftWall_32
  61 : CHANGE UG3_4271_27610_L_0 U-KA=0.349 LeftWall_32
  62 : CHANGE UG3_4271_27610_L_0 U-KP=1.992 LeftWall_32
  63 : CHANGE UG3_4271_27610_L_0 D-KA=0.481 LeftWall_32
  64 : CHANGE UG3_4271_27610_L_0 D-KP=3.814 LeftWall_32
  65 : CHANGE UG0_2_10_L_0 U-COHE=0 LeftWall_32
  66 : CHANGE UG0_2_10_L_0 U-ADHES=0 LeftWall_32
  67 : CHANGE UG0_2_10_L_0 D-COHE=0 LeftWall_32
  68 : CHANGE UG0_2_10_L_0 D-ADHES=0 LeftWall_32
  69 : CHANGE UG3_4271_12_L_0 U-COHE=0 LeftWall_32
  70 : CHANGE UG3_4271_12_L_0 U-ADHES=0 LeftWall_32
  71 : CHANGE UG3_4271_12_L_0 D-COHE=0 LeftWall_32
  72 : CHANGE UG3_4271_12_L_0 D-ADHES=0 LeftWall_32
  73 : CHANGE UG2_4_26346_L_0 U-COHE=24 LeftWall_32
  74 : CHANGE UG2_4_26346_L_0 U-ADHES=0 LeftWall_32
  75 : CHANGE UG2_4_26346_L_0 D-COHE=24 LeftWall_32
  76 : CHANGE UG2_4_26346_L_0 D-ADHES=0 LeftWall_32
  77 : CHANGE UG3_4271_27610_L_0 U-COHE=0 LeftWall_32
  78 : CHANGE UG3_4271_27610_L_0 U-ADHES=0 LeftWall_32
  79 : CHANGE UG3_4271_27610_L_0 D-COHE=0 LeftWall_32
  80 : CHANGE UG3_4271_27610_L_0 D-ADHES=0 LeftWall_32
  81 : SETWALL LeftWall_32
  82 : GEOM 0 0
  83 : SURCHARGE 0 0 0 0
  84 : WATER -2.55 0 -7.7 0 0
  85 : ENDSTEP
  86 : STEP Stage2_28513
  87 : CHANGE UG0_2_10_L_0 D-KA=0.343 LeftWall_32
  88 : CHANGE UG0_2_10_L_0 D-KP=4.102 LeftWall_32
  89 : CHANGE UG3_4271_12_L_0 D-KA=0.382 LeftWall_32
  90 : CHANGE UG3_4271_12_L_0 D-KP=3.512 LeftWall_32
  91 : CHANGE UG2_4_26346_L_0 D-KA=0.482 LeftWall_32
  92 : CHANGE UG2_4_26346_L_0 D-KP=2.535 LeftWall_32
  93 : CHANGE UG3_4271_27610_L_0 D-KA=0.382 LeftWall_32
  94 : CHANGE UG3_4271_27610_L_0 D-KP=3.512 LeftWall_32
  95 : SETWALL LeftWall_32
  96 : GEOM 0 -4
  97 : SURCHARGE 0 0 0 0
  98 : WATER -2.55 1.45 -7.7 0 0
  99 : ADD WallElement_New_28707
 100 : ENDSTEP


+-----------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
N O D A L    P O I N T    D A T A
--------------------------------

NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD / NODE     Y-COORD     Z-COORD /

   1  0.0000     0.30000     /    2  0.0000     0.10000     /    3  0.0000    -0.10000     /    4  0.0000    -0.30000     /
   5  0.0000    -0.50000     /    6  0.0000    -0.70000     /    7  0.0000    -0.90000     /    8  0.0000    -1.1000     /
   9  0.0000    -1.3000      /   10  0.0000    -1.5000      /   11  0.0000    -1.7000      /   12  0.0000    -1.9000     /
  13  0.0000    -2.1000      /   14  0.0000    -2.3000      /   15  0.0000    -2.5000      /   16  0.0000    -2.7000     /
  17  0.0000    -2.9000      /   18  0.0000    -3.1000      /   19  0.0000    -3.3000      /   20  0.0000    -3.5000     /
  21  0.0000    -3.7000      /   22  0.0000    -3.9000      /   23  0.0000    -4.1000      /   24  0.0000    -4.3000     /
  25  0.0000    -4.5000      /   26  0.0000    -4.7000      /   27  0.0000    -4.9000      /   28  0.0000    -5.1000     /
  29  0.0000    -5.3000      /   30  0.0000    -5.5000      /   31  0.0000    -5.7000      /   32  0.0000    -5.9000     /
  33  0.0000    -6.1000      /   34  0.0000    -6.3000      /   35  0.0000    -6.5000      /   36  0.0000    -6.7000     /
  37  0.0000    -6.9000      /   38  0.0000    -7.1000      /   39  0.0000    -7.3000      /   40  0.0000    -7.5000     /
```

```
  41  0.0000     -7.7000     /


+---------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*            |
|                                                                                                                     |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                               |
|                                    Exe Time : 3 April 2019     10:25:14                                             |
+---------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  1

0_L                                                          :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              0.00000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     2.000
    2    2    1   0.2000     0.000     0.000     0.000     2.000
    3    3    1   0.2000     0.000     0.000     0.000     2.000
    4    4    1   0.2000     0.000     0.000     0.000     2.000
    5    5    1   0.2000     0.000     0.000     0.000     2.000
    6    6    1   0.2000     0.000     0.000     0.000     2.000
    7    7    1   0.2000     0.000     0.000     0.000     2.000
    8    8    1   0.2000     0.000     0.000     0.000     2.000
    9    9    1   0.2000     0.000     0.000     0.000     2.000
   10   10    1   0.2000     0.000     0.000     0.000     2.000
   11   11    1   0.2000     0.000     0.000     0.000     2.000
   12   12    1   0.2000     0.000     0.000     0.000     2.000
   13   13    1   0.2000     0.000     0.000     0.000     2.000
   14   14    2   0.2000     0.000     0.000     0.000     2.000
   15   15    2   0.2000     0.000     0.000     0.000     2.000
   16   16    2   0.2000     0.000     0.000     0.000     2.000
   17   17    2   0.2000     0.000     0.000     0.000     2.000
   18   18    2   0.2000     0.000     0.000     0.000     2.000
   19   19    2   0.2000     0.000     0.000     0.000     2.000
   20   20    2   0.2000     0.000     0.000     0.000     2.000
   21   21    2   0.2000     0.000     0.000     0.000     2.000
   22   22    2   0.2000     0.000     0.000     0.000     2.000
   23   23    2   0.2000     0.000     0.000     0.000     2.000
   24   24    2   0.2000     0.000     0.000     0.000     2.000
   25   25    2   0.2000     0.000     0.000     0.000     2.000
   26   26    3   0.2000     0.000     0.000     0.000     2.000
   27   27    3   0.2000     0.000     0.000     0.000     2.000
   28   28    3   0.2000     0.000     0.000     0.000     2.000
   29   29    3   0.2000     0.000     0.000     0.000     2.000
   30   30    3   0.2000     0.000     0.000     0.000     2.000
   31   31    3   0.2000     0.000     0.000     0.000     2.000
   32   32    3   0.2000     0.000     0.000     0.000     2.000
   33   33    3   0.2000     0.000     0.000     0.000     2.000
   34   34    3   0.2000     0.000     0.000     0.000     2.000
```

```
   35   35    3   0.2000     0.000     0.000     0.000     2.000
   36   36    3   0.2000     0.000     0.000     0.000     2.000
   37   37    3   0.2000     0.000     0.000     0.000     2.000
   38   38    3   0.2000     0.000     0.000     0.000     2.000
   39   39    3   0.2000     0.000     0.000     0.000     2.000
   40   40    3   0.2000     0.000     0.000     0.000     2.000
   41   41    4   0.1000     0.000     0.000     0.000     2.000


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                    NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                    Exe Time : 3 April 2019     10:25:14                                                 |
+-------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  2

0_R                                                        :
   5  41   0   1   0   0   0   0   0   0   0   0   0   0   0   4   0   0   0   0
.....................................
.........2D PLASTIC SOIL ..........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1   active
    2   active

 material set no.    1

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  1.00000


 material set no.    2

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  2.00000


 material set no.    3

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  3.00000


 material set no.    4

 prop( 1) angle              180.000
 prop( 2) layer as foreseen  4.00000


 element data

   el    n  mat      area      .....     .....     .....      flag
-------------------------------------------------------------------

    1    1    1   0.1000     0.000     0.000     0.000     1.000
    2    2    1   0.2000     0.000     0.000     0.000     1.000
    3    3    1   0.2000     0.000     0.000     0.000     1.000
    4    4    1   0.2000     0.000     0.000     0.000     1.000
    5    5    1   0.2000     0.000     0.000     0.000     1.000
    6    6    1   0.2000     0.000     0.000     0.000     1.000
    7    7    1   0.2000     0.000     0.000     0.000     1.000
    8    8    1   0.2000     0.000     0.000     0.000     1.000
    9    9    1   0.2000     0.000     0.000     0.000     1.000
   10   10    1   0.2000     0.000     0.000     0.000     1.000
   11   11    1   0.2000     0.000     0.000     0.000     1.000
   12   12    1   0.2000     0.000     0.000     0.000     1.000
   13   13    1   0.2000     0.000     0.000     0.000     1.000
   14   14    2   0.2000     0.000     0.000     0.000     1.000
   15   15    2   0.2000     0.000     0.000     0.000     1.000
   16   16    2   0.2000     0.000     0.000     0.000     1.000
   17   17    2   0.2000     0.000     0.000     0.000     1.000
   18   18    2   0.2000     0.000     0.000     0.000     1.000
   19   19    2   0.2000     0.000     0.000     0.000     1.000
   20   20    2   0.2000     0.000     0.000     0.000     1.000
   21   21    2   0.2000     0.000     0.000     0.000     1.000
   22   22    2   0.2000     0.000     0.000     0.000     1.000
   23   23    2   0.2000     0.000     0.000     0.000     1.000
   24   24    2   0.2000     0.000     0.000     0.000     1.000
   25   25    2   0.2000     0.000     0.000     0.000     1.000
   26   26    3   0.2000     0.000     0.000     0.000     1.000
   27   27    3   0.2000     0.000     0.000     0.000     1.000
   28   28    3   0.2000     0.000     0.000     0.000     1.000
```

29	29	3	0.2000	0.000	0.000	0.000	1.000
30	30	3	0.2000	0.000	0.000	0.000	1.000
31	31	3	0.2000	0.000	0.000	0.000	1.000
32	32	3	0.2000	0.000	0.000	0.000	1.000
33	33	3	0.2000	0.000	0.000	0.000	1.000
34	34	3	0.2000	0.000	0.000	0.000	1.000
35	35	3	0.2000	0.000	0.000	0.000	1.000
36	36	3	0.2000	0.000	0.000	0.000	1.000
37	37	3	0.2000	0.000	0.000	0.000	1.000
38	38	3	0.2000	0.000	0.000	0.000	1.000
39	39	3	0.2000	0.000	0.000	0.000	1.000
40	40	3	0.2000	0.000	0.000	0.000	1.000
41	41	4	0.1000	0.000	0.000	0.000	1.000

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+-------------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*                     |
|                                                                                                                               |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                           |
|                                  Exe Time : 3 April 2019     10:25:14                                                         |
+-------------------------------------------------------------------------------------------------------------------------------+
 ELEMENT GROUP NO.  3

WallElement_New_28707                                          :
   2  40   0   1   0   0   0   0   0   0   0   0   0   0   0   1   0   0   1   0
.....................................
.........2D WALL ELEMENT...........
.....................................

element group behaviour throughout stage analysis

stage   status
-------------------
    1  inactive
    2   active

 material set no.    1

 prop( 1) young modulus      0.210000E+09
 prop( 2) modification  time  0.00000
 prop( 3) new young modulus   0.00000
 prop( 4) poisson ratio       0.00000
 prop( 5) future ............ 0.00000

 no. of step variable items:     1
 step  inertia multipier
--------------------------
    1   1.000
    2   1.000

 element data
```

el	na	nb	mat	erc1	erc2	thick	by-i	by-j
1	1	2	1	0.000	0.000	0.1978	0.000	0.000
2	2	3	1	0.000	0.000	0.1978	0.000	0.000
3	3	4	1	0.000	0.000	0.1978	0.000	0.000
4	4	5	1	0.000	0.000	0.1978	0.000	0.000
5	5	6	1	0.000	0.000	0.1978	0.000	0.000
6	6	7	1	0.000	0.000	0.1978	0.000	0.000
7	7	8	1	0.000	0.000	0.1978	0.000	0.000
8	8	9	1	0.000	0.000	0.1978	0.000	0.000
9	9	10	1	0.000	0.000	0.1978	0.000	0.000
10	10	11	1	0.000	0.000	0.1978	0.000	0.000
11	11	12	1	0.000	0.000	0.1978	0.000	0.000
12	12	13	1	0.000	0.000	0.1978	0.000	0.000
13	13	14	1	0.000	0.000	0.1978	0.000	0.000
14	14	15	1	0.000	0.000	0.1978	0.000	0.000
15	15	16	1	0.000	0.000	0.1978	0.000	0.000
16	16	17	1	0.000	0.000	0.1978	0.000	0.000
17	17	18	1	0.000	0.000	0.1978	0.000	0.000
18	18	19	1	0.000	0.000	0.1978	0.000	0.000
19	19	20	1	0.000	0.000	0.1978	0.000	0.000
20	20	21	1	0.000	0.000	0.1978	0.000	0.000
21	21	22	1	0.000	0.000	0.1978	0.000	0.000
22	22	23	1	0.000	0.000	0.1978	0.000	0.000
23	23	24	1	0.000	0.000	0.1978	0.000	0.000
24	24	25	1	0.000	0.000	0.1978	0.000	0.000
25	25	26	1	0.000	0.000	0.1978	0.000	0.000
26	26	27	1	0.000	0.000	0.1978	0.000	0.000
27	27	28	1	0.000	0.000	0.1978	0.000	0.000
28	28	29	1	0.000	0.000	0.1978	0.000	0.000
29	29	30	1	0.000	0.000	0.1978	0.000	0.000
30	30	31	1	0.000	0.000	0.1978	0.000	0.000
31	31	32	1	0.000	0.000	0.1978	0.000	0.000
32	32	33	1	0.000	0.000	0.1978	0.000	0.000

```
   33   33   34    1    0.000     0.000    0.1978     0.000     0.000
   34   34   35    1    0.000     0.000    0.1978     0.000     0.000
   35   35   36    1    0.000     0.000    0.1978     0.000     0.000
   36   36   37    1    0.000     0.000    0.1978     0.000     0.000
   37   37   38    1    0.000     0.000    0.1978     0.000     0.000
   38   38   39    1    0.000     0.000    0.1978     0.000     0.000
   39   39   40    1    0.000     0.000    0.1978     0.000     0.000
   40   40   41    1    0.000     0.000    0.1978     0.000     0.000


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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
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NO. OF NODAL LOADS   (NLOAD) ...................    0
NO. OF LOAD CURVES   (NLCUR) ...................    4
MAXIMUM POINTS/LCURVE (NPTM)....................    5


+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
L O A D     D A T A


    LOAD FUNCTION NUMBER   =    1
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       1.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    2
    NUMBER OF TIME POINTS  =    5

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       2.20000    0.0000E+00
       3.00000    0.0000E+00


    LOAD FUNCTION NUMBER   =    3
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       0.80000    0.0000E+00
       1.00000    0.1000E+01
       3.00000    0.1000E+01


    LOAD FUNCTION NUMBER   =    4
    NUMBER OF TIME POINTS  =    4

    TIME VALUE      FUNCTION

       0.00000    0.0000E+00
       1.80000    0.0000E+00
       2.00000    0.1000E+01
       3.00000    0.1000E+01


NO. OF DISTRIBUTED LOAD CARDS     0
```

```
+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                   Exe Time : 3 April 2019     10:25:14                                                  |
+-------------------------------------------------------------------------------------------------------------------------+
L O A D     B A L A N C E

STEP     1 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     1 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000

STEP     2 TOTAL APPLIED LOAD IN DIR.  2  Y-DISPL.F       0.0000000
STEP     2 TOTAL APPLIED LOAD IN DIR.  4   X-ROT. F       0.0000000


                      LOAD INPUT SECTION COMPLETED



+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                   Exe Time : 3 April 2019     10:25:14                                                  |
+-------------------------------------------------------------------------------------------------------------------------+


NO. OF LAYERS .................................    4
NO. OF DATA PER LAYER.........................  100


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                    |
|                                   Exe Time : 3 April 2019     10:25:14                                                  |
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LAYER DESCRIPTORS FOR STEP NO.    1


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.29300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.0150     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.55600     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  5.5710     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.34400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3300     WALL NO.        1
```

```
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.54200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.1850     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.43500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.4620     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.61800     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.8090     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    1

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.34900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9920     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.48100     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.8140     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

LAYER DESCRIPTORS FOR STEP NO.    2


 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    1 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  8.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= 0.30000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  18.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  8.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  29.256     WALL NO.        1
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ITEM NO.   9&lt;U-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.29300     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  3.0150     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-03 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;= 0.30000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  29.256     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  35.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.34300     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  4.1020     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-03 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    2 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  9.0000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -2.2000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.34400     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  2.3300     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.38200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5120     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    3 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  10.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -4.6500     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  19.500     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  9.5000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   8&lt;U-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.   8&lt;U-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.   9&lt;U-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.   9&lt;U-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.43500     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.4620     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  58&lt;D-COHE  &gt;=  24.000     WALL NO.        1
ITEM NO.  58&lt;D-COHE  &gt;=  30.000     WALL NO.        2
ITEM NO.  59&lt;D-FRICT &gt;=  20.458     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  25.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.48200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  2.5350     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)

 NON ZERO LAYER DESCRIPTORS FOR LAYER NO.    4 FOR STEP NO.    2

ITEM NO.   1&lt;NAME    &gt;=  11.000     (BOTH WALLS)
ITEM NO.   2&lt;NATURE  &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   3&lt;LEVEL   &gt;= -7.5000     (BOTH WALLS)
ITEM NO.   4&lt;WALL    &gt;=  1.0000     (BOTH WALLS)
ITEM NO.   5&lt;GAMMAD  &gt;=  20.000     (BOTH WALLS)
ITEM NO.   6&lt;GAMMAB  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   7&lt;GAMMAW  &gt;=  10.000     (BOTH WALLS)
ITEM NO.   9&lt;U-FRICT &gt;=  26.560     WALL NO.        1
```

```
ITEM NO.   9&lt;U-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  10&lt;U-KA    &gt;= 0.34900     WALL NO.        1
ITEM NO.  11&lt;U-KP    &gt;=  1.9920     WALL NO.        1
ITEM NO.  12&lt;K0-NC   &gt;= 0.53100     (BOTH WALLS)
ITEM NO.  13&lt;NEXP    &gt;= 0.50000     (BOTH WALLS)
ITEM NO.  14&lt;OCR     &gt;=  1.0000     (BOTH WALLS)
ITEM NO.  16&lt;MODEL   &gt;=  3.0000     (BOTH WALLS)
ITEM NO.  25&lt;WINKVC  &gt;=  3143.0     (BOTH WALLS)
ITEM NO.  26&lt;WINKUR  &gt;=  9429.1     (BOTH WALLS)
ITEM NO.  27&lt;U-PERM  &gt;= 0.10000E-06 (BOTH WALLS)
ITEM NO.  52&lt;D-NATURE&gt;=  1.0000     (BOTH WALLS)
ITEM NO.  53&lt;D-LEVEL &gt;=  0.0000     (BOTH WALLS)
ITEM NO.  59&lt;D-FRICT &gt;=  26.560     WALL NO.        1
ITEM NO.  59&lt;D-FRICT &gt;=  32.000     WALL NO.        2
ITEM NO.  60&lt;D-KA    &gt;= 0.38200     WALL NO.        1
ITEM NO.  61&lt;D-KP    &gt;=  3.5120     WALL NO.        1
ITEM NO.  77&lt;D-PERM  &gt;= 0.10000E-06 (BOTH WALLS)


DEFAULT WATER UNIT WEIGHT =  10.000
AVERAGED ON     8 VALUES



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
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PHASE DESCRIPTORS


STEP  NO.     1
                                       LEFT WALL    RIGHT WALL
Y                                       0.000       -0.9990E+30
Z-PC                                    0.000         0.000
Z-EXCAVATION                            0.000         0.000
Z-WATER_TABLE                          -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
DZW_OF_THE_WATER_TABLE                  0.000         0.000
QS_ON_THE_EXCAVATION_SIDE               0.000         0.000
ZQS                                     0.000       -0.9990E+30
ZCUT                                    0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES       -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)       0.000         0.000
PORE_UPDATE_FLAG                        0.000         0.000
PORE_TAB. _FLAG (gt.0= use tabs)        0.000         0.000
lateral thrusts reduction elevatio      0.000         0.000
Downhill reduction factor for effe      0.000         0.000
Downhill reduction factor for pore      0.000         0.000
Uphill reduction factor for effect      0.000         0.000
Uphill reduction factor for pore p      0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]        0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]       0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]       0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]         0.000         0.000
UPHILL DELTA/PHI RATIO                  0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
DOWNHILL DELTA/PHI RATIO                0.000         0.000
DYN.WATER BEHAVIOUR                     0.000         0.000
Excess pore pressure RATIO Ru           0.000         0.000
SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

==========================================================================================================end of step    1


STEP  NO.     2
                                       LEFT WALL    RIGHT WALL
Y                                       0.000       -0.9990E+30
Z-PC                                    0.000         0.000
Z-EXCAVATION                           -4.000         0.000
Z-WATER_TABLE                          -2.550       -0.9990E+30
Q_AT_THE_FREE_FIELD_LEVEL               0.000         0.000
ZQ                                      0.000         0.000
DZW_OF_THE_WATER_TABLE                  1.450         0.000
QS_ON_THE_EXCAVATION_SIDE               0.000         0.000
ZQS                                     0.000       -0.9990E+30
ZCUT                                    0.000         0.000
BALANCE LEVEL FOR PORE PRESSURES       -7.700        -7.700
WATER_BEHAVIOUR_FLAG (LINING OPT)       0.000         0.000
PORE_UPDATE_FLAG                        0.000         0.000
```

```
PORE_TAB. _FLAG (gt.0= use tabs)        0.000         0.000
lateral thrusts reduction elevatio      0.000         0.000
Downhill reduction factor for effe      0.000         0.000
Downhill reduction factor for pore      0.000         0.000
Uphill reduction factor for effect      0.000         0.000
Uphill reduction factor for pore p      0.000         0.000
SEISMIC HORIZONTAL ACCEL. Kh [g]        0.000         0.000
UPHILL VERTICAL ACCEL.  Kv_uh [g]       0.000         0.000
DOWNHILL VERTICAL ACCEL.Kv_dh [g]       0.000         0.000
UPHILL BETA ANGLE (SLOPE) [deg]         0.000         0.000
UPHILL DELTA/PHI RATIO                  0.000         0.000
DOWNHILL BETA ANGLE (SLOPE) [deg]       0.000         0.000
DOWNHILL DELTA/PHI RATIO                0.000         0.000
DYN.WATER BEHAVIOUR                     0.000         0.000
Excess pore pressure RATIO Ru           0.000         0.000
SEISMIC PRESSURE LOWER VALUE            0.000         0.000
SEISMIC PRESSURE UPPER VALUE            0.000         0.000
SEISMIC PRESSURE LOWER LEVEL            0.000         0.000
SEISMIC PRESSURE UPPER LEVEL            0.000         0.000

================================================================================================================end of step    2


 LEFT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000

 RIGHT-HAND WALL

 LOWER  LEVEL          -7.70000
 UPPER  LEVEL           0.30000



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
+-----------------------------------------------------------------------------------------------------------------------+
 I N I T I A L    S T R E S S    T A B L E S

            S E C T I O N

 NUMBER OF DEFINED TABLES             1


INPUT DATA FOR INITIAL STRESS SET NO.    1
PERTAINING SOIL ELEMENTS AT Y-COORD    0.0000

ACTIVATION TIME                              1.0000
END TIME (TIME BEYOND WHICH IT IS REMOVED)   2.0000

TYPE BOUSSINESQ

 HORIZONTAL DISTANCE (DY)           1.45000000000000
 FOUNDATION WIDTH    (B)            3.55000000000000
 ZETA-F.....                  -0.300000000000000
 Q-F .....                     20.0000000000000
 BETA .....                    45.0000000000000
 BEHAVIOUR (0=FREE, 1=REFLECTING)  0.000000000000000E+000


 ELEMENT GROUPS BACKUP AREA CAN STAY IN CORE AT
 POSITION        2588

 NO. OF D.P.W  FOR THIS AREA       4848
 MAX NO. OF D.P.W. AVAILABLE      81920
 ** MAX NO OF ITERATIONS SET TO          40

ITER      0 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.1019E+05 RIMNOR= 0.000
            RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
            RFMAX = 20.24     RMMAX = 0.000
            RTSMAL=0.1000E-03 RMSMAL= 0.000
            RDT   =0.1019E+05 RDR   = 0.000
            RATIOT=0.6406E-16 RATIOR= 0.000
            MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
            MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF   1  Y-DISPL.F
            NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER      1 RNORM = 0.000     RMNORM= 0.000
            RINORM=0.1019E+05 RIMNOR= 0.000
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```
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF    1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF    1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM=0.1019E+05 RIMNOR= 0.000
           RENORM=0.4181E-28 REMNOR= 0.000     RATIO =0.6406E-16 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 20.24     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   =0.1019E+05 RDR   = 0.000
           RATIOT=0.6406E-16 RATIOR= 0.000
           MAX UN=0.3553E-14 IEQ=    75 NODE     38 DOF    1  Y-DISPL.F
           MIN UN=-.1776E-14 IEQ=    41 NODE     21 DOF    1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
|                                   Exe Time : 3 April 2019     10:25:14                                                |
+-----------------------------------------------------------------------------------------------------------------------+
New Project
SOLUTION REACHED USING     2 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P   1     ( AT TIME   1.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F         X-ROT. F
           (02)              (04)              (


ALL NODAL POINTS HAVE ZERO DISPLACEMENT COMPONENTS




+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
|                                   Exe Time : 3 April 2019     10:25:14                                                |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P   N O.    1

0_L                                                                  :
ELEMENT TYPE     5 NO.OF ELEMENTS. IN THIS GROUP    41
C U R R E N T    T I M E    I S      1.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

 EL *    FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P            STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p      LAYER
 -----------------------------------------------------------------------------------------------------------------------------
---------------------------------------------------------------------------------------
  1     0.000       --          --          --          --          --         REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000      not available
  2     0.000       --          --          --          --          --         REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000      not available
  3 D  0.1850     0.000      1.850      0.9250      1.850       0.9250            V-C    3143.     -0.1000       0.000
1.000       1.000      0.9250       0.000       0.000      UG0_2_10_L_0
  4 D  0.5550     0.000      5.550       2.775      5.550       2.775             V-C    3143.     -0.3000       0.000
1.000       1.000       2.775       0.000       0.000      UG0_2_10_L_0
  5 D   1.170     0.000      9.250       5.851      9.250       5.851             V-C    3143.     -0.5000       0.000
1.000       1.000       5.851       0.000       0.000      UG0_2_10_L_0
  6 D   1.761     0.000      12.95       8.806      12.95       8.806             V-C    3143.     -0.7000       0.000
1.000       1.000       8.806       0.000       0.000      UG0_2_10_L_0
  7 D   2.312     0.000      16.65       11.56      16.65       11.56             V-C    3143.     -0.9000       0.000
1.000       1.000       11.56       0.000       0.000      UG0_2_10_L_0
  8 D   2.815     0.000      20.35       14.07      20.35       14.07             V-C    3143.      -1.100       0.000
1.000       1.000       14.07       0.000       0.000      UG0_2_10_L_0
  9 D   3.273     0.000      24.05       16.36      24.05       16.36             V-C    3143.      -1.300       0.000
1.000       1.000       16.36       0.000       0.000      UG0_2_10_L_0
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  10 D   3.692       0.000       27.75       18.46       27.75       18.46           V-C   3143.      -1.500       0.000
1.000       1.000       18.46       0.000       0.000     UG0_2_10_L_0
  11 D   4.081       0.000       31.45       20.40       31.45       20.40           V-C   3143.      -1.700       0.000
1.000       1.000       20.40       0.000       0.000     UG0_2_10_L_0
  12 D   4.447       0.000       35.15       22.24       35.15       22.24           V-C   3143.      -1.900       0.000
1.000       1.000       22.24       0.000       0.000     UG0_2_10_L_0
  13 D   4.798       0.000       38.85       23.99       38.85       23.99           V-C   3143.      -2.100       0.000
1.000       1.000       23.99       0.000       0.000     UG0_2_10_L_0
  14 D   5.418       0.000       42.70       27.09       42.70       27.09           V-C   3143.      -2.300       0.000
1.000       1.000       27.09       0.000       0.000     UG3_4271_12_L_0
  15 D   5.805       0.000       46.70       29.03       46.70       29.03           V-C   3143.      -2.500       0.000
1.000       1.000       29.03       0.000       0.000     UG3_4271_12_L_0
  16 D   6.330   -1.4129E-18     49.20       30.15       49.20       30.15           V-C   3143.      -2.700       1.500
1.000       1.000       31.65       0.000       0.000     UG3_4271_12_L_0
  17 D   6.900       0.000       51.20       31.00       51.20       31.00           V-C   3143.      -2.900       3.500
1.000       1.000       34.50       0.000       0.000     UG3_4271_12_L_0
  18 D   7.469       0.000       53.20       31.84       53.20       31.84           V-C   3143.      -3.100       5.500
1.000       1.000       37.34       0.000       0.000     UG3_4271_12_L_0
  19 D   8.038       0.000       55.20       32.69       55.20       32.69           V-C   3143.      -3.300       7.500
1.000       1.000       40.19       0.000       0.000     UG3_4271_12_L_0
  20 D   8.609       0.000       57.20       33.54       57.20       33.54           V-C   3143.      -3.500       9.500
1.000       1.000       43.04       0.000       0.000     UG3_4271_12_L_0
  21 D   9.181    2.8259E-18     59.20       34.40       59.20       34.40           V-C   3143.      -3.700       11.50
1.000       1.000       45.90       0.000       0.000     UG3_4271_12_L_0
  22 D   9.755       0.000       61.20       35.27       61.20       35.27           V-C   3143.      -3.900       13.50
1.000       1.000       48.77       0.000       0.000     UG3_4271_12_L_0
  23 D   10.33   -2.8259E-18     63.20       36.15       63.20       36.15           V-C   3143.      -4.100       15.50
1.000       1.000       51.65       0.000       0.000     UG3_4271_12_L_0
  24 D   10.91       0.000       65.20       37.05       65.20       37.05           V-C   3143.      -4.300       17.50
1.000       1.000       54.55       0.000       0.000     UG3_4271_12_L_0
  25 D   11.49       0.000       67.20       37.95       67.20       37.95           V-C   3143.      -4.500       19.50
1.000       1.000       57.45       0.000       0.000     UG3_4271_12_L_0
  26 D   12.07       0.000       69.18       38.85       69.18       38.85           V-C   3143.      -4.700       21.50
1.000       1.000       60.35       0.000       0.000     UG2_4_26346_L_0
  27 D   12.64       0.000       71.08       39.72       71.08       39.72           V-C   3143.      -4.900       23.50
1.000       1.000       63.22       0.000       0.000     UG2_4_26346_L_0
  28 D   13.22   -2.8259E-18     72.97       40.59       72.97       40.59           V-C   3143.      -5.100       25.50
1.000       1.000       66.09       0.000       0.000     UG2_4_26346_L_0
  29 D   13.80       0.000       74.87       41.48       74.87       41.48           V-C   3143.      -5.300       27.50
1.000       1.000       68.98       0.000       0.000     UG2_4_26346_L_0
  30 D   14.38    2.8259E-18     76.77       42.38       76.77       42.38           V-C   3143.      -5.500       29.50
1.000       1.000       71.88       0.000       0.000     UG2_4_26346_L_0
  31 D   14.96       0.000       78.67       43.28       78.67       43.28           V-C   3143.      -5.700       31.50
1.000       1.000       74.78       0.000       0.000     UG2_4_26346_L_0
  32 D   15.54       0.000       80.57       44.19       80.57       44.19           V-C   3143.      -5.900       33.50
1.000       1.000       77.69       0.000       0.000     UG2_4_26346_L_0
  33 D   16.12       0.000       82.47       45.11       82.47       45.11           V-C   3143.      -6.100       35.50
1.000       1.000       80.61       0.000       0.000     UG2_4_26346_L_0
  34 D   16.71   -5.6518E-18     84.37       46.04       84.37       46.04           V-C   3143.      -6.300       37.50
1.000       1.000       83.54       0.000       0.000     UG2_4_26346_L_0
  35 D   17.29       0.000       86.27       46.97       86.27       46.97           V-C   3143.      -6.500       39.50
1.000       1.000       86.47       0.000       0.000     UG2_4_26346_L_0
  36 D   17.88       0.000       88.17       47.91       88.17       47.91           V-C   3143.      -6.700       41.50
1.000       1.000       89.41       0.000       0.000     UG2_4_26346_L_0
  37 D   18.47       0.000       90.07       48.85       90.07       48.85           V-C   3143.      -6.900       43.50
1.000       1.000       92.35       0.000       0.000     UG2_4_26346_L_0
  38 D   19.06   -5.6518E-18     91.97       49.80       91.97       49.80           V-C   3143.      -7.100       45.50
1.000       1.000       95.30       0.000       0.000     UG2_4_26346_L_0
  39 D   19.65       0.000       93.87       50.75       93.87       50.75           V-C   3143.      -7.300       47.50
1.000       1.000       98.25       0.000       0.000     UG2_4_26346_L_0
  40 D   20.24       0.000       95.77       51.71       95.77       51.71           V-C   3143.      -7.500       49.50
1.000       1.000       101.2       0.000       0.000     UG2_4_26346_L_0
  41 D   10.42    5.6518E-18     97.78       52.72       97.78       52.72           V-C   3143.      -7.700       51.50
1.000       1.000       104.2       0.000       0.000     UG3_4271_27610_L_0


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 |                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
 |                                                                                                                         |
 |                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
 |                                  Exe Time : 3 April 2019     10:25:14                                                   |
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 New Project


 S T R E S S   R E S U L T S   F O R   G R O U P   N O.   2

 0_R                                                    :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
 C U R R E N T   T I M E   I S      1.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P          STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a        Su_p     LAYER
```

1	0.000	--	--	--	--	--	REMOVED	--	0.3000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
2	0.000	--	--	--	--	--	REMOVED	--	0.1000	0.000	
1.000	1.000	0.000	0.000	0.000	not available						
3 D	0.1850	0.000	1.850	0.9250	1.850	0.9250	V-C	3143.	-0.1000	0.000	
1.000	1.000	0.9250	0.000	0.000	UG0_2_10_L_0						
4 D	0.5550	0.000	5.550	2.775	5.550	2.775	V-C	3143.	-0.3000	0.000	
1.000	1.000	2.775	0.000	0.000	UG0_2_10_L_0						
5 D	1.170	0.000	9.261	5.851	9.261	5.851	V-C	3143.	-0.5000	0.000	
1.000	1.000	5.851	0.000	0.000	UG0_2_10_L_0						
6 D	1.761	0.000	13.03	8.806	13.03	8.806	V-C	3143.	-0.7000	0.000	
1.000	1.000	8.806	0.000	0.000	UG0_2_10_L_0						
7 D	2.312	0.000	16.89	11.56	16.89	11.56	V-C	3143.	-0.9000	0.000	
1.000	1.000	11.56	0.000	0.000	UG0_2_10_L_0						
8 D	2.815	0.000	20.85	14.07	20.85	14.07	V-C	3143.	-1.100	0.000	
1.000	1.000	14.07	0.000	0.000	UG0_2_10_L_0						
9 D	3.273	0.000	24.89	16.36	24.89	16.36	V-C	3143.	-1.300	0.000	
1.000	1.000	16.36	0.000	0.000	UG0_2_10_L_0						
10 D	3.692	0.000	28.97	18.46	28.97	18.46	V-C	3143.	-1.500	0.000	
1.000	1.000	18.46	0.000	0.000	UG0_2_10_L_0						
11 D	4.081	0.000	33.07	20.40	33.07	20.40	V-C	3143.	-1.700	0.000	
1.000	1.000	20.40	0.000	0.000	UG0_2_10_L_0						
12 D	4.447	0.000	37.17	22.24	37.17	22.24	V-C	3143.	-1.900	0.000	
1.000	1.000	22.24	0.000	0.000	UG0_2_10_L_0						
13 D	4.798	0.000	41.25	23.99	41.25	23.99	V-C	3143.	-2.100	0.000	
1.000	1.000	23.99	0.000	0.000	UG0_2_10_L_0						
14 D	5.418	0.000	45.73	27.09	45.73	27.09	V-C	3143.	-2.300	0.000	
1.000	1.000	27.09	0.000	0.000	UG3_4271_12_L_0						
15 D	5.805	0.000	50.56	29.03	50.56	29.03	V-C	3143.	-2.500	0.000	
1.000	1.000	29.03	0.000	0.000	UG3_4271_12_L_0						
16 D	6.330	1.4129E-18	53.63	30.15	53.63	30.15	V-C	3143.	-2.700	1.500	
1.000	1.000	31.65	0.000	0.000	UG3_4271_12_L_0						
17 D	6.900	0.000	56.26	31.00	56.26	31.00	V-C	3143.	-2.900	3.500	
1.000	1.000	34.50	0.000	0.000	UG3_4271_12_L_0						
18 D	7.469	0.000	58.82	31.84	58.82	31.84	V-C	3143.	-3.100	5.500	
1.000	1.000	37.34	0.000	0.000	UG3_4271_12_L_0						
19 D	8.038	0.000	61.20	32.69	61.20	32.69	V-C	3143.	-3.300	7.500	
1.000	1.000	40.19	0.000	0.000	UG3_4271_12_L_0						
20 D	8.609	0.000	63.65	33.54	63.65	33.54	V-C	3143.	-3.500	9.500	
1.000	1.000	43.04	0.000	0.000	UG3_4271_12_L_0						
21 D	9.181	-2.8259E-18	65.95	34.40	65.95	34.40	V-C	3143.	-3.700	11.50	
1.000	1.000	45.90	0.000	0.000	UG3_4271_12_L_0						
22 D	9.755	0.000	68.32	35.27	68.32	35.27	V-C	3143.	-3.900	13.50	
1.000	1.000	48.77	0.000	0.000	UG3_4271_12_L_0						
23 D	10.33	2.8259E-18	70.65	36.15	70.65	36.15	V-C	3143.	-4.100	15.50	
1.000	1.000	51.65	0.000	0.000	UG3_4271_12_L_0						
24 D	10.91	0.000	72.87	37.05	72.87	37.05	V-C	3143.	-4.300	17.50	
1.000	1.000	54.55	0.000	0.000	UG3_4271_12_L_0						
25 D	11.49	0.000	75.16	37.95	75.16	37.95	V-C	3143.	-4.500	19.50	
1.000	1.000	57.45	0.000	0.000	UG3_4271_12_L_0						
26 D	12.07	0.000	77.39	38.85	77.39	38.85	V-C	3143.	-4.700	21.50	
1.000	1.000	60.35	0.000	0.000	UG2_4_26346_L_0						
27 D	12.64	0.000	79.46	39.72	79.46	39.72	V-C	3143.	-4.900	23.50	
1.000	1.000	63.22	0.000	0.000	UG2_4_26346_L_0						
28 D	13.22	2.8259E-18	81.59	40.59	81.59	40.59	V-C	3143.	-5.100	25.50	
1.000	1.000	66.09	0.000	0.000	UG2_4_26346_L_0						
29 D	13.80	0.000	83.63	41.48	83.63	41.48	V-C	3143.	-5.300	27.50	
1.000	1.000	68.98	0.000	0.000	UG2_4_26346_L_0						
30 D	14.38	-2.8259E-18	85.31	42.38	85.31	42.38	V-C	3143.	-5.500	29.50	
1.000	1.000	71.88	0.000	0.000	UG2_4_26346_L_0						
31 D	14.96	0.000	87.01	43.28	87.01	43.28	V-C	3143.	-5.700	31.50	
1.000	1.000	74.78	0.000	0.000	UG2_4_26346_L_0						
32 D	15.54	0.000	88.71	44.19	88.71	44.19	V-C	3143.	-5.900	33.50	
1.000	1.000	77.69	0.000	0.000	UG2_4_26346_L_0						
33 D	16.12	0.000	90.43	45.11	90.43	45.11	V-C	3143.	-6.100	35.50	
1.000	1.000	80.61	0.000	0.000	UG2_4_26346_L_0						
34 D	16.71	5.6518E-18	92.15	46.04	92.15	46.04	V-C	3143.	-6.300	37.50	
1.000	1.000	83.54	0.000	0.000	UG2_4_26346_L_0						
35 D	17.29	0.000	93.88	46.97	93.88	46.97	V-C	3143.	-6.500	39.50	
1.000	1.000	86.47	0.000	0.000	UG2_4_26346_L_0						
36 D	17.88	0.000	95.62	47.91	95.62	47.91	V-C	3143.	-6.700	41.50	
1.000	1.000	89.41	0.000	0.000	UG2_4_26346_L_0						
37 D	18.47	0.000	97.37	48.85	97.37	48.85	V-C	3143.	-6.900	43.50	
1.000	1.000	92.35	0.000	0.000	UG2_4_26346_L_0						
38 D	19.06	5.6518E-18	99.12	49.80	99.12	49.80	V-C	3143.	-7.100	45.50	
1.000	1.000	95.30	0.000	0.000	UG2_4_26346_L_0						
39 D	19.65	0.000	100.9	50.75	100.9	50.75	V-C	3143.	-7.300	47.50	
1.000	1.000	98.25	0.000	0.000	UG2_4_26346_L_0						
40 D	20.24	0.000	102.6	51.71	102.6	51.71	V-C	3143.	-7.500	49.50	
1.000	1.000	101.2	0.000	0.000	UG2_4_26346_L_0						
41 D	10.42	-5.6518E-18	104.5	52.72	104.5	52.72	V-C	3143.	-7.700	51.50	
1.000	1.000	104.2	0.000	0.000	UG3_4271_27610_L_0						

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|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*             |
|                                                                                                                     |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                 |
|                                  Exe Time : 3 April 2019     10:25:14                                               |
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New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   3

WallElement_New_28707                                    :
ELEMENT TYPE    2 NO.OF ELEMENTS. IN THIS GROUP   40
C U R R E N T   T I M E   I S      1.0000

 WALL2D ELEMENT

   EL      TA          TB          MA          MB
-------------------------------------------------------

***** NO ONE ELEMENT ACTIVE AT CURRENT STEP *****

ITER     0 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 1477.     REMNOR= 0.000     RATIO =0.4873     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.4873     RATIOR= 0.000
           MAX UN= 0.000     IEQ=    82 NODE     41 DOF   2   X-ROT. F
           MIN UN=-9.547     IEQ=    43 NODE     22 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     2 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 166.7     REMNOR=0.3322E-20 RATIO =0.1637     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.1637     RATIOR= 0.000
           MAX UN=0.1818E-09 IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           MIN UN=-6.151     IEQ=    49 NODE     25 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     3 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 1464.     REMNOR=0.3678E-18 RATIO =0.4851     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.4851     RATIOR= 0.000
           MAX UN= 5.401     IEQ=    79 NODE     40 DOF   1  Y-DISPL.F
           MIN UN=-22.99     IEQ=    51 NODE     26 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     4 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 572.6     REMNOR=0.2073E-17 RATIO =0.3034     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.3034     RATIOR= 0.000
           MAX UN= 12.68     IEQ=    77 NODE     39 DOF   1  Y-DISPL.F
           MIN UN=-11.13     IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     5 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 172.3     REMNOR=0.2600E-17 RATIO =0.1664     TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.1664     RATIOR= 0.000
           MAX UN=0.2016     IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           MIN UN=-10.76     IEQ=    59 NODE     30 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     6 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM= 60.06     REMNOR=0.1068E-16 RATIO =0.9827E-01 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.9827E-01 RATIOR= 0.000
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           MAX UN= 4.823     IEQ=    73 NODE     37 DOF   1  Y-DISPL.F
           MIN UN=-5.803     IEQ=    65 NODE     33 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     7 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM=0.3827     REMNOR=0.5291E-17 RATIO =0.7844E-02 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.7844E-02 RATIOR= 0.000
           MAX UN=0.1566E-07 IEQ=     7 NODE      4 DOF   1  Y-DISPL.F
           MIN UN=-.6186     IEQ=    67 NODE     34 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     8 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM=0.7252E-03 REMNOR=0.4374E-17 RATIO =0.3415E-03 TOLER =0.1000E-03  NOT CONVERGED
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.3415E-03 RATIOR= 0.000
           MAX UN=0.2693E-01 IEQ=    75 NODE     38 DOF   1  Y-DISPL.F
           MIN UN=-.1462E-07 IEQ=     3 NODE      2 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0


ITER     9 RNORM = 0.000     RMNORM= 0.000
           RINORM= 6220.     RIMNOR= 0.000
           RENORM=0.3265E-04 REMNOR=0.5305E-17 RATIO =0.7245E-04 TOLER =0.1000E-03      CONVERGED !
           RFMAX = 19.48     RMMAX = 0.000
           RTSMAL=0.1000E-03 RMSMAL= 0.000
           RDT   = 6220.     RDR   = 0.000
           RATIOT=0.7245E-04 RATIOR= 0.000
           MAX UN=0.1183E-07 IEQ=    15 NODE      8 DOF   1  Y-DISPL.F
           MIN UN=-.4875E-02 IEQ=    71 NODE     36 DOF   1  Y-DISPL.F
           NO. OF CONTACT CONSTRAINT VIOLATIONS     0



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|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                       |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                   |
|                                  Exe Time : 3 April 2019     10:25:14                                                 |
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New Project
SOLUTION REACHED USING     9 ITERATIONS ON   40

P R I N T   O U T   F O R   T I M E   S T E P    2     ( AT TIME   2.000     )

PRINT OUT OF ACTIVE COMPONENTS (FIXED NODES ARE NOT PRINTED OUT)

          Y-DISPL.F        X-ROT. F
            (02)             (04)            (
    1  -0.4135697       5.8886562E-02
    2  -0.4017924       5.8886562E-02
    3  -0.3900151       5.8886562E-02
    4  -0.3782378       5.8886546E-02
    5  -0.3664605       5.8886450E-02
    6  -0.3546832       5.8886146E-02
    7  -0.3429060       5.8885440E-02
    8  -0.3311291       5.8884074E-02
    9  -0.3193525       5.8881721E-02
   10  -0.3075765       5.8877984E-02
   11  -0.2958014       5.8872399E-02
   12  -0.2840277       5.8864427E-02
   13  -0.2722558       5.8853460E-02
   14  -0.2604865       5.8838820E-02
   15  -0.2487206       5.8819684E-02
   16  -0.2369590       5.8795073E-02
   17  -0.2252030       5.8763890E-02
   18  -0.2134540       5.8724884E-02
   19  -0.2017137       5.8676650E-02
   20  -0.1899841       5.8617624E-02
   21  -0.1782674       5.8546088E-02
   22  -0.1665665       5.8460172E-02
   23  -0.1548845       5.8357852E-02
   24  -0.1432247       5.8237071E-02
   25  -0.1315910       5.8095985E-02
   26  -0.1199877       5.7933083E-02
   27  -0.1084191       5.7749992E-02
   28  -9.6888826E-02   5.7551418E-02
   29  -8.5399322E-02   5.7342278E-02
   30  -7.3952277E-02   5.7127703E-02
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   31  -6.2548247E-02   5.6913041E-02
   32  -5.1186695E-02   5.6703862E-02
   33  -3.9866007E-02   5.6505960E-02
   34  -2.8583215E-02   5.6325347E-02
   35  -1.7334300E-02   5.6168260E-02
   36  -6.1139785E-03   5.6040165E-02
   37   5.0839372E-03   5.5944629E-02
   38   1.6266042E-02   5.5881621E-02
   39   2.7438401E-02   5.5846684E-02
   40   3.8606040E-02   5.5832455E-02
   41   4.9772300E-02   5.5829465E-02


+-------------------------------------------------------------------------------------------------------------------------+
|                  PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time : 3 April 2019     10:25:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S   R E S U L T S   F O R   G R O U P   N O.   1

0_L                                                  :
ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP   41
C U R R E N T   T I M E   I S      2.0000

 HARDENING 2D SOIL ELEMENT

 ****** TOTAL STRESS FORMULATION *****

  EL *   FORCE      DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE       E
FACTOR    UFACTOR       Peq          Su_a         Su_p     LAYER
 ------------------------------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------
   1     0.000         --          --          --          --          --          REMOVED     --       0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   2     0.000         --          --          --          --          --          REMOVED     --       0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   3     0.000         --          --          --          --          --          REMOVED     --      -0.1000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   4     0.000         --          --          --          --          --          REMOVED     --      -0.3000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   5     0.000         --          --          --          --          --          REMOVED     --      -0.5000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   6     0.000         --          --          --          --          --          REMOVED     --      -0.7000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   7     0.000         --          --          --          --          --          REMOVED     --      -0.9000       0.000
1.000       1.000       0.000       0.000       0.000     not available
   8     0.000         --          --          --          --          --          REMOVED     --       -1.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
   9     0.000         --          --          --          --          --          REMOVED     --       -1.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  10     0.000         --          --          --          --          --          REMOVED     --       -1.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  11     0.000         --          --          --          --          --          REMOVED     --       -1.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  12     0.000         --          --          --          --          --          REMOVED     --       -1.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  13     0.000         --          --          --          --          --          REMOVED     --       -2.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  14     0.000         --          --          --          --          --          REMOVED     --       -2.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  15     0.000         --          --          --          --          --          REMOVED     --       -2.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  16     0.000         --          --          --          --          --          REMOVED     --       -2.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  17     0.000         --          --          --          --          --          REMOVED     --       -2.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  18     0.000         --          --          --          --          --          REMOVED     --       -3.100       0.000
1.000       1.000       0.000       0.000       0.000     not available
  19     0.000         --          --          --          --          --          REMOVED     --       -3.300       0.000
1.000       1.000       0.000       0.000       0.000     not available
  20     0.000         --          --          --          --          --          REMOVED     --       -3.500       0.000
1.000       1.000       0.000       0.000       0.000     not available
  21     0.000         --          --          --          --          --          REMOVED     --       -3.700       0.000
1.000       1.000       0.000       0.000       0.000     not available
  22     0.000         --          --          --          --          --          REMOVED     --       -3.900       0.000
1.000       1.000       0.000       0.000       0.000     not available
  23 D  0.8201      0.1549      0.8362      2.937       63.20       36.15       PASSIVE   0.000      -4.100       1.164
1.000       1.000       4.100       0.000       0.000     UG3_4271_12_L_0
  24 D   2.460      0.1432       2.508       8.810       65.20       37.05       PASSIVE   0.000      -4.300       3.492
1.000       1.000       12.30       0.000       0.000     UG3_4271_12_L_0
  25 D   4.100      0.1316       4.181       14.68       67.20       37.95       PASSIVE   0.000      -4.500       5.819
1.000       1.000       20.50       0.000       0.000     UG3_4271_12_L_0
  26 D   19.87      0.1200       5.828       91.20       69.18       91.20       PASSIVE   0.000      -4.700       8.147
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1.000      1.000       99.35       0.000       0.000     UG2_4_26346_L_0
 27 D    21.13     0.1084      7.400       95.18      71.08        95.18          PASSIVE    0.000       -4.900        10.47
1.000      1.000       105.7       0.000       0.000     UG2_4_26346_L_0
 28 D    22.39     9.6889E-02  8.973       99.17      72.97        99.17          PASSIVE    0.000       -5.100        12.80
1.000      1.000       112.0       0.000       0.000     UG2_4_26346_L_0
 29 D    23.66     8.5399E-02  10.55       103.2      74.87        103.2          PASSIVE    0.000       -5.300        15.13
1.000      1.000       118.3       0.000       0.000     UG2_4_26346_L_0
 30 D    24.92     7.3952E-02  12.12       107.1      76.77        107.1          PASSIVE    0.000       -5.500        17.46
1.000      1.000       124.6       0.000       0.000     UG2_4_26346_L_0
 31 D    26.18     6.2548E-02  13.69       111.1      78.67        111.1          PASSIVE    0.000       -5.700        19.79
1.000      1.000       130.9       0.000       0.000     UG2_4_26346_L_0
 32 D    27.45     5.1187E-02  15.26       115.1      80.57        115.1          PASSIVE    0.000       -5.900        22.11
1.000      1.000       137.2       0.000       0.000     UG2_4_26346_L_0
 33 D    28.71     3.9866E-02  16.83       119.1      82.47        119.1          PASSIVE    0.000       -6.100        24.44
1.000      1.000       143.5       0.000       0.000     UG2_4_26346_L_0
 34 D    29.97     2.8583E-02  18.41       123.1      84.37        123.1           UL-RL     9429.       -6.300        26.77
1.000      1.000       149.9       0.000       0.000     UG2_4_26346_L_0
 35 D    24.52     1.7334E-02  19.98       93.52      86.27        93.53           UL-RL     9429.       -6.500        29.10
1.000      1.000       122.6       0.000       0.000     UG2_4_26346_L_0
 36 D    18.13     6.1140E-03  21.55       59.22      88.17        59.24           UL-RL     9429.       -6.700        31.42
1.000      1.000       90.65       0.000       0.000     UG2_4_26346_L_0
 37 D    10.01    -5.0839E-03  23.12       16.29      90.07        48.85           UL-RL     9429.       -6.900        33.75
1.000      1.000       50.05       0.000       0.000     UG2_4_26346_L_0
 38 D    7.227    -1.6266E-02  24.70     5.3889E-02   91.97        49.80           UL-RL     9429.       -7.100        36.08
1.000      1.000       36.13       0.000       0.000     UG2_4_26346_L_0
 39 D    7.681    -2.7438E-02  26.27      0.000       93.87        50.75           ACTIVE    0.000       -7.300        38.41
1.000      1.000       38.41       0.000       0.000     UG2_4_26346_L_0
 40 D    8.147    -3.8606E-02  27.84      0.000       95.77        51.71           ACTIVE    0.000       -7.500        40.73
1.000      1.000       40.73       0.000       0.000     UG2_4_26346_L_0
 41 D    5.434    -4.9772E-02  29.51      11.27       97.78        52.72           ACTIVE    0.000       -7.700        43.06
1.000      1.000       54.34       0.000       0.000     UG3_4271_27610_L_0


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 |                   PARATIEPLUS(TM)    NLS ENGINE RELEASE  2018.1     FULL VERSION  *Build date:Jun 29, 2018*             |
 |                                                                                                                       |
 |                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
 |                                   Exe Time : 3 April 2019      10:25:14                                               |
 +-----------------------------------------------------------------------------------------------------------------------+
 New Project


 S T R E S S    R E S U L T S    F O R    G R O U P   N O.    2

 0_R                                                                     :
 ELEMENT TYPE    5 NO.OF ELEMENTS. IN THIS GROUP    41
 C U R R E N T    T I M E    I S       2.0000

  HARDENING 2D SOIL ELEMENT

  ****** TOTAL STRESS FORMULATION *****

  EL *    FORCE     DISPL-Y  VERTICAL-P  HORIZON.-P     MAX-V-P     MAX-H-P           STATE   STIFFNESS Z-LEVEL      PORE        E
FACTOR    UFACTOR       Peq          Su_a        Su_p      LAYER
 -------------------------------------------------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
   1     0.000       --           --          --          --          --          REMOVED     --        0.3000        0.000
1.000      1.000      0.000       0.000       0.000      not available
   2     0.000       --           --          --          --          --          REMOVED     --        0.1000        0.000
1.000      1.000      0.000       0.000       0.000      not available
  3 D   0.1084     -0.3900      1.850       0.5421      1.850       0.9250          ACTIVE    0.000       -0.1000        0.000
1.000      1.000      0.5421      0.000       0.000      UG0_2_10_L_0
  4 D   0.3252     -0.3782      5.550       1.626       5.550        2.775          ACTIVE    0.000       -0.3000        0.000
1.000      1.000      1.626       0.000       0.000      UG0_2_10_L_0
  5 D   0.5427     -0.3665      9.261       2.713       9.261        5.851          ACTIVE    0.000       -0.5000        0.000
1.000      1.000      2.713       0.000       0.000      UG0_2_10_L_0
  6 D   0.7635     -0.3547      13.03       3.818       13.03        8.806          ACTIVE    0.000       -0.7000        0.000
1.000      1.000      3.818       0.000       0.000      UG0_2_10_L_0
  7 D   0.9898     -0.3429      16.89       4.949       16.89        11.56          ACTIVE    0.000       -0.9000        0.000
1.000      1.000      4.949       0.000       0.000      UG0_2_10_L_0
  8 D   1.222      -0.3311      20.85       6.109       20.85        14.07          ACTIVE    0.000       -1.100         0.000
1.000      1.000      6.109       0.000       0.000      UG0_2_10_L_0
  9 D   1.458      -0.3194      24.89       7.292       24.89        16.36          ACTIVE    0.000       -1.300         0.000
1.000      1.000      7.292       0.000       0.000      UG0_2_10_L_0
 10 D   1.698      -0.3076      28.97       8.488       28.97        18.46          ACTIVE    0.000       -1.500         0.000
1.000      1.000      8.488       0.000       0.000      UG0_2_10_L_0
 11 D   1.938      -0.2958      33.07       9.690       33.07        20.40          ACTIVE    0.000       -1.700         0.000
1.000      1.000      9.690       0.000       0.000      UG0_2_10_L_0
 12 D   2.178      -0.2840      37.17       10.89       37.17        22.24          ACTIVE    0.000       -1.900         0.000
1.000      1.000      10.89       0.000       0.000      UG0_2_10_L_0
 13 D   2.417      -0.2723      41.25       12.09       41.25        23.99          ACTIVE    0.000       -2.100         0.000
1.000      1.000      12.09       0.000       0.000      UG0_2_10_L_0
 14 D   3.146      -0.2605      45.73       15.73       45.73        27.09          ACTIVE    0.000       -2.300         0.000
1.000      1.000      15.73       0.000       0.000      UG3_4271_12_L_0
 15 D   3.479      -0.2487      50.56       17.39       50.56        29.03          ACTIVE    0.000       -2.500         0.000
1.000      1.000      17.39       0.000       0.000      UG3_4271_12_L_0
 16 D   3.957      -0.2370      53.87       18.53       53.87        30.28          ACTIVE    0.000       -2.700         1.254
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1.000      1.000      19.79      0.000      0.000      UG3_4271_12_L_0
 17 D    4.496    -0.2252    56.84     19.55      56.84     31.30        ACTIVE   0.000      -2.900       2.927
1.000      1.000      22.48      0.000      0.000      UG3_4271_12_L_0
 18 D    5.029    -0.2135    59.72     20.54      59.72     32.32        ACTIVE   0.000      -3.100       4.599
1.000      1.000      25.14      0.000      0.000      UG3_4271_12_L_0
 19 D    5.549    -0.2017    62.43     21.47      62.43     33.34        ACTIVE   0.000      -3.300       6.271
1.000      1.000      27.75      0.000      0.000      UG3_4271_12_L_0
 20 D    6.075    -0.1900    65.20     22.43      65.20     34.37        ACTIVE   0.000      -3.500       7.944
1.000      1.000      30.37      0.000      0.000      UG3_4271_12_L_0
 21 D    6.590    -0.1783    67.83     23.33      67.83     35.40        ACTIVE   0.000      -3.700       9.616
1.000      1.000      32.95      0.000      0.000      UG3_4271_12_L_0
 22 D    7.110    -0.1666    70.53     24.26      70.53     36.45        ACTIVE   0.000      -3.900       11.29
1.000      1.000      35.55      0.000      0.000      UG3_4271_12_L_0
 23 D    7.628    -0.1549    73.19     25.18      73.19     37.50        ACTIVE   0.000      -4.100       12.96
1.000      1.000      38.14      0.000      0.000      UG3_4271_12_L_0
 24 D    8.137    -0.1432    75.74     26.05      75.74     38.57        ACTIVE   0.000      -4.300       14.63
1.000      1.000      40.69      0.000      0.000      UG3_4271_12_L_0
 25 D    8.652    -0.1316    78.35     26.95      78.35     39.64        ACTIVE   0.000      -4.500       16.31
1.000      1.000      43.26      0.000      0.000      UG3_4271_12_L_0
 26 D    4.304    -0.1200    80.92     3.540      80.92     40.72        ACTIVE   0.000      -4.700       17.98
1.000      1.000      21.52      0.000      0.000      UG2_4_26346_L_0
 27 D    4.846    -0.1084    83.31     4.581      83.31     41.76        ACTIVE   0.000      -4.900       19.65
1.000      1.000      24.23      0.000      0.000      UG2_4_26346_L_0
 28 D    5.394    -9.6889E-02 85.76    5.649      85.76     42.81        ACTIVE   0.000      -5.100       21.32
1.000      1.000      26.97      0.000      0.000      UG2_4_26346_L_0
 29 D    5.935    -8.5399E-02 88.13    6.679      88.13     43.87        ACTIVE   0.000      -5.300       22.99
1.000      1.000      29.67      0.000      0.000      UG2_4_26346_L_0
 30 D    6.444    -7.3952E-02 90.15    7.555      90.15     44.94        ACTIVE   0.000      -5.500       24.67
1.000      1.000      32.22      0.000      0.000      UG2_4_26346_L_0
 31 D    6.955    -6.2548E-02 92.17    8.436      92.17     46.02        ACTIVE   0.000      -5.700       26.34
1.000      1.000      34.77      0.000      0.000      UG2_4_26346_L_0
 32 D    7.466    -5.1187E-02 94.20    9.320      94.20     47.11        ACTIVE   0.000      -5.900       28.01
1.000      1.000      37.33      0.000      0.000      UG2_4_26346_L_0
 33 D    7.979    -3.9866E-02 96.25    10.21      96.25     48.20        ACTIVE   0.000      -6.100       29.68
1.000      1.000      39.89      0.000      0.000      UG2_4_26346_L_0
 34 D    8.492    -2.8583E-02 98.30    11.10      98.30     49.30         UL-RL   9429.      -6.300       31.36
1.000      1.000      42.46      0.000      0.000      UG2_4_26346_L_0
 35 D    9.007    -1.7334E-02 100.4    12.01      100.4     50.41         UL-RL   9429.      -6.500       33.03
1.000      1.000      45.03      0.000      0.000      UG2_4_26346_L_0
 36 D    9.522    -6.1140E-03 102.4    12.91      102.4     52.02         UL-RL   9429.      -6.700       34.70
1.000      1.000      47.61      0.000      0.000      UG2_4_26346_L_0
 37 D    18.82    5.0839E-03 104.5     57.75      104.5     74.05         UL-RL   9429.      -6.900       36.37
1.000      1.000      94.12      0.000      0.000      UG2_4_26346_L_0
 38 D    28.58    1.6266E-02 106.6     104.8      106.6     104.9         UL-RL   9429.      -7.100       38.05
1.000      1.000      142.9      0.000      0.000      UG2_4_26346_L_0
 39 D    36.17    2.7438E-02 108.7     141.1      108.7     141.1           V-C   3143.      -7.300       39.72
1.000      1.000      180.8      0.000      0.000      UG2_4_26346_L_0
 40 D    43.75    3.8606E-02 110.8     177.4      110.8     177.4           V-C   3143.      -7.500       41.39
1.000      1.000      218.7      0.000      0.000      UG2_4_26346_L_0
 41 D    25.67    4.9772E-02 112.9     213.6      112.9     213.6           V-C   3143.      -7.700       43.06
1.000      1.000      256.7      0.000      0.000      UG3_4271_27610_L_0
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+-----------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*            |
|                                                                                                                       |
|                                   NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                  |
|                                   Exe Time : 3 April 2019     10:25:14                                                |
+-----------------------------------------------------------------------------------------------------------------------+
New Project


S T R E S S    R E S U L T S    F O R    G R O U P   N O.    3

WallElement_New_28707                                             :
ELEMENT TYPE     2 NO.OF ELEMENTS. IN THIS GROUP    40
C U R R E N T    T I M E    I S      2.0000

 WALL2D ELEMENT

   EL       TA          TB          MA          MB
-----------------------------------------------------
    1 3.30108E-09-3.30108E-09 3.31746E-10 7.69676E-10
    2 5.66756E-09-5.66756E-09 1.25889E-10 1.05134E-09
    3-0.10841     0.10841    -1.07448E-09-2.16820E-02
    4-0.43364     0.43364     2.16820E-02-0.10841
    5-0.97631     0.97631     0.10841    -0.30367
    6 -1.7398      1.7398     0.30367    -0.65164
    7 -2.7297      2.7297     0.65164     -1.1976
    8 -3.9515      3.9515      1.1976     -1.9879
    9 -5.4098      5.4098      1.9879     -3.0698
   10 -7.1074      7.1074      3.0698     -4.4913
   11 -9.0454      9.0454      4.4913     -6.3004
   12 -11.224      11.224      6.3004     -8.5451
   13 -13.641      13.641      8.5451     -11.273
   14 -16.788      16.788      11.273     -14.631
   15 -20.266      20.266      14.631     -18.684
```

```
   16 -24.223      24.223      18.684     -23.529
   17 -28.719      28.719      23.529     -29.273
   18 -33.748      33.748      29.273     -36.022
   19 -39.297      39.297      36.022     -43.881
   20 -45.371      45.371      43.881     -52.956
   21 -51.961      51.961      52.956     -63.348
   22 -59.071      59.071      63.348     -75.162
   23 -65.879      65.879      75.162     -88.338
   24 -71.556      71.556      88.338     -102.65
   25 -76.107      76.107      102.65     -117.87
   26 -60.541      60.541      117.87     -129.98
   27 -44.256      44.256      129.98     -138.83
   28 -27.255      27.255      138.83     -144.28
   29 -9.5330      9.5330      144.28     -146.19
   30  8.9425     -8.9425      146.19     -144.40
   31  28.170     -28.170      144.40     -138.76
   32  48.149     -48.149      138.76     -129.14
   33  68.879     -68.879      129.14     -115.36
   34  90.358     -90.358      115.36     -97.288
   35  105.88     -105.88      97.288     -76.112
   36  114.49     -114.49      76.112     -53.214
   37  105.67     -105.67      53.214     -32.079
   38  84.323     -84.323      32.079     -15.215
   39  55.837     -55.837      15.215     -4.0472
   40  20.236     -20.236      4.0472     5.52998E-11


+-------------------------------------------------------------------------------------------------------------------------+
|                   PARATIEPLUS(TM)   NLS ENGINE RELEASE  2018.1    FULL VERSION  *Build date:Jun 29, 2018*              |
|                                                                                                                         |
|                                  NewProject.BaseDesignSection_28.NTC2018A2M2R1_1178                                     |
|                                  Exe Time : 3 April 2019     10:25:14                                                   |
+-------------------------------------------------------------------------------------------------------------------------+


     F I N A L    I N C R E M E N T A L    A N A L Y S I S

                    S U M M A R Y

     STEP                                  NO. OF ITERATIONS

        1           CONVERGENCE :YES                       2
        2           CONVERGENCE :YES                       9


  END OF PROCESS FOR PROBLEM
 New Project
 NONLINEAR SOLUTION CPU TIME ....     0.03 [sec]
 DATABASE  CREATION CPU TIME.....     0.07 [sec]

7.5. Design Assumption : Nominal - File di SteelWorld - Report esteso (.ext)


 ---------------------------------------------------------------------------
 STEEL-WORLD  4.4              Ce.A.S. s.r.l.                  PAG.     1
                                                    3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
 ---------------------------------------------------------------------------

                      ************************************
                      *                                  *
                      *              *   *               *
                      *           *      *               *
                      *         *          *             *
                      *        *    E  C  3    *         *
                      *        *               *         *
                      *         *     VER     *          *
                      *           *       *              *
                      *             *   *                *
                      *                                  *
                      ************************************
                      *                                  *
                      *  ref.EN  1993-5: February 2007   *
                      *      EUROCODE 3 - part 5         *
                      *      Design of Steel Structures  *
                      *                                  *
                      *           A PART OF              *
                      *                                  *
                      *       S T E E L W O R L D        *
                      *                                  *
                      *  VERSION:         RELEASE: 4.4   *
                      *                                  *
                      * IN USE BY Ce.A.S. s.r.l.         *
                      *                                  *
                      ************************************
```

```
                    *       ATTEMPT NO.       1        *
                    *                                  *
                    ************************************

              VERIFICATIONS WILL BE PERFORMED FOR LCASES 1 TO 4

          MEMBERS IN THE RANGE '*               ' WILL BE INCLUDED

-------------------------------------------------------------------------------



-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     2
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

ELEMENT  LW0_S0           SHAPE SEC_0                            TYPE U
MATERIAL MAT_0    SHAPE NATURE =ROLLED

PRESCRIBED ACTIONS FOR CASE        1 SUBCASE    1

PT     X          N          T2         T3         MT         M2         M3
       m         kN         kN         kN        kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000      0.000      0.000      0.000      0.000
 4     0.600  0.000      0.000      0.000      0.000      0.000      0.000
 5     0.800  0.000      0.000      0.000      0.000      0.000      0.000
 6     1.000  0.000      0.000      0.000      0.000      0.000      0.000
 7     1.200  0.000      0.000      0.000      0.000      0.000      0.000
 8     1.400  0.000      0.000      0.000      0.000      0.000      0.000
 9     1.600  0.000      0.000      0.000      0.000      0.000      0.000
10     1.800  0.000      0.000      0.000      0.000      0.000      0.000
11     2.000  0.000      0.000      0.000      0.000      0.000      0.000
12     2.200  0.000      0.000      0.000      0.000      0.000      0.000
13     2.400  0.000      0.000      0.000      0.000      0.000      0.000
14     2.600  0.000      0.000      0.000      0.000      0.000      0.000
15     2.800  0.000      0.000      0.000      0.000      0.000      0.000
16     3.000  0.000      0.000      0.000      0.000      0.000      0.000
17     3.200  0.000      0.000      0.000      0.000      0.000      0.000
18     3.400  0.000      0.000      0.000      0.000      0.000      0.000
19     3.600  0.000      0.000      0.000      0.000      0.000      0.000
20     3.800  0.000      0.000      0.000      0.000      0.000      0.000
21     4.000  0.000      0.000      0.000      0.000      0.000      0.000
22     4.200  0.000      0.000      0.000      0.000      0.000      0.000
23     4.400  0.000      0.000      0.000      0.000      0.000      0.000
24     4.600  0.000      0.000      0.000      0.000      0.000      0.000
25     4.800  0.000      0.000      0.000      0.000      0.000      0.000
26     5.000  0.000      0.000      0.000      0.000      0.000      0.000
27     5.200  0.000      0.000      0.000      0.000      0.000      0.000
28     5.400  0.000      0.000      0.000      0.000      0.000      0.000
29     5.600  0.000      0.000      0.000      0.000      0.000      0.000
30     5.800  0.000      0.000      0.000      0.000      0.000      0.000
31     6.000  0.000      0.000      0.000      0.000      0.000      0.000
32     6.200  0.000      0.000      0.000      0.000      0.000      0.000
33     6.400  0.000      0.000      0.000      0.000      0.000      0.000
34     6.600  0.000      0.000      0.000      0.000      0.000      0.000
35     6.800  0.000      0.000      0.000      0.000      0.000      0.000
36     7.000  0.000      0.000      0.000      0.000      0.000      0.000
37     7.200  0.000      0.000      0.000      0.000      0.000      0.000
38     7.400  0.000      0.000      0.000      0.000      0.000      0.000
39     7.600  0.000      0.000      0.000      0.000      0.000      0.000



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.     3
                                                    3 April 2019     10:25:15
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-------------------------------------------------------------------------------
                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

40     7.800  0.000      0.000      0.000      0.000      0.000      0.000
41     8.000  0.000      0.000      0.000      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           ************************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
```

```
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     4
                                                    3 April 2019     10:25:15
                          DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


-----------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     5
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-----------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-----------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


-----------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     6
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-----------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-----------------------------------------------------------------------------

                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.     7
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     8
                                                        3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.     9
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    10
                                                        3 April 2019     10:25:15
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    11
                                                  3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    12
                                                  3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    13
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--------------------------------------------------------------------------------

          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    14
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    15
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--------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    16
                                                        3 April 2019     10:25:15
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-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    27 at x=  5200.000     [mm]


--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    17
                                                    3 April 2019     10:25:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    18
                                                    3 April 2019     10:25:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    19
                                                    3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
------------------------------------------------------------------------------


          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

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--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    20
                                                      3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    21
                                                      3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    22
                                                      3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    23
                                                    3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    24
                                                    3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio              =    0.000
          maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS
```

```
CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
          zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
          buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    25
                                                    3 April 2019     10:25:15
                       DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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End calculation - Moment:Y Bracing:Z

************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******

          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
          zstart      =  300.0000     [mm]  zend=    8000.000     [mm]
          buckl. length about x-x      =  7700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      8000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z

************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


--------------------------------------------------------------------------------
```

```
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    26
                                                          3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.       59
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE             0

PRESCRIBED ACTIONS FOR CASE        2 SUBCASE    1

PT     X          N          T2         T3         MT         M2         M3
       m         kN         kN         kN        kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000      0.000      0.000      0.000      0.000
 4     0.600  0.000      0.000      0.000      0.000      0.000      0.000
 5     0.800  0.000      0.000      0.000      0.000      0.000      0.000
 6     1.000  0.000      0.000      0.000      0.000      0.000      0.000
 7     1.200  0.000      0.000      0.000      0.000      0.000      0.000
 8     1.400  0.000      0.000      0.000      0.000      0.000      0.000
 9     1.600  0.000      0.000      0.000      0.000      0.000      0.000
10     1.800  0.000      0.000      0.000      0.000      0.000      0.000
11     2.000  0.000      0.000      0.000      0.000      0.000      0.000
12     2.200  0.000      0.000      0.000      0.000      0.000      0.000
13     2.400  0.000      0.000      0.000      0.000      0.000      0.000
14     2.600  0.000      0.000      0.000      0.000      0.000      0.000
15     2.800  0.000      0.000      0.000      0.000      0.000      0.000
16     3.000  0.000      0.000      0.000      0.000      0.000      0.000
17     3.200  0.000      0.000      0.000      0.000      0.000      0.000
18     3.400  0.000      0.000      0.000      0.000      0.000      0.000
19     3.600  0.000      0.000      0.000      0.000      0.000      0.000
20     3.800  0.000      0.000      0.000      0.000      0.000      0.000
21     4.000  0.000      0.000      0.000      0.000      0.000      0.000
22     4.200  0.000      0.000      0.000      0.000      0.000      0.000
23     4.400  0.000      0.000      0.000      0.000      0.000      0.000
24     4.600  0.000      0.000      0.000      0.000      0.000      0.000
25     4.800  0.000      0.000      0.000      0.000      0.000      0.000
26     5.000  0.000      0.000      0.000      0.000      0.000      0.000
27     5.200  0.000      0.000      0.000      0.000      0.000      0.000
28     5.400  0.000      0.000      0.000      0.000      0.000      0.000
29     5.600  0.000      0.000      0.000      0.000      0.000      0.000
30     5.800  0.000      0.000      0.000      0.000      0.000      0.000
31     6.000  0.000      0.000      0.000      0.000      0.000      0.000
32     6.200  0.000      0.000      0.000      0.000      0.000      0.000
33     6.400  0.000      0.000      0.000      0.000      0.000      0.000


-------------------------------------------------------------------------------
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34     6.600  0.000      0.000      0.000      0.000      0.000      0.000
35     6.800  0.000      0.000      0.000      0.000      0.000      0.000
36     7.000  0.000      0.000      0.000      0.000      0.000      0.000
37     7.200  0.000      0.000      0.000      0.000      0.000      0.000
38     7.400  0.000      0.000      0.000      0.000      0.000      0.000
39     7.600  0.000      0.000      0.000      0.000      0.000      0.000
40     7.800  0.000      0.000      0.000      0.000      0.000      0.000
41     8.000  0.000      0.000      0.000      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =     1.050
           Gamma M1  =     1.050
           Gamma M2  =     1.250


EC3 PILING: START RESISTANCE CHECKS
```

```
          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]


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--------------------------------------------------------------------------------

          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
--------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    29
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    30
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          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


--------------------------------------------------------------------------------
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    32
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    33
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--------------------------------------------------------------------------------

          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    34
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    35
                                                    3 April 2019     10:25:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    36
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    37
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          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    38
                                                      3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



-------------------------------------------------------------------------------
STEEL-WORLD  4.4              Ce.A.S. s.r.l.                      PAG.    39
                                                    3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    40
                                                        3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    41
                                                        3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------
```

```
           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    42
                                                    3 April 2019     10:25:15
                          DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    43
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    44
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------
```

```
           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    45
                                                    3 April 2019     10:25:15
                        DEFAULT TITLE FOR STEEL-WORLD
--------------------------------------------------------------------------------
                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    46
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------


5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                       PAG.    47
                                                    3 April 2019     10:25:15
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-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    48
                                                      3 April 2019     10:25:15
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                    CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio               =    0.000
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION
```

```
Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR


--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    49
                                                        3 April 2019     10:25:15
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--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------

Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  7700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      8000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000




--------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    50
                                                        3 April 2019     10:25:15
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--------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
--------------------------------------------------------------------------------

End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********
```

```
******* EUROCODE 3 PART 5 - 2007 ******

          No axial compression: skipping buckling


LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      165
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO       0.000
                   LATERAL BUCKLING RATIO       0.000
                   LOCAL   BUCKLING RATIO       0.000
                   RETURNED ERROR CODE            0

PRESCRIBED ACTIONS FOR CASE        3 SUBCASE    1

PT      X           N          T2          T3          MT          M2          M3
        m          kN          kN          kN          kN*m        kN*m        kN*m
 1     0.000  0.000       0.000       0.000       0.000       0.000       0.000
 2     0.200  0.000       0.000       0.000       0.000       0.000       0.000
 3     0.400  0.000       0.000       0.000       0.000       0.000       0.000
 4     0.600  0.000       0.000       0.000       0.000       0.000       0.000
 5     0.800  0.000       0.000       0.000       0.000       0.000       0.000
 6     1.000  0.000       0.000       0.000       0.000       0.000       0.000
 7     1.200  0.000       0.000       0.000       0.000       0.000       0.000
 8     1.400  0.000       0.000       0.000       0.000       0.000       0.000
 9     1.600  0.000       0.000       0.000       0.000       0.000       0.000
10     1.800  0.000       0.000       0.000       0.000       0.000       0.000
11     2.000  0.000       0.000       0.000       0.000       0.000       0.000
12     2.200  0.000       0.000       0.000       0.000       0.000       0.000
13     2.400  0.000       0.000       0.000       0.000       0.000       0.000
14     2.600  0.000       0.000       0.000       0.000       0.000       0.000
15     2.800  0.000       0.000       0.000       0.000       0.000       0.000
16     3.000  0.000       0.000       0.000       0.000       0.000       0.000
17     3.200  0.000       0.000       0.000       0.000       0.000       0.000
18     3.400  0.000       0.000       0.000       0.000       0.000       0.000
19     3.600  0.000       0.000       0.000       0.000       0.000       0.000
20     3.800  0.000       0.000       0.000       0.000       0.000       0.000
21     4.000  0.000       0.000       0.000       0.000       0.000       0.000
22     4.200  0.000       0.000       0.000       0.000       0.000       0.000
23     4.400  0.000       0.000       0.000       0.000       0.000       0.000
24     4.600  0.000       0.000       0.000       0.000       0.000       0.000
25     4.800  0.000       0.000       0.000       0.000       0.000       0.000
26     5.000  0.000       0.000       0.000       0.000       0.000       0.000
27     5.200  0.000       0.000       0.000       0.000       0.000       0.000


------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    51
                                                      3 April 2019     10:25:15
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                       CHECK OF DIRECTLY INPUT MEMBER LW0_S0
------------------------------------------------------------------------------

28     5.400  0.000       0.000       0.000       0.000       0.000       0.000
29     5.600  0.000       0.000       0.000       0.000       0.000       0.000
30     5.800  0.000       0.000       0.000       0.000       0.000       0.000
31     6.000  0.000       0.000       0.000       0.000       0.000       0.000
32     6.200  0.000       0.000       0.000       0.000       0.000       0.000
33     6.400  0.000       0.000       0.000       0.000       0.000       0.000
34     6.600  0.000       0.000       0.000       0.000       0.000       0.000
35     6.800  0.000       0.000       0.000       0.000       0.000       0.000
36     7.000  0.000       0.000       0.000       0.000       0.000       0.000
37     7.200  0.000       0.000       0.000       0.000       0.000       0.000
38     7.400  0.000       0.000       0.000       0.000       0.000       0.000
39     7.600  0.000       0.000       0.000       0.000       0.000       0.000
40     7.800  0.000       0.000       0.000       0.000       0.000       0.000
41     8.000  0.000       0.000       0.000       0.000       0.000       0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2


-------------------------------------------------------------------------------
STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    52
                                                    3 April 2019     10:25:15
                         DEFAULT TITLE FOR STEEL-WORLD
-------------------------------------------------------------------------------
                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
-------------------------------------------------------------------------------

          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction




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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
```

```
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
```

```
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2



-----------------------------------------------------------------------------
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]


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          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                        PAG.    71
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          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


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          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio               =    0.000
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3    : XMIN =      0.0000     XMAX =      300.00
                BXMIN=      0.0000     BXMAX=      0.0000
                X(1) =      0.0000     X(N) =      8000.0
```

```
              M(1) =      0.0000     M(N) =      0.0000


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                      CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  7700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      8000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI          0.0000
  "     "    Cm           0.0000
  "     "    MQ           0.0000
  "     "    Mmax         0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                          PAG.    74
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          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          3  SUBCASE    1
```

```
FOUND AT ACTION FILE LINE N.      271
EC3_EN_1993-5:20   RESISTANCE RATIO            0.000
                   AXIAL   BUCKLING RATIO       0.000
                   LATERAL BUCKLING RATIO       0.000
                   LOCAL   BUCKLING RATIO       0.000
                   RETURNED ERROR CODE             0

PRESCRIBED ACTIONS FOR CASE        4 SUBCASE    1

PT     X          N          T2          T3          MT          M2          M3
       m          kN          kN          kN          kN*m        kN*m        kN*m
 1     0.000  0.000       0.000       0.000       0.000       0.000       0.000
 2     0.200  0.000       0.000       0.000       0.000       0.000       0.000
 3     0.400  0.000       0.000       0.000       0.000       0.000       0.000
 4     0.600  0.000       0.000       0.000       0.000       0.000       0.000
 5     0.800  0.000       0.000       0.000       0.000       0.000       0.000
 6     1.000  0.000       0.000       0.000       0.000       0.000       0.000
 7     1.200  0.000       0.000       0.000       0.000       0.000       0.000
 8     1.400  0.000       0.000       0.000       0.000       0.000       0.000
 9     1.600  0.000       0.000       0.000       0.000       0.000       0.000
10     1.800  0.000       0.000       0.000       0.000       0.000       0.000
11     2.000  0.000       0.000       0.000       0.000       0.000       0.000
12     2.200  0.000       0.000       0.000       0.000       0.000       0.000
13     2.400  0.000       0.000       0.000       0.000       0.000       0.000
14     2.600  0.000       0.000       0.000       0.000       0.000       0.000
15     2.800  0.000       0.000       0.000       0.000       0.000       0.000
16     3.000  0.000       0.000       0.000       0.000       0.000       0.000
17     3.200  0.000       0.000       0.000       0.000       0.000       0.000
18     3.400  0.000       0.000       0.000       0.000       0.000       0.000
19     3.600  0.000       0.000       0.000       0.000       0.000       0.000
20     3.800  0.000       0.000       0.000       0.000       0.000       0.000
21     4.000  0.000       0.000       0.000       0.000       0.000       0.000


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22     4.200  0.000       0.000       0.000       0.000       0.000       0.000
23     4.400  0.000       0.000       0.000       0.000       0.000       0.000
24     4.600  0.000       0.000       0.000       0.000       0.000       0.000
25     4.800  0.000       0.000       0.000       0.000       0.000       0.000
26     5.000  0.000       0.000       0.000       0.000       0.000       0.000
27     5.200  0.000       0.000       0.000       0.000       0.000       0.000
28     5.400  0.000       0.000       0.000       0.000       0.000       0.000
29     5.600  0.000       0.000       0.000       0.000       0.000       0.000
30     5.800  0.000       0.000       0.000       0.000       0.000       0.000
31     6.000  0.000       0.000       0.000       0.000       0.000       0.000
32     6.200  0.000       0.000       0.000       0.000       0.000       0.000
33     6.400  0.000       0.000       0.000       0.000       0.000       0.000
34     6.600  0.000       0.000       0.000       0.000       0.000       0.000
35     6.800  0.000       0.000       0.000       0.000       0.000       0.000
36     7.000  0.000       0.000       0.000       0.000       0.000       0.000
37     7.200  0.000       0.000       0.000       0.000       0.000       0.000
38     7.400  0.000       0.000       0.000       0.000       0.000       0.000
39     7.600  0.000       0.000       0.000       0.000       0.000       0.000
40     7.800  0.000       0.000       0.000       0.000       0.000       0.000
41     8.000  0.000       0.000       0.000       0.000       0.000       0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
           Moment resistance: no need to consider shear reduction


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    76
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    77
                                                    3 April 2019     10:25:15
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--------------------------------------------------------------------------------

           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
```

```
                fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                      PAG.    78
                                                      3 April 2019     10:25:15
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    79
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                       PAG.    82
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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S0
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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0



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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07


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                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
```

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STEEL-WORLD  4.4               Ce.A.S. s.r.l.                          PAG.    85
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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

```
          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2


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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    88
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          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000



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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    89
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          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```

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          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000


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STEEL-WORLD  4.4              Ce.A.S. s.r.l.                        PAG.    90
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          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000


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          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000


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          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000


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          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]


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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
```

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Summary of resistance checks over all the sections
          max salected class: 2, at station no.  41
          maximum resistance   ratio              =    0.000
          maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    300.0000     [mm]
           buckl. length about x-x      =  300.0000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION



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```

```
Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      300.00
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000
  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  300.0000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  7700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      300.00     XMAX =      8000.0
               BXMIN=      0.0000     BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : PSI         0.0000



--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------

  "     "    Cm          0.0000
  "     "    MQ          0.0000
  "     "    Mmax        0.0000
  "     "    MQ/Mmax&lt;1/50 -&gt; LINEAR
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      =  0.0000
          Max. bending moment (abs value) [kNm]=  0.0000


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          4  SUBCASE    1
FOUND AT ACTION FILE LINE N.      377
EC3_EN_1993-5:20   RESISTANCE RATIO           0.000
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
```

```
                    RETURNED ERROR CODE             0

MEMBER LW0_S0
                  MAX RESISTANCE RATIO            0.000 FOR LCASE        4
                  MAX AXIAL   BUCKLING RATIO      0.000 FOR LCASE        4
                  MAX LATERAL BUCKLING RATIO      0.000 FOR LCASE        4
                  MAX LOCAL   BUCKLING RATIO      0.000 FOR LCASE        4

-------------------------------------------------------------------------------



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ELEMENT  LW0_S1           SHAPE SEC_0                              TYPE U
MATERIAL MAT_0    SHAPE NATURE =ROLLED

PRESCRIBED ACTIONS FOR CASE        1 SUBCASE    1

PT     X          N          T2          T3          MT          M2          M3
       m          kN          kN          kN          kN*m        kN*m        kN*m
 1     0.000  0.000       0.000       0.000       0.000       0.000       0.000
 2     0.200  0.000       0.000       0.000       0.000       0.000       0.000
 3     0.400  0.000       0.000     0.8695E-01    0.000       0.000       0.000
 4     0.600  0.000       0.000       0.3478      0.000     0.1739E-01    0.000
 5     0.800  0.000       0.000       0.7830      0.000     0.8695E-01    0.000
 6     1.000  0.000       0.000        1.395      0.000       0.2436      0.000
 7     1.200  0.000       0.000        2.189      0.000       0.5226      0.000
 8     1.400  0.000       0.000        3.169      0.000       0.9605      0.000
 9     1.600  0.000       0.000        4.339      0.000        1.594      0.000
10     1.800  0.000       0.000        5.700      0.000        2.462      0.000
11     2.000  0.000       0.000        7.255      0.000        3.602      0.000
12     2.200  0.000       0.000        9.002      0.000        5.053      0.000
13     2.400  0.000       0.000        10.94      0.000        6.854      0.000
14     2.600  0.000       0.000        13.49      0.000        9.042      0.000
15     2.800  0.000       0.000        16.31      0.000        11.74      0.000
16     3.000  0.000       0.000        19.57      0.000        15.00      0.000
17     3.200  0.000       0.000        23.33      0.000        18.92      0.000
18     3.400  0.000       0.000        27.58      0.000        23.58      0.000
19     3.600  0.000       0.000        32.32      0.000        29.10      0.000
20     3.800  0.000       0.000        37.54      0.000        35.56      0.000
21     4.000  0.000       0.000        43.25      0.000        43.07      0.000
22     4.200  0.000       0.000        49.45      0.000        51.72      0.000
23     4.400  0.000       0.000        55.08      0.000        61.61      0.000
24     4.600  0.000       0.000        59.10      0.000        72.63      0.000
25     4.800  0.000       0.000        61.52      0.000        84.45      0.000
26     5.000  0.000       0.000        41.03      0.000        96.75      0.000
27     5.200  0.000       0.000        21.93      0.000        105.0      0.000
28     5.400  0.000       0.000        4.218      0.000        109.3      0.000
29     5.600  0.000       0.000       -12.13      0.000        110.2      0.000
30     5.800  0.000       0.000       -27.12      0.000        107.8      0.000
31     6.000  0.000       0.000       -40.79      0.000        102.3      0.000
32     6.200  0.000       0.000       -53.13      0.000        94.18      0.000
33     6.400  0.000       0.000       -64.17      0.000        83.55      0.000
34     6.600  0.000       0.000       -73.33      0.000        70.72      0.000
35     6.800  0.000       0.000       -76.04      0.000        56.05      0.000
36     7.000  0.000       0.000       -69.56      0.000        40.84      0.000
37     7.200  0.000       0.000       -56.89      0.000        26.93      0.000
38     7.400  0.000       0.000       -42.52      0.000        15.55      0.000
39     7.600  0.000       0.000       -26.48      0.000        7.051      0.000


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40     7.800  0.000       0.000       -8.779      0.000       1.756       0.000
41     8.000  0.000       0.000       -8.779      0.000       0.000       0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
```

```
          Gamma M2  =    1.250

EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.8695E-01 kN , VplRd =  1117.     kN, ratio = 0.7785E-04

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.3478     kN , VplRd =  1117.     kN, ratio = 0.3114E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.7830     kN , VplRd =  1117.     kN, ratio = 0.7011E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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-------------------------------------------------------------------------------

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
```

```
          Vsd =  1.395     kN , VplRd =  1117.     kN, ratio = 0.1249E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.189     kN , VplRd =  1117.     kN, ratio = 0.1960E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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--------------------------------------------------------------------------------

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.169     kN , VplRd =  1117.     kN, ratio = 0.2838E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2



-------------------------------------------------------------------------------
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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.339     kN , VplRd =  1117.     kN, ratio = 0.3885E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.700     kN , VplRd =  1117.     kN, ratio = 0.5104E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]



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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.255     kN , VplRd =  1117.     kN, ratio = 0.6495E-02

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.002     kN , VplRd =  1117.     kN, ratio = 0.8060E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.006
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  10.94     kN , VplRd =  1117.     kN, ratio = 0.9796E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
```

```
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.49     kN , VplRd =  1117.     kN, ratio = 0.1208E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  16.31     kN , VplRd =  1117.     kN, ratio = 0.1461E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.014
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.015
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  19.57     kN , VplRd =  1117.     kN, ratio = 0.1752E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  23.33     kN , VplRd =  1117.     kN, ratio = 0.2089E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.022
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  27.58     kN , VplRd =  1117.     kN, ratio = 0.2469E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.028
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.028
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
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```
          Z direction : Shear Area Av = 7386.     mm2


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          Vsd =  32.32     kN , VplRd =  1117.     kN, ratio = 0.2893E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.029
          max. resist. ratio (max. among above)=    0.034
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.54     kN , VplRd =  1117.     kN, ratio = 0.3361E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.042


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          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.042
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  43.25     kN , VplRd =  1117.     kN, ratio = 0.3872E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.050
          resist. ratio according to 5.4       =    0.039
          max. resist. ratio (max. among above)=    0.050
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  49.45     kN , VplRd =  1117.     kN, ratio = 0.4427E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.060
          resist. ratio according to 5.4       =    0.044
          max. resist. ratio (max. among above)=    0.060
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  55.08     kN , VplRd =  1117.     kN, ratio = 0.4931E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.072
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.072
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  59.10     kN , VplRd =  1117.     kN, ratio = 0.5292E-01
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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.085
          resist. ratio according to 5.4       =    0.053
          max. resist. ratio (max. among above)=    0.085
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  61.52     kN , VplRd =  1117.     kN, ratio = 0.5508E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.099
          resist. ratio according to 5.4       =    0.055



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          max. resist. ratio (max. among above)=    0.099
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  41.03     kN , VplRd =  1117.     kN, ratio = 0.3673E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.113
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.113
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  21.93     kN , VplRd =  1117.     kN, ratio = 0.1963E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.123
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.123
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.218     kN , VplRd =  1117.     kN, ratio = 0.3776E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.128
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.128
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.13     kN , VplRd =  1117.     kN, ratio = 0.1086E-01
```

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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.129
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.129
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -27.12     kN , VplRd =  1117.     kN, ratio = 0.2429E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.126
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.126


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          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -40.79     kN , VplRd =  1117.     kN, ratio = 0.3652E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.120
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.120
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -53.13     kN , VplRd =  1117.     kN, ratio = 0.4757E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.110
          resist. ratio according to 5.4       =    0.048
          max. resist. ratio (max. among above)=    0.110
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -64.17     kN , VplRd =  1117.     kN, ratio = 0.5746E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.098
          resist. ratio according to 5.4       =    0.057
          max. resist. ratio (max. among above)=    0.098
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -73.33     kN , VplRd =  1117.     kN, ratio = 0.6565E-01

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
            gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.083
          resist. ratio according to 5.4       =    0.066
          max. resist. ratio (max. among above)=    0.083
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -76.04     kN , VplRd =  1117.     kN, ratio = 0.6808E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.068
          max. resist. ratio (max. among above)=    0.068
          web buckling ratio (5.7)             =    0.000


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          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.56     kN , VplRd =  1117.     kN, ratio = 0.6228E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0      1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.048
          resist. ratio according to 5.4       =    0.062
          max. resist. ratio (max. among above)=    0.062
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -56.89     kN , VplRd =  1117.     kN, ratio = 0.5094E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.031
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.051
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -42.52     kN , VplRd =  1117.     kN, ratio = 0.3807E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.038
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.48     kN , VplRd =  1117.     kN, ratio = 0.2371E-01

               betab     1.000
                Wply    0.3269E+07



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                fy     275.0
           gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.779     kN , VplRd =  1117.     kN, ratio = 0.7860E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000



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          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.779     kN , VplRd =  1117.     kN, ratio = 0.7860E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.008
```

```
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)              =    0.000

          Summary of resistance checks over all the sections
          max salected class: 2, at station no.  41
          maximum resistance   ratio               =    0.129
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4300.000     [mm]
           buckl. length about x-x      =  4300.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4300.0



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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
-------------------------------------------------------------------------------

               BXMIN=      0.0000     BXMAX=     0.56666E+08
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.91485E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.98196E+16
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.82774E-01
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  56.666


End calculation - Moment:Y Bracing:Z

************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  4300.000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  3700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4300.0     XMAX =      8000.0
               BXMIN=     0.56666E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.60906E+16



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  "    "   : ERR Q M - PARABOLA CENTR.  0.16514E+17
Table B.3  : PSI          0.0000
  "    "     ALPHA       0.58894
  "    "     Cm unif.    0.97945
  "    "     Cm conc.    0.95889
  "    "     Cm avrg.    0.96443
  "    "     Cm      .   0.95889
Annex B:     TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.95889
          Max. bending moment (abs value) [kNm]=  110.19


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          1  SUBCASE    1
FOUND AT ACTION FILE LINE N.      112
EC3_EN_1993-5:20   RESISTANCE RATIO            0.129
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE             0

PRESCRIBED ACTIONS FOR CASE        2 SUBCASE    1

PT      X          N          T2         T3         MT         M2         M3
        m         kN          kN         kN        kN*m       kN*m       kN*m
 1     0.000   0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200   0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400   0.000      0.000     0.8695E-01  0.000      0.000      0.000
 4     0.600   0.000      0.000      0.3478     0.000     0.1739E-01  0.000
 5     0.800   0.000      0.000      0.7830     0.000     0.8695E-01  0.000
 6     1.000   0.000      0.000       1.395     0.000      0.2436     0.000
 7     1.200   0.000      0.000       2.189     0.000      0.5226     0.000
 8     1.400   0.000      0.000       3.169     0.000      0.9605     0.000
 9     1.600   0.000      0.000       4.339     0.000       1.594     0.000
10     1.800   0.000      0.000       5.700     0.000       2.462     0.000
11     2.000   0.000      0.000       7.255     0.000       3.602     0.000
12     2.200   0.000      0.000       9.002     0.000       5.053     0.000


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13     2.400   0.000      0.000       10.94      0.000      6.854      0.000
14     2.600   0.000      0.000       13.49      0.000      9.042      0.000
15     2.800   0.000      0.000       16.31      0.000      11.74      0.000
16     3.000   0.000      0.000       19.57      0.000      15.00      0.000
17     3.200   0.000      0.000       23.33      0.000      18.92      0.000
18     3.400   0.000      0.000       27.58      0.000      23.58      0.000
19     3.600   0.000      0.000       32.32      0.000      29.10      0.000
20     3.800   0.000      0.000       37.54      0.000      35.56      0.000
21     4.000   0.000      0.000       43.25      0.000      43.07      0.000
22     4.200   0.000      0.000       49.45      0.000      51.72      0.000
23     4.400   0.000      0.000       55.08      0.000      61.61      0.000
24     4.600   0.000      0.000       59.10      0.000      72.63      0.000
25     4.800   0.000      0.000       61.52      0.000      84.45      0.000
26     5.000   0.000      0.000       41.03      0.000      96.75      0.000
27     5.200   0.000      0.000       21.93      0.000      105.0      0.000
28     5.400   0.000      0.000       4.218      0.000      109.3      0.000
29     5.600   0.000      0.000      -12.13      0.000      110.2      0.000
30     5.800   0.000      0.000      -27.12      0.000      107.8      0.000
31     6.000   0.000      0.000      -40.79      0.000      102.3      0.000
32     6.200   0.000      0.000      -53.13      0.000      94.18      0.000
33     6.400   0.000      0.000      -64.17      0.000      83.55      0.000
34     6.600   0.000      0.000      -73.33      0.000      70.72      0.000
35     6.800   0.000      0.000      -76.04      0.000      56.05      0.000
36     7.000   0.000      0.000      -69.56      0.000      40.84      0.000
```

```
37     7.200  0.000      0.000     -56.89      0.000      26.93      0.000
38     7.400  0.000      0.000     -42.52      0.000      15.55      0.000
39     7.600  0.000      0.000     -26.48      0.000      7.051      0.000
40     7.800  0.000      0.000     -8.779      0.000      1.756      0.000
41     8.000  0.000      0.000     -8.779      0.000      0.000      0.000


EC3:       CSTVEREC3P MODULE: START
           **********************

           Partial safety factors as used in this code
           Gamma M0  =    1.050
           Gamma M1  =    1.050
           Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2

                betab     1.000



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                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     1 at x=  0.000000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2

                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


            Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

           Section no.     2 at x=  200.0000     [mm]
           selected class for current cross section =  2
           resist. ratio according to 5.1       =    0.000
           resist. ratio according to 5.4       =    0.000
           max. resist. ratio (max. among above)=    0.000
           web buckling ratio (5.7)             =    0.000

           Section no.     3 at x=  400.0000     [mm]
           selected class for current cross section =  2



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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.8695E-01 kN , VplRd =  1117.     kN, ratio = 0.7785E-04

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.3478     kN , VplRd =  1117.     kN, ratio = 0.3114E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]



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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.7830     kN , VplRd =  1117.     kN, ratio = 0.7011E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.395     kN , VplRd =  1117.     kN, ratio = 0.1249E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.189     kN , VplRd =  1117.     kN, ratio = 0.1960E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check


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          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.169     kN , VplRd =  1117.     kN, ratio = 0.2838E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.339     kN , VplRd =  1117.     kN, ratio = 0.3885E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.700     kN , VplRd =  1117.     kN, ratio = 0.5104E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.255     kN , VplRd =  1117.     kN, ratio = 0.6495E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.002     kN , VplRd =  1117.     kN, ratio = 0.8060E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.006
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2



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```
          Vsd =  10.94     kN , VplRd =  1117.     kN, ratio = 0.9796E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.49     kN , VplRd =  1117.     kN, ratio = 0.1208E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011


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          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  16.31     kN , VplRd =  1117.     kN, ratio = 0.1461E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.014
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.015
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  19.57     kN , VplRd =  1117.     kN, ratio = 0.1752E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  23.33     kN , VplRd =  1117.     kN, ratio = 0.2089E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.022
          resist. ratio according to 5.4       =    0.021
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  27.58     kN , VplRd =  1117.     kN, ratio = 0.2469E-01



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               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.028
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.028
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  32.32     kN , VplRd =  1117.     kN, ratio = 0.2893E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.029


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          max. resist. ratio (max. among above)=    0.034
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  37.54     kN , VplRd =  1117.     kN, ratio = 0.3361E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.042
          resist. ratio according to 5.4       =    0.034
          max. resist. ratio (max. among above)=    0.042
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
```

```
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  43.25     kN , VplRd =  1117.     kN, ratio = 0.3872E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.050
          resist. ratio according to 5.4       =    0.039
          max. resist. ratio (max. among above)=    0.050
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  49.45     kN , VplRd =  1117.     kN, ratio = 0.4427E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.060
          resist. ratio according to 5.4       =    0.044
          max. resist. ratio (max. among above)=    0.060
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  55.08     kN , VplRd =  1117.     kN, ratio = 0.4931E-01



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             betab     1.000
              Wply    0.3269E+07
                fy     275.0
           gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.072
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.072
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  59.10     kN , VplRd =  1117.     kN, ratio = 0.5292E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.085
          resist. ratio according to 5.4       =    0.053
          max. resist. ratio (max. among above)=    0.085


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          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  61.52     kN , VplRd =  1117.     kN, ratio = 0.5508E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.099
          resist. ratio according to 5.4       =    0.055
          max. resist. ratio (max. among above)=    0.099
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
```

```
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  41.03     kN , VplRd =  1117.     kN, ratio = 0.3673E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.113
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.113
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  21.93     kN , VplRd =  1117.     kN, ratio = 0.1963E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.123
          resist. ratio according to 5.4       =    0.020
          max. resist. ratio (max. among above)=    0.123
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.218     kN , VplRd =  1117.     kN, ratio = 0.3776E-02

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.128
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.128
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -12.13     kN , VplRd =  1117.     kN, ratio = 0.1086E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.129
          resist. ratio according to 5.4       =    0.011
          max. resist. ratio (max. among above)=    0.129
          web buckling ratio (5.7)             =    0.000


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          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -27.12     kN , VplRd =  1117.     kN, ratio = 0.2429E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.126
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.126
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -40.79     kN , VplRd =  1117.     kN, ratio = 0.3652E-01
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.120
          resist. ratio according to 5.4       =    0.037
          max. resist. ratio (max. among above)=    0.120
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -53.13     kN , VplRd =  1117.     kN, ratio = 0.4757E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.110
          resist. ratio according to 5.4       =    0.048
          max. resist. ratio (max. among above)=    0.110
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -64.17     kN , VplRd =  1117.     kN, ratio = 0.5746E-01

               betab     1.000
                Wply    0.3269E+07



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                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.098
          resist. ratio according to 5.4       =    0.057
          max. resist. ratio (max. among above)=    0.098
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -73.33     kN , VplRd =  1117.     kN, ratio = 0.6565E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.083
          resist. ratio according to 5.4       =    0.066
          max. resist. ratio (max. among above)=    0.083
          web buckling ratio (5.7)             =    0.000



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          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -76.04     kN , VplRd =  1117.     kN, ratio = 0.6808E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.068
          max. resist. ratio (max. among above)=    0.068
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.56     kN , VplRd =  1117.     kN, ratio = 0.6228E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
```

```
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.048
          resist. ratio according to 5.4       =    0.062
          max. resist. ratio (max. among above)=    0.062
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -56.89     kN , VplRd =  1117.     kN, ratio = 0.5094E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.031
          resist. ratio according to 5.4       =    0.051
          max. resist. ratio (max. among above)=    0.051
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -42.52     kN , VplRd =  1117.     kN, ratio = 0.3807E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0


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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.038
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -26.48     kN , VplRd =  1117.     kN, ratio = 0.2371E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.024
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]


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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.779     kN , VplRd =  1117.     kN, ratio = 0.7860E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.779     kN , VplRd =  1117.     kN, ratio = 0.7860E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio              =    0.129
          maximum web buckling ratio              =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4300.000     [mm]
           buckl. length about x-x      =  4300.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4300.0
               BXMIN=      0.0000     BXMAX=     0.56666E+08
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.91485E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.98196E+16
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.82774E-01
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  56.666




------------------------------------------------------------------------------
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End calculation - Moment:Y Bracing:Z

************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******

          No axial compression: skipping buckling

CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
```

```
          zstart      =  4300.000     [mm]  zend=    8000.000     [mm]
          buckl. length about x-x     =  3700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4300.0     XMAX =      8000.0
               BXMIN=     0.56666E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.60906E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.16514E+17
Table B.3  : PSI         0.0000
  "     "    ALPHA      0.58894
  "     "    Cm unif.   0.97945
  "     "    Cm conc.   0.95889
  "     "    Cm avrg.   0.96443
  "     "    Cm     .   0.95889
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.95889
          Max. bending moment (abs value) [kNm]=  110.19


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********



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******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          2  SUBCASE    1
FOUND AT ACTION FILE LINE N.      218
EC3_EN_1993-5:20   RESISTANCE RATIO            0.129
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

PRESCRIBED ACTIONS FOR CASE        3 SUBCASE    1

PT      X          N          T2          T3          MT          M2          M3
        m          kN         kN          kN          kN*m        kN*m        kN*m
 1     0.000  0.000       0.000       0.000       0.000       0.000       0.000
 2     0.200  0.000       0.000       0.000       0.000       0.000       0.000
 3     0.400  0.000       0.000      0.1130       0.000       0.000       0.000
 4     0.600  0.000       0.000      0.4521       0.000      0.2261E-01   0.000
 5     0.800  0.000       0.000       1.018       0.000       0.1130      0.000
 6     1.000  0.000       0.000       1.814       0.000       0.3166      0.000
 7     1.200  0.000       0.000       2.846       0.000       0.6794      0.000
 8     1.400  0.000       0.000       4.120       0.000       1.249       0.000
 9     1.600  0.000       0.000       5.641       0.000       2.073       0.000
10     1.800  0.000       0.000       7.411       0.000       3.201       0.000
11     2.000  0.000       0.000       9.431       0.000       4.683       0.000
12     2.200  0.000       0.000       11.70       0.000       6.569       0.000
13     2.400  0.000       0.000       14.22       0.000       8.910       0.000
14     2.600  0.000       0.000       17.54       0.000       11.75       0.000
15     2.800  0.000       0.000       21.21       0.000       15.26       0.000
16     3.000  0.000       0.000       25.44       0.000       19.50       0.000
17     3.200  0.000       0.000       30.33       0.000       24.59       0.000
18     3.400  0.000       0.000       35.85       0.000       30.66       0.000
19     3.600  0.000       0.000       42.01       0.000       37.83       0.000
20     3.800  0.000       0.000       48.81       0.000       46.23       0.000
21     4.000  0.000       0.000       56.23       0.000       55.99       0.000
22     4.200  0.000       0.000       64.28       0.000       67.24       0.000
23     4.400  0.000       0.000       71.60       0.000       80.09       0.000
24     4.600  0.000       0.000       76.83       0.000       94.41       0.000
```

25	4.800	0.000	0.000	79.98	0.000	109.8	0.000
26	5.000	0.000	0.000	53.33	0.000	125.8	0.000
27	5.200	0.000	0.000	28.51	0.000	136.4	0.000
28	5.400	0.000	0.000	5.483	0.000	142.1	0.000
29	5.600	0.000	0.000	-15.77	0.000	143.2	0.000
30	5.800	0.000	0.000	-35.26	0.000	140.1	0.000
31	6.000	0.000	0.000	-53.02	0.000	133.0	0.000
32	6.200	0.000	0.000	-69.07	0.000	122.4	0.000

33	6.400	0.000	0.000	-83.43	0.000	108.6	0.000
34	6.600	0.000	0.000	-95.33	0.000	91.93	0.000
35	6.800	0.000	0.000	-98.85	0.000	72.87	0.000
36	7.000	0.000	0.000	-90.42	0.000	53.10	0.000
37	7.200	0.000	0.000	-73.96	0.000	35.01	0.000
38	7.400	0.000	0.000	-55.27	0.000	20.22	0.000
39	7.600	0.000	0.000	-34.42	0.000	9.167	0.000
40	7.800	0.000	0.000	-11.41	0.000	2.283	0.000
41	8.000	0.000	0.000	-11.41	0.000	0.000	0.000

```
EC3:      CSTVEREC3P MODULE: START
          **********************

          Partial safety factors as used in this code
          Gamma M0  =    1.050
          Gamma M1  =    1.050
          Gamma M2  =    1.250


EC3 PILING: START RESISTANCE CHECKS


          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     1 at x=  0.000000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000
```



```
          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1130     kN , VplRd =  1117.     kN, ratio = 0.1012E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2


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          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.4521     kN , VplRd =  1117.     kN, ratio = 0.4048E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.018     kN , VplRd =  1117.     kN, ratio = 0.9114E-03

               betab     1.000
```

```
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.814     kN , VplRd =  1117.     kN, ratio = 0.1624E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2



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          Vsd =  2.846     kN , VplRd =  1117.     kN, ratio = 0.2548E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.003
          max. resist. ratio (max. among above)=    0.003
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  4.120     kN , VplRd =  1117.     kN, ratio = 0.3689E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001


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          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.641     kN , VplRd =  1117.     kN, ratio = 0.5050E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.411     kN , VplRd =  1117.     kN, ratio = 0.6635E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050
```

```
5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.007
          max. resist. ratio (max. among above)=    0.007
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.431     kN , VplRd =  1117.     kN, ratio = 0.8444E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  11.70     kN , VplRd =  1117.     kN, ratio = 0.1048E-01



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

```
          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.008
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  14.22     kN , VplRd =  1117.     kN, ratio = 0.1273E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.013


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          max. resist. ratio (max. among above)=    0.013
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  17.54     kN , VplRd =  1117.     kN, ratio = 0.1570E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.014
          resist. ratio according to 5.4       =    0.016
          max. resist. ratio (max. among above)=    0.016
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  21.21     kN , VplRd =  1117.     kN, ratio = 0.1899E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.019
          max. resist. ratio (max. among above)=    0.019
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  25.44     kN , VplRd =  1117.     kN, ratio = 0.2278E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.023
          resist. ratio according to 5.4       =    0.023
          max. resist. ratio (max. among above)=    0.023
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  30.33     kN , VplRd =  1117.     kN, ratio = 0.2715E-01



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.029
```

```
          resist. ratio according to 5.4       =    0.027
          max. resist. ratio (max. among above)=    0.029
          web buckling ratio (5.7)             =    0.000

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  35.85     kN , VplRd =  1117.     kN, ratio = 0.3210E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.036
          resist. ratio according to 5.4       =    0.032
          max. resist. ratio (max. among above)=    0.036


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          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  42.01     kN , VplRd =  1117.     kN, ratio = 0.3761E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.044
          resist. ratio according to 5.4       =    0.038
          max. resist. ratio (max. among above)=    0.044
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  48.81     kN , VplRd =  1117.     kN, ratio = 0.4370E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
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           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.054
          resist. ratio according to 5.4       =    0.044
          max. resist. ratio (max. among above)=    0.054
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  56.23     kN , VplRd =  1117.     kN, ratio = 0.5034E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.065
          resist. ratio according to 5.4       =    0.050
          max. resist. ratio (max. among above)=    0.065
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  64.28     kN , VplRd =  1117.     kN, ratio = 0.5755E-01

               betab     1.000



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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.079
          resist. ratio according to 5.4       =    0.058
          max. resist. ratio (max. among above)=    0.079
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  71.60     kN , VplRd =  1117.     kN, ratio = 0.6411E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.094
          resist. ratio according to 5.4       =    0.064
          max. resist. ratio (max. among above)=    0.094
          web buckling ratio (5.7)             =    0.000


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          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  76.83     kN , VplRd =  1117.     kN, ratio = 0.6879E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.110
          resist. ratio according to 5.4       =    0.069
          max. resist. ratio (max. among above)=    0.110
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  79.98     kN , VplRd =  1117.     kN, ratio = 0.7160E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.128
          resist. ratio according to 5.4       =    0.072
          max. resist. ratio (max. among above)=    0.128
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  53.33     kN , VplRd =  1117.     kN, ratio = 0.4775E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.147
          resist. ratio according to 5.4       =    0.048
          max. resist. ratio (max. among above)=    0.147
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.51     kN , VplRd =  1117.     kN, ratio = 0.2552E-01

               betab     1.000
                Wply    0.3269E+07



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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.159
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.159
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]
```

```
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.483     kN , VplRd =  1117.     kN, ratio = 0.4909E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.166
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.166
          web buckling ratio (5.7)             =    0.000



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          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -15.77     kN , VplRd =  1117.     kN, ratio = 0.1412E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.167
          resist. ratio according to 5.4       =    0.014
          max. resist. ratio (max. among above)=    0.167
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -35.26     kN , VplRd =  1117.     kN, ratio = 0.3157E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.164
          resist. ratio according to 5.4       =    0.032
          max. resist. ratio (max. among above)=    0.164
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -53.02     kN , VplRd =  1117.     kN, ratio = 0.4747E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.155
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.155
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -69.07     kN , VplRd =  1117.     kN, ratio = 0.6184E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0



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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.143
          resist. ratio according to 5.4       =    0.062
          max. resist. ratio (max. among above)=    0.143
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
```

```
5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -83.43     kN , VplRd =  1117.     kN, ratio = 0.7469E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.127
          resist. ratio according to 5.4       =    0.075
          max. resist. ratio (max. among above)=    0.127
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]


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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -95.33     kN , VplRd =  1117.     kN, ratio = 0.8535E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.107
          resist. ratio according to 5.4       =    0.085
          max. resist. ratio (max. among above)=    0.107
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -98.85     kN , VplRd =  1117.     kN, ratio = 0.8850E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.085
          resist. ratio according to 5.4       =    0.089
          max. resist. ratio (max. among above)=    0.089
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -90.42     kN , VplRd =  1117.     kN, ratio = 0.8096E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.062
          resist. ratio according to 5.4       =    0.081
          max. resist. ratio (max. among above)=    0.081
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -73.96     kN , VplRd =  1117.     kN, ratio = 0.6622E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.041
          resist. ratio according to 5.4       =    0.066
          max. resist. ratio (max. among above)=    0.066
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -55.27     kN , VplRd =  1117.     kN, ratio = 0.4949E-01
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.024
          resist. ratio according to 5.4       =    0.049
          max. resist. ratio (max. among above)=    0.049
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -34.42     kN , VplRd =  1117.     kN, ratio = 0.3082E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.011
          resist. ratio according to 5.4       =    0.031
          max. resist. ratio (max. among above)=    0.031
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -11.41     kN , VplRd =  1117.     kN, ratio = 0.1022E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.003
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -11.41     kN , VplRd =  1117.     kN, ratio = 0.1022E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio               =    0.167
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4300.000     [mm]
           buckl. length about x-x      =  4300.000     [mm]



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CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4300.0
               BXMIN=      0.0000     BXMAX=     0.73666E+08
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.15461E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.16595E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.82774E-01
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.40000
          Max. bending moment (abs value) [kNm]=  73.666
```

```
End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  4300.000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  3700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z


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TABLE  B.3   : XMIN =      4300.0     XMAX =      8000.0
               BXMIN=     0.73666E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.10293E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.27909E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.58894
  "     "    Cm unif.   0.97945
  "     "    Cm conc.   0.95889
  "     "    Cm avrg.   0.96443
  "     "    Cm     .   0.95889
Annex B:    TABLE   B.3

          Moment about axis:     Y
          Bracing in direction:  Z
          Equiv. uniform moment factor Cm      = 0.95889
          Max. bending moment (abs value) [kNm]=  143.24


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


          No axial compression: skipping buckling


LCASE          3  SUBCASE    1
FOUND AT ACTION FILE LINE N.      324
EC3_EN_1993-5:20   RESISTANCE RATIO            0.167
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

PRESCRIBED ACTIONS FOR CASE        4 SUBCASE    1

PT     X          N          T2         T3         MT         M2         M3
       m         kN          kN         kN         kN*m       kN*m       kN*m
 1     0.000  0.000      0.000      0.000      0.000      0.000      0.000
 2     0.200  0.000      0.000      0.000      0.000      0.000      0.000
 3     0.400  0.000      0.000      0.1084     0.000      0.000      0.000
 4     0.600  0.000      0.000      0.4336     0.000      0.2168E-01 0.000
 5     0.800  0.000      0.000      0.9763     0.000      0.1084     0.000


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6	1.000	0.000	0.000	1.740	0.000	0.3037	0.000
7	1.200	0.000	0.000	2.730	0.000	0.6516	0.000
8	1.400	0.000	0.000	3.951	0.000	1.198	0.000
9	1.600	0.000	0.000	5.410	0.000	1.988	0.000
10	1.800	0.000	0.000	7.107	0.000	3.070	0.000
11	2.000	0.000	0.000	9.045	0.000	4.491	0.000
12	2.200	0.000	0.000	11.22	0.000	6.300	0.000
13	2.400	0.000	0.000	13.64	0.000	8.545	0.000
14	2.600	0.000	0.000	16.79	0.000	11.27	0.000
15	2.800	0.000	0.000	20.27	0.000	14.63	0.000
16	3.000	0.000	0.000	24.22	0.000	18.68	0.000
17	3.200	0.000	0.000	28.72	0.000	23.53	0.000
18	3.400	0.000	0.000	33.75	0.000	29.27	0.000
19	3.600	0.000	0.000	39.30	0.000	36.02	0.000
20	3.800	0.000	0.000	45.37	0.000	43.88	0.000
21	4.000	0.000	0.000	51.96	0.000	52.96	0.000
22	4.200	0.000	0.000	59.07	0.000	63.35	0.000
23	4.400	0.000	0.000	65.88	0.000	75.16	0.000
24	4.600	0.000	0.000	71.56	0.000	88.34	0.000
25	4.800	0.000	0.000	76.11	0.000	102.6	0.000
26	5.000	0.000	0.000	60.54	0.000	117.9	0.000
27	5.200	0.000	0.000	44.26	0.000	130.0	0.000
28	5.400	0.000	0.000	27.26	0.000	138.8	0.000
29	5.600	0.000	0.000	9.533	0.000	144.3	0.000
30	5.800	0.000	0.000	-8.943	0.000	146.2	0.000
31	6.000	0.000	0.000	-28.17	0.000	144.4	0.000
32	6.200	0.000	0.000	-48.15	0.000	138.8	0.000
33	6.400	0.000	0.000	-68.88	0.000	129.1	0.000
34	6.600	0.000	0.000	-90.36	0.000	115.4	0.000
35	6.800	0.000	0.000	-105.9	0.000	97.29	0.000
36	7.000	0.000	0.000	-114.5	0.000	76.11	0.000
37	7.200	0.000	0.000	-105.7	0.000	53.21	0.000
38	7.400	0.000	0.000	-84.32	0.000	32.08	0.000
39	7.600	0.000	0.000	-55.84	0.000	15.21	0.000
40	7.800	0.000	0.000	-20.24	0.000	4.047	0.000
41	8.000	0.000	0.000	-20.24	0.000	0.000	0.000

EC3: CSTVEREC3P MODULE: START
****

Partial safety factors as used in this code
Gamma M0 = 1.050
Gamma M1 = 1.050
Gamma M2 = 1.250

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EC3 PILING: START RESISTANCE CHECKS

Section no. 1 at x= 0.000000 [mm]
selected class for current cross section = 2

betab 1.000
Wply 0.3269E+07
fy 275.0
gammaM0 1.050

5.2.2(2): McRd= 0.8562E+09

Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000 M(V,Rd)= 0.8562E+09

Section no. 1 at x= 0.000000 [mm]
selected class for current cross section = 2
resist. ratio according to 5.1 = 0.000
resist. ratio according to 5.4 = 0.000

```
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     2 at x=  200.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000


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          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.1084     kN , VplRd =  1117.     kN, ratio = 0.9706E-04

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     3 at x=  400.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1        =    0.000
          resist. ratio according to 5.4        =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)              =    0.000

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.4336     kN , VplRd =  1117.     kN, ratio = 0.3882E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09



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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     4 at x=  600.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.000
          max. resist. ratio (max. among above)=    0.000
          web buckling ratio (5.7)             =    0.000

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = 0.9763     kN , VplRd =  1117.     kN, ratio = 0.8741E-03

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     5 at x=  800.0000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.001
          max. resist. ratio (max. among above)=    0.001
          web buckling ratio (5.7)             =    0.000

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  1.740     kN , VplRd =  1117.     kN, ratio = 0.1558E-02



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     6 at x=  1000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.002
          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
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```
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  2.730     kN , VplRd =  1117.     kN, ratio = 0.2444E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     7 at x=  1200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.002


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          max. resist. ratio (max. among above)=    0.002
          web buckling ratio (5.7)             =    0.000

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  3.951     kN , VplRd =  1117.     kN, ratio = 0.3538E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     8 at x=  1400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.001
          resist. ratio according to 5.4       =    0.004
          max. resist. ratio (max. among above)=    0.004
          web buckling ratio (5.7)             =    0.000

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  5.410     kN , VplRd =  1117.     kN, ratio = 0.4844E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09




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          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.     9 at x=  1600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.002
          resist. ratio according to 5.4       =    0.005
          max. resist. ratio (max. among above)=    0.005
          web buckling ratio (5.7)             =    0.000

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  7.107     kN , VplRd =  1117.     kN, ratio = 0.6363E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    10 at x=  1800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.004
          resist. ratio according to 5.4       =    0.006
          max. resist. ratio (max. among above)=    0.006
          web buckling ratio (5.7)             =    0.000

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.045     kN , VplRd =  1117.     kN, ratio = 0.8099E-02



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               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    11 at x=  2000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.008
          web buckling ratio (5.7)             =    0.000

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  11.22     kN , VplRd =  1117.     kN, ratio = 0.1005E-01
```

```
                betab     1.000
                 Wply    0.3269E+07
                   fy     275.0
              gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    12 at x=  2200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.007
          resist. ratio according to 5.4       =    0.010
          max. resist. ratio (max. among above)=    0.010



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          web buckling ratio (5.7)             =    0.000

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  13.64     kN , VplRd =  1117.     kN, ratio = 0.1221E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    13 at x=  2400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.010
          resist. ratio according to 5.4       =    0.012
          max. resist. ratio (max. among above)=    0.012
          web buckling ratio (5.7)             =    0.000

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  16.79     kN , VplRd =  1117.     kN, ratio = 0.1503E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    14 at x=  2600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.013
          resist. ratio according to 5.4       =    0.015
          max. resist. ratio (max. among above)=    0.015
          web buckling ratio (5.7)             =    0.000

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  20.27     kN , VplRd =  1117.     kN, ratio = 0.1814E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    15 at x=  2800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.017
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  24.22     kN , VplRd =  1117.     kN, ratio = 0.2169E-01

               betab     1.000


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                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    16 at x=  3000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.022
          resist. ratio according to 5.4       =    0.022
          max. resist. ratio (max. among above)=    0.022
          web buckling ratio (5.7)             =    0.000

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  28.72     kN , VplRd =  1117.     kN, ratio = 0.2571E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
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```
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    17 at x=  3200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.027
          resist. ratio according to 5.4       =    0.026
          max. resist. ratio (max. among above)=    0.027
          web buckling ratio (5.7)             =    0.000


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          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  33.75     kN , VplRd =  1117.     kN, ratio = 0.3022E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    18 at x=  3400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.034
          resist. ratio according to 5.4       =    0.030
          max. resist. ratio (max. among above)=    0.034
          web buckling ratio (5.7)             =    0.000

          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  39.30     kN , VplRd =  1117.     kN, ratio = 0.3518E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09
```

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          Section no.    19 at x=  3600.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.042
          resist. ratio according to 5.4       =    0.035
          max. resist. ratio (max. among above)=    0.042
          web buckling ratio (5.7)             =    0.000

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  45.37     kN , VplRd =  1117.     kN, ratio = 0.4062E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    20 at x=  3800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.051
          resist. ratio according to 5.4       =    0.041
          max. resist. ratio (max. among above)=    0.051
          web buckling ratio (5.7)             =    0.000

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  51.96     kN , VplRd =  1117.     kN, ratio = 0.4652E-01

               betab     1.000
                Wply    0.3269E+07


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                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    21 at x=  4000.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.062
          resist. ratio according to 5.4       =    0.047
          max. resist. ratio (max. among above)=    0.062
          web buckling ratio (5.7)             =    0.000

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  59.07     kN , VplRd =  1117.     kN, ratio = 0.5289E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    22 at x=  4200.001     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.074
          resist. ratio according to 5.4       =    0.053
          max. resist. ratio (max. among above)=    0.074
          web buckling ratio (5.7)             =    0.000



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          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  65.88     kN , VplRd =  1117.     kN, ratio = 0.5898E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction

5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    23 at x=  4400.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.088
          resist. ratio according to 5.4       =    0.059
          max. resist. ratio (max. among above)=    0.088
          web buckling ratio (5.7)             =    0.000

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  71.56     kN , VplRd =  1117.     kN, ratio = 0.6407E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction



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5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    24 at x=  4600.000     [mm]
          selected class for current cross section =  2
```

```
          resist. ratio according to 5.1       =    0.103
          resist. ratio according to 5.4       =    0.064
          max. resist. ratio (max. among above)=    0.103
          web buckling ratio (5.7)             =    0.000

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  76.11     kN , VplRd =  1117.     kN, ratio = 0.6814E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    25 at x=  4800.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.120
          resist. ratio according to 5.4       =    0.068
          max. resist. ratio (max. among above)=    0.120
          web buckling ratio (5.7)             =    0.000

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  60.54     kN , VplRd =  1117.     kN, ratio = 0.5420E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0



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             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    26 at x=  5000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.138
          resist. ratio according to 5.4       =    0.054
          max. resist. ratio (max. among above)=    0.138
          web buckling ratio (5.7)             =    0.000

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  44.26     kN , VplRd =  1117.     kN, ratio = 0.3962E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09
```

```
          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    27 at x=  5200.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.152
          resist. ratio according to 5.4       =    0.040
          max. resist. ratio (max. among above)=    0.152
          web buckling ratio (5.7)             =    0.000

          Section no.    28 at x=  5399.999     [mm]


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          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  27.26     kN , VplRd =  1117.     kN, ratio = 0.2440E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    28 at x=  5399.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.162
          resist. ratio according to 5.4       =    0.024
          max. resist. ratio (max. among above)=    0.162
          web buckling ratio (5.7)             =    0.000

          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd =  9.533     kN , VplRd =  1117.     kN, ratio = 0.8535E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


          Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09


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          Section no.    29 at x=  5599.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.169
          resist. ratio according to 5.4       =    0.009
          max. resist. ratio (max. among above)=    0.169
```

```
          web buckling ratio (5.7)             =    0.000

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -8.943     kN , VplRd =  1117.     kN, ratio = 0.8006E-02

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    30 at x=  5799.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.171
          resist. ratio according to 5.4       =    0.008
          max. resist. ratio (max. among above)=    0.171
          web buckling ratio (5.7)             =    0.000

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -28.17     kN , VplRd =  1117.     kN, ratio = 0.2522E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050


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------------------------------------------------------------------------------


5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    31 at x=  5999.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.169
          resist. ratio according to 5.4       =    0.025
          max. resist. ratio (max. among above)=    0.169
          web buckling ratio (5.7)             =    0.000

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -48.15     kN , VplRd =  1117.     kN, ratio = 0.4311E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction
```

```
5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    32 at x=  6199.999     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.162
          resist. ratio according to 5.4       =    0.043
          max. resist. ratio (max. among above)=    0.162
          web buckling ratio (5.7)             =    0.000

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2


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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -68.88     kN , VplRd =  1117.     kN, ratio = 0.6167E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    33 at x=  6399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.151
          resist. ratio according to 5.4       =    0.062
          max. resist. ratio (max. among above)=    0.151
          web buckling ratio (5.7)             =    0.000

          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -90.36     kN , VplRd =  1117.     kN, ratio = 0.8090E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09



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          Section no.    34 at x=  6599.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.135
          resist. ratio according to 5.4       =    0.081
          max. resist. ratio (max. among above)=    0.135
          web buckling ratio (5.7)             =    0.000

          Section no.    35 at x=  6799.998     [mm]
```

```
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -105.9     kN , VplRd =  1117.     kN, ratio = 0.9480E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    35 at x=  6799.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.114
          resist. ratio according to 5.4       =    0.095
          max. resist. ratio (max. among above)=    0.114
          web buckling ratio (5.7)             =    0.000

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -114.5     kN , VplRd =  1117.     kN, ratio = 0.1025

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050



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5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    36 at x=  6999.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.089
          resist. ratio according to 5.4       =    0.103
          max. resist. ratio (max. among above)=    0.103
          web buckling ratio (5.7)             =    0.000

          Section no.    37 at x=  7199.998     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -105.7     kN , VplRd =  1117.     kN, ratio = 0.9461E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    37 at x=  7199.998     [mm]
```

```
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.062
          resist. ratio according to 5.4       =    0.095
          max. resist. ratio (max. among above)=    0.095
          web buckling ratio (5.7)             =    0.000

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2



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5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -84.32     kN , VplRd =  1117.     kN, ratio = 0.7550E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    38 at x=  7399.998     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.037
          resist. ratio according to 5.4       =    0.075
          max. resist. ratio (max. among above)=    0.075
          web buckling ratio (5.7)             =    0.000

          Section no.    39 at x=  7599.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -55.84     kN , VplRd =  1117.     kN, ratio = 0.4999E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    39 at x=  7599.997     [mm]



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          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.018
          resist. ratio according to 5.4       =    0.050
          max. resist. ratio (max. among above)=    0.050
          web buckling ratio (5.7)             =    0.000

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
```

```
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -20.24     kN , VplRd =  1117.     kN, ratio = 0.1812E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    40 at x=  7799.997     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.005
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2

5.2.2(5.4) Shear resistance check
          Z direction : Shear Area Av = 7386.     mm2
          Vsd = -20.24     kN , VplRd =  1117.     kN, ratio = 0.1812E-01

               betab     1.000
                Wply    0.3269E+07
                  fy     275.0
             gammaM0     1.050

5.2.2(2):     McRd= 0.8562E+09


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           Moment resistance: no need to consider shear reduction


5.2.2(5.9): rho= 0.000          M(V,Rd)= 0.8562E+09

          Section no.    41 at x=  8000.000     [mm]
          selected class for current cross section =  2
          resist. ratio according to 5.1       =    0.000
          resist. ratio according to 5.4       =    0.018
          max. resist. ratio (max. among above)=    0.018
          web buckling ratio (5.7)             =    0.000

          Summary of resistance checks over all the sections
          max selected class: 2, at station no.  41
          maximum resistance   ratio               =    0.171
          maximum web buckling ratio               =    0.000

EC3 PILING: START BUCKLING CHECKS


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  1
           zstart      =  0.000000     [mm]  zend=    4300.000     [mm]
           buckl. length about x-x      =  4300.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      0.0000     XMAX =      4300.0
               BXMIN=      0.0000     BXMAX=     0.69255E+08
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.13544E+17
  "    "   : ERR Q M - PARABOLA CENTR.  0.14562E+17
```

```
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.84443E-01
  "     "    Cm unif.   0.40000
  "     "    Cm conc.   0.40000
  "     "    Cm avrg.   0.40000
  "     "    Cm     .   0.40000
Annex B:    TABLE   B.3


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-------------------------------------------------------------------------------


         Moment about axis:     Y
         Bracing in direction:  Z
         Equiv. uniform moment factor Cm      = 0.40000
         Max. bending moment (abs value) [kNm]=  69.255


End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


         No axial compression: skipping buckling


CSTVEREC3P: STABILITY CHECKS FOR PARTIAL SPAN NO.  2
           zstart      =  4300.000     [mm]  zend=    8000.000     [mm]
           buckl. length about x-x      =  3700.000     [mm]


CSTVEREC3P: EQUIVALENT MOMENTS CALCULATION


Start calculation - Moment:Y Bracing:Z

TABLE  B.3   : XMIN =      4300.0     XMAX =      8000.0
               BXMIN=     0.69255E+08 BXMAX=      0.0000
               X(1) =      0.0000     X(N) =      8000.0
               M(1) =      0.0000     M(N) =      0.0000

Table B.3  : ERR Q M - BILINEAR         0.49764E+16
  "    "   : ERR Q M - PARABOLA CENTR.  0.24494E+17
Table B.3  : PSI          0.0000
  "     "    ALPHA      0.49407
  "     "    Cm unif.   0.97470
  "     "    Cm conc.   0.94941
  "     "    Cm avrg.   0.95368
  "     "    Cm     .   0.94941
Annex B:    TABLE   B.3

         Moment about axis:     Y
         Bracing in direction:  Z
         Equiv. uniform moment factor Cm      = 0.94941
         Max. bending moment (abs value) [kNm]=  146.19


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                     CHECK OF DIRECTLY INPUT MEMBER LW0_S1
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End calculation - Moment:Y Bracing:Z


************  STABILITY CHECK  ********

******* EUROCODE 3 PART 5 - 2007 ******


         No axial compression: skipping buckling
```

```
LCASE          4  SUBCASE    1
FOUND AT ACTION FILE LINE N.      424
EC3_EN_1993-5:20   RESISTANCE RATIO            0.171
                   AXIAL   BUCKLING RATIO      0.000
                   LATERAL BUCKLING RATIO      0.000
                   LOCAL   BUCKLING RATIO      0.000
                   RETURNED ERROR CODE            0

MEMBER LW0_S1
                MAX RESISTANCE RATIO            0.171 FOR LCASE        4
                MAX AXIAL   BUCKLING RATIO      0.000 FOR LCASE        4
                MAX LATERAL BUCKLING RATIO      0.000 FOR LCASE        4
                MAX LOCAL   BUCKLING RATIO      0.000 FOR LCASE        4
```