COMMITTENTE:

RFI RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

DIREZIONE LAVORI:

ITALFERR
GRUPPO FERROVIE DELLO STATO ITALIANE

APPALTATORE:
CONSORZIO: HirpiniaAV

SOCI: salini impregilo, ASTALDI

PROGETTAZIONE:
MANDATARIA: ROCKSOIL S.p.A.

MANDANTI: NET ENGINEERING, Alpina S.p.A.

PROGETTO ESECUTIVO DI DETTAGLIO

ITINERARIO NAPOLI - BARI
RADDOPPIO TRATTA APICE - ORSARA
I LOTTO FUNZIONALE APICE - HIRPINIA

VIADOTTI

VI01 – VIADOTTO UFITA HIRPINIA DA KM 1+766 A KM 2+421

RELAZIONE DI CALCOLO FONDAZIONI PILE P17 E P18

APPALTATORE	DIRETTORE DELLA PROGETTAZIONE	PROGETTISTA
Consorzio HIRPINIA AV Il Direttore Tecnico Ing. Vincenzo Moriello 28/03/2020	Il Responsabile integrazione fra le varie prestazioni specialistiche Ing. G. Cassani	Alpina S.p.A. Ing. Paolo Galvanin

COMMESSA	LOTTO	FASE	ENTE	TIPO DOC.	OPERA/DISCIPLINA	PROGR.	REV.	SCALA:
IF28	01	E	ZZ	CL	VI0103	006	B	-

Rev.	Descrizione	Redatto	Data	Verificato	Data	Approvato	Data	Autorizzato Data
A	Emissione per consegna	P.Pazzaglia	28/03/2020	L.Zanelotti	28/03/2020	M.Vernaleone	28/03/2020	P.Galvanin 10/06/2020
B	Recepimento Istruttorie	P.Pazzaglia	10/06/2020	L.Zanelotti	10/06/2020	M.Vernaleone	10/06/2020	

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Indice

1 INTRODUZIONE

Nell'ambito della redazione del Progetto Esecutivo della tratta Apice - Orsara del Lotto 1 Apice – Irpinia - potenziamento della linea ferroviaria Napoli – Bari, la presente relazione riporta i risultati del dimensionamento e verifiche delle fondazioni – plinto su pali – delle pile P17 e P18 del Viadotto VI01 denominato Viadotto Ufita Hirpinia.

Le pile sostengono le campate di luce 25m, costituite da n. 4 cassoncini/travi in c.a.p. affiancati e solidarizzati da una soletta in c.a. gettata in opera

Considerate le caratteristiche geometriche, le condizioni geotecniche e l'entità dei carichi agenti, le analisi sono sviluppate in riferimento alla pila P17.

Per quanto riguarda i criteri di verifica adottati per le analisi del sistema di fondazione adottato si rimanda al documento IF2801EZZRBVI0003001: Viadotti ferroviari – Relazione sui criteri di calcolo delle fondazioni.

2 Documenti di riferimento e normativa

2.1 DOCUMENTI DI RIFERIMENTO

1) IF2801EZZRGVI0000001 - Relazione Tecnico-Descrittiva delle Opere Civili - Viadotti VI01, VI02, VI03 e VI04;
2) IF2801EZZRBVI0003001 - Relazione sui criteri di calcolo delle fondazioni;
3) IF2801EZZRBOC0101001 - Relazione Geotecnica Generale;
4) IF2801EZZF6OC0101001 - Profilo geologico - Tratta all'aperto Isca Girasole, da pk 0+000 a 2+705;
5) IF2801EZZF6OC0101002 - Profilo geologico - Tratta all'aperto valle Ufita, da pk 4+695 a pk 5+090;
6) IF2801EZZF6OC0101003 - Profilo geologico - Tratta all'aperto Castel del Fiego, da pk 9+550 a pk 10+090;
7) IF2801EZZF6OC0101004 - Profilo geologico - Tratta all'aperto Iscalonga, da pk 16+610 a pk 18+700;
8) IF2801EZZRBOC0301001 - Relazione Sismica generale;
9) IF2801EZZP9VI0100000 - Pianta fondazioni e sezioni (tav. 1 di 6)
10) IF2801EZZP9VI0100001 - Pianta fondazioni e sezioni (tav. 2 di 6)
11) IF2801EZZP9VI0100002 - Pianta fondazioni e sezioni (tav. 3 di 6)
12) IF2801EZZP9VI0100003 - Pianta fondazioni e sezioni (tav. 4 di 6)
13) IF2801EZZP9VI0100004 - Pianta fondazioni e sezioni (tav. 5 di 6)
14) IF2801EZZP9VI0100005 - Pianta fondazioni e sezioni (tav. 6 di 6)
15) F2801EZZCLVI0104001 - Spalla A: Relazione di calcolo strutture in elevazione
16) IF2801EZZCLVI0105002 - Pile P1 e P2: Relazione di calcolo strutture in elevazione
17) IF2801EZZCLVI0105003 - Pile P3, P5, P6, P9, P11 e P16: Relazione di calcolo strutture in elevazione
18) IF2801EZZCLVI0105005 - Pile P7, P8, P19, P20,P21 e P22: Relazione di calcolo strutture in elevazione
19) IF2801EZZCLVI0105006 - Pile da P12 e P15 Relazione di calcolo strutture in elevazione
20) IF2801EZZCLVI0105007 - Pile da P13 Relazione di calcolo strutture in elevazione
21) IF2801EZZCLVI0105008 - Pile da P14 Relazione di calcolo strutture in elevazione
22) IF2801EZZCLVI0105009 - Pile da P17 e P18 Relazione di calcolo strutture in elevazione
23) IF2801EZZCLVI0105010 - Pile P4 e P10 Relazione di calcolo strutture in elevazione
24) IF2801EZZCLVI0104002 - Spalla B: Relazione di calcolo strutture in elevazione
25) IF2801EZZCLVI0103001 - Relazione di calcolo fondazioni spalla A e spalla B
26) IF2801EZZCLVI0103002 - Relazione di calcolo fondazioni pile P13 e P14
27) IF2801EZZCLVI0103003 - Relazione di calcolo fondazioni pile P12 e P15
28) IF2801EZZCLVI0103004 - Relazione di calcolo fondazioni pile P1, P2, P7, P8 e da P19 a P22
29) IF2801EZZCLVI0103005 - Relazione di calcolo fondazioni pile P3, P4, P5, P6, P9, P10, P11 e P16

30) IF2801EZZCLVI0103006 - Relazione di calcolo fondazioni pile P17 e P18.

2.2 NORMATIVA E STRANDARD DI RIFERIMENTO

31) Decreto Ministeriale del 14/01/2008: “Approvazione delle Nuove Norma Tecniche per le Costruzioni”, G.U. n.29 del 04/02/20018, Supplemento Ordinario n.30;
32) Circolare 01/02/2009, n.617 - Istruzione per l’applicazione delle “Nuove Norme Tecniche per le Costruzioni” di cui al D.M. 14/01/2008;
33) DM 06/05/2008 - “Integrazione al DM 14/01/2008 di approvazione delle Nuove Norme Tecniche per le Costruzioni”;
34) RFI DTC SI MA IFS 001 A - “Manuale di progettazione delle opere civili”;
35) RFI DTC SI SP IFS 001 A - “Capitolato generale tecnico d’appalto delle opere civili”;
36) UNI EN 1997-1: Eurocodice 7 - Progettazione Geotecnica - Parte 1: Regole generali;
37) UNI EN 1998-5: Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici;
38) Caltrans. Guidelines on Foundation Loading and Deformation Due to Liquefaction Induced Lateral Spreading. California Department of Transportation, Sacramento, California, 2012;
39) JRA (2002) – Specifications for Highway Bridges, JapanRoad Association. Part V: Seismic Design.

2.3 SOFTWARE

40) Lpile, Ensoft Inc, versione 2016, release n. 9;
41) Group, Ensoft Inc, versione 2016, release n.10;
42) GeoStru, RC-SEC, Calcolo di sezioni in Cemento Armato;
43) Pozzi J – Pozzi di fondazione o di stabilizzazione – VOL. 4, T. Collotta 2010.

3 Materiali

Il progetto strutturale delle fondazioni prevede l'uso dei seguenti materiali.

3.1 ACCIAIO

3.1.1 Acciaio per armatura strutture in c.a.

Barre ad aderenza migliorata, saldabile, tipo B450C dotato delle seguenti caratteristiche meccaniche:

- tensione caratteristica di rottura: $f_{tk} \geq 540$ MPa
- tensione caratteristica di snervamento: $f_{yk} \geq 450$ MPa
- allungamento caratteristico: ≥ 7.5 %
- rapporto tensione di rottura/ tensione di snervamento: $1.15 \leq f_{tk}/f_{yk} < 1.35$

3.1.2 Profilati e piastre metalliche

- - Acciaio tipo: EN 10025-S275 JR
- - Tensione di rottura a trazione: $f_{tk} \geq 430$ MPa
- - Tensione di snervamento: $f_{yk} \geq 275$ MPa

3.2 CALCESTRUZZO

3.2.1 Calcestruzzo magro per getti di livellamento

- Classe di resistenza: C12/15
- classe di esposizione: X0

3.2.2 Calcestruzzo pali, diaframmi di fondazione, cordoli e opere provvisionali

- Classe di resistenza: C25/30
- classe di consistenza: S4
- classe di esposizione: XC2
- dimensione massima dell'inerte: $D_{max} = 32$ mm
- copriferro minimo: $c_{f,min} \geq 60$ mm

3.2.3 Calcestruzzo per fondazioni pile e spalle

- Classe di resistenza: C28/35
- classe di consistenza: S4
- classe di esposizione: XC2
- dimensione massima dell'inerte: $D_{max} = 25$ mm
- copriferro minimo: $c_{f,min} \geq 40$ mm

4 DESCRIZIONE DELLE FONDAZIONI E STRATIGRAFIA DI PROGETTO

4.1 DESCRIZIONE DEL SISTEMA FONDAZIONALE

La fondazione della pila P17 è costituita da: un plinto a sezione quadrata di dimensioni 12.0 m x 12.0 m^2 e altezza di 2.5 m posto su n.9 pali trivellati di diametro Ø = 1500 mm e lunghezza L = 25.0 m.

4.2 STRATIGRAFIA DI RIFERIMENTO

In accordo con quanto riportato nella Relazione Geotecnica Generale - ref. 3), la stratigrafia e i parametri geotecnici di riferimento sono riportati nella seguente Tabella 1 unitamente alla portanza limite laterale e di base dei diaframmi.

La quota piano campagna di riferimento è ca. 318.5 m s.l.m.. Si considera la profondità della testa del palo da p.c. di ca. 3.65 m.

STRATIGRAFIA da testa palo				PARAMETRI GEOTECNICI DI RIFERIMENTO			PORTANZA LIMITE DEGLI ELEMENTI FONDAZIONE	
DA	A	Δ H	UNITA' DI RIFERIMENTO	γ	φ	Cu	qs	qb
[m]	[m]	[m]		[kN/m^3]	[°]	[kPa]	[kPa]	[kPa]
0	1.85	1.85	ALL2-s	19	30		24	-
1.85	21.35	19.5	ANZ 2a	20.5		200	106.07	3000.0
21.35	…	…	ANZ 2a	20.5		400	150.0	4242.6

Tabella 1 Stratigrafia e parametri geotecnici di riferimento

La falda è assunta a quota testa palo.

5 CRITERI DI VERIFICA

Per ogni stato limite ultimo deve essere rispetta la condizione:

$$Ed \leq Rd;$$

dove Ed è il valore di progetto dell'azione o dell'effetto dell'azione e Rd è il valore di progetto della resistenza.

Le verifiche sono sviluppate secondo l'approccio 2:

combinazione: A1+M1+R3,

in cui è previsto un'unica combinazione di gruppi di coefficienti, da adottare sia nelle verifiche strutturali (STR) sia nelle verifiche geotecniche (GEO).

Per maggiori dettagli sui criteri di calcolo e verifica si rimanda alla relazione ref. 2).

Per le verifiche a fessurazione si ricorda che sono svolte per condizioni ambientali ordinarie e armature poco sensibili (vedasi § 9.3.1 di ref. 2)).

6 SCARICHI DI FONDAZIONE

Di seguito si esaminano gli scarichi a quota spiccato pila, derivanti dall'analisi strutturale complessiva del viadotto, e si valutano le azioni ad intradosso plinto considerando i trasporti delle azioni di taglio, e i contributi addizionali, in termini di azioni permanenti, dovuti ai pesi propri del plinto di fondazione e del terreno di ricoprimento definitivo.

6.1 SCARICHI ALLA BASE DELLA PILA

Di seguito si riportano gli scarichi alla base della pila per le combinazioni di carico sismiche (SLV), statiche (SLU) e di esercizio (SLE).

Nella **Figura 6-1** la convenzione dei segni assunta per le pile.

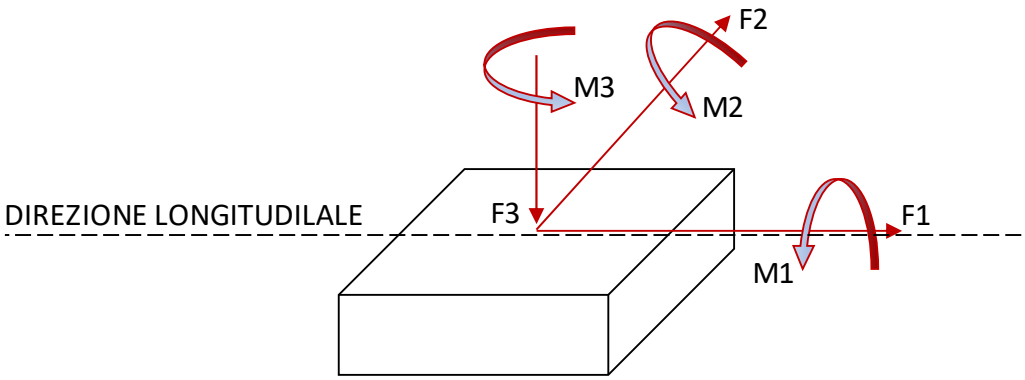


Figura 6-1: Sistema di riferimento proprio delle pile

6.1.1 Combinazioni delle azioni agli stati limite ultimi sismici

Nella seguente **Tabella 2** si riportano le combinazioni di carico più gravose agli stati limite ultimi (SLV) in presenza di sisma.

Tali carichi sono stati ottenuti considerando la struttura in elevazione in classe di duttilità B (fattore di struttura q=1.5). Per il dimensionamento e le verifiche del sistema fondazione le azioni da considerare sono le resistenze degli elementi strutturali soprastanti, con il limite, in accordo alle NTC 2008 (ref. 31)), che il fattore di amplificazione non superi γ_{Rd} = 1.1.

Sollecitazioni estradosso fondazione SLV							
sollecitazione	combinazione	F1	F2	F3	M1	M2	M3
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F1	slu-SISMA6	10778	2737	11841	-23212	81534	158
MIN F1	slu-SISMA1	-10087	-2687	18010	23936	-74927	-108
MAX F2	slu-SISMA32	3352	9088	12326	-78010	25150	362
MIN F2	slu-SISMA28	-2811	-8957	18010	79787	-20292	-362
MAX F3	slu-SISMA38	-3026	-2687	27105	24096	-22491	-108
MIN F3	slu-SISMA41	3243	2687	1688	-23921	24620	108
MAX M1	slu-SISMA24	3243	8957	9643	-79761	24642	362
MIN M1	slu-SISMA26	-2791	-8874	18556	82073	-20480	-362
MAX M2	slu-SISMA6	10778	2737	11841	-23212	81534	158
MIN M2	slu-SISMA1	-10087	-2687	18010	23936	-74927	-108

Tabella 2: Combinazioni sismiche SLV: azioni agenti a base pila

6.1.2 Combinazioni delle azioni agli stati limite ultimi statici (SLU)

Nella seguente **Tabella 3** si riportano le combinazioni agli stati limite ultimi statici (SLU); i carichi sono amplificati con i coefficienti parziali A1.

Sollecitazioni estradosso fondazione SLU-STR							
sollecitazione	combinazione	F1	F2	F3	M1	M2	M3
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F1	slu60	3786	1067	25125	14400	35532	361
MAX F2	slu26	1340	1605	28646	21237	10149	5
MAX F3	slu52	2002	1605	28646	21237	16142	5
MIN F3	slu25	507	1232	13053	16071	4779	0
MAX M1	slu63	1404	1290	24377	24688	11544	0
MAX M2	slu60	3786	1067	25125	14400	35532	361

Tabella 3: Combinazioni statiche SLU-A1: azioni agenti a base pila

6.1.3 Combinazioni delle azioni agli stati limite di esercizio (SLE)

Nella seguente **Tabella 4** si riportano le combinazioni di carico caratteristiche impiegate per gli stati limite di esercizio (SLE).

Sollecitazioni estradosso fondazione SLE-RARA							
sollecitazione	combinazione	F1	F2	F3	M1	M2	M3
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F3	SLE-RARA44	-1369	-1090	20275	14425	-11021	-3

MIN F3	SLE-RARA25	-338	-821	13053	10714	-3186	0
MAX M1	SLE-RARA55	-959	-873	17331	16804	-7871	0
MAX M2	SLE-RARA85	-2605	-718	17847	9691	-24441	-248

Tabella 4: Combinazioni di esercizio SLE: azioni agenti a base pila

6.2 SCARICHI A INTRADOSSO PLINTO

6.2.1 Combinazioni delle azioni agli stati limite ultimi sismici (SLV)

Nella **Tabella 6** si riportano le combinazioni di carico agli stati limite ultimi (SLV) in presenza dell'azione sismica, ottenute:

- amplificando le azioni di taglio e i momenti a base pila del coefficiente γ_{Rd} =1.1;
- considerando il trasporto dei momenti da spiccato pila a intradosso plinto;
- aggiungendo il peso proprio del plinto e del terreno di ricoprimento (Tabella 5).

plinto	B trasv	12	m
	L long	12	m
	H	2.5	m
ricoprimento	h	1.15	m
	peso plinto	9000.0	kN
	peso rinterro	3312.0	kN

Tabella 5: Plinto: caratteristiche geometriche

Sollecitazioni intradosso fondazione SLV							
sollecitazione	combinazione	F1	F2	F3	M1	M2	M3
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F1	slu-SISMA6	10778	2737	24153	-30054	108479	158
MIN F1	slu-SISMA1	-10087	-2687	30322	30654	-100144	-108
MAX F2	slu-SISMA32	3352	9088	24638	-100730	33530	362
MIN F2	slu-SISMA28	-2811	-8957	30322	102181	-27318	-362
MAX F3	slu-SISMA38	-3026	-2687	39417	30814	-30056	-108
MIN F3	slu-SISMA41	3243	2687	14000	-30639	32727	108
MAX M1	slu-SISMA24	3243	8957	21955	-102154	32749	362
MIN M1	slu-SISMA26	-2791	-8874	30868	104257	-27457	-362
MAX M2	slu-SISMA6	10778	2737	24153	-30054	108479	158
MIN M2	slu-SISMA1	-10087	-2687	30322	30654	-100144	-108

Tabella 6: Combinazioni sismiche SLV: azioni agenti ad intradosso plinto

6.2.2 Combinazioni delle azioni agli stati limite ultimi statici (SLU)

Nella **Tabella 7** si riportano gli scarichi per gli stati limite ultimi statici (SLU), ottenuti:
- considerando il trasporto dei momenti da spiccato pila a intradosso plinto;
- aggiungendo il peso proprio del plinto e del terreno di ricoprimento (**Tabella 5**), fattorizzati per il fattore 1.3.

Sollecitazioni intradosso fondazione SLU-STR							
sollecitazione	combinazione	**F1**	**F2**	**F3**	**M1**	**M2**	**M3**
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F1	slu60	3786	1067	41131	17068	44997	361
MAX F2	slu26	1340	1605	44652	25250	13499	5
MAX F3	slu52	2002	1605	44652	25250	21147	5
MIN F3	slu25	507	1232	29059	19151	6047	0
MAX M1	slu63	1404	1290	40383	27913	15054	0
MAX M2	slu60	3786	1067	41131	17068	44997	361

Tabella 7: Combinazioni di statiche SLU-A1: azioni agenti ad intradosso plinto

6.2.3 Combinazioni delle azioni agli stati limite di esercizio (SLE)

Nella **Tabella 8** si riportano le combinazioni di carico caratteristiche impiegate per gli stati limite di esercizio ottenute:
- considerando il trasporto dei momenti da spiccato pila a intradosso plinto;
- aggiungendo il peso proprio del plinto e del terreno di ricoprimento (**Tabella 5**).

Sollecitazioni intradosso fondazione SLE-RARA							
sollecitazione	combinazione	**F1**	**F2**	**F3**	**M1**	**M2**	**M3**
		KN	KN	KN	KN-m	KN-m	kN-m
MAX F3	SLE-RARA44	-1369	-1090	32587	17150	-14444	-3
MIN F3	SLE-RARA25	-338	-821	25365	12767	-4031	0
MAX M1	SLE-RARA55	-959	-873	29643	18987	-10269	0
MAX M2	SLE-RARA85	-2605	-718	30159	11486	-30954	-248

Tabella 8: Combinazioni di esercizio SLE: azioni agenti ad intradosso plinto

7 ANALISI DELL'INTERAZIONE FONDAZIONE-TERRENO

L'analisi di interazione terreno-fondazione è stata sviluppata con il software GROUP della Ensoft.

Il programma considera che il comportamento di un palo soggetto ad azioni orizzontali all'interno di un gruppo differisce da quello di un palo singolo ed isolato. In un gruppo di pali caricato da azioni orizzontali i fenomeni di interazione reciproca palo – terreno – palo determinano, complessivamente, una diminuzione della rigidezza del sistema.

La diversità di comportamento si manifesta mediante un differente valore dello sforzo di taglio agente in testa a ciascun palo, differenti valori di momento flettente, diversa ubicazione del valore massimo di momento al variare della profondità (nell'ipotesi in cui il vincolo in testa al palo non sia un incastro). La modalità di risposta di ciascun palo è funzione essenzialmente dalla posizione geometrica che questo occupa all'interno del gruppo. Precisamente, la risposta del singolo palo all'interno del gruppo è condizionata:

• dalla fila di appartenenza all'interno del gruppo (effetto ombra o shadowing);

• dalla posizione all'interno della singola fila (effetto di bordo).

7.1 DESCRIZIONE DEL MODELLO DI CALCOLO GROUP

Il modello di calcolo è stato costruito nel seguente modo:

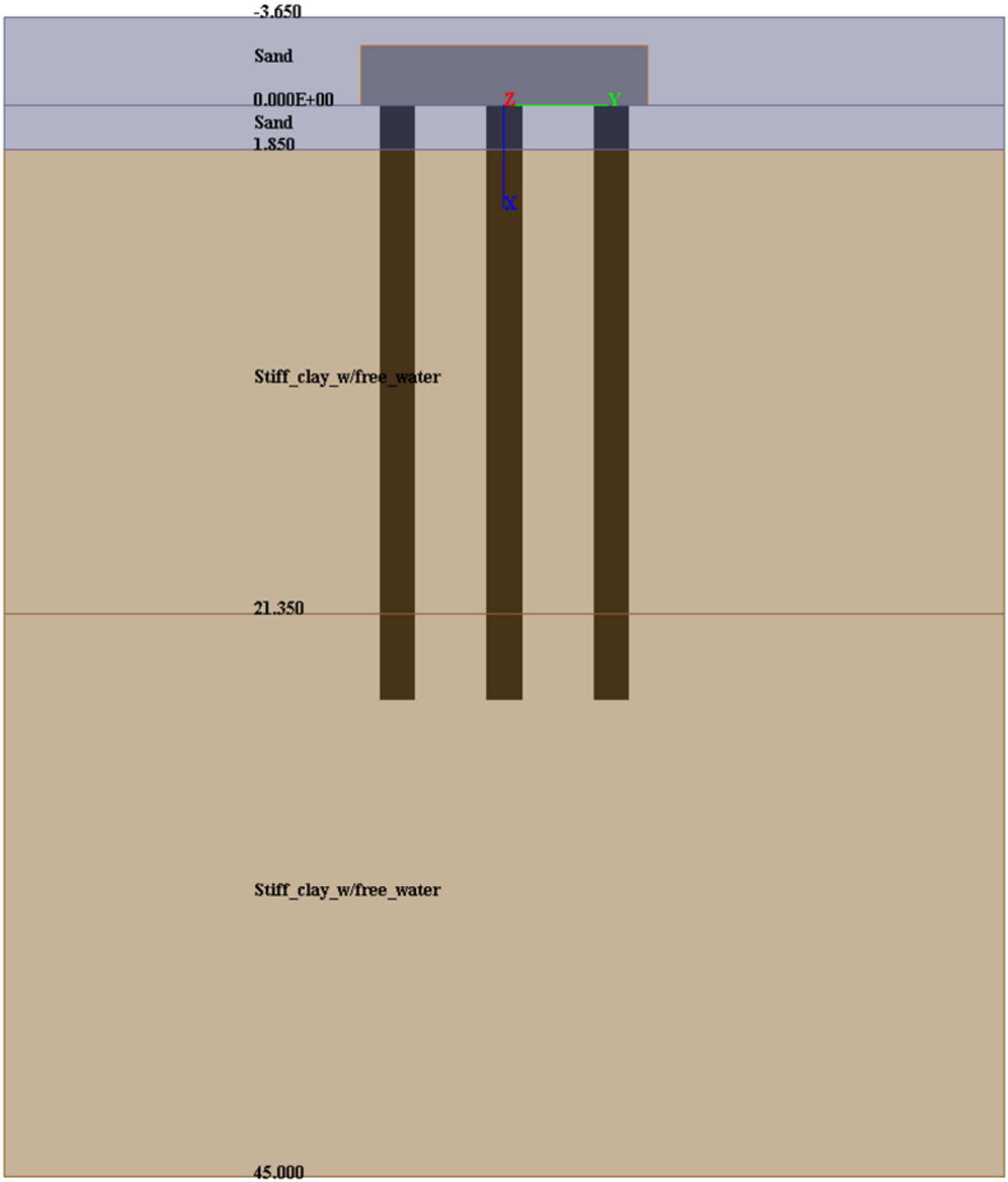


Figura 7-1: Vista frontale del modello GROUPv2016

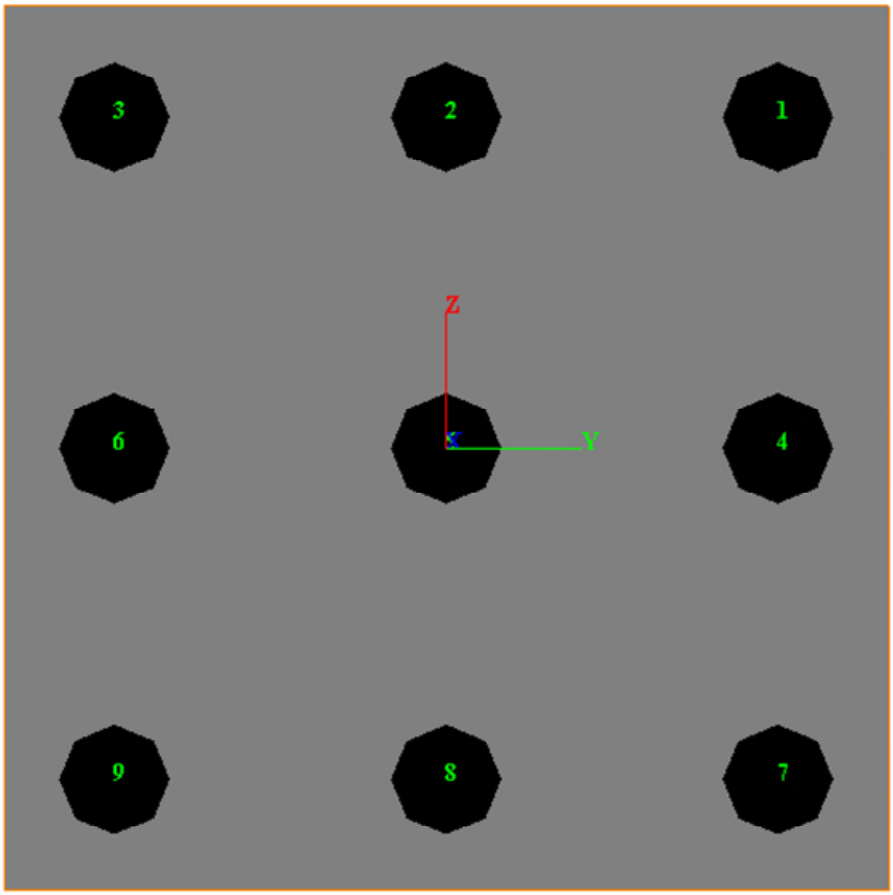


Figura 7-2: Vista in pianta del modello GROUPv2016

In accordo al § 4.2 nelle seguenti Figura 7-3 ÷ Figura 7-7 si riporta il modello stratigrafico di calcolo e i parametri geotecnici assegnati ai singoli strati. I parametri di rigidezza del terreno sono stati assunti in accordo ai criteri illustrati nella relazione al ref. 2), § 8.1.1 per le “stiff clays with free water”.

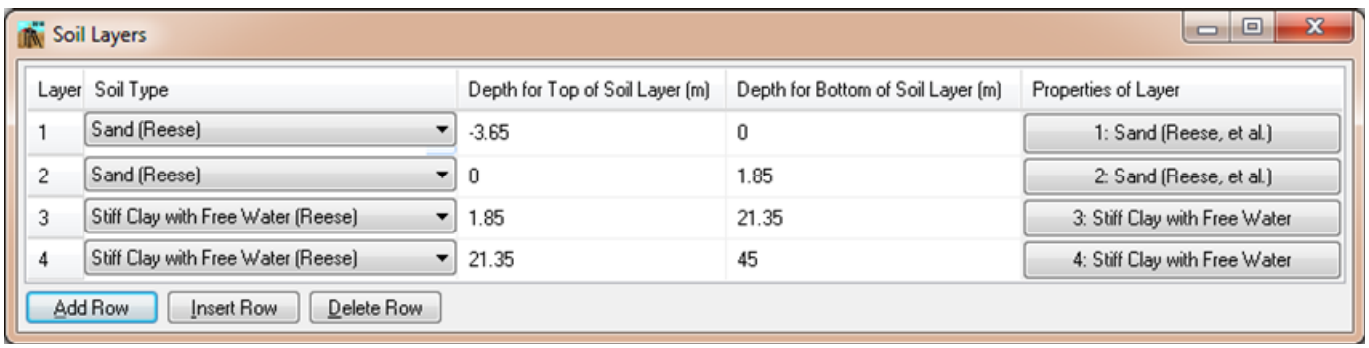


Figura 7-3: Modello stratigrafico GROUP V2016

Sand (Reese, et al.) 1

1=Top, 2=Bottom	Effective Unit Weight	Friction Angle,	p-y Modulus, k	Ultimate Unit Side Friction	Ultimate Unit Tip Resistance
	(kN/m^3)	(DEG.)	(kN/m^3)	(kN/m^2)	(kN/m^2)
1	9	30	16300	0	0
2	9	30	16300	0	0

A linear interpolation with depth will be used to compute values between the top and bottom of the layer.
p-y Modulus, k:
- Always check recommended value in Geotechnical Investigation Reports.
- Program will help to estimate value for p-y Modulus, k, if zero input value is entered.

Ultimate Unit Side Friction and Ultimate Unit Tip Resistance:
- The program uses Ultimate Unit Side Friction to generate t-z curves.
- The program uses Ultimate Unit Tip Resistance to generate q-w curves.
- Always check recommended values in Geotechnical Investigation Reports.
- Program will help to estimate values for Ultimate Unit Side Friction and Ultimate Unit Tip Resistance if zero input values are entered.

Figura 7-4: Layer no.1 (ALL2-S)

Sand (Reese, et al.) 2

1=Top, 2=Bottom	Effective Unit Weight	Friction Angle,	p-y Modulus, k	Ultimate Unit Side Friction	Ultimate Unit Tip Resistance
	(kN/m^3)	(DEG.)	(kN/m^3)	(kN/m^2)	(kN/m^2)
1	9	30	16300	24	0
2	9	30	16300	24	0

A linear interpolation with depth will be used to compute values between the top and bottom of the layer.
p-y Modulus, k:
- Always check recommended value in Geotechnical Investigation Reports.
- Program will help to estimate value for p-y Modulus, k, if zero input value is entered.

Ultimate Unit Side Friction and Ultimate Unit Tip Resistance:
- The program uses Ultimate Unit Side Friction to generate t-z curves.
- The program uses Ultimate Unit Tip Resistance to generate q-w curves.
- Always check recommended values in Geotechnical Investigation Reports.
- Program will help to estimate values for Ultimate Unit Side Friction and Ultimate Unit Tip Resistance if zero input values are entered.

Figura 7-5: Layer no.2 (ALL2-S)

Stiff Clay with Free Water 4

1=Top, 2=Bottom	Effective Unit Weight	Undrained Cohesion, c	p-y Modulus, k	Strain Factor E50	Ultimate Unit Side Friction	Ultimate Unit Tip Resistance
	(kN/m^3)	(kN/m^2)	(kN/m^3)		(kN/m^2)	(kN/m^2)
1	10.5	200	540000	0.004	106.07	3000
2	10.5	200	540000	0.004	106.07	3000

A linear interpolation with depth will be used to compute values between the top and bottom of the layer.
p-y Modulus, k, and Strain Factor E50:
- Always check recommended value in Geotechnical Investigation Reports.
- Program will help to estimate values for p-y Modulus, k, and Strain Factor E50 if zero input values are entered.

Ultimate Unit Side Friction and Ultimate Unit Tip Resistance:
- The program uses Ultimate Unit Side Friction to generate t-z curves.
- The program uses Ultimate Unit Tip Resistance to generate q-w curves.
- Always check recommended values in Geotechnical Investigation Reports.
- Program will help to estimate values for Ultimate Unit Side Friction and Ultimate Unit Tip Resistance if zero input values are entered.

(k=220000 per analisi SLE)

Figura 7-6: Layer no.3 (ANZ 2a)

Stiff Clay with Free Water 5

1=Top, 2=Bottom	Effective Unit Weight	Undrained Cohesion, c	p-y Modulus, k	Strain Factor E50	Ultimate Unit Side Friction	Ultimate Unit Tip Resistance
	(kN/m^3)	(kN/m^2)	(kN/m^3)		(kN/m^2)	(kN/m^2)
1	10.5	400	540000	0.004	150	4243
2	10.5	400	540000	0.004	150	4243

A linear interpolation with depth will be used to compute values between the top and bottom of the layer.
p-y Modulus, k, and Strain Factor E50:
- Always check recommended value in Geotechnical Investigation Reports.
- Program will help to estimate values for p-y Modulus, k, and Strain Factor E50 if zero input values are entered.

Ultimate Unit Side Friction and Ultimate Unit Tip Resistance:
- The program uses Ultimate Unit Side Friction to generate t-z curves.
- The program uses Ultimate Unit Tip Resistance to generate q-w curves.
- Always check recommended values in Geotechnical Investigation Reports.
- Program will help to estimate values for Ultimate Unit Side Friction and Ultimate Unit Tip Resistance if zero input values are entered.

(k=220000 per analisi SLE)

Figura 7-7: Layer no.4 (ANZ 2a)

7.2 SINTESI DEI RISULTATI AGLI STATI LIMITE DI ESERCIZIO (SLE)

Si riassumono nel seguito le sollecitazioni massime di sforzo assiale, taglio e momento, agenti in testa ai pali.

Si ricorda che per le analisi allo SLE (vedasi Ref. 2)) sono stati utilizzati per le curve p-y i coefficienti di rigidezza del terreno suggeriti dal programma per carichi ciclici; facendo riferimento alle Figura 7-4 - Figura 7-7 sono stati utilizzati i valori evidenziati di lato.

SLE	FOR. X, KN	FOR.H, KN	MOM, KN-M	MOM X, KN- M
	**********	**********	**********	**********
max	5067	368.6	458.0	0.8
min	1634.6	82.1	80.9	-0.2

Tabella 9: Sollecitazioni allo SLE massime e minime per i pali di fondazione

Nelle seguenti figure sono diagrammati l'andamento con la profondità del momento flettente e del taglio relativi alle combinazioni in cui tali sollecitazioni risultano massime.

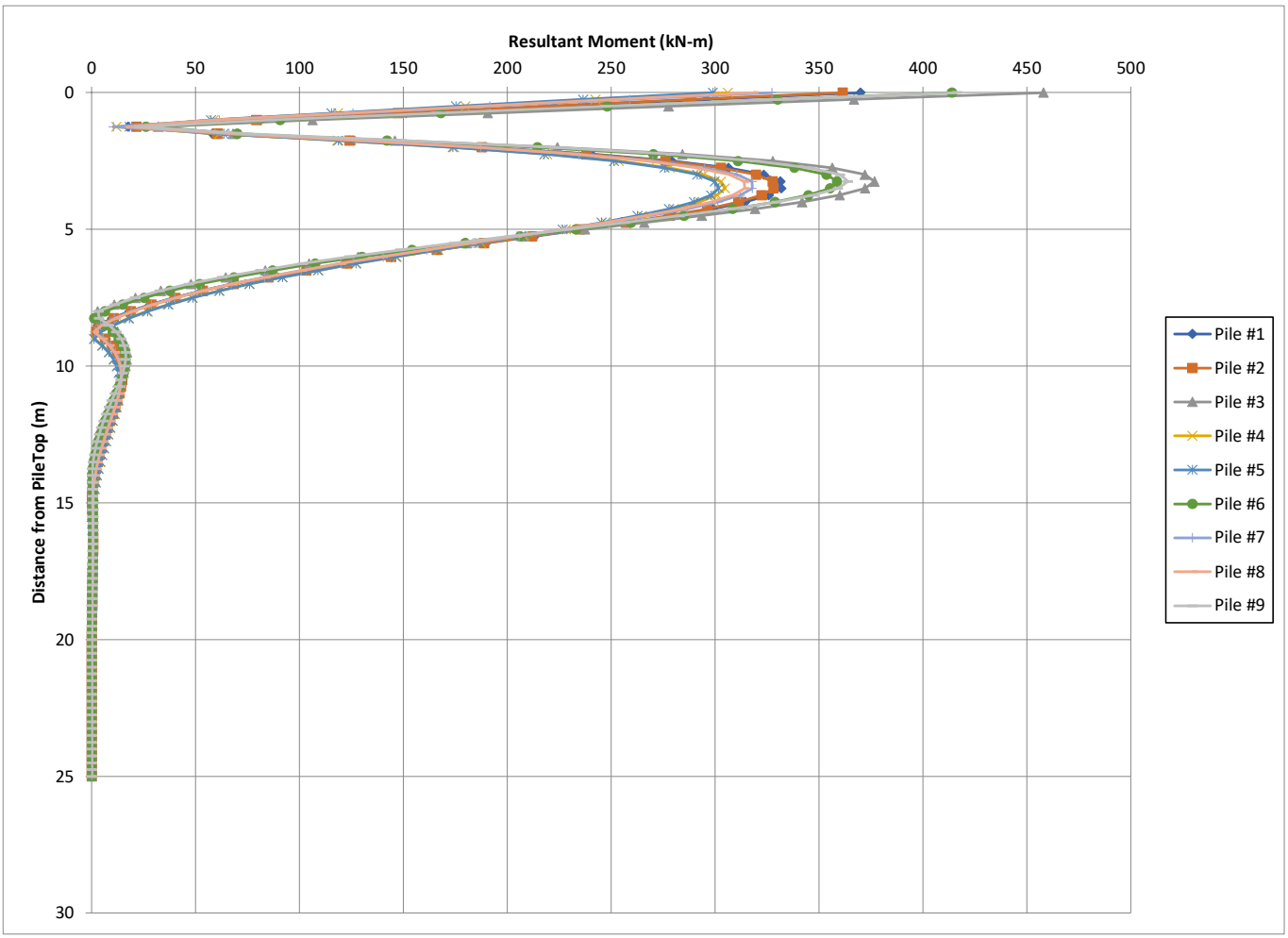


Figura 7-8: Combinazioni SLE: Andamento con la profondità del momento (combo SLE4 max M2).

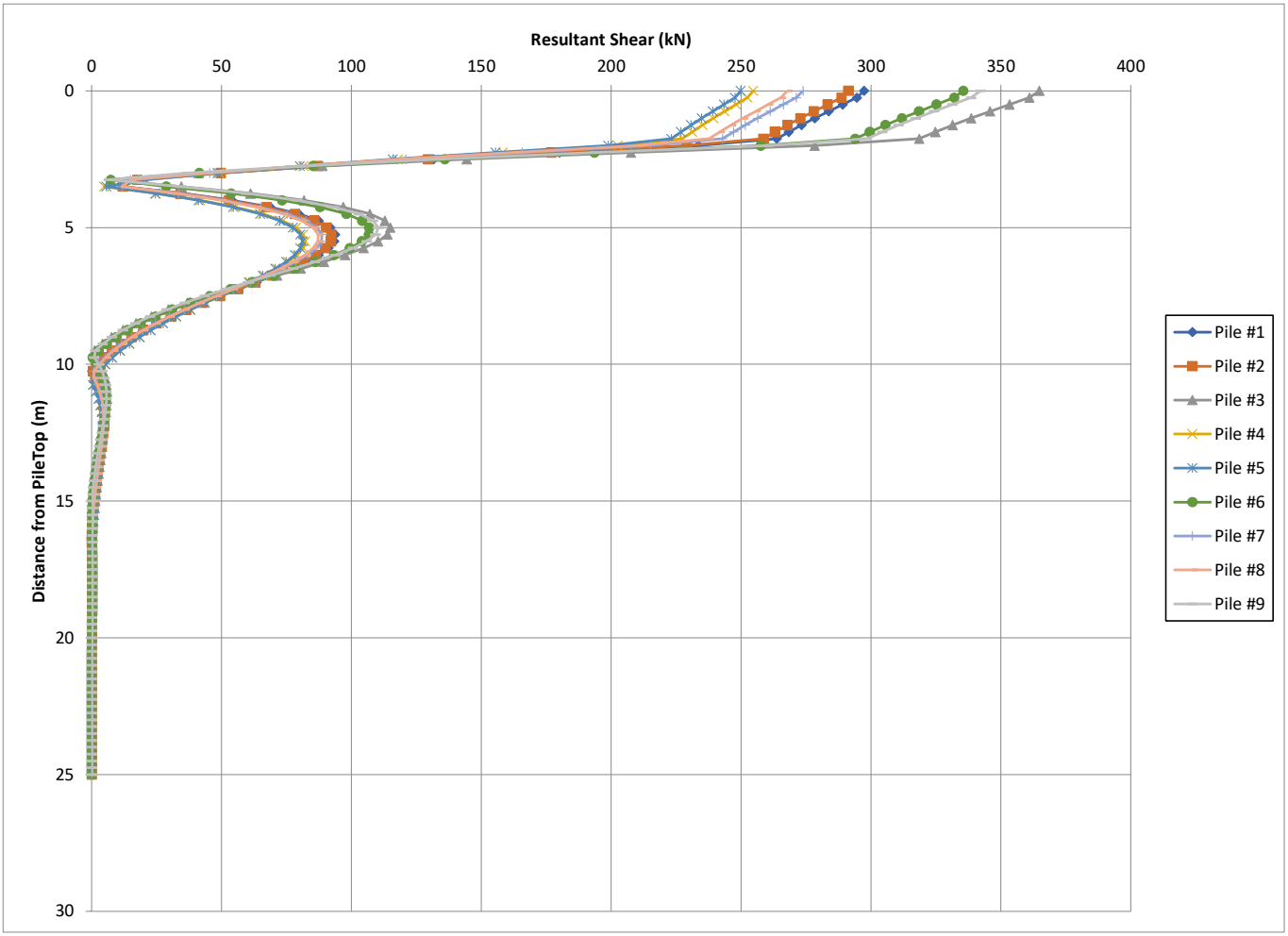


Figura 7-9: Combinazioni SLE: Andamento con la profondità del taglio (combo SLE4 max M2).

7.2.1 Spostamenti

Nella Tabella 10 si riportano gli spostamenti e le rotazioni ad intradosso plinto e sommità pila.

Gli spostamenti orizzontali (direzione y-2) e direzione z-3) tengono già conto dell'interazione fra pali e sono quindi rappresentativi degli spostamenti orizzontali del gruppo di pali; lo spostamento verticale non tiene conto dell'effetto gruppo.

Il coefficiente amplificativo del cedimento verticale per effetto gruppo E_G viene valutato in accordo a Mandolini et al. (2005) ed è riportato in Tabella 11.

						Ppostamento testa pila - sle		
						H pila (m)	10,2	
VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M	ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD	asse Y (mm)	asse Z (mm)	asse X (mm)
0,00148211	-0,000279613	0,000261091	-1,41077E-08	6,44281E-05	5,73312E-05	-0,864	0,918	2,793
0,00113758	-0,000072468	0,00019603	-3,32394E-07	4,80306E-05	1,57041E-05	-0,233	0,686	2,144
0,00134166	-0,000196982	0,000244836	-3,09979E-07	6,90538E-05	4,06627E-05	-0,612	0,949	2,528
0,0013663	-0,00055719	0,000174306	1,83698E-06	4,30783E-05	0,000120642	-1,788	0,614	2,575

Tabella 10: Combinazioni SLE: spostamenti e rotazioni ad intradosso plinto.

DATI FONDAZIONE		
Larghezza plinto	12	m
Profondità plinto	12	m
Diametro palo	1,5	m
Lunghezza palo	25	m
interasse palo	4,5	m
numero pali	9	-
Coefficiente R	1,2728	-
Coefficiente RG	0,2094	-
Coeff. amplificazione cedimento del gruppo EG	1,88	-

Tabella 11: Coefficiente amplificativo del cedimento verticale per effetto gruppo.

7.3 SINTESI DEI RISULTATI AGLI STATI LIMITE ULTIMI STATICI (SLU)

Si riassumono nel seguito le sollecitazioni massime di sforzo assiale, taglio e momento, agenti in testa ai pali.

SLU	FOR. X, KN	FOR.H, KN	MOM, KN-M	MOM X, KN- M
	**********	**********	**********	**********
max	7073.5	517.7	615.9	0.0
min	2066.7	124.7	95.7	-0.2

Tabella 12: Sollecitazioni allo SLU massime e minime per i pali di fondazione

Nelle seguenti figure sono diagrammati l'andamento con la profondità del momento flettente e del taglio relativi alle combinazioni in cui tali sollecitazioni risultano massime.

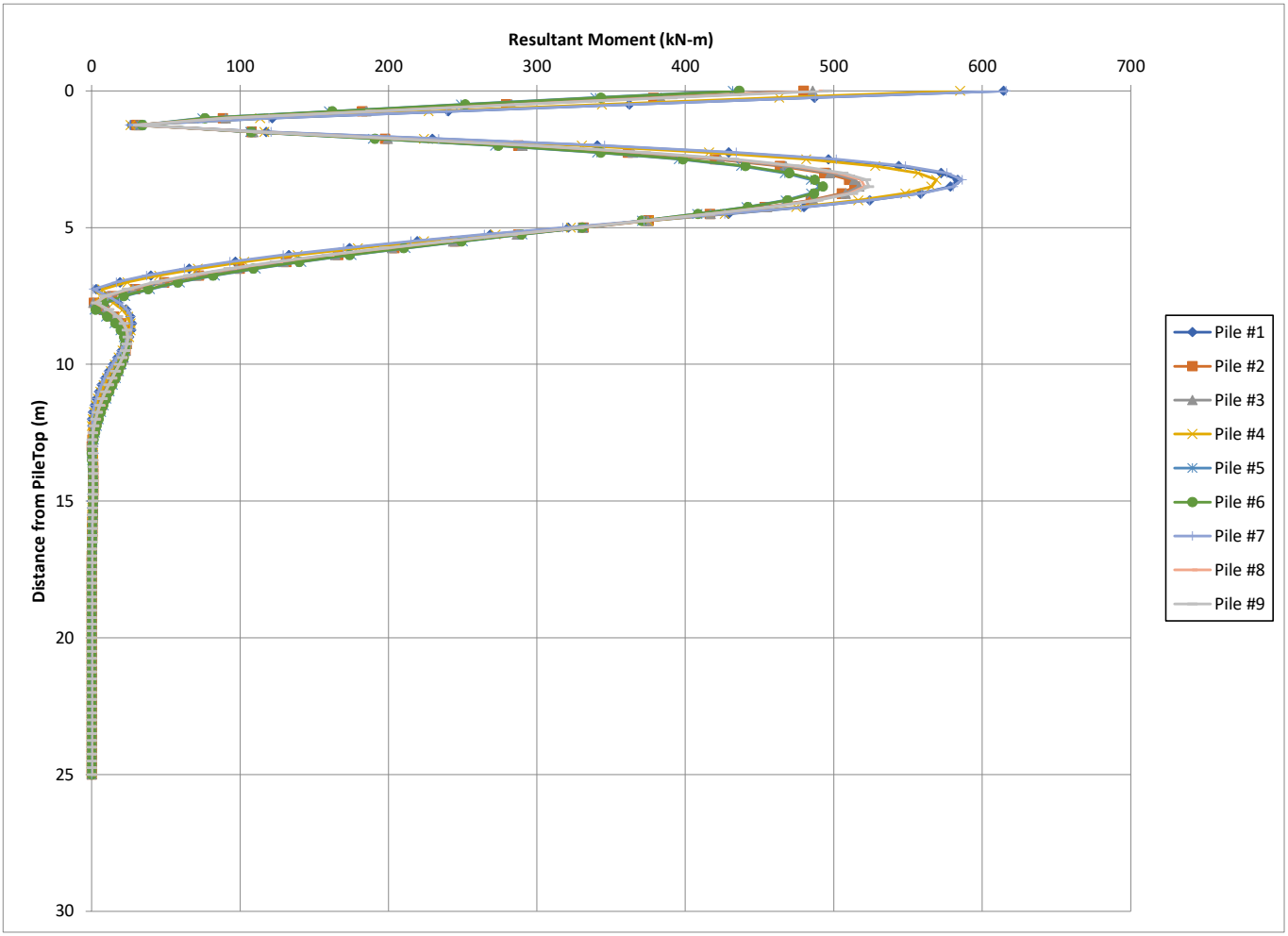


Figura 7-10: Combinazioni statica SLU: Andamento con la profondità del momento (combo SLU11 max F1).

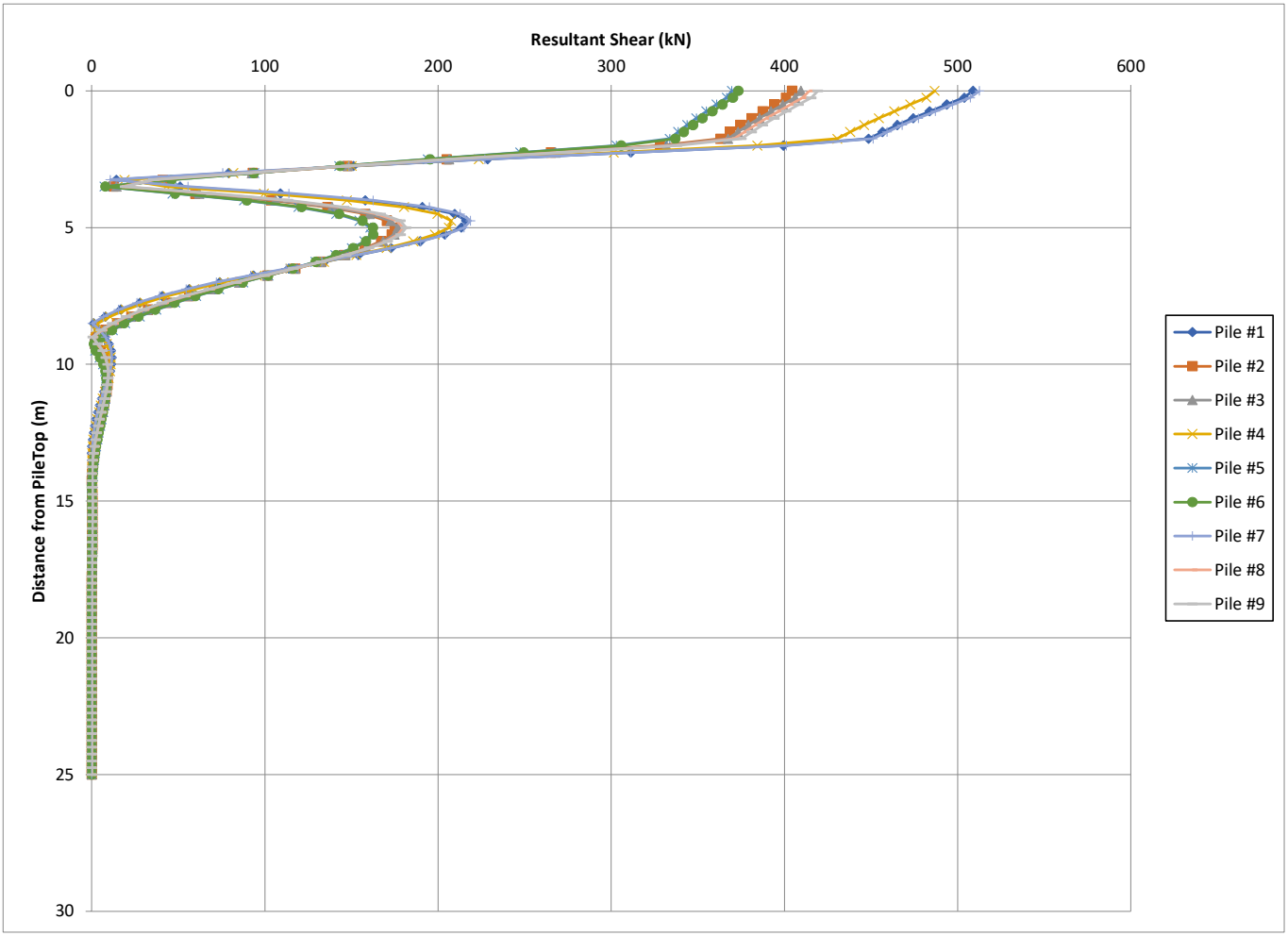


Figura 7-11: Combinazioni statica SLU: Andamento con la profondità del taglio (combo SLU11 max F1).

7.4 SINTESI DEI RISULTATI AGLI STATI LIMITE ULTIMI SISMICI (SLV)

Si riassumono nel seguito le sollecitazioni massime di sforzo assiale, taglio e momento, agenti in testa ai pali.

SLV	FOR. X, KN	FOR.H, KN	MOM, KN-M	MOM X, KN- M
	**********	**********	**********	**********
max	8554.3	1515.3	2406.4	3.2
min	-3409	383.1	484.2	-3.4

Tabella 13: Sollecitazioni allo SLV massime e minime per i pali di fondazione

Nelle seguenti figure sono diagrammati l'andamento con la profondità del momento flettente e del taglio relativi alle combinazioni in cui tali sollecitazioni risultano massime.

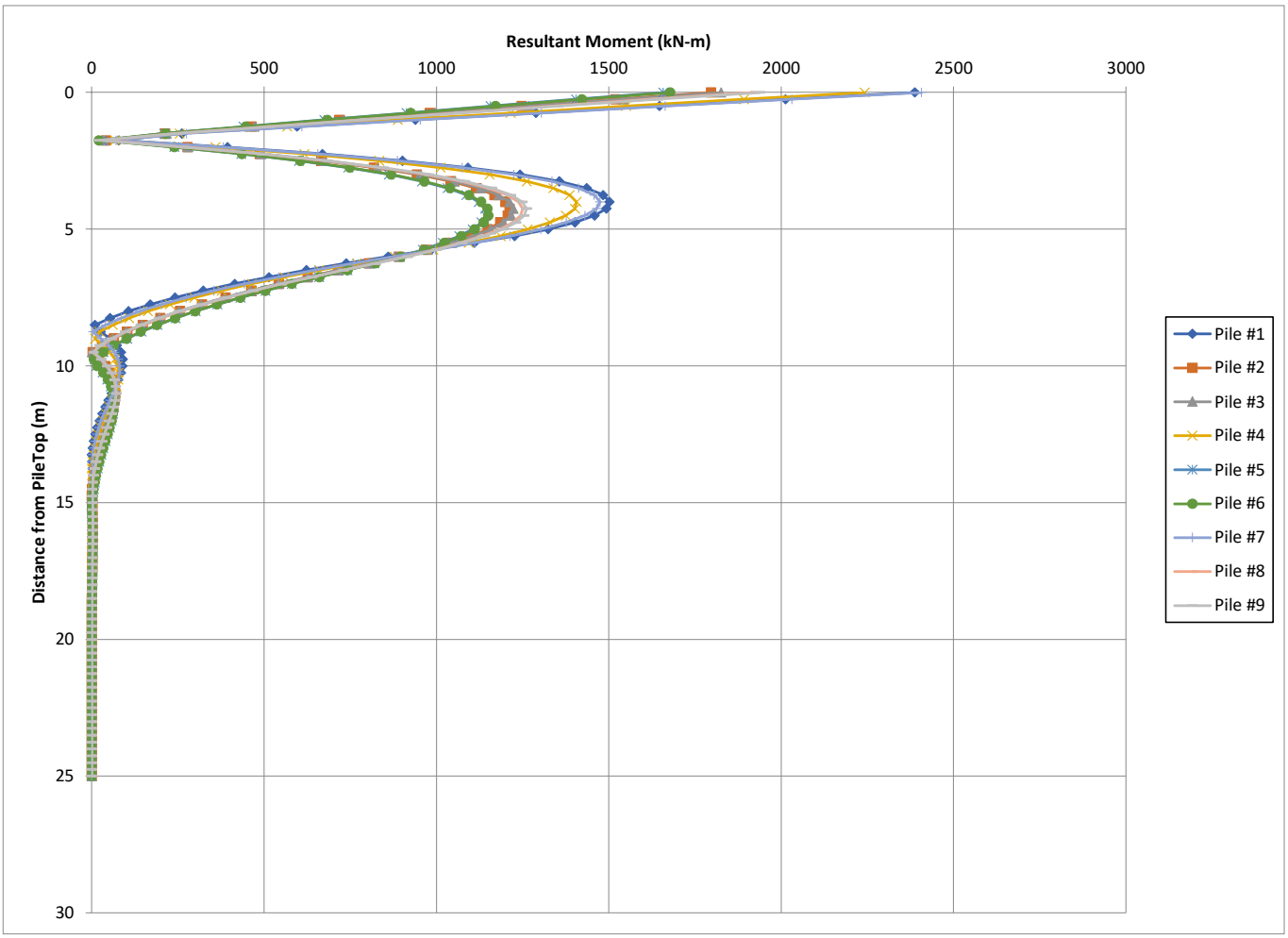


Figura 7-12: Combinazioni sismica SLV: Andamento con la profondità del momento (combo SLV1 max F1).

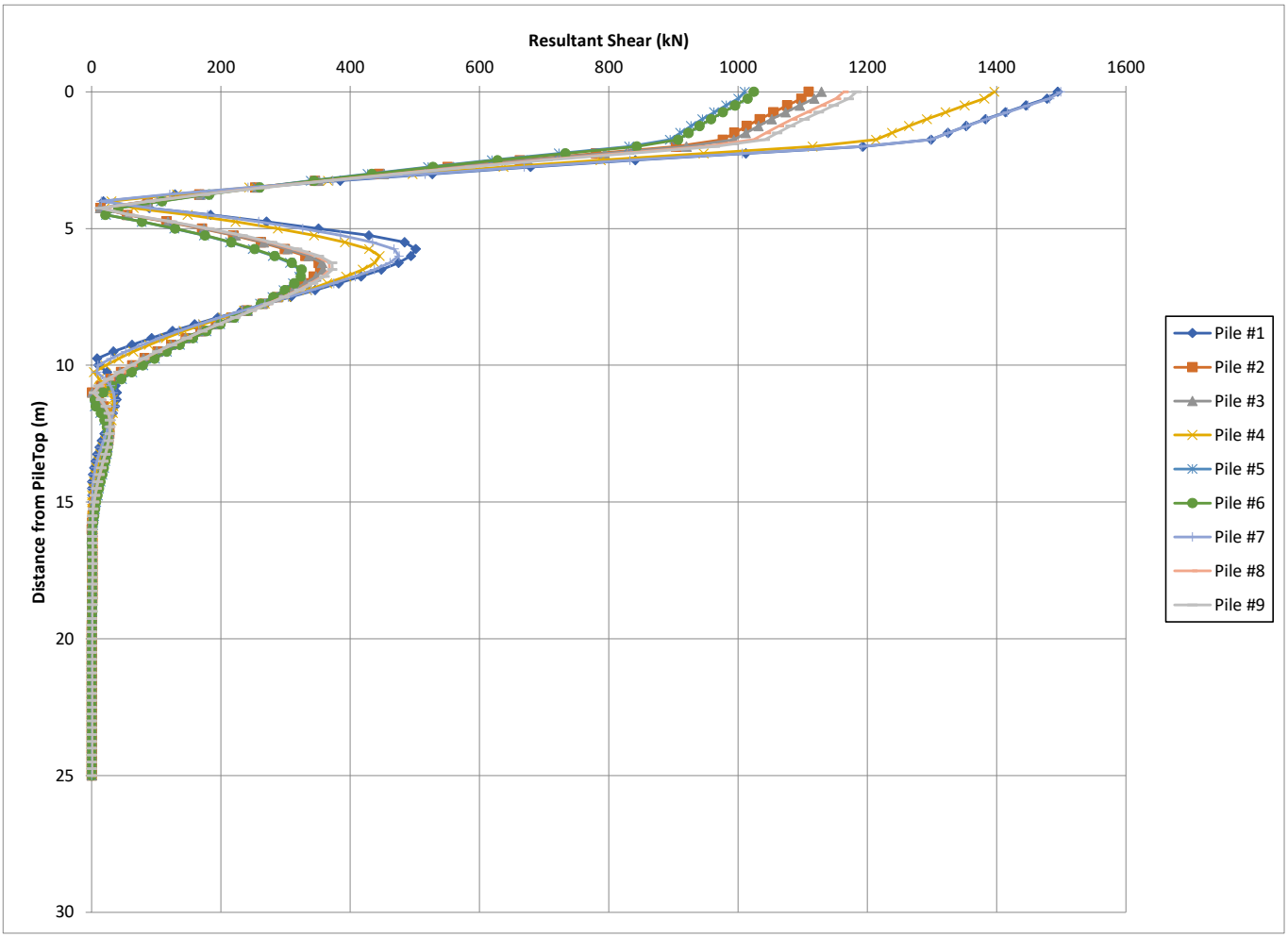


Figura 7-13: Combinazioni sismica SLV: Andamento con la profondità del taglio (combo SLV1 max F1).

8 VERIFICA DEI PALI DI FONDAZIONE

Nel seguito si riportano le verifiche strutturali dei pali di fondazione.

Le sollecitazioni massime agenti sul palo, selezionate nei paragrafi precedenti, sono riassunte nella **Tabella 14**.

LOAD CASE :	PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M		FOR.H, KN	MOM, KN-M
*******	*******	******	******	******	*********	*********	*********			
SLV-1.00	3	-3408.6	1099.3	-302.48	2.9146	472.57	1763		1140.2	1825
SLV-1.00	7	8273.6	1474.4	-349.82	2.9146	512.04	2351.3		1515.3	2406

LOAD CASE :	PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M		FOR.H, KN	MOM, KN-M
*******	*******	******	******	******	*********	*********	*********			
SLE-4.00	3					-84.342	-450.19			458
SLE-4.00	7	1634.6								

Tabella 14: Sollecitazioni massime agenti nel palo

Nel seguito si riportano le verifiche strutturali del palo trivellato di diametro Ø = 1500mm in cls – C25/30 e lunghezza L25m. Per le verifiche si considerano le sollecitazioni risultanti. Sono risultate più severe le verifiche in presenza di trazione. La sollecitazione di momento massimo si verifica con una concomitante compressione assiale del palo; le verifiche in presenza di momento massimo sono state condotte considerando la compressione minima agente sui pali.

In riferimento all'andamento dei momenti lungo il fusto del palo- Momenti Figura 7-12 e Taglio Figura 7-13 - sono state previste n. 3 ordini di armature principali:

1. L'armatura massima:
   - ferri correnti: corona esterna n.28 Ø 30;
   - staffatura: spirale Ø14 passo 10

2. L'armatura media:
   - ferri correnti: corona esterna n.28 Ø 26;
   - staffatura: spirale Ø14 passo 20.

3. L'armatura minima:
   - ferri correnti: corona esterna n.28 Ø 22;
   - staffatura: spirale Ø14 passo 20.

Le verifiche strutturali del palo sono soddisfatte; di seguito la scheda di calcolo.

geometria

sezione trasversale

D [cm]	c [cm]	d [cm]	passo [cm]	interferro [cm]
150	**6.0**	141.1	14.8	11.8

armatura longitudinale

n_{barre}	ϕ [mm]	r_i [cm]	A_{sl} [cm^2]	c_i [cm]
28	**30**	66.10	197.92	8.90

armatura a taglio

Tipo	ϕ [mm]	p [cm]	A_{sw} [cm^2]
spirale	**14**	**10**	3.08

sollecitazioni e risultati

SLE

M_{Ek}	**458.0**	[kNm]
N_{Ek}	**-1634.6**	[kN]

momento di cracking

M_{cr}	1221.6	[kNm]

quota asse neutro

y_n	126.46	[cm]

tensioni e fessure

$\sigma_{c,min}$	-1.9	[MPa]
$\sigma_{s,min}$	-26.7	[MPa]
$\sigma_{s,max}$	3.3	[MPa]
k_2	0.5	
$\varepsilon_{sm}-\varepsilon_{cm}$	-	[‰]
$s_{r,max}$	-	[cm]
w_k	-	[mm]

SLU

M_{Ed}	**1825.2**	[kNm]
N_{Ed}	**3408.6**	[kN]
V_{Ed}	**1515.3**	[kN]

presso-flessione

M_{Rd}	2647.5	[kNm]
FS	1.45	

taglio

V_{Rdc}	134.7	[kN]
predisporre armatura a taglio		
V_{Rds}	1926.5	[kN]
V_{Rdmax}	4480.7	[kN]
θ	30.0	[°]
sezione	duttile	
a_l	92.1	[cm]

materiali

calcestruzzo

R_{ck}	**30**	[MPa]
f_{ck}	24.9	[MPa]
γ_c	**1.5**	
α_{cc}	**0.85**	
f_{cd}	14.1	[MPa]
ν	**0.5**	
ε_{c2}	**2.0**	[‰]
ε_{cu2}	**3.5**	[‰]
α_e	**15.0**	
k_t	**0.6**	
k_1	**0.8**	
k_3	**3.4**	
k_4	**0.425**	

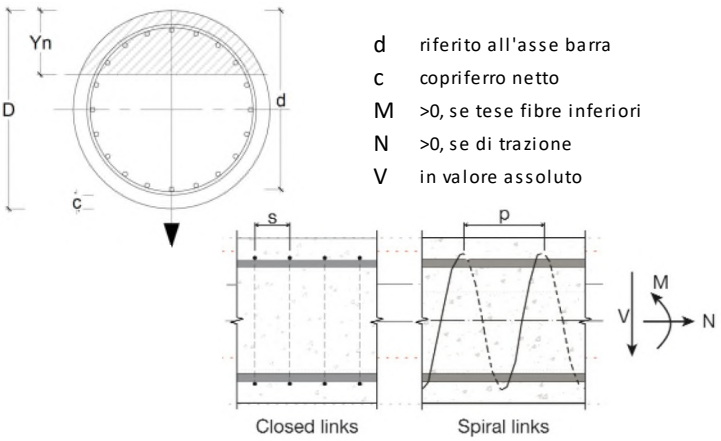
acciaio

f_{yk}	**450**	[MPa]
γ_s	**1.15**	
f_{yd}	391.3	[MPa]
E_s	**200000**	[MPa]
ε_{uk}	**10**	[‰]

valori limite

0,55 f_{ck}	13.7	[MPa]
0,75 f_{yk}	337.5	[MPa]
$w_{k,lim}$	**0.2**	[mm]

legenda



d	riferito all'asse barra
c	copriferro netto
M	>0, se tese fibre inferiori
N	>0, se di trazione
V	in valore assoluto

Tabella 8-15: Verifica del palo D=1500mm; trazione e armatura massima

geometria

sezione trasversale

D [cm]	c [cm]	d [cm]	passo [cm]	interferro [cm]
150	**6,0**	141,1	14,8	11,8

armatura longitudinale

n_{barre}	ϕ [mm]	r_i [cm]	A_{sl} [cm^2]	c_i [cm]
28	**30**	66,10	197,92	8,90

armatura a taglio

Tipo	ϕ [mm]	p [cm]	A_{sw} [cm^2]
spirale	**14**	**10**	3,08

sollecitazioni e risultati

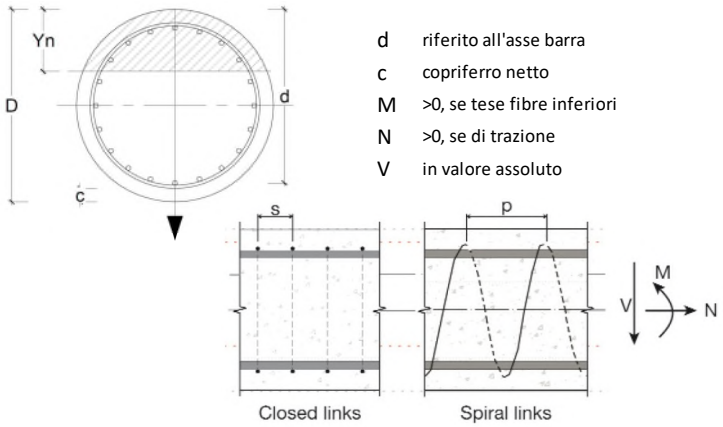
SLE			SLU		
M_{Ek}	**458,0**	[kNm]	M_{Ed}	**2406,4**	[kNm]
N_{Ek}	**-1634,6**	[kN]	N_{Ed}	**-164,6**	[kN]
			V_{Ed}	**1515,3**	[kN]
momento di cracking			**presso-flessione**		
M_{cr}	1221,6	[kNm]	M_{Rd}	4379,1	[kNm]
quota asse neutro			FS	1,82	
y_n	126,46	[cm]	**taglio**		
tensioni e fessure			V_{Rdc}	640,3	[kN]
$\sigma_{c,min}$	-1,9	[MPa]	predisporre armatura a taglio		
$\sigma_{s,min}$	-26,7	[MPa]			
$\sigma_{s,max}$	3,3	[MPa]	V_{Rds}	1926,5	[kN]
			V_{Rdmax}	4480,7	[kN]
k_2	0,5		θ	30,0	[°]
$\varepsilon_{sm}-\varepsilon_{cm}$	-	[‰]	sezione	duttile	
$s_{r,max}$	-	[cm]	a_l	92,1	[cm]
w_k	-	[mm]			

materiali

calcestruzzo			acciaio		
R_{ck}	**30**	[MPa]	f_{yk}	**450**	[MPa]
f_{ck}	24,9	[MPa]	γ_s	**1,15**	
γ_c	**1,5**		f_{yd}	391,3	[MPa]
α_{cc}	**0,85**		E_s	**200000**	[MPa]
f_{cd}	14,1	[MPa]	ε_{uk}	**10**	[‰]
ν	**0,5**				
ε_{c2}	**2,0**	[‰]			
ε_{cu2}	**3,5**	[‰]			
α_e	**15,0**				
k_t	**0,6**				
k_1	**0,8**				
k_3	**3,4**				
k_4	**0,425**				

valori limite		
0,55 f_{ck}	13,7	[MPa]
0,75 f_{yk}	337,5	[MPa]
$w_{k,lim}$	**0,2**	[mm]

legenda



d	riferito all'asse barra
c	copriferro netto
M	>0, se tese fibre inferiori
N	>0, se di trazione
V	in valore assoluto

Tabella 8-16: Verifica del palo D=1500mm; momento massimo e armatura massima

geometria

sezione trasversale

D [cm]	c [cm]	d [cm]	passo [cm]	interferro [cm]
150	**6,0**	141,3	14,9	12,3

armatura longitudinale

n_{barre}	ϕ [mm]	r_i [cm]	A_{sl} [cm^2]	c_i [cm]
28	**26**	66,30	148,66	8,70

armatura a taglio

Tipo	ϕ [mm]	p [cm]	A_{sw} [cm^2]
spirale	**14**	**20**	3,08

sollecitazioni e risultati

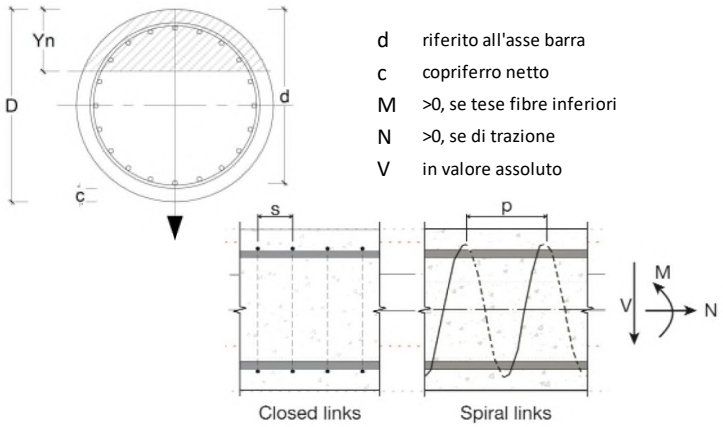
SLE			SLU		
M_{Ek}	**458,0**	[kNm]	M_{Ed}	**253,0**	[kNm]
N_{Ek}	**-1634,6**	[kN]	N_{Ed}	**3408,6**	[kN]
			V_{Ed}	**300,0**	[kN]
momento di cracking			**presso-flessione**		
M_{cr}	1171,5	[kNm]	M_{Rd}	1522,0	[kNm]
quota asse neutro			FS	6,02	
y_n	125,14	[cm]	**taglio**		
tensioni e fessure			V_{Rdc}	78,5	[kN]
$\sigma_{c,min}$	-2,0	[MPa]	predisporre armatura a taglio		
$\sigma_{s,min}$	-28,1	[MPa]			
$\sigma_{s,max}$	3,9	[MPa]	V_{Rds}	963,8	[kN]
			V_{Rdmax}	4487,1	[kN]
k_2	0,5		θ	30,0	[°]
$\varepsilon_{sm}-\varepsilon_{cm}$	-	[‰]	sezione	duttile	
$s_{r,max}$	-	[cm]	a_l	90,2	[cm]
w_k	-	[mm]			

materiali

calcestruzzo			acciaio		
R_{ck}	**30**	[MPa]	f_{yk}	**450**	[MPa]
f_{ck}	24,9	[MPa]	γ_s	**1,15**	
γ_c	**1,5**		f_{yd}	391,3	[MPa]
α_{cc}	**0,85**		E_s	**200000**	[MPa]
f_{cd}	14,1	[MPa]	ε_{uk}	**10**	[‰]
ν	**0,5**				
ε_{c2}	**2,0**	[‰]			
ε_{cu2}	**3,5**	[‰]			
α_e	**15,0**				
k_t	**0,6**				
k_1	**0,8**				
k_3	**3,4**				
k_4	**0,425**				

valori limite		
0,55 f_{ck}	13,7	[MPa]
0,75 f_{yk}	337,5	[MPa]
$w_{k,lim}$	**0,2**	[mm]

legenda



d	riferito all'asse barra
c	copriferro netto
M	>0, se tese fibre inferiori
N	>0, se di trazione
V	in valore assoluto

Tabella 8-17: Verifica del palo D=1500mm; armatura media

geometria

sezione trasversale

D [cm]	c [cm]	d [cm]	passo [cm]	interferro [cm]
150	**6,0**	141,5	14,9	12,7

armatura longitudinale

n_{barre}	ϕ [mm]	r_i [cm]	A_{sl} [cm^2]	c_i [cm]
28	**22**	66,50	106,44	8,50

armatura a taglio

Tipo	ϕ [mm]	p [cm]	A_{sw} [cm^2]
spirale	**14**	**20**	3,08

sollecitazioni e risultati

SLE			SLU		
M_{Ek}	**458,0**	[kNm]	M_{Ed}	**50,0**	[kNm]
N_{Ek}	**-1634,6**	[kN]	N_{Ed}	**3408,6**	[kN]
			V_{Ed}	**300,0**	[kN]

momento di cracking

M_{cr}	1127,7	[kNm]

quota asse neutro

y_n	123,81	[cm]

tensioni e fessure

$\sigma_{c,min}$	-2,1	[MPa]
$\sigma_{s,min}$	-29,4	[MPa]
$\sigma_{s,max}$	4,5	[MPa]
k_2	0,5	
$\varepsilon_{sm}-\varepsilon_{cm}$	-	[‰]
$s_{r,max}$	-	[cm]
w_k	-	[mm]

presso-flessione

M_{Rd}	494,2	[kNm]
FS	9,88	

taglio

V_{Rdc}	19,4	[kN]
predisporre armatura a taglio		
V_{Rds}	965,2	[kN]
V_{Rdmax}	4493,4	[kN]
θ	30,0	[°]
sezione	duttile	
a_l	90,4	[cm]

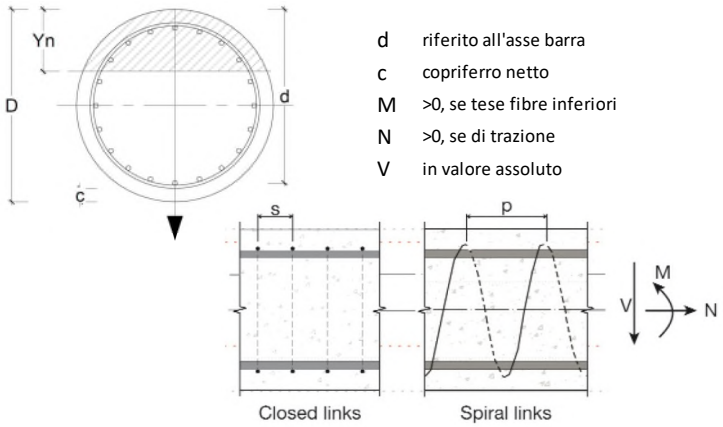
materiali

calcestruzzo			acciaio		
R_{ck}	**30**	[MPa]	f_{yk}	**450**	[MPa]
f_{ck}	24,9	[MPa]	γ_s	**1,15**	
γ_c	**1,5**		f_{yd}	391,3	[MPa]
α_{cc}	**0,85**		E_s	**200000**	[MPa]
f_{cd}	14,1	[MPa]	ε_{uk}	**10**	[‰]
ν	**0,5**				
ε_{c2}	**2,0**	[‰]			
ε_{cu2}	**3,5**	[‰]			
α_e	**15,0**				
k_t	**0,6**				
k_1	**0,8**				
k_3	**3,4**				
k_4	**0,425**				

valori limite

0,55 f_{ck}	13,7	[MPa]
0,75 f_{yk}	337,5	[MPa]
$w_{k,lim}$	**0,2**	[mm]

legenda



d	riferito all'asse barra
c	copriferro netto
M	>0, se tese fibre inferiori
N	>0, se di trazione
V	in valore assoluto

Tabella 8-18: Verifica del palo D=1500mm; armatura minima

8.1.1 Schemi armatura e incidenza del palo

Nelle Figura 8-1 e Figura 8-2 sono schematizzate le armature correnti e le armature di taglio. Nella Tabella 8-19 l'incidenza di armatura valutata con una percentuale di incremento pari al 10% dovuta a ganci di sollevamento, armature di confezionamento, legatura, ecc.; si considera una incidenza di progetto pari a 155kg/m^3.

Tabella ferri						
ARMATURA PALO LUNGH. = 25 m – P17 e P18						
POS.	**N.**	**DIAM.**	**LUNG. (cm)**	**P.U.**	**LUNG. TOT. (cm)**	**PESO (kg)**
1	28	30	1200	5,549	33600	1864
2	28	26	1200	4,168	33600	1400
3	28	22	620	2,984	17360	518
4	1	14	43784	1,208	43784	529
5	1	14	21910	1,208	21910	265
6	1	14	9022	1,208	9022	109
7	17	30	450	5,549	7650	424
					Kg	**5110**

AREA PALO (m^2)	**1,77**
LUNGH. PALO (m)	**25,00**
VOLUME (m^3)	**44,16**
INCIDENZA DI CALCOLO (kg/m^3)	**128,2**
Incremento percentuale % (*)	**10**
INCIDENZA DI PROGETTO (kg/m^3)	**~155**

(*) incremento in % dovuto a ganci di sollevamento, armature di confezionamento, legature, ecc.

Tabella 8-19 Incidenza armatura

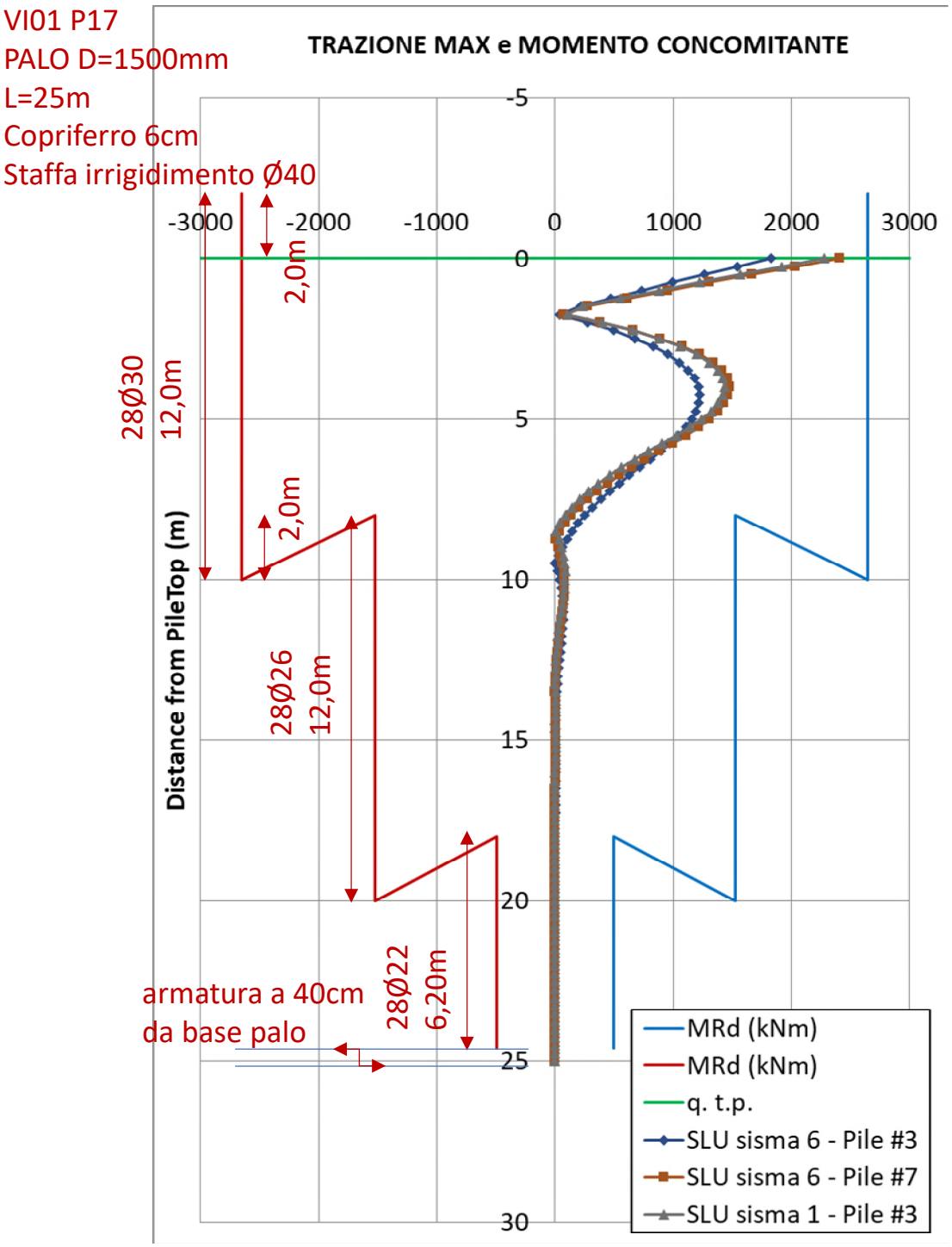


Figura 8-1: VI01 P17 Schema armatura gabbie

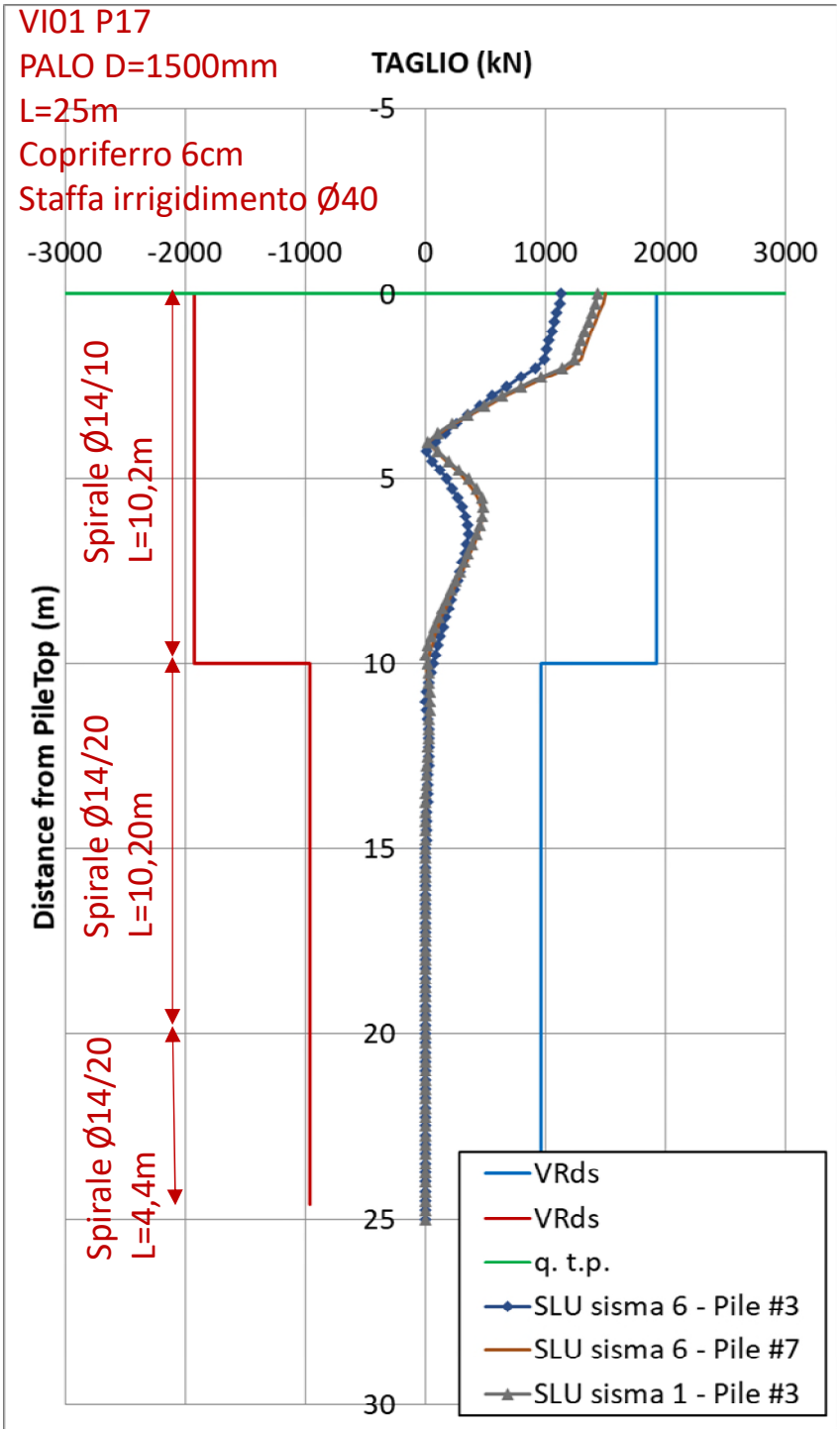


Figura 8-2: VI01 P17 Schema armatura a taglio

9 VERIFICHE ALLO SLU DI TIPO GEOTECNICO

9.1 VERIFICA DI CAPACITÀ PORTANTE DEL PALO SINGOLO

La verifica di capacità portante verticale per il singolo palo è stata condotta in accordo ai criteri esposti nel documento di cui al ref. 2).

Di seguito si riporta, per i pali di fondazione di lunghezza L = 25 m, la capacità portante a compressione (Rc,d) e a trazione (Rt,d), secondo l'approccio 2 (A1+M1+R3).

I carichi assiali massimi agenti sui pali sono riassunti nella seguente tabella:

Massima compressione, Ndc, max [kN]	8554.3 (SLV)
Massima trazione, Ndt, max [kN]	-3409.0 (SLV)

Tabella 20: Combinazione SLU e SLV: Sollecitazioni massime di compressione e trazione

Si verifica inoltre che lo sforzo assiale massimo in esercizio (Tabella 19) sia inferiore della resistenza laterale di calcolo (Rc,s,k) divisa per un fattore pari a 1.25.

Massima compressione, NdcSLE, max [kN]	1634.6 (SLE)

Tabella 21: Combinazione SLE: Sollecitazione massima di compressione

In Tabella 22 si riporta, per i pali di lunghezza 25.0 m, la capacità portante a compressione (Rc,d) e a trazione (Rt,d) del palo isolato secondo l'Approccio 2 (A1+M1+R3).

Combinazione SLU A1+M1+R3 (metodo AGI)						
L_{palo}	$Q_{l\text{-}c,k}$	$Q_{b\text{-}c,k}$	$Q_{l\text{-}c,d}$	$Q_{b\text{-}c,d}$	ΔW_{palo}	$Q_{c,d}$
m	kN	kN	kN	kN	kN	kN
25,0	12526,5	7025,1	7261,71	3469,20	861,48	9869,43

Comb. SLU A1+M1+R3 (metodo AGI)				
L_{palo}	$Q_{l\text{-}t,k}$	$Q_{l\text{-}t,d}$	ΔW_{palo}	$Q_{t,d}$
m	kN	kN	kN	kN
25,0	12526,5	6680,78	662,68	7343,46

Tabella 22: Capacità portante a compressione e a trazione dei pali di fondazione secondo l'Approccio 2 (A1+M1+R3).

9.1.1 Capacità portante verticale del palo singolo

Stratigrafia e parametri geotecnici

Dati di input		
Diametro Palo	1.5	m
Sovraccarico efficace	57.9	kPa
Hw da testa palo	0.0	m
γ acqua	10.0	kN/m^3
Δz palo da p.c. originario	3.65	m
N° diametri per qb	4.0	(-)
L palo fuori terra	0.0	(m)

Peso calcestruzzo	25.0	kN/m^3
Pressione max sul cls.	11.3	MPa

Caratteristiche del terreno

Profondità (m)		Strato	Terreno	γ_{tot}	Nspt		c_u (kPa)		Δ-z	ϕ°		Nq	
da	a	No.	(S,SL,G,A)	kN/m3	da	a	da	a	(m)	da	a	da	a
0.0	1.85	1	S	19.0					1.00	30	30	9	9
1.9	21.35	2	A	20.5			200	200	1.00				
21.4	45.00	3	A	20.5			400	400	1.00				

Verticali di indagine	ξ_3	ξ_4
5	1.50	1.34

Scelta di ξ	ξ
3	1.5

Combinazione SLE (metodo AGI)						
L_{palo}	$\tau_{s\ calcolo}$	$q_{lub\ calcolo}$	$R_{c,s,k}$	$R_{c,b,k}$	ΔW_{palo}	$Q_{c,s,k}/1.25$
m	kPa	kPa	kN	kN	kN	kN
1.0	21.6	601.7	101.8	1063.2	26.5	54.9
1.9	24.5	670.5	199.8	1184.9	49.0	110.8
1.9	25.8	670.5	199.8	1184.9	49.0	110.8
2.0	106.1	754.7	274.8	1333.7	53.0	166.8
3.0	106.1	1316.0	774.6	2325.6	79.5	540.2
4.0	106.1	1877.3	1274.5	3317.6	106.0	913.5
5.0	106.1	2438.7	1774.3	4309.5	132.5	1286.9
6.0	106.1	3000.0	2274.1	5301.4	159.0	1660.3
7.0	106.1	3000.0	2773.9	5301.4	185.6	2033.6
8.0	106.1	3000.0	3273.8	5301.4	212.1	2407.0
9.0	106.1	3000.0	3773.6	5301.4	238.6	2780.3
10.0	106.1	3000.0	4273.4	5301.4	265.1	3153.7
11.0	106.1	3000.0	4773.2	5301.4	291.6	3527.0
12.0	106.1	3000.0	5273.1	5301.4	318.1	3900.4
13.0	106.1	3000.0	5772.9	5301.4	344.6	4273.7
14.0	106.1	3000.0	6272.7	5301.4	371.1	4647.1
15.0	106.1	3000.0	6772.5	5301.4	397.6	5020.4
16.0	106.1	3000.0	7272.4	5301.4	424.1	5393.8
17.0	106.1	3000.0	7772.2	5301.4	450.6	5767.1
18.0	106.1	3000.0	8272.0	5301.4	477.1	6140.5
19.0	106.1	3000.0	8771.8	5301.4	503.6	6513.8
20.0	106.1	3000.0	9271.7	5301.4	530.1	6887.2
21.0	106.1	3000.0	9771.5	5301.4	556.7	7260.5
21.4	106.1	3000.0	9946.4	5301.4	565.9	7391.2
21.4	106.1	3000.0	9946.4	5301.4	565.9	7391.2
22.0	150.0	3173.7	10405.9	5608.4	583.2	7741.5
23.0	150.0	3440.9	11112.7	6080.6	609.7	8280.5
24.0	150.0	3708.2	11819.6	6552.9	636.2	8819.5
25.0	150.0	3975.4	12526.5	7025.1	662.7	9358.5
26.0	150.0	4242.6	13233.3	7497.4	689.2	9897.5
27.0	150.0	4242.6	13940.2	7497.4	715.7	10436.4
28.0	150.0	4242.6	14647.0	7497.4	742.2	10975.4
29.0	150.0	4242.6	15353.9	7497.4	768.7	11514.4
30.0	150.0	4242.6	16060.7	7497.4	795.2	12053.4
31.0	150.0	4242.6	16767.6	7497.4	821.7	12592.4
32.0	150.0	4242.6	17474.5	7497.4	848.2	13131.3
33.0	150.0	4242.6	18181.3	7497.4	874.7	13670.3
34.0	150.0	4242.6	18888.2	7497.4	901.2	14209.3
35.0	150.0	4242.6	19595.0	7497.4	927.8	14748.3
36.0	150.0	4242.6	20301.9	7497.4	954.3	15287.3
37.0	150.0	4242.6	21008.8	7497.4	980.8	15826.2
38.0	150.0	4242.6	21715.6	7497.4	1007.3	16365.2
39.0	150.0	4242.6	22422.5	7497.4	1033.8	16904.2
40.0	150.0	4242.6	23129.3	7497.4	1060.3	17443.2

Combinazione SLU A1+M1+R3 (metodo AGI)						
L_{palo}	$Q_{l\text{-}c,k}$	$Q_{b\text{-}c,k}$	$Q_{l\text{-}c,d}$	$Q_{b\text{-}c,d}$	ΔW_{palo}	$Q_{c,d}$
m	kN	kN	kN	kN	kN	kN
1,0	101,8	1063,2	59,00	525,04	34,46	549,58
1,9	199,8	1184,9	115,85	585,12	63,75	637,23
1,9	199,8	1184,9	115,85	585,12	63,75	637,23
2,0	274,8	1333,7	159,32	658,60	68,92	749,00
3,0	774,6	2325,6	449,07	1148,45	103,38	1494,14
4,0	1274,5	3317,6	738,82	1638,30	137,84	2239,28
5,0	1774,3	4309,5	1028,58	2128,15	172,30	2984,42
6,0	2274,1	5301,4	1318,33	2617,99	206,76	3729,57
7,0	2773,9	5301,4	1608,08	2617,99	241,22	3984,86
8,0	3273,8	5301,4	1897,84	2617,99	275,67	4240,15
9,0	3773,6	5301,4	2187,59	2617,99	310,13	4495,45
10,0	4273,4	5301,4	2477,34	2617,99	344,59	4750,74
11,0	4773,2	5301,4	2767,10	2617,99	379,05	5006,04
12,0	5273,1	5301,4	3056,85	2617,99	413,51	5261,33
13,0	5772,9	5301,4	3346,60	2617,99	447,97	5516,62
14,0	6272,7	5301,4	3636,36	2617,99	482,43	5771,92
15,0	6772,5	5301,4	3926,11	2617,99	516,89	6027,21
16,0	7272,4	5301,4	4215,86	2617,99	551,35	6282,51
17,0	7772,2	5301,4	4505,61	2617,99	585,81	6537,80
18,0	8272,0	5301,4	4795,37	2617,99	620,27	6793,09
19,0	8771,8	5301,4	5085,12	2617,99	654,73	7048,39
20,0	9271,7	5301,4	5374,87	2617,99	689,19	7303,68
21,0	9771,5	5301,4	5664,63	2617,99	723,65	7558,98
21,4	9946,4	5301,4	5766,04	2617,99	735,71	7648,33
21,4	9946,4	5301,4	5766,04	2617,99	735,71	7648,33
22,0	10405,9	5608,4	6032,39	2769,58	758,11	8043,87
23,0	11112,7	6080,6	6442,17	3002,78	792,56	8652,39
24,0	11819,6	6552,9	6851,94	3235,99	827,02	9260,91
25,0	12526,5	7025,1	7261,71	3469,20	861,48	9869,43
26,0	13233,3	7497,4	7671,49	3702,40	895,94	10477,95
27,0	13940,2	7497,4	8081,26	3702,40	930,40	10853,26
28,0	14647,0	7497,4	8491,03	3702,40	964,86	11228,57
29,0	15353,9	7497,4	8900,80	3702,40	999,32	11603,89
30,0	16060,7	7497,4	9310,58	3702,40	1033,78	11979,20
31,0	16767,6	7497,4	9720,35	3702,40	1068,24	12354,51
32,0	17474,5	7497,4	10130,12	3702,40	1102,70	12729,83
33,0	18181,3	7497,4	10539,90	3702,40	1137,16	13105,14
34,0	18888,2	7497,4	10949,67	3702,40	1171,62	13480,45
35,0	19595,0	7497,4	11359,44	3702,40	1206,08	13855,77
36,0	20301,9	7497,4	11769,22	3702,40	1240,54	14231,08
37,0	21008,8	7497,4	12178,99	3702,40	1275,00	14606,39
38,0	21715,6	7497,4	12588,76	3702,40	1309,46	14981,71
39,0	22422,5	7497,4	12998,53	3702,40	1343,91	15357,02
40,0	23129,3	7497,4	13408,31	3702,40	1378,37	15732,34

Comb. SLU A1+M1+R3 (metodo AGI)				
L_{palo}	$Q_{l\text{-}t,k}$	$Q_{l\text{-}t,d}$	ΔW_{palo}	$Q_{t,d}$
m	kN	kN	kN	kN
1,0	101,8	54,28	26,51	80,79
1,9	199,8	106,59	49,04	155,62
1,9	199,8	106,59	49,04	155,62
2,0	274,8	146,57	53,01	199,59
3,0	774,6	413,14	79,52	492,67
4,0	1274,5	679,72	106,03	785,75
5,0	1774,3	946,29	132,54	1078,83
6,0	2274,1	1212,86	159,04	1371,91
7,0	2773,9	1479,44	185,55	1664,99
8,0	3273,8	1746,01	212,06	1958,07
9,0	3773,6	2012,58	238,56	2251,15
10,0	4273,4	2279,15	265,07	2544,23
11,0	4773,2	2545,73	291,58	2837,31
12,0	5273,1	2812,30	318,09	3130,39
13,0	5772,9	3078,87	344,59	3423,47
14,0	6272,7	3345,45	371,10	3716,55
15,0	6772,5	3612,02	397,61	4009,63
16,0	7272,4	3878,59	424,12	4302,71
17,0	7772,2	4145,17	450,62	4595,79
18,0	8272,0	4411,74	477,13	4888,87
19,0	8771,8	4678,31	503,64	5181,95
20,0	9271,7	4944,88	530,14	5475,03
21,0	9771,5	5211,46	556,65	5768,11
21,4	9946,4	5304,76	565,93	5870,69
21,4	9946,4	5304,76	565,93	5870,69
22,0	10405,9	5549,80	583,16	6132,96
23,0	11112,7	5926,79	609,67	6536,46
24,0	11819,6	6303,78	636,17	6939,96
25,0	12526,5	6680,78	662,68	7343,46
26,0	13233,3	7057,77	689,19	7746,95
27,0	13940,2	7434,76	715,69	8150,45
28,0	14647,0	7811,75	742,20	8553,95
29,0	15353,9	8188,74	768,71	8957,45
30,0	16060,7	8565,73	795,22	9360,95
31,0	16767,6	8942,72	821,72	9764,45
32,0	17474,5	9319,71	848,23	10167,94
33,0	18181,3	9696,70	874,74	10571,44
34,0	18888,2	10073,70	901,24	10974,94
35,0	19595,0	10450,69	927,75	11378,44
36,0	20301,9	10827,68	954,26	11781,94
37,0	21008,8	11204,67	980,77	12185,43
38,0	21715,6	11581,66	1007,27	12588,93
39,0	22422,5	11958,65	1033,78	12992,43
40,0	23129,3	12335,64	1060,29	13395,93

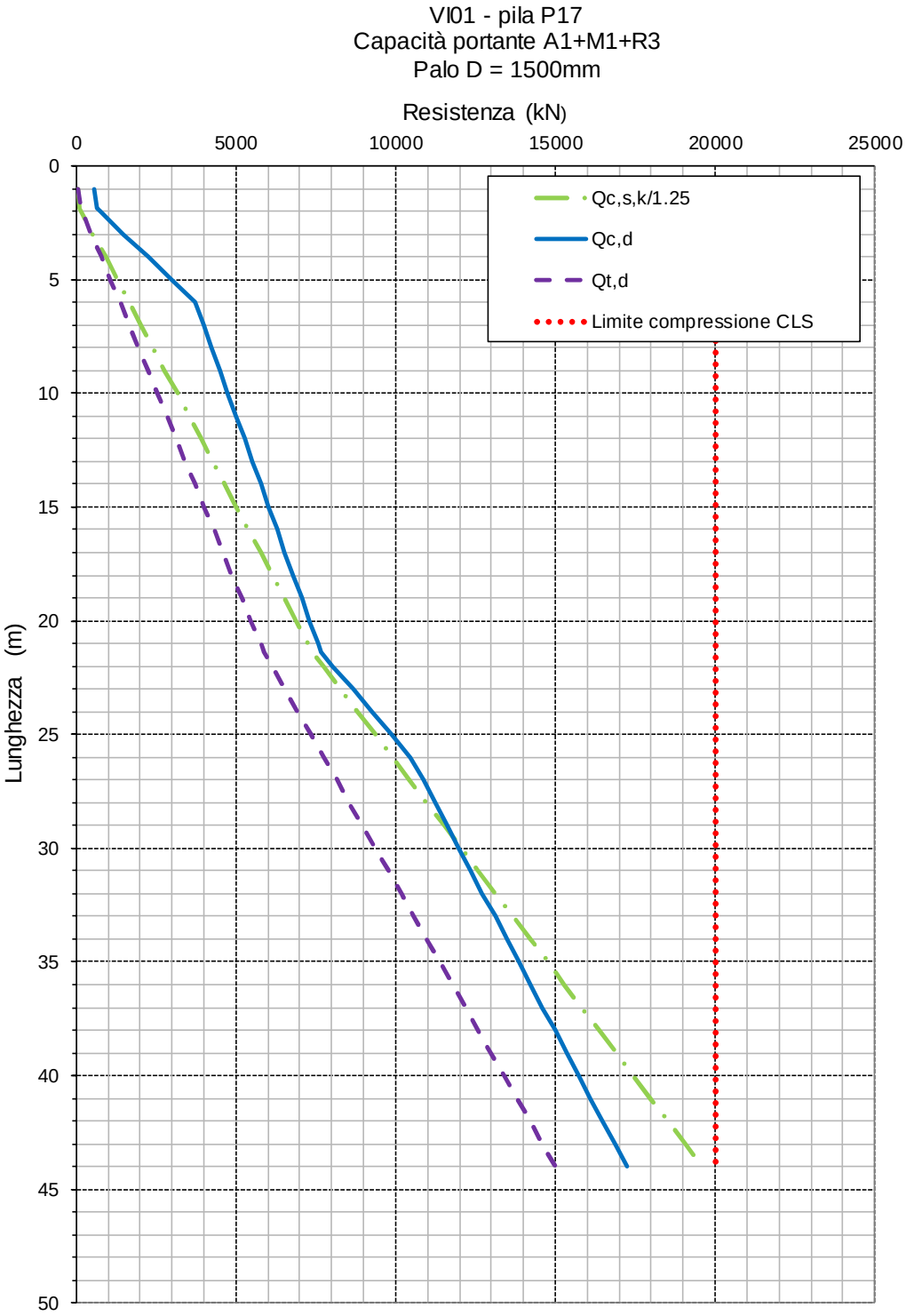


Figura 9-1: Capacità portante del palo singolo

9.1.2 Verifica di capacità portante verticale del gruppo di pali

La verifica di capacità portante verticale del blocco è stata condotta in accordo ai criteri descritti nel documento di cui al Ref. 2) §7.1.
Nella seguente tabella si riporta la capacità portante del blocco valutata secondo l'Approccio 2 (A1+M1+R3).

CAPACITA' PORTANTE VERTICALE GRUPPI DI PALI				
B	10.5		m	larghezza pozzo
L	10.5		m	lunghezza pozzo
D	25		m	profondità pozzo
i	4.5		m	interasse pali
n°	9			numero dei pali
γ_R cap.port.	2.3			coefficiente sicurezza globale per capacità portante
ξ3	1.5			fattore di correlazione in base alle verticali indagate
γs	1.15			coefficiente di resistenza laterale
γb	1.35			coefficiente di resistenza base
Cu_b,calc	400		kPa	coesione non drenata di calcolo, base
Cu_b,d	198		kPa	coesione non drenata di progetto, base
Cu_s,i	200	400	kPa	coesione strato i
di	21.35	3.65	m	altezza strato i-esimo
Cu_s,calc	229		kPa	coesione non drenata di calcolo, laterale
Cu_s,d	133		kPa	coesione non drenata di progetto, laterale
As	1050		m^2	area laterale
Ab	110		m^2	area base
S_block	1			fattore forma
Nc	5.14			fattore di portanza alla base
Rblock,c,d	109342		kN	resistenza di progetto
Valutazione alternativa dell'Area di Base				
Ab,diafr	15.90		m^2	area di impronta dei soli pali o pannelli
Rpunz,c,d	67681		kN	Resistenza di progetto con area di base
Verifica:				
N slu, max	44651.6		kN	
FSblock	2.45		ok	
FSpunz	1.52		ok	

Tabella 23: Capacità portante del blocco (Approccio 2: A1+M1+R3)

9.1.1 Verifica di capacità portante orizzontale del gruppo di pali

La verifica di capacità portante orizzontale del gruppo di pali è stata condotta con i criteri descritti nel documento di cui al Ref. 2) §6.2, con i metodi basati sulle curve p-y.

Considerata la presenza di successioni stratigrafiche abbastanza articolate, con contrasti di rigidezza anche marcati e caratteristiche diverse delle varie unità geotecniche, si è fatto uso del programma FEM non lineare LPile, considerando negli strati di terreno curve p-y non lineari, definibili lungo il fuso del palo, e opportunamente ridotte secondo il coefficiente parziale $\xi \times \gamma_T$.

Si ricava una curva "pushover" del palo singolo: incrementando progressivamente il carico orizzontale applicato alla testa del palo, fino al raggiungimento del collasso, vale a dire della completa plasticizzazione del terreno. Tale plasticizzazione si rende "visibile" attraverso il cambiamento del comportamento deformativo del palo stesso, al raggiungimento del "plateau" di resistenza.

Nella seguente Figura 9-2 è illustrata la curva push-over ottenuta per il palo in oggetto, con il vincolo di invastro, al crescere dell'azione H applicata alla testa dello stesso.

Il taglio massimo agente è pari a $T_{longSLV}$ = 1515.3 kN.

La verifica a capacità portante orizzontale risulta soddisfatta, poiché il carico limite Hlim = 4416 kN risulta superiore al valore di progetto.

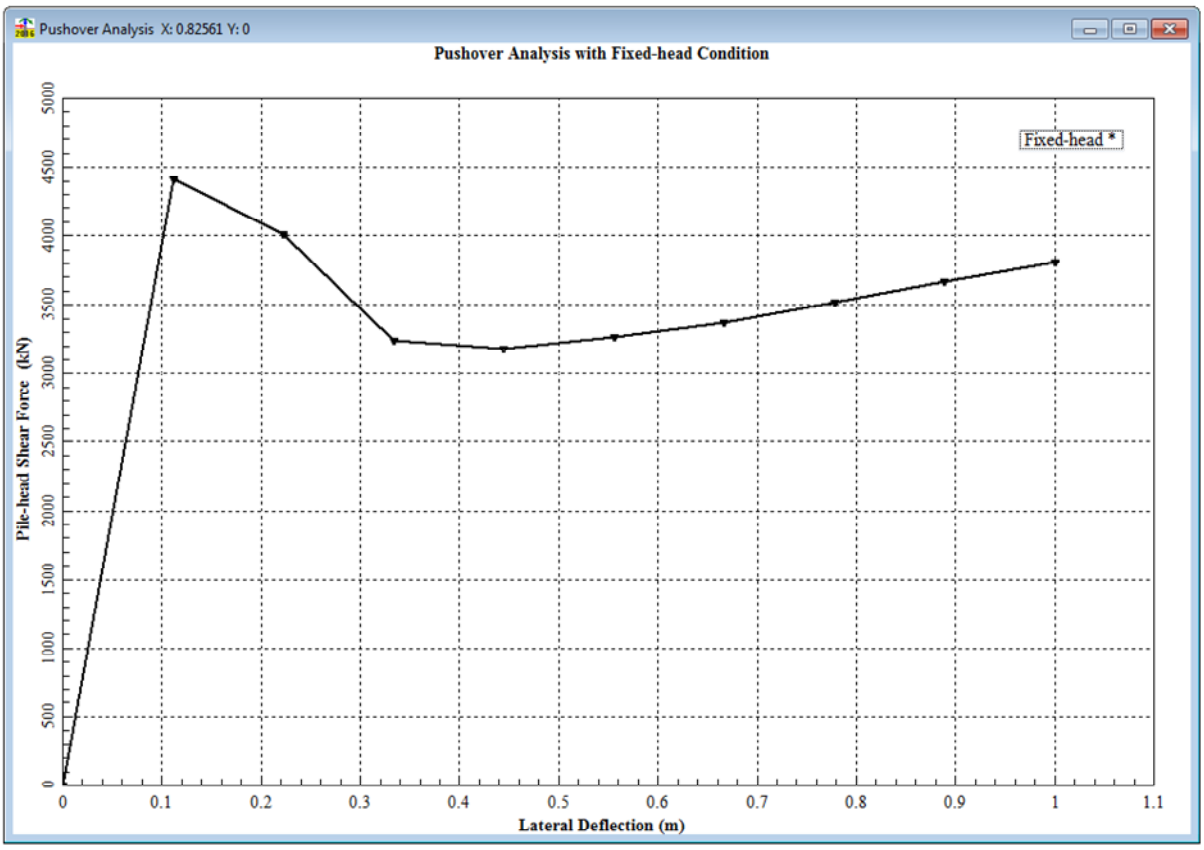


Figura 9-2: Analisi push-over palo

10 DIMENSIONAMENTO E VERIFICA DEL PLINTO DI FONDAZIONE

10.1 DESCRIZIONE DEL MODELLO

La platea di fondazione ha le seguenti dimensioni 12 m x 12 m x 2,5 m, con un ricoprimento minimo di 1,15 m; la platea presenta 9 pali.

Il dimensionamento a flessione e taglio del plinto di fondazione viene fatta a filo della pila, in modo da valutare le massime sollecitazioni, Figura 10.1.

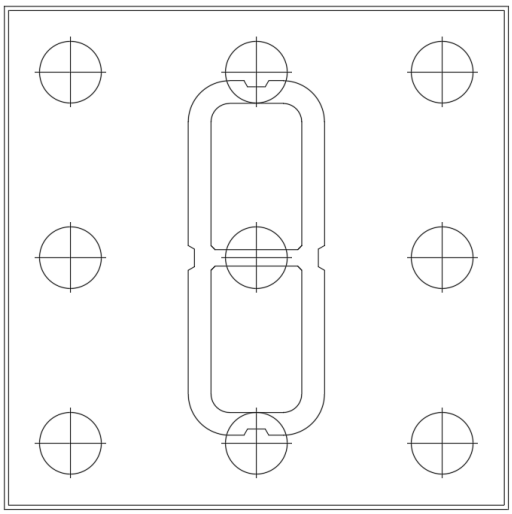


Figura 10.1 Pianta del plinto

La platea di fondazione è stata modellata mediante il software SAP2000, con elementi shell.

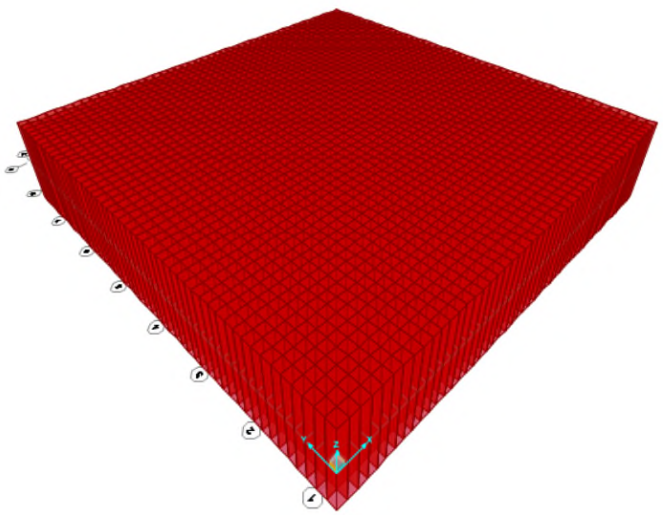


Figura 10.2 Modello numerico

A partire dalle azioni interne delle fondazioni profonde, definiti precedentemente, è stato possibile caricare la platea in esame, considerando il carico concentrato proveniente dalle differenti combinazioni per ogni palo nel proprio baricentro.

La platea è stata vincolata in corrispondenza del fusto pila attraverso dei vincoli traslazionali che non interrompono la continuità del momento, Figura 10.3.

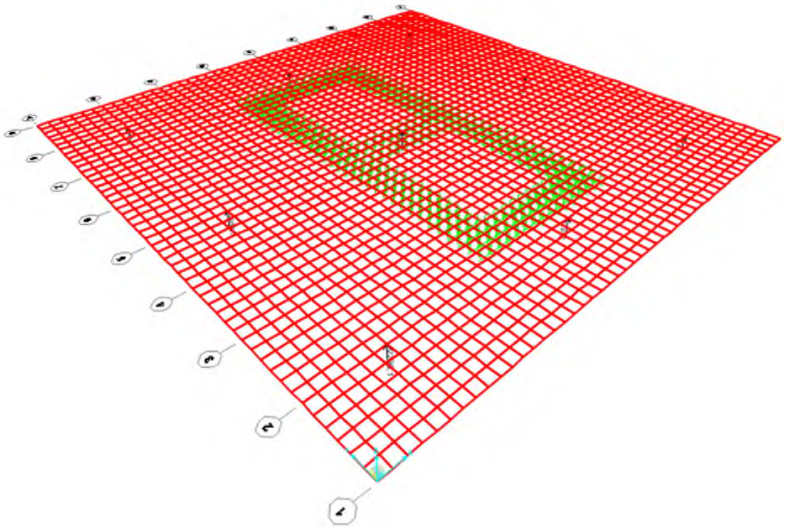


Figura 10.3 Modello numerico con le condizioni al contorno

10.1.1 Combinazioni e carichi

Le combinazioni introdotte nel modello numerico ad elementi finiti sono caratterizzate da non avere coefficienti di amplificazione per i vari Stati Limite, in quanto gli scarichi dei pali considerano già tale amplificazione.

Sono state considerate:

10 Combinazioni SLV, stato limite di salvaguardia della vita;

6 Combinazioni SLU, stato limite ultimo;

4 Combinazioni SLE-R, stato limite di esercizio caratteristico.

Gli scarichi sui pali sono stati quelli determinati attraverso il software Group come definito al paragrafo7.1.

Ai carichi sopra citati, viene aggiunto il carico distribuito dato dal terreno di ricoprimento minimo, considerando tale carico permanente non strutturale.

Nello specifico, i carichi sui pali sono:

SLE-Caratteristica					
Point load	Combination	F [kN]	Point load	Combination	F [kN]
Palo1	Pali SLE1	3695,2	Palo1	Pali SLE2	3157,1
Palo2	Pali SLE1	4296,1	Palo2	Pali SLE2	3321,7
Palo3	Pali SLE1	4896,9	Palo3	Pali SLE2	3486,3
Palo4	Pali SLE1	3019,9	Palo4	Pali SLE2	2653,7
Palo5	Pali SLE1	3620,8	Palo5	Pali SLE2	2818,3
Palo6	Pali SLE1	4221,7	Palo6	Pali SLE2	2982,9
Palo7	Pali SLE1	2344,6	Palo7	Pali SLE2	2150,3

Palo8	Pali SLE1	2945,5	Palo8	Pali SLE2	2314,9
Palo9	Pali SLE1	3546,4	Palo9	Pali SLE2	2479,5
Palo1	Pali SLE3	3591,2	Palo1	Pali SLE4	2538,1
Palo2	Pali SLE3	4017,4	Palo2	Pali SLE4	3802,6
Palo3	Pali SLE3	4443,6	Palo3	Pali SLE4	5067
Palo4	Pali SLE3	2867,5	Palo4	Pali SLE4	2086,6
Palo5	Pali SLE3	3293,7	Palo5	Pali SLE4	3351,1
Palo6	Pali SLE3	3719,9	Palo6	Pali SLE4	4615,5
Palo7	Pali SLE3	2143,7	Palo7	Pali SLE4	1634,6
Palo8	Pali SLE3	2569,9	Palo8	Pali SLE4	2899,5
Palo9	Pali SLE3	2996,1	Palo9	Pali SLE4	4164

SLU					
Point load	Combination	F [kN]	Point load	Combination	F [kN]
Palo1	Pali SLU1	5734,5	Palo1	Pali SLU2	4535,2
Palo2	Pali SLU1	3900,6	Palo2	Pali SLU2	3975,3
Palo3	Pali SLU1	2066,7	Palo3	Pali SLU2	3415,4
Palo4	Pali SLU1	6404	Palo4	Pali SLU2	5521,2
Palo5	Pali SLU1	4570,1	Palo5	Pali SLU2	4961,3
Palo6	Pali SLU1	2736,1	Palo6	Pali SLU2	4401,4
Palo7	Pali SLU1	7073,5	Palo7	Pali SLU2	6507,1
Palo8	Pali SLU1	5239,5	Palo8	Pali SLU2	5947,3
Palo9	Pali SLU1	3405,6	Palo9	Pali SLU2	5387,4
Palo1	Pali SLU3	4846	Palo1	Pali SLU4	2726,2
Palo2	Pali SLU3	3973,5	Palo2	Pali SLU4	2482,9
Palo3	Pali SLU3	3101	Palo3	Pali SLU4	2239,6
Palo4	Pali SLU3	5833,8	Palo4	Pali SLU4	3472
Palo5	Pali SLU3	4961,3	Palo5	Pali SLU4	3228,7
Palo6	Pali SLU3	4088,8	Palo6	Pali SLU4	2985,4
Palo7	Pali SLU3	6821,6	Palo7	Pali SLU4	4217,9
Palo8	Pali SLU3	5949,1	Palo8	Pali SLU4	3974,6
Palo9	Pali SLU3	5076,6	Palo9	Pali SLU4	3731,3
Palo1	Pali SLU5	4048,1	Palo1	Pali SLU6	5734,5
Palo2	Pali SLU5	3430,3	Palo2	Pali SLU6	3900,6
Palo3	Pali SLU5	2812,5	Palo3	Pali SLU6	2066,7
Palo4	Pali SLU5	5104,7	Palo4	Pali SLU6	6404
Palo5	Pali SLU5	4487	Palo5	Pali SLU6	4570,1
Palo6	Pali SLU5	3869,2	Palo6	Pali SLU6	2736,1
Palo7	Pali SLU5	6161,4	Palo7	Pali SLU6	7073,5
Palo8	Pali SLU5	5543,6	Palo8	Pali SLU6	5239,5
Palo9	Pali SLU5	4925,8	Palo9	Pali SLU6	3405,6

SLV					
Point load	Combination	F [kN]	Point load	Combination	F [kN]
Palo1	Pali SLV1	6107,4	Palo1	Pali SLV2	458,73
Palo2	Pali SLV1	1478,4	Palo2	Pali SLV2	4909
Palo3	Pali SLV1	-3379,9	Palo3	Pali SLV2	8539,7
Palo4	Pali SLV1	7390,2	Palo4	Pali SLV2	-1037,1
Palo5	Pali SLV1	2835,9	Palo5	Pali SLV2	3541,3
Palo6	Pali SLV1	-2052	Palo6	Pali SLV2	7661,1
Palo7	Pali SLV1	8251,7	Palo7	Pali SLV2	-2426,7
Palo8	Pali SLV1	4176,9	Palo8	Pali SLV2	2173,7
Palo9	Pali SLV1	-655,59	Palo9	Pali SLV2	6502,4
Palo1	Pali SLV3	1,6774	Palo1	Pali SLV4	6575
Palo2	Pali SLV3	-1591,5	Palo2	Pali SLV4	7632,4
Palo3	Pali SLV3	-3058,9	Palo3	Pali SLV4	8435,7
Palo4	Pali SLV3	4351,5	Palo4	Pali SLV4	2283,7
Palo5	Pali SLV3	2869,6	Palo5	Pali SLV4	3534,1
Palo6	Pali SLV3	1358,9	Palo6	Pali SLV4	4784,5
Palo7	Pali SLV3	8086,8	Palo7	Pali SLV4	-2280,6
Palo8	Pali SLV3	7050,9	Palo8	Pali SLV4	-1004,4
Palo9	Pali SLV3	5569	Palo9	Pali SLV4	361,64
Palo1	Pali SLV5	4382,1	Palo1	Pali SLV6	1724
Palo2	Pali SLV5	5641,9	Palo2	Pali SLV6	282,28
Palo3	Pali SLV5	6901,8	Palo3	Pali SLV6	-1137,6
Palo4	Pali SLV5	3119,8	Palo4	Pali SLV6	2920,5
Palo5	Pali SLV5	4379,7	Palo5	Pali SLV6	1616,1
Palo6	Pali SLV5	5639,5	Palo6	Pali SLV6	164,59
Palo7	Pali SLV5	1857,6	Palo7	Pali SLV6	4116,9
Palo8	Pali SLV5	3117,4	Palo8	Pali SLV6	2814,9
Palo9	Pali SLV5	4377,2	Palo9	Pali SLV6	1498,4
Palo1	Pali SLV7	-405,57	Palo1	Pali SLV8	6720,3
Palo2	Pali SLV7	-1909,2	Palo2	Pali SLV8	7733,9
Palo3	Pali SLV7	-3322,6	Palo3	Pali SLV8	8545,5
Palo4	Pali SLV7	3991,2	Palo4	Pali SLV8	2344,7
Palo5	Pali SLV7	2563,9	Palo5	Pali SLV8	3607,9
Palo6	Pali SLV7	1078,9	Palo6	Pali SLV8	4871,1
Palo7	Pali SLV7	7865,1	Palo7	Pali SLV8	-2303,8
Palo8	Pali SLV7	6760,3	Palo8	Pali SLV8	-1015,8
Palo9	Pali SLV7	5333	Palo9	Pali SLV8	364,24
Palo1	Pali SLV9	6107,4	Palo1	Pali SLV10	458,73
Palo2	Pali SLV9	1478,4	Palo2	Pali SLV10	4909
Palo3	Pali SLV9	-3379,9	Palo3	Pali SLV10	8539,7
Palo4	Pali SLV9	7390,2	Palo4	Pali SLV10	-1037,1

Palo5	Pali SLV9	2835,9	Palo5	Pali SLV10	3541,3
Palo6	Pali SLV9	-2052	Palo6	Pali SLV10	7661,1
Palo7	Pali SLV9	8251,7	Palo7	Pali SLV10	-2426,7
Palo8	Pali SLV9	4176,9	Palo8	Pali SLV10	2173,7
Palo9	Pali SLV9	-655,59	Palo9	Pali SLV10	6502,4

10.2 SOLLECITAZIONI

10.2.1 Sollecitazioni SLV

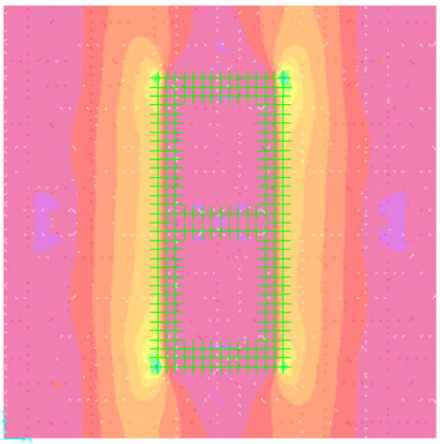


Figura 10.4 M11 max SLV

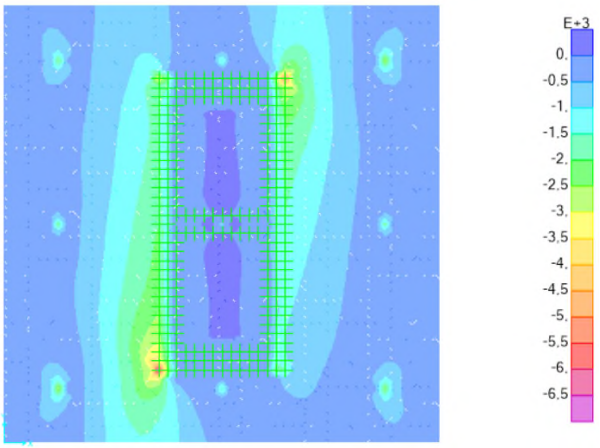


Figura 10.5 M11 min SLV

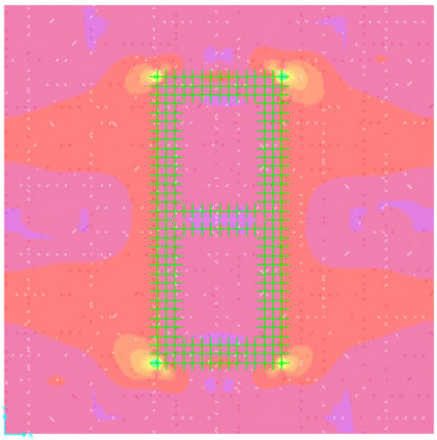


Figura 10.6 M22 max SLV

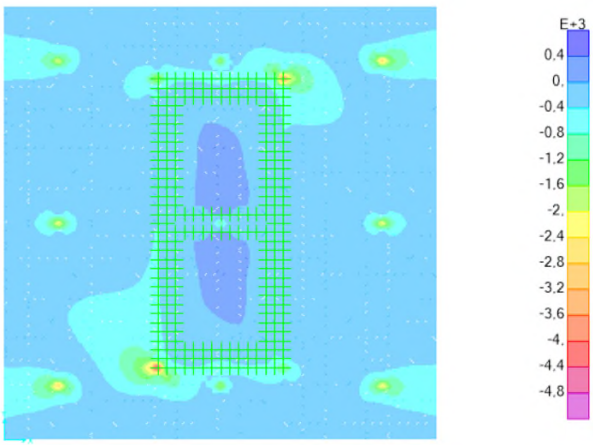


Figura 10.7 M22 min SLV

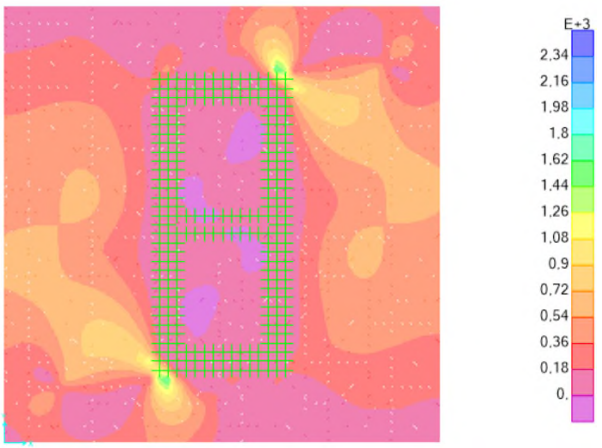


Figura 10.8 M12 max SLV

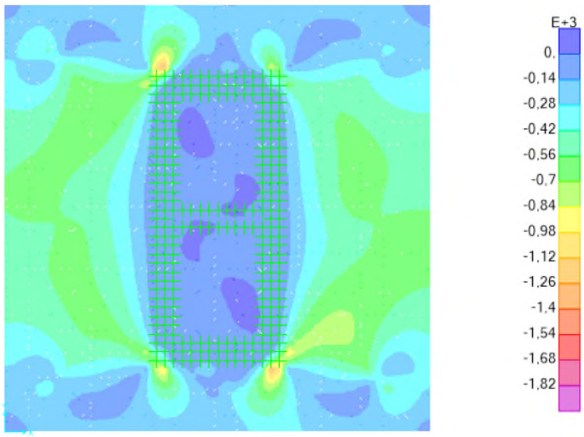


Figura 10.9 M12 min SLV

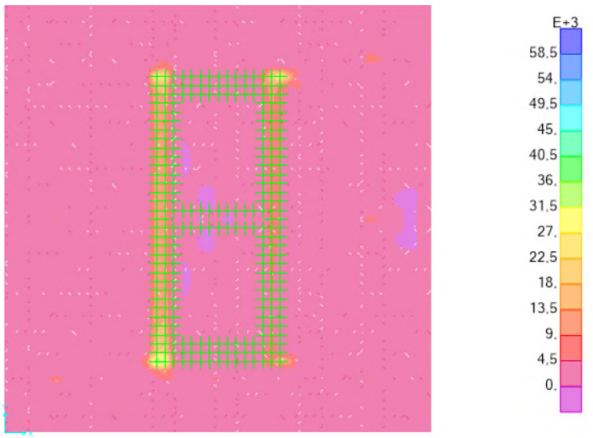


Figura 10.10 V13 max SLV

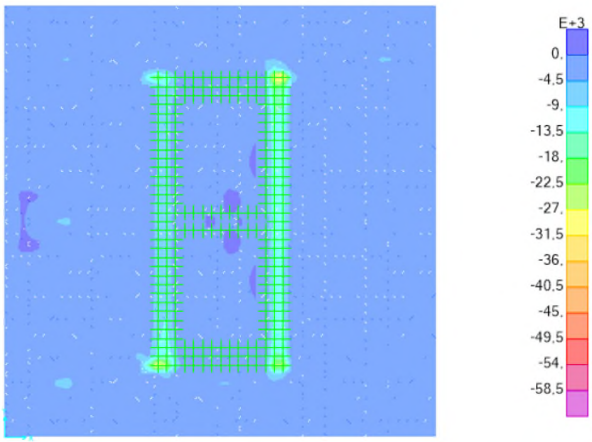


Figura 10.11 V13 min SLV

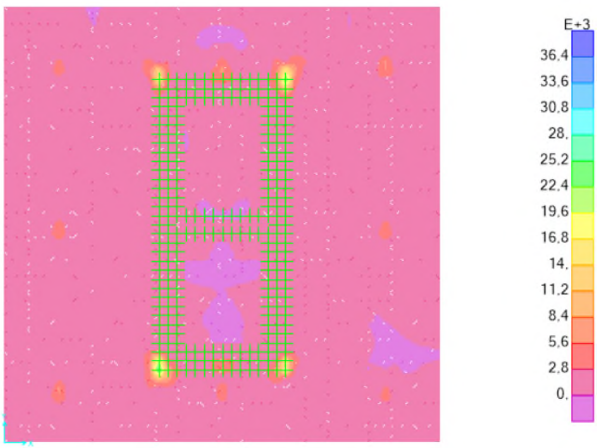


Figura 10.12 V23 max SLV

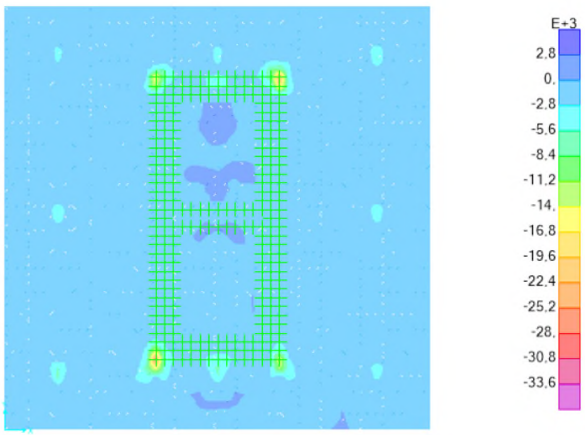


Figura 10.13 V23 min SLV

10.2.2 Sollecitazioni SLU

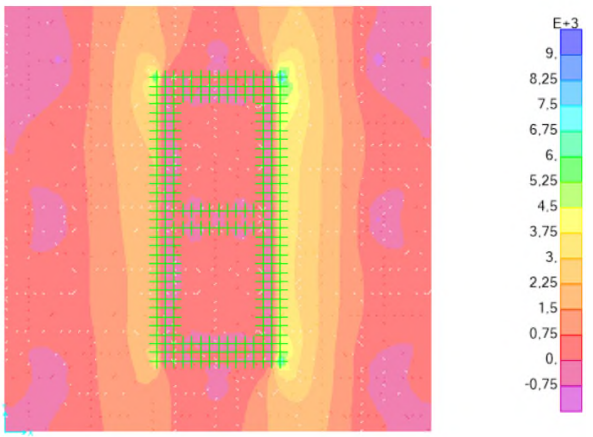


Figura 10.14 M11 max SLU

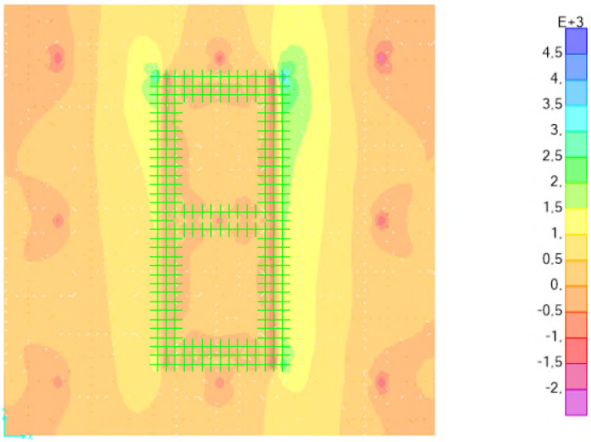


Figura 10.15 M11 min SLU

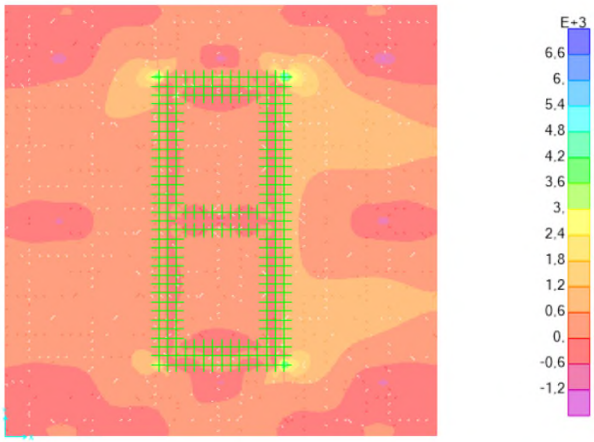


Figura 10.16 M22 max SLU

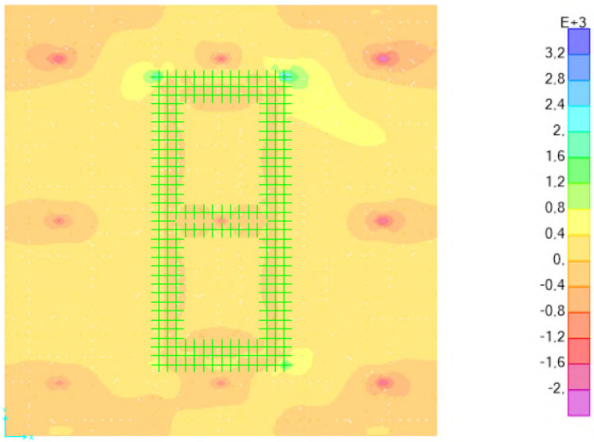


Figura 10.17 M22 min SLU

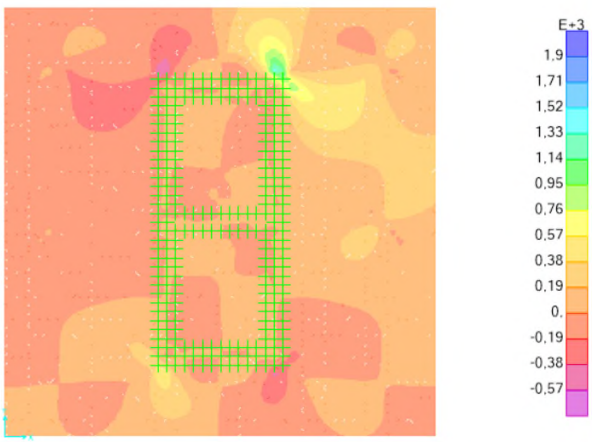


Figura 10.18 M12 max SLU

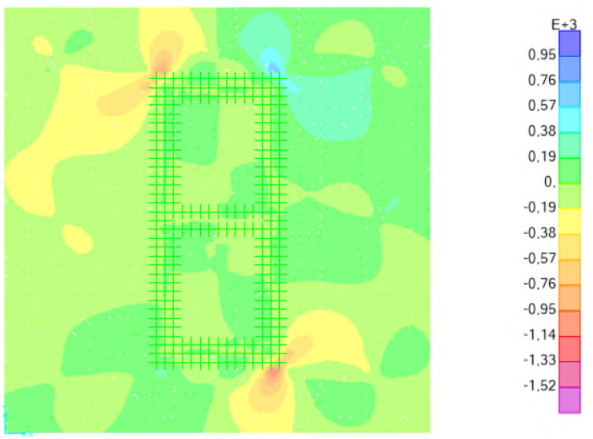


Figura 10.19 M12 min SLU

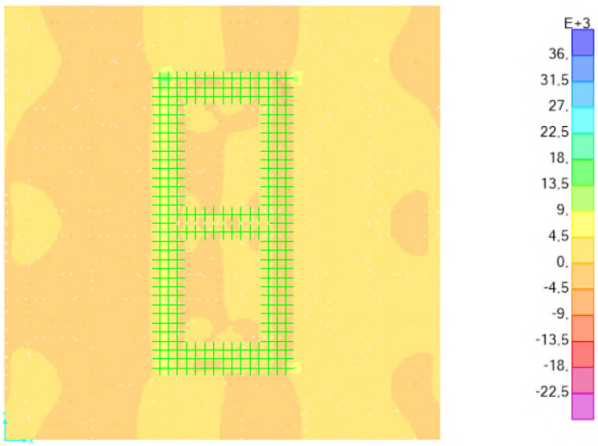


Figura 10.20 V13 max SLU

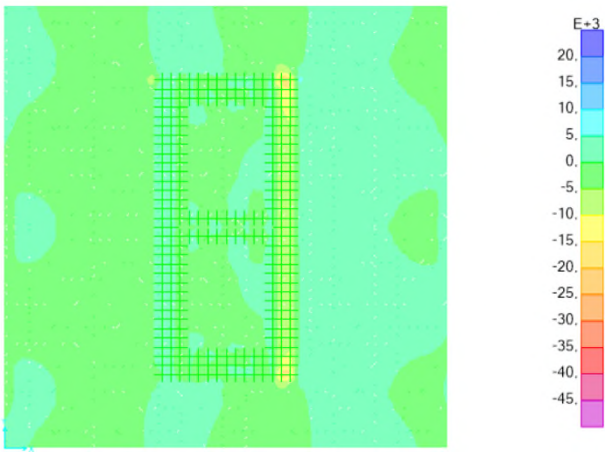


Figura 10.21 V13 min SLU

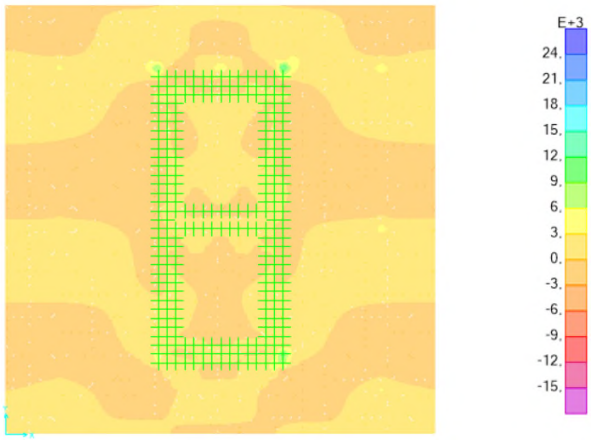


Figura 10.22 V23 max SLU

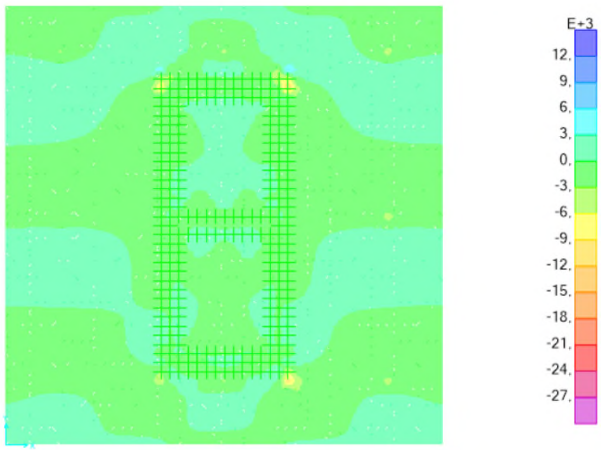


Figura 10.23 V23 min SLU

10.2.3 Sollecitazioni SLE

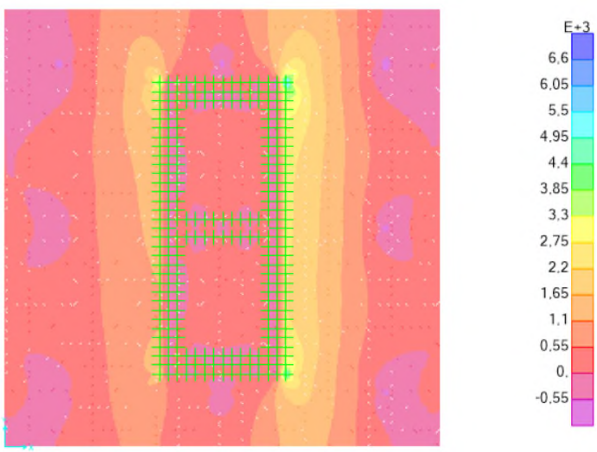


Figura 10.24 M11 max SLE

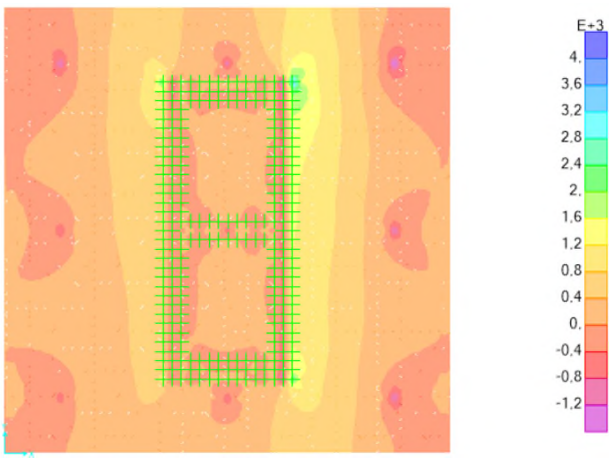


Figura 10.25 M11 min SLE

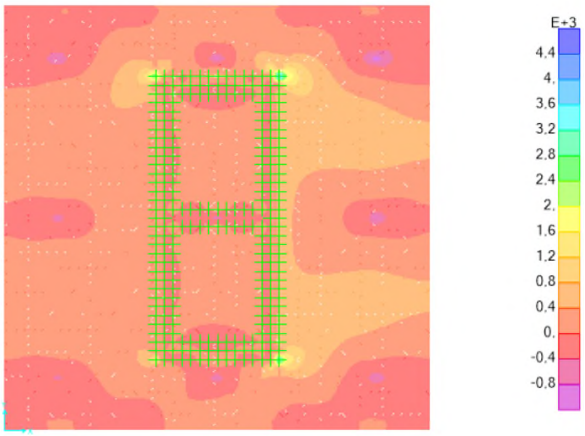


Figura 10.26 M22 max SLE

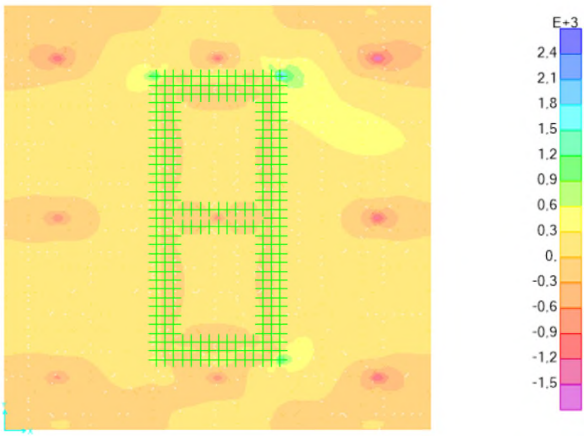


Figura 10.27 M22 min SLE

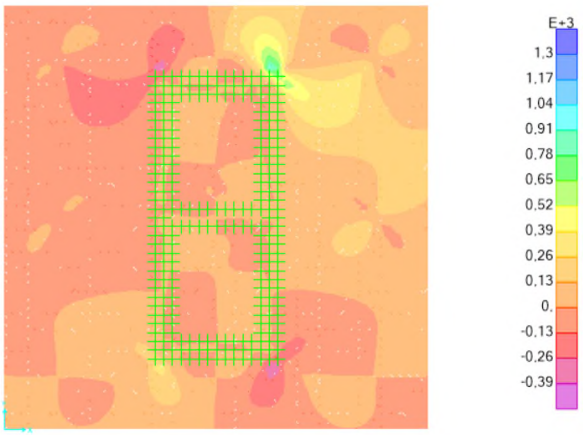


Figura 10.28 M12 max SLE

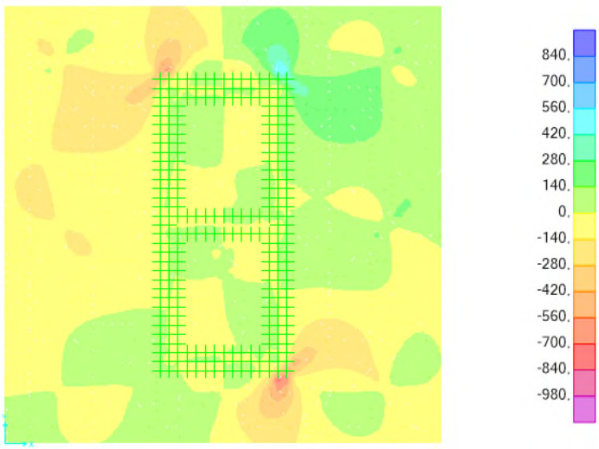


Figura 10.29 M12 min SLE

10.3 VERIFICHE SLU/SLE

10.3.1 Sollecitazioni di verifica

A partire dallo stato di sollecitazione determinato attraverso il software, sono state definite section-cut di 1m sul filo della pila nelle due direzioni.

La definizione delle section-cut permette attraverso il post-processing definire la sollecitazione media su un metro di piastra, ciò al fine di by-passare la concentrazione delle azioni su porzioni infinitesime di piastra, che sono dovuti alla schematizzazione dei vincoli come puntuali.

Quindi le azioni interne sono definite secondo sezioni come indicato nelle seguenti immagini:

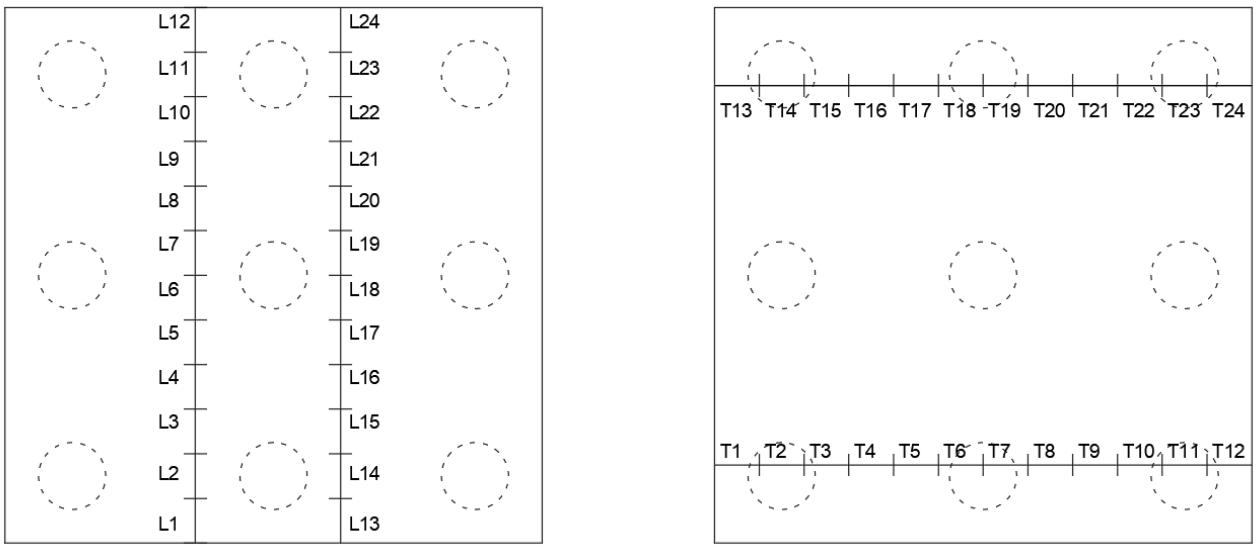


Figura 10.30 Definizione delle Section-cut

A partire dalle azioni così definite è possibile inviluppare geometricamente secondo i due assi di simmetria del plinto di fondazione in modo da garantire la copertura massima delle azioni sollecitanti, in aggiunta ad uno schema d'armatura doppiamente simmetrico.

Di seguito sono riportati i vari inviluppi geometrici:

Longitudinale	Trasversale
Max (L1, L12, L13, L24)	Max (T1, T12, T13, T24)
Max (L2, L11, L14, L23)	Max (T2, T11, T14, T23)
Max (L3, L10, L15, L22)	Max (T3, T10, T15, T22)
Max (L4, L9, L16, L21)	Max (T4, T9, T16, T21)
Max (L5, L8, L17, L20)	Max (T5, T8, T17, T20)
Max (L6, L7, L18, L19)	Max (T6, T7, T18, T19)

Il momento torcente è stato sommato in modulo a fine di massimizzare l'effetto della flessione.

Di seguito sono riportate le sollecitazioni ai vari stati limite.

	EnvSLV	M		V		
		min	max	min	max	
Longitudinale	1	-4587,33	2721,444	-467,867	1021,588	max(L1,L12,L13,L24)
	2	-6569,49	3861,105	-3211,17	2929,669	max(L2,L11,L14,L23)
	3	-11251,7	6155,491	-5703,3	4661,449	max(L3,L10,L15,L22)
	4	-6031,64	3629,91	-1315,83	1826,716	max(L4,L9,L16,L21)
	5	-5366,24	3108,49	-1349,13	1600,83	max(L5,L8,L17,L20)
	6	-5276,72	2834,314	-1623,95	1694,372	max(L6,L7,L18,L19)

	EnvSLV	M		V		
		min	max	min	max	
Trasversale	1	-1126,01	945,5318	-1138,39	525,082	max(T1,T12,T13,T24)
	2	-1249,11	1099,252	-2203,88	1224,455	max(T2,T11,T14,T23)
	3	-1523,54	2050,842	-1246,53	628,794	max(T3,T10,T15,T22)
	4	-2207,18	3182,198	-2087,37	1259,193	max(T4,T9,T16,T21)
	5	-5714,44	8536,556	-5672,44	3957,909	max(T5,T8,T17,T20)
	6	-1692,49	1882,939	-2087,24	907,205	max(T6,T7,T18,T19)

	EnvSLU	M		V		
		min	max	min	max	
Longitudinale	1	-3353,99	-701,867	-115,98	766,098	max(L1,L12,L13,L24)
	2	-4742,7	-746,238	-2162,85	1465,938	max(L2,L11,L14,L23)
	3	-8361,86	-1096,51	-4232,67	2319,012	max(L3,L10,L15,L22)
	4	-4420,28	-880,775	-948,602	846,081	max(L4,L9,L16,L21)
	5	-3901,18	-985,363	-969,044	696,298	max(L5,L8,L17,L20)
	6	-3863,5	-1087,4	-1186,31	724,974	max(L6,L7,L18,L19)

	EnvSLU	M		V		
		min	max	min	max	
Trasversale	1	-474,502	504,3484	-717,315	-253,149	max(T1,T12,T13,T24)
	2	-225,708	228,5462	-1673,69	-238,643	max(T2,T11,T14,T23)
	3	-521,859	331,3318	-781,249	-71,292	max(T3,T10,T15,T22)
	4	-1403,35	661,8889	-1281,97	285,431	max(T4,T9,T16,T21)
	5	-3383,69	2108,773	-2913,77	357,143	max(T5,T8,T17,T20)
	6	-537,249	833,0814	-943,16	127,446	max(T6,T7,T18,T19)

	EnvSLE	M		
		min	max	
Longitudinale	1	-2222,42	-411,797	max(L1,L12,L13,L24)
	2	-2446,95	-479,201	max(L2,L11,L14,L23)
	3	-3809,19	-839,409	max(L3,L10,L15,L22)
	4	-2722,65	-512,137	max(L4,L9,L16,L21)
	5	-2271,4	-581,971	max(L5,L8,L17,L20)
	6	-2189,03	-683,473	max(L6,L7,L18,L19)

	EnvSLE	M	
Trasversale		min	max

	1	-257,939	185,9448	max(T1,T12,T13,T24)
	2	-332,742	340,9188	max(T2,T11,T14,T23)
	3	-494,351	813,9048	max(T3,T10,T15,T22)
	4	-889,825	1389,558	max(T4,T9,T16,T21)
	5	-2065,88	3956,089	max(T5,T8,T17,T20)
	6	-747,51	793,2645	max(T6,T7,T18,T19)

Inviluppando SLU ed SLV, per le verifiche agli stati limite ultimi si ottiene:

	EnvSLU/SLV	**M**		**V**		
		min	max	min	max	
Longitudinale	1	-4587,33	2721,444	-467,867	1021,588	max(L1,L12,L13,L24)
	2	-6569,49	3861,105	-3211,17	2929,669	max(L2,L11,L14,L23)
	3	-11251,7	6155,491	-5703,3	4661,449	max(L3,L10,L15,L22)
	4	-6031,64	3629,91	-1315,83	1826,716	max(L4,L9,L16,L21)
	5	-5366,24	3108,49	-1349,13	1600,83	max(L5,L8,L17,L20)
	6	-5276,72	2834,314	-1623,95	1694,372	max(L6,L7,L18,L19)

	EnvSLU/SLV	**M**		**V**		
		min	max	min	max	
Trasversale	1	-1126,01	945,5318	-1138,39	525,082	max(T1,T12,T13,T24)
	2	-1249,11	1099,252	-2203,88	1224,455	max(T2,T11,T14,T23)
	3	-1523,54	2050,842	-1246,53	628,794	max(T3,T10,T15,T22)
	4	-2207,18	3182,198	-2087,37	1259,193	max(T4,T9,T16,T21)
	5	-5714,44	8536,556	-5672,44	3957,909	max(T5,T8,T17,T20)
	6	-1692,49	1882,939	-2087,24	907,205	max(T6,T7,T18,T19)

10.3.2 Verifiche a flessione e taglio

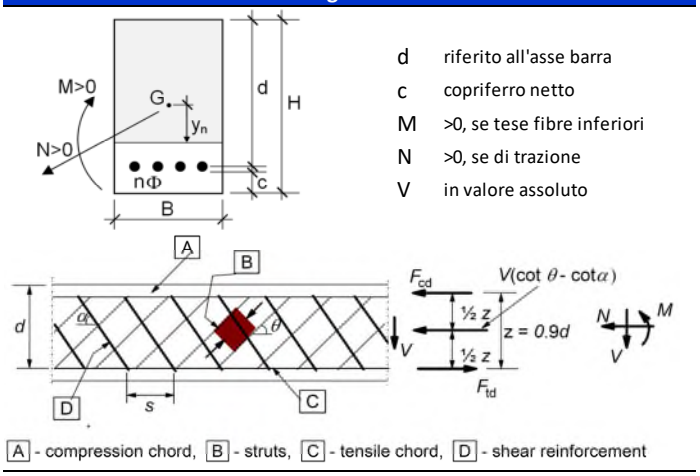
I criteri di verifica per gli stati limite ultimi e per gli stati limite di esercizio (fessurazione e limiti tensionali) sono stati esplicitati in precedenza.

Caratteristiche materiali e parametri di verifica sono sintetizzati di seguito:

materiali

calcestruzzo			acciaio		
R_{ck}	**35**	[MPa]	f_{yk}	**450**	[MPa]
f_{ck}	29,1	[MPa]	γ_s	**1,15**	
γ_c	**1,5**		f_{yd}	391,3	[MPa]
α_{cc}	**0,85**		E_s	**210000**	[MPa]
f_{cd}	16,5	[MPa]	ε_{uk}	**75**	[‰]
ν	0,530				
ε_{c2}	**2,0**	[‰]			
ε_{cu2}	**3,5**	[‰]			
α_e	**15,0**				
k_t	**0,4**		**valori limite**		
k_1	**0,8**		0,45 f_{ck}	13,1	[MPa]
k_3	**3,4**		0,8 f_{yk}	360,0	[MPa]
k_4	**0,425**		$w_{k,lim}$	**0,2**	[mm]

legenda



d	riferito all'asse barra
c	copriferro netto
M	>0, se tese fibre inferiori
N	>0, se di trazione
V	in valore assoluto

A - compression chord, B - struts, C - tensile chord, D - shear reinforcement

L'armatura base è composta da una maglia di φ28 con passo 15cm, la quale viene aggiunto un raffittimento e/o uno strato aggiuntivo nelle zone maggiormente sollecitate, in quale possono essere a passo 30cm o 15cm. L'armatura in direzione trasversale è posta sopra la longitudinale motivo per cui nelle seguenti verifiche si ha un copriferro maggiore nelle armature trasversali. Si considera che gli spilli non siano legati alle barre più interne, motivo per cui non sono considerate nel calcolo del copriferro.

A favore di sicurezza nelle seguenti verifiche si considera solo lo strato più esterno di armatura compressa.

Sezione 1 longitudinale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	241,7	217,6
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
3,33333	28	238,0	20,53	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	2223,00	[kNm]	MEd	4588,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1021,00 [kN]
Mdec	0,0	[kNm]	presso-flessione	
Mcr	2863,2	[kNm]	MRd	5698,7 [kNm]
			FS	1,24
yn	-71,25	[cm]	taglio	
σc,min	-3,0	[MPa]	VRdc	666,3 [kN]
σs,min	-40,3	[MPa]	predisporre armatura a taglio	
σs,max	161,5	[MPa]		
			VRds	1647,1 [kN]
k2	0,5		VRdmax	8223,5 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	188,4 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	243,6	219,2
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	0,00	[kNm]	MEd	2722,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1021,00 [kN]
Mdec	0,0	[kNm]	presso-flessione	
Mcr	-2766,5	[kNm]	MRd	3841,6 [kNm]
			FS	1,41
yn	80,48	[cm]	taglio	
σc,min	0,0	[MPa]	VRdc	670,6 [kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio	
σs,max	0,0	[MPa]		
			VRds	1659,8 [kN]
k2	0,5		VRdmax	8287,0 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	189,9 [cm]

Sezione 2 longitudinale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	238,0	41,05	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	2447,00	[kNm]	MEd	6570,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	3211,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2959,7	[kNm]	MRd	7542,6 [kNm]
			FS	1,15
yn	-63,78	[cm]	**taglio**	
σc,min	-3,0	[MPa]	VRdc	664,2 [kN]
σs,min	-40,9	[MPa]	predisporre armatura a taglio	
σs,max	136,0	[MPa]		
			VRds	3281,4 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	241,7	217,6
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
3,33333	28	238,0	20,53	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	0,00	[kNm]	MEd	3862,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	3211,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	-2807,5	[kNm]	MRd	5698,7 [kNm]
			FS	1,48
yn	82,17	[cm]	**taglio**	
σc,min	0,0	[MPa]	VRdc	666,3 [kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio	
σs,max	0,0	[MPa]		
			VRds	3294,1 [kN]
k2	0,5		VRdmax	8223,5 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	188,4 [cm]

Sezione 3 longitudinale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	243,6	219,2
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	238,0	41,05	
13,3333	28	243,6	82,10	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	15	90	6,70

sollecitazioni e risultati				
SLE			**SLU**	
MEk	3810,00	[kNm]	MEd	11252,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	5703,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	3186,5	[kNm]	MRd	11287,0 [kNm]
			FS	1,00
yn	-51,22	[cm]	**taglio**	
σc,min	-4,0	[MPa]	VRdc	670,6 [kN]
σs,min	-55,4	[MPa]	predisporre armatura a taglio	
σs,max	139,7	[MPa]		
			VRds	6639,1 [kN]
k2	0,5		VRdmax	8287,0 [kN]
εsm-εcm	0,51	[‰]	θ	30,0 [°]
sr,max	23,2	[cm]	sezione	duttile
wk	0,119	[mm]	al	189,9 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	238,0	41,05	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	15	90	6,70

sollecitazioni e risultati				
SLE			**SLU**	
MEk	0,00	[kNm]	MEd	6155,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	5703,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	-2846,9	[kNm]	MRd	7542,6 [kNm]
			FS	1,23
yn	83,74	[cm]	**taglio**	
σc,min	0,0	[MPa]	VRdc	664,2 [kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio	
σs,max	0,0	[MPa]		
			VRds	6562,8 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

Sezione 4 longitudinale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	238,0	41,05	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			**SLU**	
MEk	2722,00	[kNm]	MEd	6032,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1826,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2959,7	[kNm]	MRd	7542,6 [kNm]
			FS	1,25
yn	-63,78	[cm]	**taglio**	
σc,min	-3,4	[MPa]	VRdc	664,2 [kN]
σs,min	-45,5	[MPa]	predisporre armatura a taglio	
σs,max	151,3	[MPa]		
			VRds	3281,4 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	241,7	217,6
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
3,33333	28	238,0	20,53	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			**SLU**	
MEk	0,00	[kNm]	MEd	3630,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1826,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	-2807,5	[kNm]	MRd	5698,7 [kNm]
			FS	1,57
yn	82,17	[cm]	**taglio**	
σc,min	0,0	[MPa]	VRdc	666,3 [kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio	
σs,max	0,0	[MPa]		
			VRds	3294,1 [kN]
k2	0,5		VRdmax	8223,5 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	188,4 [cm]

Sezione 5 longitudinale:

- *verifica armature inferiore:*

geometria

sezione trasversale

B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	241,7	217,6

armatura longitudinale

nbarre	ϕ [mm]	d [cm]	Asl [cm²]
6,66667	28	6,4	41,05
3,33333	28	238,0	20,53
6,66667	28	243,6	41,05

armatura a taglio

nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati

SLE			SLU		
MEk	2271,00	[kNm]	MEd	5366,00	[kNm]
NEk	0	[kN]	NEd	0	[kN]
tensioni e fessure			VEd	1601,00	[kN]
Mdec	0,0	[kNm]	**presso-flessione**		
Mcr	2863,2	[kNm]	MRd	5698,7	[kNm]
			FS	1,06	
yn	-71,25	[cm]	**taglio**		
σc,min	-3,1	[MPa]	VRdc	666,3	[kN]
σs,min	-41,1	[MPa]	predisporre armatura a taglio		
σs,max	165,0	[MPa]			
			VRds	1647,1	[kN]
k2	0,5		VRdmax	8223,5	[kN]
εsm-εcm	-	[‰]	θ	30,0	[°]
sr,max	-	[cm]	sezione	duttile	
wk	-	[mm]	al	188,4	[cm]

- *verifica armature superiore:*

geometria

sezione trasversale

B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	243,6	219,2

armatura longitudinale

nbarre	ϕ [mm]	d [cm]	Asl [cm²]
6,66667	28	6,4	41,05
6,66667	28	243,6	41,05

armatura a taglio

nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati

SLE			SLU		
MEk	0,00	[kNm]	MEd	3109,00	[kNm]
NEk	0	[kN]	NEd	0	[kN]
tensioni e fessure			VEd	1601,00	[kN]
Mdec	0,0	[kNm]	**presso-flessione**		
Mcr	-2766,5	[kNm]	MRd	3841,6	[kNm]
			FS	1,24	
yn	80,48	[cm]	**taglio**		
σc,min	0,0	[MPa]	VRdc	670,6	[kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio		
σs,max	0,0	[MPa]			
			VRds	1659,8	[kN]
k2	0,5		VRdmax	8287,0	[kN]
εsm-εcm	-	[‰]	θ	30,0	[°]
sr,max	-	[cm]	sezione	duttile	
wk	-	[mm]	al	189,9	[cm]

Sezione 6 longitudinale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	241,7	217,6
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
3,33333	28	238,0	20,53	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	2189,00	[kNm]	MEd	5277,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1694,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2863,2	[kNm]	MRd	5698,7 [kNm]
			FS	1,08
yn	-71,25	[cm]	**taglio**	
σc,min	-3,0	[MPa]	VRdc	666,3 [kN]
σs,min	-39,7	[MPa]	predisporre armatura a taglio	
σs,max	159,0	[MPa]		
			VRds	1715,5 [kN]
k2	0,5		VRdmax	8052,8 [kN]
εsm-εcm	-	[‰]	θ	29,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	196,2 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	5,0	243,6	219,2
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	6,4	41,05	
6,66667	28	243,6	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	0,00	[kNm]	MEd	2834,30 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1694,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	-2766,5	[kNm]	MRd	3841,6 [kNm]
			FS	1,36
yn	80,48	[cm]	**taglio**	
σc,min	0,0	[MPa]	VRdc	670,6 [kN]
σs,min	0,0	[MPa]	predisporre armatura a taglio	
σs,max	0,0	[MPa]		
			VRds	1728,8 [kN]
k2	0,5		VRdmax	8115,0 [kN]
εsm-εcm	-	[‰]	θ	29,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	197,8 [cm]

Sezione 1 trasversale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	258,00	[kNm]	MEd	1126,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1139,00 [kN]
Mdec	0,0	[kNm]	presso-flessione	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	3,36
yn	-80,48	[cm]	taglio	
σc,min	-0,4	[MPa]	VRdc	664,2 [kN]
σs,min	-5,0	[MPa]	predisporre armatura a taglio	
σs,max	27,7	[MPa]		
			VRds	1640,7 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	186,00	[kNm]	MEd	946,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1139,00 [kN]
Mdec	0,0	[kNm]	presso-flessione	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	4,00
yn	-80,48	[cm]	taglio	
σc,min	-0,3	[MPa]	VRdc	664,2 [kN]
σs,min	-3,6	[MPa]	predisporre armatura a taglio	
σs,max	20,0	[MPa]		
			VRds	1640,7 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

Sezione 2 trasversale:

- *verifica armature inferiore:*

geometria

sezione trasversale

B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7

armatura longitudinale

nbarre	ϕ [mm]	d [cm]	Asl [cm²]
6,66667	28	9,2	41,05
6,66667	28	240,8	41,05

armatura a taglio

nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati

SLE			SLU		
MEk	332,00	[kNm]	MEd	1250,00	[kNm]
NEk	0	[kN]	NEd	0	[kN]
tensioni e fessure			VEd	2204,00	[kN]
Mdec	0,0	[kNm]	**presso-flessione**		
Mcr	2752,2	[kNm]	MRd	3786,6	[kNm]
			FS	3,03	
yn	-80,48	[cm]	**taglio**		
σc,min	-0,5	[MPa]	VRdc	664,2	[kN]
σs,min	-6,4	[MPa]	predisporre armatura a taglio		
σs,max	35,6	[MPa]			
			VRds	2344,6	[kN]
k2	0,5		VRdmax	6570,8	[kN]
εsm-εcm	-	[‰]	θ	22,0	[°]
sr,max	-	[cm]	sezione	duttile	
wk	-	[mm]	al	268,2	[cm]

- *verifica armature superiore:*

geometria

sezione trasversale

B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7

armatura longitudinale

nbarre	ϕ [mm]	d [cm]	Asl [cm²]
6,66667	28	9,2	41,05
6,66667	28	240,8	41,05

armatura a taglio

nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati

SLE			SLU		
MEk	341,00	[kNm]	MEd	1100,00	[kNm]
NEk	0	[kN]	NEd	0	[kN]
tensioni e fessure			VEd	2204,00	[kN]
Mdec	0,0	[kNm]	**presso-flessione**		
Mcr	2752,2	[kNm]	MRd	3786,6	[kNm]
			FS	3,44	
yn	-80,48	[cm]	**taglio**		
σc,min	-0,6	[MPa]	VRdc	664,2	[kN]
σs,min	-6,6	[MPa]	predisporre armatura a taglio		
σs,max	36,6	[MPa]			
			VRds	2344,6	[kN]
k2	0,5		VRdmax	6570,8	[kN]
εsm-εcm	-	[‰]	θ	22,0	[°]
sr,max	-	[cm]	sezione	duttile	
wk	-	[mm]	al	268,2	[cm]

Sezione 3 trasversale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	495,00	[kNm]	MEd	1523,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1246,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	2,49
yn	-80,48	[cm]	**taglio**	
σc,min	-1,3	[MPa]	VRdc	664,2 [kN]
σs,min	-15,7	[MPa]	predisporre armatura a taglio	
σs,max	87,4	[MPa]		
			VRds	1640,7 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	60	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	813,00	[kNm]	MEd	2051,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	1246,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	1,85
yn	-80,48	[cm]	**taglio**	
σc,min	-1,3	[MPa]	VRdc	664,2 [kN]
σs,min	-15,7	[MPa]	predisporre armatura a taglio	
σs,max	87,3	[MPa]		
			VRds	1640,7 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

Sezione 4 trasversale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
n_{barre}	ϕ [mm]	d [cm]	A_{sl} [cm^2]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
n_{bracci}	ϕ [mm]	s [cm]	α [°]	A_{sw} [cm^2]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
M_{Ek}	889,00	[kNm]	M_{Ed}	2207,00 [kNm]
N_{Ek}	0	[kN]	N_{Ed}	0 [kN]
tensioni e fessure			V_{Ed}	2087,00 [kN]
M_{dec}	0,0	[kNm]	presso-flessione	
M_{cr}	2752,2	[kNm]	M_{Rd}	3786,6 [kNm]
			FS	1,72
yn	-80,48	[cm]	taglio	
$\sigma_{c,min}$	-1,4	[MPa]	V_{Rdc}	664,2 [kN]
$\sigma_{s,min}$	-17,2	[MPa]	predisporre armatura a taglio	
$\sigma_{s,max}$	95,4	[MPa]		
			V_{Rds}	3281,4 [kN]
k_2	0,5		V_{Rdmax}	8191,8 [kN]
ε_{sm}-ε_{cm}	-	[‰]	θ	30,0 [°]
$s_{r,max}$	-	[cm]	sezione	duttile
w_k	-	[mm]	a_l	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
n_{barre}	ϕ [mm]	d [cm]	A_{sl} [cm^2]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
n_{bracci}	ϕ [mm]	s [cm]	α [°]	A_{sw} [cm^2]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
M_{Ek}	1390,00	[kNm]	M_{Ed}	3183,00 [kNm]
N_{Ek}	0	[kN]	N_{Ed}	0 [kN]
tensioni e fessure			V_{Ed}	2087,00 [kN]
M_{dec}	0,0	[kNm]	presso-flessione	
M_{cr}	2752,2	[kNm]	M_{Rd}	3786,6 [kNm]
			FS	1,19
yn	-80,48	[cm]	taglio	
$\sigma_{c,min}$	-2,3	[MPa]	V_{Rdc}	664,2 [kN]
$\sigma_{s,min}$	-26,8	[MPa]	predisporre armatura a taglio	
$\sigma_{s,max}$	149,2	[MPa]		
			V_{Rds}	3281,4 [kN]
k_2	0,5		V_{Rdmax}	8191,8 [kN]
ε_{sm}-ε_{cm}	-	[‰]	θ	30,0 [°]
$s_{r,max}$	-	[cm]	sezione	duttile
w_k	-	[mm]	a_l	187,7 [cm]

Sezione 5 trasversale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	238,9	215,0
armatura longitudinale				
n_{barre}	ϕ [mm]	d [cm]	A_{sl} [cm^2]	
6,66667	28	9,2	41,05	
6,66667	28	235,2	41,05	
13,3333	28	240,8	82,10	
armatura a taglio				
n_{bracci}	ϕ [mm]	s [cm]	α [°]	A_{sw} [cm^2]
3,33333	16	15	90	6,70

sollecitazioni e risultati				
SLE			SLU	
M_{Ek}	2065,00	[kNm]	M_{Ed}	5714,00 [kNm]
N_{Ek}	0	[kN]	N_{Ed}	0 [kN]
tensioni e fessure			V_{Ed}	5672,00 [kN]
M_{dec}	0,0	[kNm]	**presso-flessione**	
M_{cr}	3137,5	[kNm]	M_{Rd}	11009,1 [kNm]
			FS	1,93
yn	-51,92	[cm]	**taglio**	
$\sigma_{c,min}$	-2,3	[MPa]	V_{Rdc}	659,9 [kN]
$\sigma_{s,min}$	-29,8	[MPa]	predisporre armatura a taglio	
$\sigma_{s,max}$	78,3	[MPa]		
			V_{Rds}	6512,0 [kN]
k_2	0,5		V_{Rdmax}	8128,3 [kN]
ε_{sm}-ε_{cm}	-	[‰]	θ	30,0 [°]
$s_{r,max}$	-	[cm]	sezione	duttile
w_k	-	[mm]	a_l	186,2 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	238,9	215,0
armatura longitudinale				
n_{barre}	ϕ [mm]	d [cm]	A_{sl} [cm^2]	
6,66667	28	9,2	41,05	
6,66667	28	235,2	41,05	
13,3333	28	240,8	82,10	
armatura a taglio				
n_{bracci}	ϕ [mm]	s [cm]	α [°]	A_{sw} [cm^2]
3,33333	16	15	90	6,70

sollecitazioni e risultati				
SLE			SLU	
M_{Ek}	3957,00	[kNm]	M_{Ed}	8537,00 [kNm]
N_{Ek}	0	[kN]	N_{Ed}	0 [kN]
tensioni e fessure			V_{Ed}	5672,00 [kN]
M_{dec}	0,0	[kNm]	**presso-flessione**	
M_{cr}	3137,5	[kNm]	M_{Rd}	11009,1 [kNm]
			FS	1,29
yn	-51,92	[cm]	**taglio**	
$\sigma_{c,min}$	-4,4	[MPa]	V_{Rdc}	659,9 [kN]
$\sigma_{s,min}$	-57,1	[MPa]	predisporre armatura a taglio	
$\sigma_{s,max}$	150,0	[MPa]		
			V_{Rds}	6512,0 [kN]
k_2	0,5		V_{Rdmax}	8128,3 [kN]
ε_{sm}-ε_{cm}	0,50	[‰]	θ	30,0 [°]
$s_{r,max}$	38,1	[cm]	sezione	duttile
w_k	0,191	[mm]	a_l	186,2 [cm]

Sezione 6 trasversale:

- *verifica armature inferiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	747,00	[kNm]	MEd	1693,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	2087,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	2,24
yn	-80,48	[cm]	**taglio**	
σc,min	-1,2	[MPa]	VRdc	664,2 [kN]
σs,min	-14,4	[MPa]	predisporre armatura a taglio	
σs,max	80,2	[MPa]		
			VRds	3281,4 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

- *verifica armature superiore:*

geometria				
sezione trasversale				
B [cm]	H [cm]	c [cm]	d [cm]	z [cm]
100	250	7,8	240,8	216,7
armatura longitudinale				
nbarre	ϕ [mm]	d [cm]	Asl [cm²]	
6,66667	28	9,2	41,05	
6,66667	28	240,8	41,05	
armatura a taglio				
nbracci	ϕ [mm]	s [cm]	α [°]	Asw [cm²]
3,33333	16	30	90	6,70

sollecitazioni e risultati				
SLE			SLU	
MEk	793,00	[kNm]	MEd	1883,00 [kNm]
NEk	0	[kN]	NEd	0 [kN]
tensioni e fessure			VEd	2087,00 [kN]
Mdec	0,0	[kNm]	**presso-flessione**	
Mcr	2752,2	[kNm]	MRd	3786,6 [kNm]
			FS	2,01
yn	-80,48	[cm]	**taglio**	
σc,min	-1,5	[MPa]	VRdc	664,2 [kN]
σs,min	-17,5	[MPa]	predisporre armatura a taglio	
σs,max	97,3	[MPa]		
			VRds	3281,4 [kN]
k2	0,5		VRdmax	8191,8 [kN]
εsm-εcm	-	[‰]	θ	30,0 [°]
sr,max	-	[cm]	sezione	duttile
wk	-	[mm]	al	187,7 [cm]

10.4 VERIFICA PUNZONAMENTO

La verifica a punzonamento viene eseguita in prima istanza trascurando la presenza di armatura e considerando l'azione assiale massima di compressione agente sui pali e ipotizzando di questa sia riferita ad un palo di bordo.

La verifica è eseguita sul perimetro del palo, u_0, e sul perimetro composto dal quadrato di lato 3,75m che traccia l'interasse tra i pali, u_1.

- Verifica su u_0:

$$v_{ED,0} = \frac{\beta N_{ED}}{u_0 H} \leq v_{RD,max} = 0{,}5\, v\, f_{cd}$$

- Verifica su u_1:

$$v_{ED,1} = \frac{N_{ED}}{u_1 H} \leq v_{RD,max} = 0{,}5\ f_{ctd}$$

Caratteristiche meccaniche			
R_{ck}	resistenza cubica a compressione caratteristica	35	MPa
f_{ck}	resistenza cilindrica a compressione caratteristica	29,1	MPa
f_{cd}	resistenza cilindrica a compressione di progetto	16,5	MPa
f_{ctd}	resistenza cilindrica a trazione di progetto	1,32	MPa
v	0,6 x (1-fck / 250)	0,53	[-]
Caratteristiche geometriche			
D_{palo}	diametro palo	1,5	m
u_0	perimetro palo	4,7	m
H_{plinto}	altezza plinto	2,5	m
u_1	perimetro interno posto ad interasse pali di bordo	7,5	m
β	fattore di posizione del palo	1,5	[-]
Sollecitazione			
N_{Ed}	azione assiale sollecitante	8545,5	kN
Verifica su u_0			
$v_{Ed,0}$	sforzo agente su u_0	1,09	MPa
$v_{Rd,0}$	sforzo resistente su u_0	4,36	MPa
FS	fattore di sicurezza	4,01	[-]
Verifica su u_1			
$v_{Ed,1}$	sforzo agente su u_1	0,46	MPa
$v_{Rd,1}$	sforzo resistente su u_1	0,66	MPa
FS	fattore di sicurezza	1,45	[-]

Tale verifica risulta soddisfatta nelle condizioni esplicitate, quindi non viene eseguita la verifica considerando la presenza di armatura e l'effettiva posizione del palo.

10.5 VERIFICA TIRANTE-PUNTONE

Data la disposizione dei pali e la geometria della platea tale meccanismo non è ritenuto applicabile, in quanto:

- i pali più lontani dai setti della pila sono a una distanza tale per cui il meccanismo resistente è quello flessionale;
- i pali più vicini ai setti della pila sono quasi perpendicolari alla stessa.

Il meccanismo resistente con cui è stata dimensionata la platea di fondazione è un meccanismo flessionale, quindi, per questa geometria, la verifica tirante-puntone non è stata eseguita.

11 STIMA INCIDENZE ARMATURE PLINTI

Per la stima delle incidenze dei plinti si rimanda alla relazione delle fondazioni delle pile 1-2-7-8-21-22

12 ALLEGATO: TABULATI GROUP

12.1 PILA SLE

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==========================================================================

                GROUP for Windows, Version 2016.10.13

                 Serial Number : 228330872

                Analysis of A Group of Piles
              Subjected to Axial and Lateral Loading

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==========================================================================


--------------------------------------------------------------------------
                    Time and Date of Analysis
--------------------------------------------------------------------------

          Date:  November 28, 2019     Time:  16:33:45



           *****     COMPUTATION RESULTS     *****


New Group



           *****     LOAD CASES RESULTS      *****


LOAD CASE :     1
CASE NAME : Load Case
LOAD TYPE : Special, Sp

  REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
  ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

       GROUP NO     P-FACTOR     Y-FACTOR

           1          0.7293       1.0000
           2          0.6937       1.0000
           3          0.8661       1.0000
           4          0.5366       1.0000
           5          0.4962       1.0000
           6          0.7090       1.0000
           7          0.5845       1.0000
           8          0.5422       1.0000
           9          0.7482       1.0000


* TABLE L *   COMPUTATION ON PILE CAP


* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *


      VERT. LOAD,  KN    HOR. LOAD Y,  KN   HOR. LOAD Z,  KN
            32587.0           -1369.00           1090.00

     MOMENT X , KN- M    MOMENT Y, KN- M    MOMENT Z, KN- M
            3.00000            17150.0            14443.5


* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
```

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.48211E-03	-2.79613E-04	2.61091E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-1.41077E-08	6.44281E-05	5.73312E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.5140E-03	-2.7961E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
2	1.7720E-03	-2.7961E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
3	2.0300E-03	-2.7961E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
4	1.2241E-03	-2.7967E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
5	1.4821E-03	-2.7967E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
6	1.7401E-03	-2.7967E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
7	9.3419E-04	-2.7973E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
8	1.1922E-03	-2.7973E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
9	1.4502E-03	-2.7973E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
MINIMUM	9.3419E-04	-2.7973E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	2.0300E-03	-2.7961E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	3695.2	-163.34	130.70	-6.4417E-03	-133.01	-213.11
2	4296.1	-158.22	126.36	-6.4417E-03	-127.53	-206.44
3	4896.9	-181.80	146.70	-6.4417E-03	-153.46	-237.01
4	3019.9	-134.26	105.78	-6.4417E-03	-100.24	-174.12
5	3620.8	-127.52	100.09	-6.4417E-03	-92.650	-164.86
6	4221.7	-160.48	128.31	-6.4417E-03	-130.09	-209.45
7	2344.6	-142.01	112.35	-6.4417E-03	-108.95	-184.67
8	2945.5	-135.23	106.61	-6.4417E-03	-101.40	-175.49
9	3546.4	-166.14	133.11	-6.4417E-03	-136.18	-216.82
MINIMUM	2344.6	-181.80	100.09	-6.4417E-03	-153.46	-237.01
Pile N.	7	3	5	1	3	3
MAXIMUM	4896.9	-127.52	146.70	-6.4417E-03	-92.650	-164.86
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.5140E-03	-2.7961E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
2	1.7720E-03	-2.7961E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
3	2.0300E-03	-2.7961E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
4	1.2241E-03	-2.7967E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
5	1.4821E-03	-2.7967E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
6	1.7401E-03	-2.7967E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
7	9.3419E-04	-2.7973E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
8	1.1922E-03	-2.7973E-04	2.6116E-04	-1.4108E-08	6.4428E-05	5.7331E-05
9	1.4502E-03	-2.7973E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
MINIMUM	9.3419E-04	-2.7973E-04	2.6109E-04	-1.4108E-08	6.4428E-05	5.7331E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	2.0300E-03	-2.7961E-04	2.6122E-04	-1.4108E-08	6.4428E-05	5.7331E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	3695.2	-163.34	130.70	-6.4417E-03	-133.01	-213.11
2	4296.1	-158.22	126.36	-6.4417E-03	-127.53	-206.44
3	4896.9	-181.80	146.70	-6.4417E-03	-153.46	-237.01
4	3019.9	-134.26	105.78	-6.4417E-03	-100.24	-174.12
5	3620.8	-127.52	100.09	-6.4417E-03	-92.650	-164.86
6	4221.7	-160.48	128.31	-6.4417E-03	-130.09	-209.45
7	2344.6	-142.01	112.35	-6.4417E-03	-108.95	-184.67
8	2945.5	-135.23	106.61	-6.4417E-03	-101.40	-175.49
9	3546.4	-166.14	133.11	-6.4417E-03	-136.18	-216.82
MINIMUM	2344.6	-181.80	100.09	-6.4417E-03	-153.46	-237.01
Pile N.	7	3	5	1	3	3

```
     MAXIMUM         4896.9      -127.52       146.70  -6.4417E-03      -92.650      -164.86
     Pile N.          3            5            3            1            5            5

    PILE GROUP   STRESS, KN/ M**2
    **********  ****************
        1           2849.2
        2           3163.4
        3           3623.3
        4           2315.3
        5           2619.7
        6           3133.1
        7           1973.9
        8           2278.5
        9           2779.6

     MINIMUM         1973.9
     Pile N.          7
     MAXIMUM         3623.3
     Pile N.          3

     * EFFECTS FOR LATERALLY LOADED PILE *

     * MINIMUM VALUES AND LOCATIONS *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT      SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL    FLEX. RIG.  FLEX. RIG.
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS      z-DIR       y-DIR
             M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M    KN/ M**2    KN- M**2    KN- M**2
******  **********  **********  **********  **********  **********  **********  **********  **********  **********  **********  **********
    1  -2.7961E-04 -8.5373E-06     -165.95     -133.01     -161.84     -46.401     -124.09     -14.245      2091.0  7.8279E+06  7.8279E+06
 x( M)      0.0000      6.7500      3.2500      0.0000      0.0000      5.0000      2.0000      6.7500      25.000      0.0000      0.0000
    2  -2.7961E-04 -8.5900E-06     -162.74     -127.53     -156.79     -45.014     -118.80     -13.698      2431.1  7.8279E+06  7.8279E+06
 x( M)      0.0000      6.7500      3.5000      0.0000      0.0000      5.0000      2.0000      7.0000      25.000      0.0000      0.0000
    3  -2.7961E-04 -8.4603E-06     -177.90     -153.46     -180.02     -51.418     -143.93     -16.423      2771.1  7.8279E+06  7.8279E+06
 x( M)      0.0000      6.5000      3.2500      0.0000      0.0000      5.0000      2.0000      6.7500      25.000      0.0000      0.0000
    4  -2.7967E-04 -8.7549E-06     -147.60     -100.24     -133.15     -38.705     -94.903     -11.122      1708.9  7.8279E+06  7.8279E+06
 x( M)      0.0000      7.0000      3.5000      0.0000      0.0000      5.2500      2.0000      7.2500      25.000      0.0000      0.0000
    5  -2.7967E-04 -8.7998E-06     -143.18     -92.650     -126.49     -36.932     -88.553     -10.434      2048.9  7.8279E+06  7.8279E+06
 x( M)      0.0000      7.0000      3.5000      0.0000      0.0000      5.2500      2.0000      7.2500      25.000      0.0000      0.0000
    6  -2.7967E-04 -8.5719E-06     -164.10     -130.09     -159.02     -45.632     -121.11     -13.933      2389.0  7.8279E+06  7.8279E+06
 x( M)      0.0000      6.7500      3.5000      0.0000      0.0000      5.0000      2.0000      7.0000      25.000      0.0000      0.0000
    7  -2.7973E-04 -8.6745E-06     -152.57     -108.95     -140.81     -40.699     -102.36     -11.885      1326.8  7.8279E+06  7.8279E+06
 x( M)      0.0000      7.0000      3.5000      0.0000      0.0000      5.2500      2.0000      7.2500      25.000      0.0000      0.0000
    8  -2.7973E-04 -8.7486E-06     -148.23     -101.40     -134.11     -38.953     -95.810     -11.217      1666.8  7.8279E+06  7.8279E+06
 x( M)      0.0000      7.0000      3.5000      0.0000      0.0000      5.2500      2.0000      7.2500      25.000      0.0000      0.0000
    9  -2.7973E-04 -8.5148E-06     -167.76     -136.18     -164.59     -47.145     -126.95     -14.569      2006.8  7.8279E+06  7.8279E+06
 x( M)      0.0000      6.5000      3.2500      0.0000      0.0000      5.0000      2.0000      6.7500      25.000      0.0000      0.0000

   Min. -2.7973E-04 -8.7998E-06     -177.90     -153.46     -180.02     -51.418     -143.93     -16.423      1326.8  7.8279E+06  7.8279E+06
Pile N.       7           5           3           3           3           3           3           3           7           1           1

     * MAXIMUM VALUES AND LOCATIONS *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT      SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL    FLEX. RIG.  FLEX. RIG.
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS      z-DIR       y-DIR
             M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M    KN/ M**2    KN- M**2    KN- M**2
******  **********  **********  **********  **********  **********  **********  **********  **********  **********  **********  **********
    1   8.8993E-06  2.6109E-04      213.11      158.67      48.871      129.29      15.093      108.11      2849.2  7.8279E+06  7.8279E+06
 x( M)      6.7500      0.0000      0.0000      3.2500      5.2500      0.0000      7.0000      2.0000      0.0000      0.0000      0.0000
    2   8.8973E-06  2.6116E-04      206.44      155.88      47.404      125.02      14.458      103.50      3163.4  7.8279E+06  7.8279E+06
 x( M)      6.7500      0.0000      0.0000      3.2500      5.2500      0.0000      7.0000      2.0000      0.0000      0.0000      0.0000
    3   8.8191E-06  2.6122E-04      237.01      168.78      54.299      145.03      17.430      125.61      3623.3  7.8279E+06  7.8279E+06
 x( M)      6.5000      0.0000      0.0000      3.2500      5.0000      0.0000      6.7500      2.0000      0.0000      0.0000      0.0000
    4   9.0252E-06  2.6109E-04      174.12      142.03      40.475      104.74      11.667      82.493      2324.9  7.8279E+06  7.8279E+06
 x( M)      7.2500      0.0000      0.0000      3.2500      5.5000      0.0000      7.5000      2.0000      3.5000      0.0000      0.0000
    5   9.0640E-06  2.6116E-04      164.86      138.10      38.562      99.129      10.944      76.960      2647.8  7.8279E+06  7.8279E+06
 x( M)      7.2500      0.0000      0.0000      3.2500      5.5000      0.0000      7.5000      2.0000      3.5000      0.0000      0.0000
    6   8.9029E-06  2.6122E-04      209.45      157.14      48.055      126.94      14.738      105.53      3133.1  7.8279E+06  7.8279E+06
 x( M)      6.7500      0.0000      0.0000      3.2500      5.2500      0.0000      7.0000      2.0000      0.0000      0.0000      0.0000
    7   8.9780E-06  2.6109E-04      184.67      146.48      42.604      111.22      12.533      89.000      1973.9  7.8279E+06  7.8279E+06
 x( M)      7.0000      0.0000      0.0000      3.2500      5.5000      0.0000      7.2500      2.0000      0.0000      0.0000      0.0000
    8   9.0190E-06  2.6116E-04      175.49      142.59      40.740      105.57      11.766      83.290      2285.3  7.8279E+06  7.8279E+06
 x( M)      7.2500      0.0000      0.0000      3.2500      5.5000      0.0000      7.5000      2.0000      3.5000      0.0000      0.0000
    9   8.8984E-06  2.6122E-04      216.82      160.20      49.650      131.67      15.426      110.63      2779.6  7.8279E+06  7.8279E+06
 x( M)      6.7500      0.0000      0.0000      3.2500      5.2500      0.0000      7.0000      2.0000      0.0000      0.0000      0.0000

   Max.  9.0640E-06  2.6122E-04      237.01      168.78      54.299      145.03      17.430      125.61      3623.3  7.8279E+06  7.8279E+06
Pile N.       5           3           3           3           3           3           3           3           3           1           1


  LOAD CASE :     2
  CASE NAME : Load Case
  LOAD TYPE : Special, Sp

    REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
    ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

         GROUP NO     P-FACTOR     Y-FACTOR
```

1	0.8372	1.0000
2	0.7816	1.0000
3	0.8661	1.0000
4	0.5698	1.0000
5	0.4962	1.0000
6	0.6107	1.0000
7	0.5845	1.0000
8	0.5072	1.0000
9	0.6251	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
25365.0	-338.000	821.000

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
0.00000	12766.5	4031.00

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.13758E-03	-7.24680E-05	1.96030E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-3.32394E-07	4.80306E-05	1.57041E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.2830E-03	-7.0988E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
2	1.3537E-03	-7.0988E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
3	1.4244E-03	-7.0988E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
4	1.0669E-03	-7.2484E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
5	1.1376E-03	-7.2484E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
6	1.2082E-03	-7.2484E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
7	8.5078E-04	-7.3979E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
8	9.2144E-04	-7.3979E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
9	9.9211E-04	-7.3979E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
MINIMUM	8.5078E-04	-7.3979E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	1.4244E-03	-7.0988E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	3157.1	-42.805	106.84	-0.1518	-111.00	-51.799
2	3321.7	-40.960	103.58	-0.1518	-108.03	-49.449
3	3486.3	-43.731	112.51	-0.1518	-120.41	-52.979
4	2653.7	-34.635	82.210	-0.1518	-79.151	-42.130
5	2818.3	-31.586	75.772	-0.1518	-71.468	-37.964
6	2982.9	-36.247	88.977	-0.1518	-90.170	-44.308
7	2150.3	-36.557	83.707	-0.1518	-81.105	-45.689
8	2314.9	-33.294	76.982	-0.1518	-73.075	-41.236
9	2479.5	-38.185	90.431	-0.1518	-92.049	-47.884
MINIMUM	2150.3	-43.731	75.772	-0.1518	-120.41	-52.979
Pile N.	7	3	5	1	3	3
MAXIMUM	3486.3	-31.586	112.51	-0.1518	-71.468	-37.964
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.2830E-03	-7.0988E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
2	1.3537E-03	-7.0988E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
3	1.4244E-03	-7.0988E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05

4	1.0669E-03	-7.2484E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
5	1.1376E-03	-7.2484E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
6	1.2082E-03	-7.2484E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
7	8.5078E-04	-7.3979E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
8	9.2144E-04	-7.3979E-05	1.9608E-04	-3.3239E-07	4.8031E-05	1.5704E-05
9	9.9211E-04	-7.3979E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
MINIMUM	8.5078E-04	-7.3979E-05	1.9458E-04	-3.3239E-07	4.8031E-05	1.5704E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	1.4244E-03	-7.0988E-05	1.9757E-04	-3.3239E-07	4.8031E-05	1.5704E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	3157.1	-42.805	106.84	-0.1518	-111.00	-51.799
2	3321.7	-40.960	103.58	-0.1518	-108.03	-49.449
3	3486.3	-43.731	112.51	-0.1518	-120.41	-52.979
4	2653.7	-34.635	82.210	-0.1518	-79.151	-42.130
5	2818.3	-31.586	75.772	-0.1518	-71.468	-37.964
6	2982.9	-36.247	88.977	-0.1518	-90.170	-44.308
7	2150.3	-36.557	83.707	-0.1518	-81.105	-45.689
8	2314.9	-33.294	76.982	-0.1518	-73.075	-41.236
9	2479.5	-38.185	90.431	-0.1518	-92.049	-47.884
MINIMUM	2150.3	-43.731	75.772	-0.1518	-120.41	-52.979
Pile N.	7	3	5	1	3	3
MAXIMUM	3486.3	-31.586	112.51	-0.1518	-71.468	-37.964
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	2156.3
2	2238.3
3	2369.9
4	1772.3
5	1839.1
6	1991.2
7	1497.8
8	1563.2
9	1716.3
MINIMUM	1497.8
Pile N.	7
MAXIMUM	2369.9
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-7.0988E-05	-6.3154E-06	-44.848	-111.00	-42.366	-37.537	-34.584	-11.906	1786.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
2	-7.0988E-05	-6.3761E-06	-43.677	-108.03	-40.550	-36.293	-32.586	-11.336	1879.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
3	-7.0988E-05	-6.3804E-06	-45.433	-120.41	-43.277	-38.824	-35.607	-12.406	1972.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
4	-7.2484E-05	-6.4862E-06	-39.369	-79.151	-34.330	-29.887	-25.436	-8.6882	1501.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
5	-7.2484E-05	-6.5876E-06	-37.389	-71.468	-31.320	-27.668	-22.507	-7.8184	1594.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
6	-7.2484E-05	-6.5155E-06	-40.390	-90.170	-35.920	-31.534	-27.036	-9.3148	1688.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.2500	2.0000	7.0000	25.000	0.0000	0.0000
7	-7.3979E-05	-6.4645E-06	-40.481	-81.105	-36.237	-30.330	-26.747	-8.8570	1216.8	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
8	-7.3979E-05	-6.5803E-06	-38.370	-73.075	-33.016	-28.037	-23.598	-7.9627	1310.0	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
9	-7.3979E-05	-6.5110E-06	-41.508	-92.049	-37.843	-31.955	-28.370	-9.4993	1403.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.2500	2.0000	7.0000	25.000	0.0000	0.0000
Min.	-7.3979E-05	-6.5876E-06	-45.433	-120.41	-43.277	-38.824	-35.607	-12.406	1216.8	7.8279E+06	7.8279E+06
Pile N.	7	5	3	3	3	3	3	3	7	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	2.2612E-06	1.9458E-04	51.799	124.21	13.560	105.63	4.3119	90.839	2185.1	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	3.2500	0.0000	0.0000
2	2.2707E-06	1.9608E-04	49.449	122.03	12.981	102.44	4.0600	86.504	2270.9	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	3.2500	0.0000	0.0000

3	2.2608E-06	1.9757E-04	52.979	127.47	13.850	111.24	4.4372	95.580	2381.3	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	3.2500	0.0000	0.0000
4	2.3512E-06	1.9458E-04	42.130	108.18	10.915	81.389	3.1932	64.835	1849.0	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.5000	0.0000	7.2500	2.0000	3.2500	0.0000	0.0000
5	2.3717E-06	1.9608E-04	37.964	103.49	10.058	75.052	2.8489	57.965	1926.7	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.2500	5.5000	0.0000	7.5000	2.0000	3.2500	0.0000	0.0000
6	2.3452E-06	1.9757E-04	44.308	112.30	11.396	88.084	3.3827	70.453	2048.1	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	3.2500	0.0000	0.0000
7	2.3887E-06	1.9458E-04	45.689	109.17	11.288	82.864	3.3236	66.320	1568.1	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.5000	0.0000	7.2500	2.0000	3.2500	0.0000	0.0000
8	2.4079E-06	1.9608E-04	41.236	104.31	10.376	76.246	2.9545	59.116	1645.1	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.2500	5.5000	0.0000	7.5000	2.0000	3.2500	0.0000	0.0000
9	2.3824E-06	1.9757E-04	47.884	113.26	11.774	89.516	3.5132	71.917	1767.1	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	3.2500	0.0000	0.0000
Max.	2.4079E-06	1.9757E-04	52.979	127.47	13.850	111.24	4.4372	95.580	2381.3	7.8279E+06	7.8279E+06
Pile N.	8	3	3	3	3	3	3	3	3	1	1

LOAD CASE : 3
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.7679	1.0000
2	0.7249	1.0000
3	0.8661	1.0000
4	0.5481	1.0000
5	0.4962	1.0000
6	0.6770	1.0000
7	0.5845	1.0000
8	0.5305	1.0000
9	0.7086	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
29643.0	-959.000	873.000

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
0.00000	18986.5	10268.5

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.34166E-03	-1.96982E-04	2.44836E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-3.09979E-07	6.90538E-05	4.06627E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.4694E-03	-1.9563E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
2	1.6524E-03	-1.9563E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
3	1.8354E-03	-1.9563E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
4	1.1587E-03	-1.9702E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
5	1.3417E-03	-1.9702E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
6	1.5247E-03	-1.9702E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
7	8.4794E-04	-1.9842E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
8	1.0309E-03	-1.9842E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
9	1.2139E-03	-1.9842E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
MINIMUM	8.4794E-04	-1.9842E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	1.8354E-03	-1.9563E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	3591.2	-116.93	107.91	-0.1415	-74.722	-150.63
2	4017.4	-112.73	104.83	-0.1415	-71.975	-145.20
3	4443.6	-126.05	120.65	-0.1415	-92.730	-162.37
4	2867.5	-95.413	83.944	-0.1415	-44.056	-122.90
5	3293.7	-89.367	78.822	-0.1415	-38.278	-114.59
6	3719.9	-109.29	101.06	-0.1415	-68.211	-141.62
7	2143.7	-100.75	88.200	-0.1415	-49.533	-131.00
8	2569.9	-94.587	83.047	-0.1415	-43.799	-122.62
9	2996.1	-113.90	104.53	-0.1415	-72.534	-148.61
MINIMUM	2143.7	-126.05	78.822	-0.1415	-92.730	-162.37
Pile N.	7	3	5	1	3	3
MAXIMUM	4443.6	-89.367	120.65	-0.1415	-38.278	-114.59
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.4694E-03	-1.9563E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
2	1.6524E-03	-1.9563E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
3	1.8354E-03	-1.9563E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
4	1.1587E-03	-1.9702E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
5	1.3417E-03	-1.9702E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
6	1.5247E-03	-1.9702E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
7	8.4794E-04	-1.9842E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
8	1.0309E-03	-1.9842E-04	2.4491E-04	-3.0998E-07	6.9054E-05	4.0663E-05
9	1.2139E-03	-1.9842E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
MINIMUM	8.4794E-04	-1.9842E-04	2.4351E-04	-3.0998E-07	6.9054E-05	4.0663E-05
Pile N.	7	7	1	1	1	1
MAXIMUM	1.8354E-03	-1.9563E-04	2.4630E-04	-3.0998E-07	6.9054E-05	4.0663E-05
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	3591.2	-116.93	107.91	-0.1415	-74.722	-150.63
2	4017.4	-112.73	104.83	-0.1415	-71.975	-145.20
3	4443.6	-126.05	120.65	-0.1415	-92.730	-162.37
4	2867.5	-95.413	83.944	-0.1415	-44.056	-122.90
5	3293.7	-89.367	78.822	-0.1415	-38.278	-114.59
6	3719.9	-109.29	101.06	-0.1415	-68.211	-141.62
7	2143.7	-100.75	88.200	-0.1415	-49.533	-131.00
8	2569.9	-94.587	83.047	-0.1415	-43.799	-122.62
9	2996.1	-113.90	104.53	-0.1415	-72.534	-148.61
MINIMUM	2143.7	-126.05	78.822	-0.1415	-92.730	-162.37
Pile N.	7	3	5	1	3	3
MAXIMUM	4443.6	-89.367	120.65	-0.1415	-38.278	-114.59
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	2539.7
2	2762.5
3	3078.9
4	2016.7
5	2228.5
6	2579.4
7	1635.8
8	1847.3
9	2194.5
MINIMUM	1635.8
Pile N.	7
MAXIMUM	3078.9
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-1.9563E-04	-8.2255E-06	-118.74	-74.722	-115.82	-45.612	-90.373	-14.140	2032.2	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	4.7500	2.0000	6.7500	25.000	0.0000	0.0000
2	-1.9563E-04	-8.3169E-06	-116.01	-71.975	-111.69	-44.359	-85.970	-13.599	2273.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000

3	-1.9563E-04	-8.1951E-06	-124.59	-92.730	-124.80	-49.428	-100.25	-15.749	2514.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	25.000	0.0000	0.0000
4	-1.9702E-04	-8.5329E-06	-104.92	-44.056	-94.616	-37.743	-67.970	-10.857	1622.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.0000	2.0000	7.0000	25.000	0.0000	0.0000
5	-1.9702E-04	-8.6473E-06	-100.96	-38.278	-88.646	-35.850	-62.241	-10.071	1863.8	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
6	-1.9702E-04	-8.3933E-06	-113.67	-68.211	-108.30	-42.913	-81.788	-12.934	2105.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
7	-1.9842E-04	-8.4673E-06	-108.22	-49.533	-99.888	-39.143	-72.610	-11.410	1213.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.0000	2.0000	7.0000	25.000	0.0000	0.0000
8	-1.9842E-04	-8.5833E-06	-104.25	-43.799	-93.809	-37.167	-66.668	-10.618	1454.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.0000	2.0000	7.0000	25.000	0.0000	0.0000
9	-1.9842E-04	-8.3616E-06	-116.38	-72.534	-112.86	-43.996	-85.904	-13.413	1695.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
Min.	-1.9842E-04	-8.6473E-06	-124.59	-92.730	-124.80	-49.428	-100.25	-15.749	1213.1	7.8279E+06	7.8279E+06
Pile N.	7	5	3	3	3	3	3	3	7	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	6.2266E-06	2.4351E-04	150.63	155.32	35.279	106.52	11.023	98.805	2617.9	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.0000	5.2500	0.0000	7.0000	2.0000	3.2500	0.0000	0.0000
2	6.2396E-06	2.4491E-04	145.20	152.95	34.095	103.52	10.514	94.744	2849.2	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.0000	5.2500	0.0000	7.0000	2.0000	3.2500	0.0000	0.0000
3	6.1801E-06	2.4630E-04	162.37	163.28	38.018	119.07	12.199	111.67	3130.8	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.0000	5.0000	0.0000	6.7500	2.0000	3.0000	0.0000	0.0000
4	6.3511E-06	2.4351E-04	122.90	138.72	28.899	82.953	8.3601	73.303	2144.2	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.0000	5.5000	0.0000	7.5000	2.0000	3.2500	0.0000	0.0000
5	6.3918E-06	2.4491E-04	114.59	134.73	27.183	77.921	7.7130	67.630	2368.8	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.0000	5.5000	0.0000	7.5000	2.0000	3.2500	0.0000	0.0000
6	6.2870E-06	2.4630E-04	141.62	150.04	32.908	99.827	9.9722	89.984	2670.1	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.0000	5.2500	0.0000	7.0000	2.0000	3.2500	0.0000	0.0000
7	6.3673E-06	2.4351E-04	131.00	141.68	30.216	87.143	8.8890	77.635	1747.6	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.0000	5.5000	0.0000	7.2500	2.0000	3.2500	0.0000	0.0000
8	6.4064E-06	2.4491E-04	122.62	137.71	28.509	82.083	8.2008	71.820	1972.3	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.0000	5.5000	0.0000	7.5000	2.0000	3.2500	0.0000	0.0000
9	6.3116E-06	2.4630E-04	148.61	152.38	34.064	103.23	10.445	93.681	2271.0	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.0000	5.2500	0.0000	7.0000	2.0000	3.2500	0.0000	0.0000
Max.	6.4064E-06	2.4630E-04	162.37	163.28	38.018	119.07	12.199	111.67	3130.8	7.8279E+06	7.8279E+06
Pile N.	8	3	3	3	3	3	3	3	3	1	1

LOAD CASE : 4
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6149	1.0000
2	0.6027	1.0000
3	0.8661	1.0000
4	0.5045	1.0000
5	0.4962	1.0000
6	0.7878	1.0000
7	0.5845	1.0000
8	0.5722	1.0000
9	0.8448	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
30159.0	-2605.00	718.000

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
248.000	11486.0	30953.5

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.36630E-03	-5.57190E-04	1.74306E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
1.83698E-06	4.30783E-05	1.20642E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.0173E-03	-5.6558E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
2	1.5601E-03	-5.6558E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
3	2.1030E-03	-5.6558E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
4	8.2341E-04	-5.5731E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
5	1.3663E-03	-5.5731E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
6	1.9092E-03	-5.5731E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
7	6.2956E-04	-5.4904E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
8	1.1725E-03	-5.4904E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
9	1.7153E-03	-5.4904E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
MINIMUM	6.2956E-04	-5.6558E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	2.1030E-03	-5.4904E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	2538.1	-287.71	85.121	0.8388	-91.559	-358.50
2	3802.6	-283.84	76.481	0.8388	-74.597	-353.58
3	5067.0	-357.77	88.760	0.8388	-84.342	-450.19
4	2086.6	-245.84	74.333	0.8388	-77.024	-296.20
5	3351.1	-242.99	66.713	0.8388	-61.477	-292.52
6	4615.5	-328.51	83.219	0.8388	-77.396	-406.66
7	1634.6	-263.79	82.275	0.8388	-87.713	-315.28
8	2899.5	-259.96	73.794	0.8388	-70.973	-310.37
9	4164.0	-334.58	87.304	0.8388	-82.477	-408.19
MINIMUM	1634.6	-357.77	66.713	0.8388	-91.559	-450.19
Pile N.	7	3	5	1	1	3
MAXIMUM	5067.0	-242.99	88.760	0.8388	-61.477	-292.52
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.0173E-03	-5.6558E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
2	1.5601E-03	-5.6558E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
3	2.1030E-03	-5.6558E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
4	8.2341E-04	-5.5731E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
5	1.3663E-03	-5.5731E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
6	1.9092E-03	-5.5731E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
7	6.2956E-04	-5.4904E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
8	1.1725E-03	-5.4904E-04	1.7435E-04	1.8370E-06	4.3078E-05	1.2064E-04
9	1.7153E-03	-5.4904E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
MINIMUM	6.2956E-04	-5.6558E-04	1.6608E-04	1.8370E-06	4.3078E-05	1.2064E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	2.1030E-03	-5.4904E-04	1.8262E-04	1.8370E-06	4.3078E-05	1.2064E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	2538.1	-287.71	85.121	0.8388	-91.559	-358.50
2	3802.6	-283.84	76.481	0.8388	-74.597	-353.58
3	5067.0	-357.77	88.760	0.8388	-84.342	-450.19
4	2086.6	-245.84	74.333	0.8388	-77.024	-296.20
5	3351.1	-242.99	66.713	0.8388	-61.477	-292.52
6	4615.5	-328.51	83.219	0.8388	-77.396	-406.66
7	1634.6	-263.79	82.275	0.8388	-87.713	-315.28
8	2899.5	-259.96	73.794	0.8388	-70.973	-310.37
9	4164.0	-334.58	87.304	0.8388	-82.477	-408.19
MINIMUM	1634.6	-357.77	66.713	0.8388	-91.559	-450.19
Pile N.	7	3	5	1	1	3
MAXIMUM	5067.0	-242.99	88.760	0.8388	-61.477	-292.52
Pile N.	3	5	3	1	5	5

PILE GROUP STRESS, KN/ M**2

**********	**********
1	2553.0
2	3242.4
3	4249.7
4	2104.4
5	2798.4
6	3861.2
7	1912.7
8	2601.7
9	3613.2
MINIMUM	1912.7
Pile N.	7
MAXIMUM	4249.7
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-5.6558E-04	-5.9813E-06	-315.52	-91.559	-285.14	-29.139	-213.41	-8.6164	1436.3	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.0000	25.000	0.0000	0.0000
2	-5.6558E-04	-5.7815E-06	-313.23	-74.597	-281.33	-27.689	-209.68	-8.1536	2151.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.7500	3.5000	0.0000	0.0000	5.2500	2.0000	7.0000	25.000	0.0000	0.0000
3	-5.6558E-04	-5.4225E-06	-360.97	-84.342	-354.16	-32.828	-287.32	-10.486	2867.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	25.000	0.0000	0.0000
4	-5.5731E-04	-6.0587E-06	-289.22	-77.024	-243.76	-25.854	-175.68	-7.3287	1180.8	7.8279E+06	7.8279E+06
x(M)	0.0000	7.2500	3.5000	0.0000	0.0000	5.5000	2.0000	7.2500	25.000	0.0000	0.0000
5	-5.5731E-04	-5.8767E-06	-287.46	-61.477	-240.95	-24.662	-173.10	-6.9666	1896.3	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
6	-5.5731E-04	-5.4740E-06	-343.22	-77.396	-325.28	-31.122	-259.58	-9.7319	2611.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
7	-5.4904E-04	-6.0111E-06	-301.42	-87.713	-261.42	-28.255	-196.06	-8.2759	925.00	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
8	-5.4904E-04	-5.8110E-06	-299.12	-70.973	-257.64	-26.854	-192.40	-7.8119	1640.8	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.5000	0.0000	0.0000	5.2500	2.0000	7.2500	25.000	0.0000	0.0000
9	-5.4904E-04	-5.4367E-06	-347.89	-82.477	-331.16	-32.367	-270.21	-10.272	2356.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.2500	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
Min.	-5.6558E-04	-6.0587E-06	-360.97	-91.559	-354.16	-32.828	-287.32	-10.486	925.00	7.8279E+06	7.8279E+06
Pile N.	1	4	3	1	3	3	3	3	7	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	1.8245E-05	1.8262E-04	358.50	103.48	89.119	84.290	26.511	66.332	2553.0	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
2	1.8277E-05	1.7435E-04	353.58	98.946	88.039	75.704	26.098	61.022	3242.4	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
3	1.7936E-05	1.6608E-04	450.19	108.36	110.14	87.698	35.319	78.136	4249.7	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.0000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
4	1.8205E-05	1.8262E-04	296.20	96.051	78.076	73.651	22.191	55.675	2104.4	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.2500	5.5000	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
5	1.8239E-05	1.7435E-04	292.52	92.232	77.344	66.073	21.909	51.345	2807.0	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	3.2500	5.5000	0.0000	7.5000	2.0000	3.5000	0.0000	0.0000
6	1.7786E-05	1.6608E-04	406.66	104.62	102.25	82.252	32.077	71.958	3861.2	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.0000	5.0000	0.0000	7.0000	2.0000	0.0000	0.0000	0.0000
7	1.7833E-05	1.8262E-04	315.28	101.52	84.051	81.484	24.730	63.440	1912.7	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
8	1.7860E-05	1.7435E-04	310.37	97.098	82.965	73.055	24.310	58.286	2601.7	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.2500	5.2500	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
9	1.7479E-05	1.6608E-04	408.19	107.36	105.46	86.267	33.607	76.471	3613.2	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.0000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
Max.	1.8277E-05	1.8262E-04	450.19	108.36	110.14	87.698	35.319	78.136	4249.7	7.8279E+06	7.8279E+06
Pile N.	2	1	3	3	3	3	3	3	3	1	1

***** SUMMARY FOR LOAD CASES AND COMBINATIONS *****

***** LOAD CASES RESULTS *****

LOAD CASE : 1

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M

```
          32587.0       -1369.00        1090.00        3.00000        17150.0        14443.5

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.48211E-03   -2.79613E-04    2.61091E-04   -1.41077E-08    6.44281E-05    5.73312E-05

     * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ************  ************  ************  ************  ************  ************
     MINIMUM     9.3419E-04  -2.7973E-04   2.6109E-04  -1.4108E-08   6.4428E-05   5.7331E-05
     Pile N.            7            7            1            1            1            1
     MAXIMUM     2.0300E-03  -2.7961E-04   2.6122E-04  -1.4108E-08   6.4428E-05   5.7331E-05
     Pile N.            3            1            3            1            1            1

     * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ************  ************  ************  ************  ************  ************
     MINIMUM         2344.6      -181.80       100.09  -6.4417E-03      -153.46      -237.01
     Pile N.            7            3            5            1            3            3
     MAXIMUM         4896.9      -127.52       146.70  -6.4417E-03      -92.650      -164.86
     Pile N.            3            5            3            1            5            5

     * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ************  ************  ************  ************  ************  ************
     MINIMUM     9.3419E-04  -2.7973E-04   2.6109E-04  -1.4108E-08   6.4428E-05   5.7331E-05
     Pile N.            7            7            1            1            1            1
     MAXIMUM     2.0300E-03  -2.7961E-04   2.6122E-04  -1.4108E-08   6.4428E-05   5.7331E-05
     Pile N.            3            1            3            1            1            1

     * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ************  ************  ************  ************  ************  ************
     MINIMUM         2344.6      -181.80       100.09  -6.4417E-03      -153.46      -237.01
     Pile N.            7            3            5            1            3            3
     MAXIMUM         4896.9      -127.52       146.70  -6.4417E-03      -92.650      -164.86
     Pile N.            3            5            3            1            5            5

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M         KN- M       KN- M          KN          KN        KN/ M       KN/ M     KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -2.7973E-04 -8.7998E-06     -177.90     -153.46     -180.02     -51.418     -143.93     -16.423      1326.8
 Pile N.        7           5           3           3           3           3           3           3           7
    Max.  9.0640E-06  2.6122E-04      237.01      168.78      54.299      145.03      17.430      125.61      3623.3
 Pile N.        5           3           3           3           3           3           3           3           3

   LOAD CASE :     2

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            25365.0       -338.000        821.000        0.00000        12766.5        4031.00

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.13758E-03   -7.24680E-05    1.96030E-04   -3.32394E-07    4.80306E-05    1.57041E-05

     * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ************  ************  ************  ************  ************  ************
     MINIMUM     8.5078E-04  -7.3979E-05   1.9458E-04  -3.3239E-07   4.8031E-05   1.5704E-05
     Pile N.            7            7            1            1            1            1
     MAXIMUM     1.4244E-03  -7.0988E-05   1.9757E-04  -3.3239E-07   4.8031E-05   1.5704E-05
     Pile N.            3            1            3            1            1            1

     * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ************  ************  ************  ************  ************  ************
     MINIMUM         2150.3      -43.731       75.772      -0.1518      -120.41      -52.979
     Pile N.            7            3            5            1            3            3
     MAXIMUM         3486.3      -31.586       112.51      -0.1518      -71.468      -37.964
     Pile N.            3            5            3            1            5            5

     * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ************  ************  ************  ************  ************  ************
     MINIMUM     8.5078E-04  -7.3979E-05   1.9458E-04  -3.3239E-07   4.8031E-05   1.5704E-05
     Pile N.            7            7            1            1            1            1
     MAXIMUM     1.4244E-03  -7.0988E-05   1.9757E-04  -3.3239E-07   4.8031E-05   1.5704E-05
     Pile N.            3            1            3            1            1            1

     * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ************  ************  ************  ************  ************  ************
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```
     MINIMUM         2150.3      -43.731       75.772      -0.1518      -120.41      -52.979
     Pile N.          7            3            5            1            3            3
     MAXIMUM         3486.3      -31.586       112.51      -0.1518      -71.468      -37.964
     Pile N.          3            5            3            1            5            5

     * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
             M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
******  **********  **********  **********  **********  **********  **********  **********  **********  **********
   Min. -7.3979E-05 -6.5876E-06     -45.433     -120.41     -43.277     -38.824     -35.607     -12.406      1216.8
Pile N.       7           5           3           3           3           3           3           3           7
   Max.  2.4079E-06  1.9757E-04      52.979      127.47      13.850      111.24      4.4372      95.580      2381.3
Pile N.       8           3           3           3           3           3           3           3           3

  LOAD CASE :     3

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
       LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
           29643.0       -959.000        873.000        0.00000        18986.5        10268.5

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
        DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.34166E-03   -1.96982E-04    2.44836E-04   -3.09979E-07    6.90538E-05    4.06627E-05

    * PILE TOP DISPLACEMENTS, GLOBAL *
              DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
             ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     8.4794E-04  -1.9842E-04   2.4351E-04  -3.0998E-07   6.9054E-05   4.0663E-05
    Pile N.          7            7            1            1            1            1
    MAXIMUM     1.8354E-03  -1.9563E-04   2.4630E-04  -3.0998E-07   6.9054E-05   4.0663E-05
    Pile N.          3            1            3            1            1            1

    * PILE TOP REACTIONS, GLOBAL *
              FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
             ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2143.7      -126.05       78.822      -0.1415      -92.730      -162.37
    Pile N.          7            3            5            1            3            3
    MAXIMUM         4443.6      -89.367       120.65      -0.1415      -38.278      -114.59
    Pile N.          3            5            3            1            5            5

    * PILE TOP DISPLACEMENTS, LOCAL *
              DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
             ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     8.4794E-04  -1.9842E-04   2.4351E-04  -3.0998E-07   6.9054E-05   4.0663E-05
    Pile N.          7            7            1            1            1            1
    MAXIMUM     1.8354E-03  -1.9563E-04   2.4630E-04  -3.0998E-07   6.9054E-05   4.0663E-05
    Pile N.          3            1            3            1            1            1

    * PILE TOP REACTIONS, LOCAL *
              AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
             ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2143.7      -126.05       78.822      -0.1415      -92.730      -162.37
    Pile N.          7            3            5            1            3            3
    MAXIMUM         4443.6      -89.367       120.65      -0.1415      -38.278      -114.59
    Pile N.          3            5            3            1            5            5

    * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
             M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
******  **********  **********  **********  **********  **********  **********  **********  **********  **********
   Min. -1.9842E-04 -8.6473E-06     -124.59     -92.730     -124.80     -49.428     -100.25     -15.749      1213.1
Pile N.       7           5           3           3           3           3           3           3           7
   Max.  6.4064E-06  2.4630E-04      162.37      163.28      38.018      119.07      12.199      111.67      3130.8
Pile N.       8           3           3           3           3           3           3           3           3

  LOAD CASE :     4

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
       LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
           30159.0       -2605.00        718.000        248.000        11486.0        30953.5

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
        DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.36630E-03   -5.57190E-04    1.74306E-04    1.83698E-06    4.30783E-05    1.20642E-04

    * PILE TOP DISPLACEMENTS, GLOBAL *
              DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
             ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     6.2956E-04  -5.6558E-04   1.6608E-04   1.8370E-06   4.3078E-05   1.2064E-04
    Pile N.          7            1            3            1            1            1
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```
   MAXIMUM     2.1030E-03  -5.4904E-04   1.8262E-04   1.8370E-06   4.3078E-05   1.2064E-04
   Pile N.          3            7            1            1            1            1

   * PILE TOP REACTIONS, GLOBAL *
              FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
             ***********  ***********  ***********  ***********  ***********  ***********
   MINIMUM         1634.6      -357.77       66.713       0.8388      -91.559      -450.19
   Pile N.          7            3            5            1            1            3
   MAXIMUM         5067.0      -242.99       88.760       0.8388      -61.477      -292.52
   Pile N.          3            5            3            1            5            5

   * PILE TOP DISPLACEMENTS, LOCAL *
              DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
             ***********  ***********  ***********  ***********  ***********  ***********
   MINIMUM     6.2956E-04  -5.6558E-04   1.6608E-04   1.8370E-06   4.3078E-05   1.2064E-04
   Pile N.          7            1            3            1            1            1
   MAXIMUM     2.1030E-03  -5.4904E-04   1.8262E-04   1.8370E-06   4.3078E-05   1.2064E-04
   Pile N.          3            7            1            1            1            1

   * PILE TOP REACTIONS, LOCAL *
              AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
             ***********  ***********  ***********  ***********  ***********  ***********
   MINIMUM         1634.6      -357.77       66.713       0.8388      -91.559      -450.19
   Pile N.          7            3            5            1            1            3
   MAXIMUM         5067.0      -242.99       88.760       0.8388      -61.477      -292.52
   Pile N.          3            5            3            1            5            5

   * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
             M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
******  **********  **********  **********  **********  **********  **********  **********  **********  **********
   Min. -5.6558E-04 -6.0587E-06     -360.97     -91.559     -354.16     -32.828     -287.32     -10.486      925.00
Pile N.       1           4           3           1           3           3           3           3           7
   Max.  1.8277E-05  1.8262E-04      450.19      108.36      110.14      87.698      35.319      78.136      4249.7
Pile N.       2           1           3           3           3           3           3           3           3
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12.2 PILA SLU – SLV

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=========================================================================

                GROUP for Windows, Version 2016.10.13

                 Serial Number : 228330872

                  Analysis of A Group of Piles
               Subjected to Axial and Lateral Loading

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-------------------------------------------------------------------------
                    Time and Date of Analysis
-------------------------------------------------------------------------

          Date:  November 28, 2019     Time:  16:25:25



            *****     COMPUTATION RESULTS     *****


New Group



            *****     LOAD CASES RESULTS      *****


LOAD CASE :     1
CASE NAME : Load Case
LOAD TYPE : Special, Sp
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REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8501	1.0000
2	0.5739	1.0000
3	0.5845	1.0000
4	0.7922	1.0000
5	0.4962	1.0000
6	0.5025	1.0000
7	0.8661	1.0000
8	0.5969	1.0000
9	0.6075	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
24153.0	10777.8	-2736.80

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-158.000	-30054.2	-1.08479E+05

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.14622E-03	2.83651E-03	-7.60056E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
6.38318E-06	-1.28665E-04	-4.42370E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.5579E-03	2.8082E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
2	5.6723E-04	2.8082E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
3	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
4	3.1369E-03	2.8370E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
5	1.1462E-03	2.8370E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
6	-8.4444E-04	2.8370E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
7	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
8	1.7252E-03	2.8657E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
9	-2.6545E-04	2.8657E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
MINIMUM	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	3	1	3	1	1	1
MAXIMUM	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	7	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	6126.4	1467.2	-358.99	2.9146	529.94	2327.6
2	1472.8	1084.3	-280.73	2.9146	426.42	1745.0
3	-3408.6	1099.3	-302.48	2.9146	472.57	1763.0
4	7407.2	1372.3	-330.02	2.9146	484.08	2189.2
5	2838.5	988.26	-251.17	2.9146	381.66	1613.0
6	-2073.2	998.17	-269.93	2.9146	423.20	1623.5
7	8273.6	1474.4	-349.82	2.9146	512.04	2351.3
8	4187.0	1139.4	-285.86	2.9146	434.79	1860.0
9	-670.64	1154.5	-307.80	2.9146	481.25	1878.2
MINIMUM	-3408.6	988.26	-358.99	2.9146	381.66	1613.0
Pile N.	3	5	1	1	5	5
MAXIMUM	8273.6	1474.4	-251.17	2.9146	529.94	2351.3
Pile N.	7	7	5	1	1	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.5579E-03	2.8082E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
2	5.6723E-04	2.8082E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
3	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
4	3.1369E-03	2.8370E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
5	1.1462E-03	2.8370E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
6	-8.4444E-04	2.8370E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
7	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
8	1.7252E-03	2.8657E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
9	-2.6545E-04	2.8657E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
MINIMUM	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	3	1	3	1	1	1
MAXIMUM	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	7	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	6126.4	1467.2	-358.99	2.9146	529.94	2327.6
2	1472.8	1084.3	-280.73	2.9146	426.42	1745.0
3	-3408.6	1099.3	-302.48	2.9146	472.57	1763.0
4	7407.2	1372.3	-330.02	2.9146	484.08	2189.2
5	2838.5	988.26	-251.17	2.9146	381.66	1613.0
6	-2073.2	998.17	-269.93	2.9146	423.20	1623.5
7	8273.6	1474.4	-349.82	2.9146	512.04	2351.3
8	4187.0	1139.4	-285.86	2.9146	434.79	1860.0
9	-670.64	1154.5	-307.80	2.9146	481.25	1878.2
MINIMUM	-3408.6	988.26	-358.99	2.9146	381.66	1613.0
Pile N.	3	5	1	1	5	5
MAXIMUM	8273.6	1474.4	-251.17	2.9146	529.94	2351.3
Pile N.	7	7	5	1	1	7

PILE GROUP	STRESS, KN/ M**2
1	1.0672E+04
2	6254.8
3	7437.7
4	1.0958E+04
5	6608.7
6	6236.8
7	1.1945E+04
8	8134.4
9	6231.0
MINIMUM	6231.0
Pile N.	9
MAXIMUM	1.1945E+04
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.6804E-05	-7.3146E-04	-2327.6	-377.01	-485.52	-354.94	-147.24	-182.07	3466.8	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
2	-6.2827E-05	-7.6018E-04	-1745.0	-316.95	-341.64	-277.87	-93.390	-130.41	833.42	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
3	-6.2547E-05	-7.8891E-04	-1763.0	-330.90	-344.62	-299.43	-94.685	-138.87	1928.9	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
4	-6.2687E-05	-7.3146E-04	-2189.2	-351.17	-431.68	-326.28	-127.62	-167.67	4191.6	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	7.7500	2.0000	25.000	0.0000	0.0000
5	-6.4058E-05	-7.6018E-04	-1613.0	-296.42	-311.13	-248.72	-82.018	-112.92	1606.2	7.8279E+06	7.8279E+06
x(M)	8.2500	0.0000	0.0000	4.2500	6.5000	0.0000	8.5000	2.0000	25.000	0.0000	0.0000
6	-6.3665E-05	-7.8891E-04	-1623.5	-308.24	-312.71	-267.33	-82.650	-119.64	1173.2	7.8279E+06	7.8279E+06
x(M)	8.2500	0.0000	0.0000	4.2500	6.5000	0.0000	8.5000	2.0000	25.000	0.0000	0.0000
7	-6.2688E-05	-7.3146E-04	-2351.3	-363.87	-461.14	-345.77	-139.60	-181.35	4681.9	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	4.0000	6.0000	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
8	-6.4152E-05	-7.6018E-04	-1860.0	-320.70	-356.04	-282.94	-98.144	-133.87	2369.4	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
9	-6.3884E-05	-7.8891E-04	-1878.2	-334.80	-359.05	-304.68	-99.458	-142.45	379.51	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
Min.	-6.6804E-05	-7.8891E-04	-2351.3	-377.01	-485.52	-354.94	-147.24	-182.07	379.51	7.8279E+06	7.8279E+06
Pile N.	1	3	7	1	1	1	1	1	9	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2

******	**********	**********	**********	**********	**********	**********	**********	**********	**********	**********	**********
1	2.8082E-03	1.7202E-05	1453.6	529.94	1451.7	124.69	718.81	37.698	1.0672E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
2	2.8082E-03	1.6874E-05	1169.8	426.42	1073.7	91.501	490.79	24.982	6254.8	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
3	2.8082E-03	1.7501E-05	1177.6	472.57	1088.4	96.303	498.67	26.444	7437.7	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	0.0000	0.0000	0.0000
4	2.8370E-03	1.5930E-05	1361.7	484.08	1357.8	109.88	670.69	32.351	1.0958E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.0000	0.0000	0.0000	6.0000	2.0000	7.5000	0.0000	0.0000	0.0000
5	2.8370E-03	1.7008E-05	1104.2	381.66	979.13	82.881	430.50	21.676	6608.7	7.8279E+06	7.8279E+06
x(M)	0.0000	8.2500	4.5000	0.0000	0.0000	6.5000	2.0000	8.5000	0.0000	0.0000	0.0000
6	2.8370E-03	1.7614E-05	1108.2	423.20	988.81	86.671	435.15	22.811	6236.8	7.8279E+06	7.8279E+06
x(M)	0.0000	8.2500	4.5000	0.0000	0.0000	6.5000	2.0000	8.5000	0.0000	0.0000	0.0000
7	2.8657E-03	1.5831E-05	1428.5	512.04	1458.6	115.61	734.30	34.971	1.1945E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.2500	4.0000	0.0000	0.0000	6.0000	2.0000	7.5000	0.0000	0.0000	0.0000
8	2.8657E-03	1.6826E-05	1208.3	434.79	1128.4	93.597	516.62	25.685	8134.4	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	0.0000	0.0000	0.0000
9	2.8657E-03	1.7463E-05	1216.0	481.25	1143.2	98.405	524.55	27.169	6231.0	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	0.0000	0.0000	0.0000
Max.	2.8657E-03	1.7614E-05	1453.6	529.94	1458.6	124.69	734.30	37.698	1.1945E+04	7.8279E+06	7.8279E+06
Pile N.	7	6	1	1	7	1	7	1	7	1	1

LOAD CASE : 2
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6103	1.0000
2	0.5991	1.0000
3	0.8661	1.0000
4	0.5033	1.0000
5	0.4962	1.0000
6	0.7905	1.0000
7	0.5845	1.0000
8	0.5733	1.0000
9	0.8481	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
30322.0	-10087.0	2687.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
108.000	30654.2	1.00144E+05

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.44877E-03	-2.58459E-03	7.37937E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
6.93170E-06	1.30987E-04	4.14494E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.7299E-04	-2.6162E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
2	2.0382E-03	-2.6162E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
3	3.9034E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
4	-4.1645E-04	-2.5850E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
5	1.4488E-03	-2.5850E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
6	3.3140E-03	-2.5850E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
7	-1.0059E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
8	8.5933E-04	-2.5538E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
9	2.7246E-03	-2.5538E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
MINIMUM	-1.0059E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	7	1	3	1	1	1

MAXIMUM	3.9034E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	449.16	-1077.6	303.29	3.1651	-457.22	-1717.8
2	4916.0	-1063.4	279.21	3.1651	-406.23	-1700.8
3	8554.3	-1411.9	348.08	3.1651	-491.76	-2223.2
4	-1052.1	-927.21	265.38	3.1651	-399.90	-1473.6
5	3543.1	-917.43	244.57	3.1651	-353.92	-1462.7
6	7672.2	-1311.5	328.58	3.1651	-464.94	-2064.4
7	-2445.6	-1018.0	297.60	3.1651	-448.16	-1594.3
8	2170.3	-1003.8	273.73	3.1651	-397.54	-1577.3
9	6514.6	-1356.2	346.86	3.1651	-489.64	-2105.5
MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.7299E-04	-2.6162E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
2	2.0382E-03	-2.6162E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
3	3.9034E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
4	-4.1645E-04	-2.5850E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
5	1.4488E-03	-2.5850E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
6	3.3140E-03	-2.5850E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
7	-1.0059E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
8	8.5933E-04	-2.5538E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
9	2.7246E-03	-2.5538E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
MINIMUM	-1.0059E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	3.9034E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	449.16	-1077.6	303.29	3.1651	-457.22	-1717.8
2	4916.0	-1063.4	279.21	3.1651	-406.23	-1700.8
3	8554.3	-1411.9	348.08	3.1651	-491.76	-2223.2
4	-1052.1	-927.21	265.38	3.1651	-399.90	-1473.6
5	3543.1	-917.43	244.57	3.1651	-353.92	-1462.7
6	7672.2	-1311.5	328.58	3.1651	-464.94	-2064.4
7	-2445.6	-1018.0	297.60	3.1651	-448.16	-1594.3
8	2170.3	-1003.8	273.73	3.1651	-397.54	-1577.3
9	6514.6	-1356.2	346.86	3.1651	-489.64	-2105.5
MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	5619.1
2	8059.3
3	1.1713E+04
4	5203.7
5	6547.0
6	1.0728E+04
7	6382.0
8	6137.3
9	1.0211E+04
MINIMUM	5203.7
Pile N.	4
MAXIMUM	1.1713E+04
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2

1	-2.6162E-03	-1.6985E-05	-1136.6	-457.22	-1066.7	-99.112	-499.31	-27.618	254.17	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
2	-2.6162E-03	-1.6324E-05	-1129.4	-406.23	-1052.7	-93.897	-491.50	-25.992	2781.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
3	-2.6162E-03	-1.6530E-05	-1384.3	-491.76	-1396.6	-123.01	-703.13	-37.702	4840.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
4	-2.5850E-03	-1.7114E-05	-1033.3	-399.90	-918.19	-87.131	-412.44	-23.161	595.38	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	25.000	0.0000	0.0000
5	-2.5850E-03	-1.6456E-05	-1028.6	-353.92	-908.62	-82.782	-407.63	-21.894	2005.0	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	25.000	0.0000	0.0000
6	-2.5850E-03	-1.6619E-05	-1320.1	-464.94	-1297.6	-117.37	-640.28	-35.194	4341.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.2500	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
7	-2.5538E-03	-1.7045E-05	-1095.7	-448.16	-1007.5	-97.164	-471.21	-26.897	1383.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
8	-2.5538E-03	-1.6392E-05	-1088.5	-397.54	-993.62	-92.043	-463.45	-25.303	1228.1	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
9	-2.5538E-03	-1.6546E-05	-1346.3	-489.64	-1341.2	-122.47	-677.86	-37.485	3686.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
Min.	-2.6162E-03	-1.7114E-05	-1384.3	-491.76	-1396.6	-123.01	-703.13	-37.702	254.17	7.8279E+06	7.8279E+06
Pile N.	1	4	3	3	3	3	3	3	1	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	5.8127E-05	7.6926E-04	1717.8	333.95	339.39	300.07	94.934	144.11	5619.1	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
2	5.8409E-05	7.3807E-04	1700.8	318.64	336.28	276.20	93.680	134.54	8059.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.0000	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
3	6.1757E-05	7.0688E-04	2223.2	371.53	465.44	343.93	143.31	182.34	1.1713E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
4	5.7728E-05	7.6926E-04	1473.6	308.15	294.58	262.69	78.440	120.80	5203.7	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
5	5.7986E-05	7.3807E-04	1462.7	294.87	292.87	242.06	77.695	113.22	6547.0	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
6	6.1648E-05	7.0688E-04	2064.4	359.24	436.88	324.76	131.86	168.49	1.0728E+04	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	4.0000	5.7500	0.0000	7.7500	2.0000	0.0000	0.0000	0.0000
7	5.6789E-05	7.6926E-04	1594.3	329.99	323.86	294.45	89.890	140.16	6382.0	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
8	5.7061E-05	7.3807E-04	1577.3	314.59	320.72	270.79	88.622	130.75	6137.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
9	6.0233E-05	7.0688E-04	2105.5	370.51	450.80	342.72	138.52	181.13	1.0211E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
Max.	6.1757E-05	7.6926E-04	2223.2	371.53	465.44	343.93	143.31	182.34	1.1713E+04	7.8279E+06	7.8279E+06
Pile N.	3	1	3	3	3	3	3	3	3	1	1

LOAD CASE : 3
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6241	1.0000
2	0.5069	1.0000
3	0.5845	1.0000
4	0.6099	1.0000
5	0.4962	1.0000
6	0.5700	1.0000
7	0.8661	1.0000
8	0.7822	1.0000
9	0.8380	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
24638.0	3351.70	-9088.20

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-362.000	-1.00730E+05	-33529.7

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.15980E-03	8.35891E-04	-2.29418E-03

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-7.39636E-06	-3.99564E-04	-1.41654E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	-7.9780E-07	8.6932E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
2	-6.3824E-04	8.6932E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
3	-1.2757E-03	8.6932E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
4	1.7972E-03	8.3603E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
5	1.1598E-03	8.3603E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
6	5.2235E-04	8.3603E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
7	3.5953E-03	8.0275E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
8	2.9578E-03	8.0275E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
9	2.3204E-03	8.0275E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
MINIMUM	-1.2757E-03	8.0275E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	3.5953E-03	8.6932E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	-2.0155	385.46	-1000.2	-3.3772	1511.3	605.48
2	-1597.6	336.36	-850.23	-3.3772	1272.4	532.90
3	-3067.9	373.36	-922.90	-3.3772	1359.7	587.11
4	4354.8	356.60	-984.84	-3.3772	1492.7	546.10
5	2870.1	310.93	-837.69	-3.3772	1257.2	478.51
6	1356.3	344.81	-907.34	-3.3772	1340.7	528.24
7	8093.2	424.75	-1251.9	-3.3772	1869.0	622.08
8	7057.9	398.81	-1149.2	-3.3772	1707.0	586.52
9	5573.3	420.63	-1183.9	-3.3772	1732.0	615.94
MINIMUM	-3067.9	310.93	-1251.9	-3.3772	1257.2	478.51
Pile N.	3	5	7	1	5	5
MAXIMUM	8093.2	424.75	-837.69	-3.3772	1869.0	622.08
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	-7.9780E-07	8.6932E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
2	-6.3824E-04	8.6932E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
3	-1.2757E-03	8.6932E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
4	1.7972E-03	8.3603E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
5	1.1598E-03	8.3603E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
6	5.2235E-04	8.3603E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
7	3.5953E-03	8.0275E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
8	2.9578E-03	8.0275E-04	-2.2946E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
9	2.3204E-03	8.0275E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
MINIMUM	-1.2757E-03	8.0275E-04	-2.3279E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	3.5953E-03	8.6932E-04	-2.2613E-03	-7.3964E-06	-3.9956E-04	-1.4165E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	-2.0155	385.46	-1000.2	-3.3772	1511.3	605.48
2	-1597.6	336.36	-850.23	-3.3772	1272.4	532.90
3	-3067.9	373.36	-922.90	-3.3772	1359.7	587.11
4	4354.8	356.60	-984.84	-3.3772	1492.7	546.10
5	2870.1	310.93	-837.69	-3.3772	1257.2	478.51
6	1356.3	344.81	-907.34	-3.3772	1340.7	528.24
7	8093.2	424.75	-1251.9	-3.3772	1869.0	622.08
8	7057.9	398.81	-1149.2	-3.3772	1707.0	586.52
9	5573.3	420.63	-1183.9	-3.3772	1732.0	615.94
MINIMUM	-3067.9	310.93	-1251.9	-3.3772	1257.2	478.51

Pile N.	3	5	7	1	5	5
MAXIMUM	8093.2	424.75	-837.69	-3.3772	1869.0	622.08
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	4914.7
2	5067.4
3	6205.8
4	7261.5
5	5683.9
6	5116.6
7	1.0525E+04
8	9441.3
9	8701.7

MINIMUM	4914.7
Pile N.	1
MAXIMUM	1.0525E+04
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-2.0744E-05	-2.3279E-03	-605.48	-1092.7	-128.72	-989.55	-37.332	-473.34	1.1406	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
2	-2.0972E-05	-2.2946E-03	-532.90	-992.87	-113.49	-841.64	-31.499	-384.81	904.05	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
3	-2.0823E-05	-2.2613E-03	-587.11	-1039.6	-124.62	-913.03	-35.760	-435.32	1736.0	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
4	-1.9994E-05	-2.3279E-03	-546.10	-1084.3	-121.90	-974.55	-35.121	-464.43	2464.3	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.2500	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
5	-2.0199E-05	-2.2946E-03	-478.51	-986.21	-107.49	-829.34	-29.643	-378.10	1624.1	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
6	-2.0084E-05	-2.2613E-03	-528.24	-1031.0	-117.96	-897.79	-33.597	-426.32	767.48	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.2500	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
7	-1.8897E-05	-2.3279E-03	-622.08	-1257.3	-145.39	-1237.3	-45.342	-646.15	4579.8	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.5000	0.0000	7.2500	2.0000	25.000	0.0000	0.0000
8	-1.8963E-05	-2.2946E-03	-586.52	-1193.1	-137.70	-1136.1	-41.929	-581.40	3994.0	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
9	-1.8944E-05	-2.2613E-03	-615.94	-1211.9	-143.88	-1170.0	-44.715	-613.18	3153.8	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
Min.	-2.0972E-05	-2.3279E-03	-622.08	-1257.3	-145.39	-1237.3	-45.342	-646.15	1.1406	7.8279E+06	7.8279E+06
Pile N.	2	1	7	7	7	7	7	7	1	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	8.6932E-04	5.5336E-05	408.96	1511.3	381.50	342.48	179.16	99.062	4914.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
2	8.6932E-04	5.5141E-05	376.52	1272.4	333.11	296.91	148.39	82.227	5067.4	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
3	8.6932E-04	5.3923E-05	400.95	1359.7	369.56	321.26	170.99	91.781	6205.8	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
4	8.3603E-04	5.5622E-05	389.68	1492.7	352.90	338.89	167.37	97.572	7261.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
5	8.3603E-04	5.5362E-05	359.43	1257.2	307.88	293.98	138.80	80.993	5683.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
6	8.3603E-04	5.4212E-05	381.89	1340.7	341.28	317.61	159.43	90.250	5116.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
7	8.0275E-04	5.4919E-05	432.97	1869.0	419.72	423.10	221.19	132.08	1.0525E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
8	8.0275E-04	5.4235E-05	417.17	1707.0	394.23	394.30	202.67	120.11	9441.3	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
9	8.0275E-04	5.3359E-05	430.25	1732.0	415.68	405.23	217.75	125.93	8701.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
Max.	8.6932E-04	5.5622E-05	432.97	1869.0	419.72	423.10	221.19	132.08	1.0525E+04	7.8279E+06	7.8279E+06
Pile N.	1	4	7	7	7	7	7	7	7	1	1

LOAD CASE : 4
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8457	1.0000
2	0.7885	1.0000
3	0.8661	1.0000
4	0.5725	1.0000
5	0.4962	1.0000
6	0.6017	1.0000
7	0.5845	1.0000
8	0.5041	1.0000
9	0.6136	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
30322.0	-2810.50	8957.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
362.000	1.02181E+05	27318.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.44517E-03	-6.96896E-04	2.28310E-03

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-2.60160E-06	4.09963E-04	1.19490E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.7523E-03	-6.8531E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
2	3.2900E-03	-6.8531E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04
3	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
4	9.0747E-04	-6.9702E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
5	1.4452E-03	-6.9702E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04
6	1.9829E-03	-6.9702E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
7	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
8	-3.9966E-04	-7.0872E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04
9	1.3804E-04	-7.0872E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
MINIMUM	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	6579.2	-365.94	1188.2	-1.1879	-1710.9	-540.37
2	7636.4	-348.13	1139.3	-1.1879	-1652.8	-516.31
3	8441.0	-370.06	1221.7	-1.1879	-1772.8	-546.31
4	2282.4	-288.29	907.83	-1.1879	-1316.0	-437.61
5	3534.8	-260.21	825.39	-1.1879	-1202.7	-396.61
6	4787.1	-296.79	951.32	-1.1879	-1394.0	-450.49
7	-2287.5	-300.84	922.26	-1.1879	-1333.2	-461.31
8	-1009.7	-270.83	835.84	-1.1879	-1214.5	-417.57
9	358.41	-309.40	965.49	-1.1879	-1410.8	-474.29
MINIMUM	-2287.5	-370.06	825.39	-1.1879	-1772.8	-546.31
Pile N.	7	3	5	1	3	3
MAXIMUM	8441.0	-260.21	1221.7	-1.1879	-1202.7	-396.61
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.7523E-03	-6.8531E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
2	3.2900E-03	-6.8531E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04

3	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
4	9.0747E-04	-6.9702E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
5	1.4452E-03	-6.9702E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04
6	1.9829E-03	-6.9702E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
7	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
8	-3.9966E-04	-7.0872E-04	2.2835E-03	-2.6016E-06	4.0996E-04	1.1949E-04
9	1.3804E-04	-7.0872E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
MINIMUM	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	6579.2	-365.94	1188.2	-1.1879	-1710.9	-540.37
2	7636.4	-348.13	1139.3	-1.1879	-1652.8	-516.31
3	8441.0	-370.06	1221.7	-1.1879	-1772.8	-546.31
4	2282.4	-288.29	907.83	-1.1879	-1316.0	-437.61
5	3534.8	-260.21	825.39	-1.1879	-1202.7	-396.61
6	4787.1	-296.79	951.32	-1.1879	-1394.0	-450.49
7	-2287.5	-300.84	922.26	-1.1879	-1333.2	-461.31
8	-1009.7	-270.83	835.84	-1.1879	-1214.5	-417.57
9	358.41	-309.40	965.49	-1.1879	-1410.8	-474.29
MINIMUM	-2287.5	-370.06	825.39	-1.1879	-1772.8	-546.31
Pile N.	7	3	5	1	3	3
MAXIMUM	8441.0	-260.21	1221.7	-1.1879	-1202.7	-396.61
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	9138.1
2	9547.2
3	1.0375E+04
4	5477.1
5	5822.2
6	7130.2
7	5552.1
8	4447.3
9	4694.7
MINIMUM	4447.3
Pile N.	8
MAXIMUM	1.0375E+04
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.8531E-04	-5.3655E-05	-370.43	-1710.9	-361.69	-411.82	-189.47	-128.20	3723.1	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.5000	2.0000	7.2500	25.000	0.0000	0.0000
2	-6.8531E-04	-5.4082E-05	-359.79	-1652.8	-344.18	-395.85	-177.04	-121.20	4321.3	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
3	-6.8531E-04	-5.4187E-05	-373.13	-1772.8	-365.72	-422.11	-192.64	-131.91	4776.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.5000	2.0000	7.2500	25.000	0.0000	0.0000
4	-6.9701E-04	-5.4540E-05	-320.42	-1316.0	-285.33	-321.43	-134.31	-91.535	1291.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
5	-6.9701E-04	-5.5360E-05	-302.06	-1202.7	-257.66	-294.87	-117.00	-81.503	2000.3	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	25.000	0.0000	0.0000
6	-6.9701E-04	-5.4968E-05	-326.08	-1394.0	-293.71	-334.32	-139.95	-96.197	2709.0	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.0000	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
7	-7.0872E-04	-5.4276E-05	-328.39	-1333.2	-297.74	-324.73	-139.77	-92.925	1294.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
8	-7.0872E-04	-5.5069E-05	-308.84	-1214.5	-268.17	-296.79	-121.22	-82.386	571.38	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	25.000	0.0000	0.0000
9	-7.0872E-04	-5.4702E-05	-334.07	-1410.8	-306.17	-337.58	-145.47	-97.555	202.82	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
Min.	-7.0872E-04	-5.5360E-05	-373.13	-1772.8	-365.72	-422.11	-192.64	-131.91	202.82	7.8279E+06	7.8279E+06
Pile N.	7	5	3	3	3	3	3	3	9	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	1.6231E-05	2.2718E-03	540.37	1227.4	124.57	1174.1	38.861	622.27	9138.1	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.5000	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
2	1.6255E-05	2.2835E-03	516.31	1197.1	119.29	1126.1	36.554	585.24	9547.2	7.8279E+06	7.8279E+06

x(M)	7.0000	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
3	1.6214E-05	2.2952E-03	546.31	1249.6	126.30	1207.1	39.525	640.99	1.0375E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.5000	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
4	1.6780E-05	2.2718E-03	437.61	1043.6	99.197	898.21	28.329	431.54	5477.1	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
5	1.6946E-05	2.2835E-03	396.61	988.85	90.595	817.03	25.079	378.38	5822.2	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
6	1.6742E-05	2.2952E-03	450.49	1074.2	102.05	941.16	29.430	455.65	7130.2	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
7	1.7002E-05	2.2718E-03	461.31	1051.6	102.12	912.34	29.331	439.74	5552.1	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
8	1.7163E-05	2.2835E-03	417.57	993.90	92.944	827.27	25.855	383.84	4447.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
9	1.6968E-05	2.2952E-03	474.29	1082.0	105.02	955.03	30.443	463.77	4694.7	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
Max.	1.7163E-05	2.2952E-03	546.31	1249.6	126.30	1207.1	39.525	640.99	1.0375E+04	7.8279E+06	7.8279E+06
Pile N.	8	3	3	3	3	3	3	3	3	1	1

LOAD CASE : 5
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.7299	1.0000
2	0.6941	1.0000
3	0.8661	1.0000
4	0.5367	1.0000
5	0.4962	1.0000
6	0.7085	1.0000
7	0.5845	1.0000
8	0.5421	1.0000
9	0.7477	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
39417.0	-3026.10	2687.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
108.000	30813.8	30055.8

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.80793E-03	-5.67007E-04	5.31496E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
5.19968E-07	1.20433E-04	1.20199E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.8090E-03	-5.6947E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
2	2.3499E-03	-5.6947E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
3	2.8908E-03	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
4	1.2670E-03	-5.6713E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
5	1.8079E-03	-5.6713E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
6	2.3488E-03	-5.6713E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
7	7.2509E-04	-5.6479E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
8	1.2660E-03	-5.6479E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
9	1.8069E-03	-5.6479E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
MINIMUM	7.2509E-04	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	2.8908E-03	-5.6479E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	4382.1	-360.99	321.53	0.2374	-394.89	-474.30
2	5641.9	-350.86	309.77	0.2374	-378.42	-461.71
3	6901.8	-398.01	349.75	0.2374	-426.54	-521.06
4	3119.8	-300.41	268.35	0.2374	-326.04	-393.67
5	4379.7	-286.92	253.84	0.2374	-305.29	-375.88
6	5639.5	-352.97	311.44	0.2374	-378.72	-462.61
7	1857.6	-313.79	282.73	0.2374	-344.73	-409.39
8	3117.4	-300.34	268.09	0.2374	-324.03	-391.92
9	4377.2	-361.80	321.81	0.2374	-391.56	-471.68
MINIMUM	1857.6	-398.01	253.84	0.2374	-426.54	-521.06
Pile N.	7	3	5	1	3	3
MAXIMUM	6901.8	-286.92	349.75	0.2374	-305.29	-375.88
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.8090E-03	-5.6947E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
2	2.3499E-03	-5.6947E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
3	2.8908E-03	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
4	1.2670E-03	-5.6713E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
5	1.8079E-03	-5.6713E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
6	2.3488E-03	-5.6713E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
7	7.2509E-04	-5.6479E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
8	1.2660E-03	-5.6479E-04	5.3162E-04	5.1997E-07	1.2043E-04	1.2020E-04
9	1.8069E-03	-5.6479E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
MINIMUM	7.2509E-04	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	2.8908E-03	-5.6479E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	4382.1	-360.99	321.53	0.2374	-394.89	-474.30
2	5641.9	-350.86	309.77	0.2374	-378.42	-461.71
3	6901.8	-398.01	349.75	0.2374	-426.54	-521.06
4	3119.8	-300.41	268.35	0.2374	-326.04	-393.67
5	4379.7	-286.92	253.84	0.2374	-305.29	-375.88
6	5639.5	-352.97	311.44	0.2374	-378.72	-462.61
7	1857.6	-313.79	282.73	0.2374	-344.73	-409.39
8	3117.4	-300.34	268.09	0.2374	-324.03	-391.92
9	4377.2	-361.80	321.81	0.2374	-391.56	-471.68
MINIMUM	1857.6	-398.01	253.84	0.2374	-426.54	-521.06
Pile N.	7	3	5	1	3	3
MAXIMUM	6901.8	-286.92	349.75	0.2374	-305.29	-375.88
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	4342.4
2	4994.4
3	5937.9
4	3308.2
5	3939.8
6	4995.7
7	2666.4
8	3298.8
9	4327.1
MINIMUM	2666.4
Pile N.	7
MAXIMUM	5937.9
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-5.6947E-04	-1.3543E-05	-395.17	-394.89	-357.94	-132.81	-235.43	-50.583	2479.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
2	-5.6947E-04	-1.3576E-05	-389.16	-378.42	-347.96	-128.95	-225.59	-48.911	3192.7	7.8279E+06	7.8279E+06

x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
3	-5.6947E-04	-1.3190E-05	-418.01	-426.54	-394.40	-144.97	-273.75	-55.274	3905.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	25.000	0.0000	0.0000
4	-5.6713E-04	-1.3974E-05	-356.05	-326.04	-298.17	-112.27	-178.99	-41.334	1765.5	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
5	-5.6713E-04	-1.4006E-05	-346.86	-305.29	-284.85	-107.43	-167.15	-38.736	2478.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.2500	2.0000	6.7500	25.000	0.0000	0.0000
6	-5.6713E-04	-1.3489E-05	-390.38	-378.72	-350.03	-129.85	-228.99	-49.235	3191.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
7	-5.6479E-04	-1.3821E-05	-364.94	-344.73	-311.34	-117.95	-192.18	-43.955	1051.2	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
8	-5.6479E-04	-1.3907E-05	-356.08	-324.03	-298.08	-112.56	-180.01	-41.453	1764.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
9	-5.6479E-04	-1.3379E-05	-395.42	-391.56	-358.70	-133.43	-238.99	-50.699	2477.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	25.000	0.0000	0.0000
Min.	-5.6947E-04	-1.4006E-05	-418.01	-426.54	-394.40	-144.97	-273.75	-55.274	1051.2	7.8279E+06	7.8279E+06
Pile N.	1	5	3	3	3	3	3	3	7	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	1.4466E-05	5.3396E-04	474.30	369.05	142.45	318.66	54.557	215.84	4342.4	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
2	1.4544E-05	5.3162E-04	461.71	361.95	138.85	307.06	52.972	205.57	4994.4	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
3	1.4198E-05	5.2928E-04	521.06	388.24	156.55	346.39	60.192	248.08	5937.9	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	0.0000	0.0000	0.0000
4	1.4817E-05	5.3396E-04	393.67	335.11	119.80	266.23	44.075	164.91	3308.2	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
5	1.4872E-05	5.3162E-04	375.88	325.36	115.06	251.90	41.403	153.05	3939.8	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
6	1.4466E-05	5.2928E-04	462.61	362.86	139.92	308.69	53.369	208.57	4995.7	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
7	1.4633E-05	5.3396E-04	409.39	344.57	124.93	280.42	46.756	178.07	2666.4	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
8	1.4755E-05	5.3162E-04	391.92	335.00	119.98	265.96	44.228	165.78	3298.8	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
9	1.4312E-05	5.2928E-04	471.68	369.63	143.28	318.89	54.753	218.90	4327.1	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	0.0000	0.0000	0.0000
Max.	1.4872E-05	5.3396E-04	521.06	388.24	156.55	346.39	60.192	248.08	5937.9	7.8279E+06	7.8279E+06
Pile N.	5	1	3	3	3	3	3	3	3	1	1

LOAD CASE : 6
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.7582	1.0000
2	0.5452	1.0000
3	0.5845	1.0000
4	0.7171	1.0000
5	0.4962	1.0000
6	0.5335	1.0000
7	0.8661	1.0000
8	0.6853	1.0000
9	0.7189	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
14000.0	3242.80	-2687.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-108.000	-30638.8	-32727.2

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
6.22415E-04	6.01000E-04	-5.20796E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-2.03474E-07	-1.14155E-04	-1.24227E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	6.6774E-04	6.0204E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
2	1.0872E-04	6.0204E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
3	-4.5031E-04	6.0204E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
4	1.1814E-03	6.0112E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
5	6.2241E-04	6.0112E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
6	6.3391E-05	6.0112E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
7	1.6951E-03	6.0021E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
8	1.1361E-03	6.0021E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
9	5.7709E-04	6.0021E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
MINIMUM	-4.5031E-04	6.0021E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	1.6951E-03	6.0204E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	1724.0	393.80	-327.01	-0.092908	414.19	526.25
2	282.28	326.29	-269.01	-0.092908	338.47	438.53
3	-1137.6	339.93	-279.62	-0.092908	351.50	456.29
4	2920.5	380.50	-316.59	-0.092908	401.29	508.95
5	1616.1	307.98	-254.27	-0.092908	319.06	413.60
6	164.59	321.53	-264.86	-0.092908	332.29	431.51
7	4116.9	422.20	-352.90	-0.092908	446.79	560.66
8	2814.9	370.05	-307.57	-0.092908	389.10	494.88
9	1498.4	380.52	-315.46	-0.092908	398.17	507.98
MINIMUM	-1137.6	307.98	-352.90	-0.092908	319.06	413.60
Pile N.	3	5	7	1	5	5
MAXIMUM	4116.9	422.20	-254.27	-0.092908	446.79	560.66
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	6.6774E-04	6.0204E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
2	1.0872E-04	6.0204E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
3	-4.5031E-04	6.0204E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
4	1.1814E-03	6.0112E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
5	6.2241E-04	6.0112E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
6	6.3391E-05	6.0112E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
7	1.6951E-03	6.0021E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
8	1.1361E-03	6.0021E-04	-5.2091E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
9	5.7709E-04	6.0021E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
MINIMUM	-4.5031E-04	6.0021E-04	-5.2182E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	1.6951E-03	6.0204E-04	-5.1999E-04	-2.0347E-07	-1.1415E-04	-1.2423E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	1724.0	393.80	-327.01	-0.092908	414.19	526.25
2	282.28	326.29	-269.01	-0.092908	338.47	438.53
3	-1137.6	339.93	-279.62	-0.092908	351.50	456.29
4	2920.5	380.50	-316.59	-0.092908	401.29	508.95
5	1616.1	307.98	-254.27	-0.092908	319.06	413.60
6	164.59	321.53	-264.86	-0.092908	332.29	431.51
7	4116.9	422.20	-352.90	-0.092908	446.79	560.66
8	2814.9	370.05	-307.57	-0.092908	389.10	494.88
9	1498.4	380.52	-315.46	-0.092908	398.17	507.98
MINIMUM	-1137.6	307.98	-352.90	-0.092908	319.06	413.60
Pile N.	3	5	7	1	5	5
MAXIMUM	4116.9	422.20	-254.27	-0.092908	446.79	560.66
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	2996.8
2	1831.6
3	2382.1
4	3608.7
5	2491.0
6	1736.9
7	4493.4
8	3492.9
9	2795.8
MINIMUM	1736.9
Pile N.	6
MAXIMUM	4493.4
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-1.5197E-05	-5.2183E-04	-526.25	-363.71	-152.85	-324.08	-58.464	-217.62	975.60	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
2	-1.5640E-05	-5.2091E-04	-438.53	-326.77	-127.60	-266.90	-46.753	-162.56	159.74	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
3	-1.5549E-05	-5.1999E-04	-456.29	-333.73	-132.17	-277.35	-49.311	-172.55	643.78	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
4	-1.5265E-05	-5.2183E-04	-508.95	-357.60	-148.26	-313.83	-56.529	-207.36	1652.7	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
5	-1.5712E-05	-5.2091E-04	-413.60	-316.77	-121.23	-252.36	-43.417	-149.58	914.50	7.8279E+06	7.8279E+06
x(M)	6.7500	0.0000	0.0000	3.5000	5.2500	0.0000	7.0000	2.0000	25.000	0.0000	0.0000
6	-1.5633E-05	-5.1999E-04	-431.51	-323.97	-126.00	-262.80	-45.925	-159.23	93.139	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.5000	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
7	-1.4906E-05	-5.2183E-04	-560.66	-380.45	-163.64	-349.57	-62.770	-244.51	2329.7	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
8	-1.5285E-05	-5.2091E-04	-494.88	-352.04	-144.49	-304.93	-54.918	-199.02	1592.9	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
9	-1.5230E-05	-5.1999E-04	-507.98	-356.68	-148.25	-312.69	-56.567	-207.14	847.90	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.5000	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
Min.	-1.5712E-05	-5.2183E-04	-560.66	-380.45	-163.64	-349.57	-62.770	-244.51	93.139	7.8279E+06	7.8279E+06
Pile N.	5	1	7	7	7	7	7	7	6	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	6.0204E-04	1.3145E-05	421.15	414.19	390.42	131.78	255.91	50.167	2996.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	0.0000	0.0000	0.0000
2	6.0204E-04	1.3552E-05	377.79	338.47	323.85	109.87	191.71	40.299	1831.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.2500	2.0000	6.7500	0.0000	0.0000	0.0000
3	6.0204E-04	1.3422E-05	386.83	351.50	337.31	113.95	203.95	42.353	2382.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	0.0000	0.0000	0.0000
4	6.0112E-04	1.3243E-05	413.20	401.29	377.32	128.14	243.38	48.635	3608.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	0.0000	0.0000	0.0000
5	6.0112E-04	1.3624E-05	365.27	319.06	305.77	104.72	176.08	37.429	2491.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.2500	2.0000	6.7500	0.0000	0.0000	0.0000
6	6.0112E-04	1.3552E-05	374.55	332.29	319.15	108.50	187.86	39.596	1736.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.2500	2.0000	6.7500	0.0000	0.0000	0.0000
7	6.0021E-04	1.2959E-05	437.74	446.79	418.37	141.93	286.32	54.115	4493.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	0.0000	0.0000	0.0000
8	6.0021E-04	1.3273E-05	406.70	389.10	367.01	124.93	233.68	47.272	3492.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	0.0000	0.0000	0.0000
9	6.0021E-04	1.3185E-05	413.03	398.17	377.33	127.85	243.77	48.552	2795.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	0.0000	0.0000	0.0000
Max.	6.0204E-04	1.3624E-05	437.74	446.79	418.37	141.93	286.32	54.115	4493.4	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 7
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6223	1.0000
2	0.5065	1.0000

3	0.5845	1.0000
4	0.6085	1.0000
5	0.4962	1.0000
6	0.5705	1.0000
7	0.8661	1.0000
8	0.7833	1.0000
9	0.8393	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
21955.0	3242.80	-8957.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-362.000	-1.02154E+05	-32749.2

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.02851E-03	8.04032E-04	-2.26778E-03

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-7.30243E-06	-4.00922E-04	-1.36407E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	-1.6181E-04	8.3703E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
2	-7.7564E-04	8.3703E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
3	-1.3895E-03	8.3703E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
4	1.6423E-03	8.0417E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
5	1.0285E-03	8.0417E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
6	4.1468E-04	8.0417E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
7	3.4465E-03	7.7131E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
8	2.8327E-03	7.7131E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
9	2.2188E-03	7.7131E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
MINIMUM	-1.3895E-03	7.7131E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	3.4465E-03	8.3703E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	-408.79	372.92	-984.01	-3.3344	1468.2	585.44
2	-1914.5	325.94	-837.20	-3.3344	1234.8	516.18
3	-3330.3	361.92	-909.38	-3.3344	1321.1	568.80
4	3994.0	344.57	-969.23	-3.3344	1450.5	527.01
5	2564.3	300.99	-825.32	-3.3344	1220.6	462.72
6	1076.7	333.88	-894.42	-3.3344	1303.1	510.86
7	7870.5	410.27	-1234.8	-3.3344	1823.8	599.60
8	6766.4	385.59	-1134.3	-3.3344	1665.1	565.82
9	5336.7	406.73	-1168.7	-3.3344	1690.0	594.35
MINIMUM	-3330.3	300.99	-1234.8	-3.3344	1220.6	462.72
Pile N.	3	5	7	1	5	5
MAXIMUM	7870.5	410.27	-825.32	-3.3344	1823.8	599.60
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	-1.6181E-04	8.3703E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
2	-7.7564E-04	8.3703E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
3	-1.3895E-03	8.3703E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
4	1.6423E-03	8.0417E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
5	1.0285E-03	8.0417E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
6	4.1468E-04	8.0417E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04

7	3.4465E-03	7.7131E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
8	2.8327E-03	7.7131E-04	-2.2682E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
9	2.2188E-03	7.7131E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
MINIMUM	-1.3895E-03	7.7131E-04	-2.3010E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	3.4465E-03	8.3703E-04	-2.2353E-03	-7.3024E-06	-4.0092E-04	-1.3641E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	-408.79	372.92	-984.01	-3.3344	1468.2	585.44
2	-1914.5	325.94	-837.20	-3.3344	1234.8	516.18
3	-3330.3	361.92	-909.38	-3.3344	1321.1	568.80
4	3994.0	344.57	-969.23	-3.3344	1450.5	527.01
5	2564.3	300.99	-825.32	-3.3344	1220.6	462.72
6	1076.7	333.88	-894.42	-3.3344	1303.1	510.86
7	7870.5	410.27	-1234.8	-3.3344	1823.8	599.60
8	6766.4	385.59	-1134.3	-3.3344	1665.1	565.82
9	5336.7	406.73	-1168.7	-3.3344	1690.0	594.35
MINIMUM	-3330.3	300.99	-1234.8	-3.3344	1220.6	462.72
Pile N.	3	5	7	1	5	5
MAXIMUM	7870.5	410.27	-825.32	-3.3344	1823.8	599.60
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	5001.6
2	5122.5
3	6225.7
4	6917.7
5	5390.9
6	4833.5
7	1.0248E+04
8	9136.6
9	8426.7
MINIMUM	4833.5
Pile N.	6
MAXIMUM	1.0248E+04
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-1.9996E-05	-2.3010E-03	-585.44	-1083.6	-124.44	-973.45	-36.142	-468.67	231.33	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
2	-2.0260E-05	-2.2682E-03	-516.18	-985.14	-109.99	-828.63	-30.597	-381.70	1083.4	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
3	-2.0072E-05	-2.2353E-03	-568.80	-1032.5	-120.69	-899.59	-34.709	-432.23	1884.6	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
4	-1.9250E-05	-2.3010E-03	-527.01	-1075.4	-117.74	-958.97	-33.975	-460.08	2260.1	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
5	-1.9490E-05	-2.2682E-03	-462.72	-978.98	-104.11	-817.00	-28.781	-375.37	1451.1	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
6	-1.9335E-05	-2.2353E-03	-510.86	-1024.1	-114.15	-884.96	-32.588	-423.57	609.28	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	25.000	0.0000	0.0000
7	-1.8172E-05	-2.3010E-03	-599.60	-1246.7	-140.70	-1220.3	-43.943	-641.46	4453.8	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.5000	0.0000	7.2500	2.0000	25.000	0.0000	0.0000
8	-1.8240E-05	-2.2682E-03	-565.82	-1184.0	-133.06	-1121.2	-40.637	-577.97	3829.0	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
9	-1.8221E-05	-2.2353E-03	-594.35	-1203.7	-139.18	-1154.9	-43.352	-609.66	3020.0	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.5000	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
Min.	-2.0260E-05	-2.3010E-03	-599.60	-1246.7	-140.70	-1220.3	-43.943	-641.46	231.33	7.8279E+06	7.8279E+06
Pile N.	2	1	7	7	7	7	7	7	1	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	8.3703E-04	5.4689E-05	394.93	1468.2	369.07	339.22	173.50	98.182	5001.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
2	8.3703E-04	5.4614E-05	364.06	1234.8	322.77	294.72	143.97	81.764	5122.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
3	8.3703E-04	5.3303E-05	387.70	1321.1	358.25	318.81	166.06	91.208	6225.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
4	8.0417E-04	5.4978E-05	375.97	1450.5	340.98	335.79	161.95	96.756	6917.7	7.8279E+06	7.8279E+06

x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
5	8.0417E-04	5.4846E-05	347.29	1220.6	298.04	292.01	134.61	80.613	5390.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
6	8.0417E-04	5.3591E-05	368.95	1303.1	330.48	315.32	154.74	89.743	4833.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	0.0000	0.0000	0.0000
7	7.7131E-04	5.4280E-05	417.84	1823.8	405.39	420.27	214.16	131.37	1.0248E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.5000	2.0000	7.2500	0.0000	0.0000	0.0000
8	7.7131E-04	5.3641E-05	402.63	1665.1	381.16	391.31	196.51	119.51	9136.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
9	7.7131E-04	5.2748E-05	415.33	1690.0	401.97	402.93	211.18	125.38	8426.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.5000	2.0000	7.2500	0.0000	0.0000	0.0000
Max.	8.3703E-04	5.4978E-05	417.84	1823.8	405.39	420.27	214.16	131.37	1.0248E+04	7.8279E+06	7.8279E+06
Pile N.	1	4	7	7	7	7	7	7	7	1	1

LOAD CASE : 8
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8458	1.0000
2	0.7886	1.0000
3	0.8661	1.0000
4	0.5725	1.0000
5	0.4962	1.0000
6	0.6016	1.0000
7	0.5845	1.0000
8	0.5041	1.0000
9	0.6134	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
30868.0	-2790.70	8873.70

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
362.000	1.04257E+05	27456.5

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.47684E-03	-6.95797E-04	2.28569E-03

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-2.58768E-06	4.17997E-04	1.20712E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.8146E-03	-6.8427E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
2	3.3578E-03	-6.8427E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
3	3.9010E-03	-6.8427E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
4	9.3364E-04	-6.9592E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
5	1.4768E-03	-6.9592E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
6	2.0200E-03	-6.9592E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
7	-9.4735E-04	-7.0756E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
8	-4.0414E-04	-7.0756E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
9	1.3906E-04	-7.0756E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
MINIMUM	-9.4735E-04	-7.0756E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.9010E-03	-6.8427E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	6724.4	-363.52	1178.1	-1.1816	-1672.7	-532.53

2	7737.8	-345.78	1129.4	-1.1816	-1614.9	-508.57
3	8550.7	-367.59	1211.4	-1.1816	-1734.1	-538.40
4	2343.3	-286.21	898.98	-1.1816	-1280.1	-430.34
5	3608.5	-258.25	816.87	-1.1816	-1167.4	-389.54
6	4873.7	-294.63	942.13	-1.1816	-1357.5	-443.10
7	-2310.5	-298.72	913.35	-1.1816	-1297.1	-453.92
8	-1021.0	-268.82	827.27	-1.1816	-1179.0	-410.37
9	361.06	-307.19	956.24	-1.1816	-1374.1	-466.77
MINIMUM	-2310.5	-367.59	816.87	-1.1816	-1734.1	-538.40
Pile N.	7	3	5	1	3	3
MAXIMUM	8550.7	-258.25	1211.4	-1.1816	-1167.4	-389.54
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.8146E-03	-6.8427E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
2	3.3578E-03	-6.8427E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
3	3.9010E-03	-6.8427E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
4	9.3364E-04	-6.9592E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
5	1.4768E-03	-6.9592E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
6	2.0200E-03	-6.9592E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
7	-9.4735E-04	-7.0756E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
8	-4.0414E-04	-7.0756E-04	2.2861E-03	-2.5877E-06	4.1800E-04	1.2071E-04
9	1.3906E-04	-7.0756E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
MINIMUM	-9.4735E-04	-7.0756E-04	2.2745E-03	-2.5877E-06	4.1800E-04	1.2071E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.9010E-03	-6.8427E-04	2.2977E-03	-2.5877E-06	4.1800E-04	1.2071E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	6724.4	-363.52	1178.1	-1.1816	-1672.7	-532.53
2	7737.8	-345.78	1129.4	-1.1816	-1614.9	-508.57
3	8550.7	-367.59	1211.4	-1.1816	-1734.1	-538.40
4	2343.3	-286.21	898.98	-1.1816	-1280.1	-430.34
5	3608.5	-258.25	816.87	-1.1816	-1167.4	-389.54
6	4873.7	-294.63	942.13	-1.1816	-1357.5	-443.10
7	-2310.5	-298.72	913.35	-1.1816	-1297.1	-453.92
8	-1021.0	-268.82	827.27	-1.1816	-1179.0	-410.37
9	361.06	-307.19	956.24	-1.1816	-1374.1	-466.77
MINIMUM	-2310.5	-367.59	816.87	-1.1816	-1734.1	-538.40
Pile N.	7	3	5	1	3	3
MAXIMUM	8550.7	-258.25	1211.4	-1.1816	-1167.4	-389.54
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	9103.2
2	9488.4
3	1.0319E+04
4	5401.9
5	5756.3
6	7067.7
7	5454.9
8	4345.5
9	4584.2
MINIMUM	4345.5
Pile N.	8
MAXIMUM	1.0319E+04
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.8427E-04	-5.3806E-05	-370.35	-1672.7	-359.27	-413.16	-188.93	-128.45	3805.2	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.5000	2.0000	7.2500	25.000	0.0000	0.0000
2	-6.8427E-04	-5.4248E-05	-359.66	-1614.9	-341.83	-396.11	-176.53	-121.29	4378.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
3	-6.8427E-04	-5.4327E-05	-373.21	-1734.1	-363.26	-423.36	-192.06	-132.13	4838.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	3.7500	0.0000	0.0000	5.5000	2.0000	7.2500	25.000	0.0000	0.0000
4	-6.9592E-04	-5.4695E-05	-320.33	-1280.1	-283.26	-321.87	-133.91	-91.597	1326.1	7.8279E+06	7.8279E+06

x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
5	-6.9592E-04	-5.5483E-05	-302.06	-1167.4	-255.70	-294.95	-116.65	-81.528	2042.0	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	25.000	0.0000	0.0000
6	-6.9592E-04	-5.5115E-05	-326.19	-1357.5	-291.55	-334.72	-139.50	-96.245	2758.0	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.0000	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
7	-7.0756E-04	-5.4424E-05	-328.26	-1297.1	-295.62	-325.16	-139.35	-92.981	1307.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.2500	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
8	-7.0756E-04	-5.5181E-05	-308.81	-1179.0	-266.17	-296.89	-120.85	-82.399	577.78	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.0000	2.0000	8.2500	25.000	0.0000	0.0000
9	-7.0756E-04	-5.4841E-05	-334.05	-1374.1	-303.96	-337.96	-145.00	-97.595	204.32	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.0000	0.0000	0.0000	6.0000	2.0000	8.0000	25.000	0.0000	0.0000
Min.	-7.0756E-04	-5.5483E-05	-373.21	-1734.1	-363.26	-423.36	-192.06	-132.13	204.32	7.8279E+06	7.8279E+06
Pile N.	7	5	3	3	3	3	3	3	9	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	1.6244E-05	2.2745E-03	532.53	1231.1	124.73	1163.9	38.872	620.91	9103.2	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.5000	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
2	1.6268E-05	2.2861E-03	508.57	1199.4	119.17	1116.2	36.527	583.95	9488.4	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
3	1.6224E-05	2.2977E-03	538.40	1253.1	126.44	1196.8	39.530	639.51	1.0319E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.5000	0.0000	7.2500	2.0000	0.0000	0.0000	0.0000
4	1.6788E-05	2.2745E-03	430.34	1047.1	99.151	889.35	28.306	430.55	5401.9	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
5	1.6946E-05	2.2861E-03	389.54	991.38	90.473	808.50	25.051	377.48	5756.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
6	1.6752E-05	2.2977E-03	443.10	1077.5	102.01	931.95	29.406	454.49	7067.7	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
7	1.7010E-05	2.2745E-03	453.92	1055.0	102.07	903.42	29.306	438.70	5454.9	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
8	1.7160E-05	2.2861E-03	410.37	996.34	92.809	818.69	25.822	382.90	4345.5	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
9	1.6976E-05	2.2977E-03	466.77	1085.1	104.97	945.77	30.416	462.57	4584.2	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
Max.	1.7160E-05	2.2977E-03	538.40	1253.1	126.44	1196.8	39.530	639.51	1.0319E+04	7.8279E+06	7.8279E+06
Pile N.	8	3	3	3	3	3	3	3	3	1	1

LOAD CASE : 9
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8501	1.0000
2	0.5739	1.0000
3	0.5845	1.0000
4	0.7922	1.0000
5	0.4962	1.0000
6	0.5025	1.0000
7	0.8661	1.0000
8	0.5969	1.0000
9	0.6075	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
24153.0	10777.8	-2736.80

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-158.000	-30054.2	-1.08479E+05

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.14622E-03	2.83651E-03	-7.60056E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
6.38318E-06	-1.28665E-04	-4.42370E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.5579E-03	2.8082E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
2	5.6723E-04	2.8082E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
3	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
4	3.1369E-03	2.8370E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
5	1.1462E-03	2.8370E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
6	-8.4444E-04	2.8370E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
7	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
8	1.7252E-03	2.8657E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
9	-2.6545E-04	2.8657E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
MINIMUM	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	3	1	3	1	1	1
MAXIMUM	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	7	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	6126.4	1467.2	-358.99	2.9146	529.94	2327.6
2	1472.8	1084.3	-280.73	2.9146	426.42	1745.0
3	-3408.6	1099.3	-302.48	2.9146	472.57	1763.0
4	7407.2	1372.3	-330.02	2.9146	484.08	2189.2
5	2838.5	988.26	-251.17	2.9146	381.66	1613.0
6	-2073.2	998.17	-269.93	2.9146	423.20	1623.5
7	8273.6	1474.4	-349.82	2.9146	512.04	2351.3
8	4187.0	1139.4	-285.86	2.9146	434.79	1860.0
9	-670.64	1154.5	-307.80	2.9146	481.25	1878.2
MINIMUM	-3408.6	988.26	-358.99	2.9146	381.66	1613.0
Pile N.	3	5	1	1	5	5
MAXIMUM	8273.6	1474.4	-251.17	2.9146	529.94	2351.3
Pile N.	7	7	5	1	1	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.5579E-03	2.8082E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
2	5.6723E-04	2.8082E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
3	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
4	3.1369E-03	2.8370E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
5	1.1462E-03	2.8370E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
6	-8.4444E-04	2.8370E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
7	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
8	1.7252E-03	2.8657E-03	-7.6019E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
9	-2.6545E-04	2.8657E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
MINIMUM	-1.4234E-03	2.8082E-03	-7.8891E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	3	1	3	1	1	1
MAXIMUM	3.7159E-03	2.8657E-03	-7.3146E-04	6.3832E-06	-1.2867E-04	-4.4237E-04
Pile N.	7	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	6126.4	1467.2	-358.99	2.9146	529.94	2327.6
2	1472.8	1084.3	-280.73	2.9146	426.42	1745.0
3	-3408.6	1099.3	-302.48	2.9146	472.57	1763.0
4	7407.2	1372.3	-330.02	2.9146	484.08	2189.2
5	2838.5	988.26	-251.17	2.9146	381.66	1613.0
6	-2073.2	998.17	-269.93	2.9146	423.20	1623.5
7	8273.6	1474.4	-349.82	2.9146	512.04	2351.3
8	4187.0	1139.4	-285.86	2.9146	434.79	1860.0
9	-670.64	1154.5	-307.80	2.9146	481.25	1878.2
MINIMUM	-3408.6	988.26	-358.99	2.9146	381.66	1613.0
Pile N.	3	5	1	1	5	5
MAXIMUM	8273.6	1474.4	-251.17	2.9146	529.94	2351.3
Pile N.	7	7	5	1	1	7

PILE GROUP	STRESS, KN/ M**2
1	1.0672E+04
2	6254.8

3	7437.7
4	1.0958E+04
5	6608.7
6	6236.8
7	1.1945E+04
8	8134.4
9	6231.0
MINIMUM	6231.0
Pile N.	9
MAXIMUM	1.1945E+04
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.6804E-05	-7.3146E-04	-2327.6	-377.01	-485.52	-354.94	-147.24	-182.07	3466.8	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	4.0000	5.7500	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
2	-6.2827E-05	-7.6018E-04	-1745.0	-316.95	-341.64	-277.87	-93.390	-130.41	833.42	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
3	-6.2547E-05	-7.8891E-04	-1763.0	-330.90	-344.62	-299.43	-94.685	-138.87	1928.9	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
4	-6.2687E-05	-7.3146E-04	-2189.2	-351.17	-431.68	-326.28	-127.62	-167.67	4191.6	7.8279E+06	7.8279E+06
x(M)	7.5000	0.0000	0.0000	4.0000	6.0000	0.0000	7.7500	2.0000	25.000	0.0000	0.0000
5	-6.4058E-05	-7.6018E-04	-1613.0	-296.42	-311.13	-248.72	-82.018	-112.92	1606.2	7.8279E+06	7.8279E+06
x(M)	8.2500	0.0000	0.0000	4.2500	6.5000	0.0000	8.5000	2.0000	25.000	0.0000	0.0000
6	-6.3665E-05	-7.8891E-04	-1623.5	-308.24	-312.71	-267.33	-82.650	-119.64	1173.2	7.8279E+06	7.8279E+06
x(M)	8.2500	0.0000	0.0000	4.2500	6.5000	0.0000	8.5000	2.0000	25.000	0.0000	0.0000
7	-6.2688E-05	-7.3146E-04	-2351.3	-363.87	-461.14	-345.77	-139.60	-181.35	4681.9	7.8279E+06	7.8279E+06
x(M)	7.2500	0.0000	0.0000	4.0000	6.0000	0.0000	7.5000	2.0000	25.000	0.0000	0.0000
8	-6.4152E-05	-7.6018E-04	-1860.0	-320.70	-356.04	-282.94	-98.144	-133.87	2369.4	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
9	-6.3884E-05	-7.8891E-04	-1878.2	-334.80	-359.05	-304.68	-99.458	-142.45	379.51	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	25.000	0.0000	0.0000
Min.	-6.6804E-05	-7.8891E-04	-2351.3	-377.01	-485.52	-354.94	-147.24	-182.07	379.51	7.8279E+06	7.8279E+06
Pile N.	1	3	7	1	1	1	1	1	9	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	2.8082E-03	1.7202E-05	1453.6	529.94	1451.7	124.69	718.81	37.698	1.0672E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	0.0000	0.0000	0.0000
2	2.8082E-03	1.6874E-05	1169.8	426.42	1073.7	91.501	490.79	24.982	6254.8	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.2500	0.0000	0.0000	0.0000
3	2.8082E-03	1.7501E-05	1177.6	472.57	1088.4	96.303	498.67	26.444	7437.7	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	0.0000	0.0000	0.0000
4	2.8370E-03	1.5930E-05	1361.7	484.08	1357.8	109.88	670.69	32.351	1.0958E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.5000	4.0000	0.0000	0.0000	6.0000	2.0000	7.5000	0.0000	0.0000	0.0000
5	2.8370E-03	1.7008E-05	1104.2	381.66	979.13	82.881	430.50	21.676	6608.7	7.8279E+06	7.8279E+06
x(M)	0.0000	8.2500	4.5000	0.0000	0.0000	6.5000	2.0000	8.5000	0.0000	0.0000	0.0000
6	2.8370E-03	1.7614E-05	1108.2	423.20	988.81	86.671	435.15	22.811	6236.8	7.8279E+06	7.8279E+06
x(M)	0.0000	8.2500	4.5000	0.0000	0.0000	6.5000	2.0000	8.5000	0.0000	0.0000	0.0000
7	2.8657E-03	1.5831E-05	1428.5	512.04	1458.6	115.61	734.30	34.971	1.1945E+04	7.8279E+06	7.8279E+06
x(M)	0.0000	7.2500	4.0000	0.0000	0.0000	6.0000	2.0000	7.5000	0.0000	0.0000	0.0000
8	2.8657E-03	1.6826E-05	1208.3	434.79	1128.4	93.597	516.62	25.685	8134.4	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	0.0000	0.0000	0.0000
9	2.8657E-03	1.7463E-05	1216.0	481.25	1143.2	98.405	524.55	27.169	6231.0	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	0.0000	0.0000	0.0000
Max.	2.8657E-03	1.7614E-05	1453.6	529.94	1458.6	124.69	734.30	37.698	1.1945E+04	7.8279E+06	7.8279E+06
Pile N.	7	6	1	1	7	1	7	1	7	1	1

LOAD CASE : 10
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6103	1.0000
2	0.5991	1.0000
3	0.8661	1.0000
4	0.5033	1.0000
5	0.4962	1.0000
6	0.7905	1.0000

7	0.5845	1.0000
8	0.5733	1.0000
9	0.8481	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
30322.0	-10087.0	2687.30

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
108.000	30654.2	1.00144E+05

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.44877E-03	-2.58459E-03	7.37937E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
6.93170E-06	1.30987E-04	4.14494E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.7299E-04	-2.6162E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
2	2.0382E-03	-2.6162E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
3	3.9034E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
4	-4.1645E-04	-2.5850E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
5	1.4488E-03	-2.5850E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
6	3.3140E-03	-2.5850E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
7	-1.0059E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
8	8.5933E-04	-2.5538E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
9	2.7246E-03	-2.5538E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
MINIMUM	-1.0059E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	3.9034E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	449.16	-1077.6	303.29	3.1651	-457.22	-1717.8
2	4916.0	-1063.4	279.21	3.1651	-406.23	-1700.8
3	8554.3	-1411.9	348.08	3.1651	-491.76	-2223.2
4	-1052.1	-927.21	265.38	3.1651	-399.90	-1473.6
5	3543.1	-917.43	244.57	3.1651	-353.92	-1462.7
6	7672.2	-1311.5	328.58	3.1651	-464.94	-2064.4
7	-2445.6	-1018.0	297.60	3.1651	-448.16	-1594.3
8	2170.3	-1003.8	273.73	3.1651	-397.54	-1577.3
9	6514.6	-1356.2	346.86	3.1651	-489.64	-2105.5
MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.7299E-04	-2.6162E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
2	2.0382E-03	-2.6162E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
3	3.9034E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
4	-4.1645E-04	-2.5850E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
5	1.4488E-03	-2.5850E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
6	3.3140E-03	-2.5850E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
7	-1.0059E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
8	8.5933E-04	-2.5538E-03	7.3807E-04	6.9317E-06	1.3099E-04	4.1449E-04
9	2.7246E-03	-2.5538E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04

MINIMUM	-1.0059E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	3.9034E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	449.16	-1077.6	303.29	3.1651	-457.22	-1717.8
2	4916.0	-1063.4	279.21	3.1651	-406.23	-1700.8
3	8554.3	-1411.9	348.08	3.1651	-491.76	-2223.2
4	-1052.1	-927.21	265.38	3.1651	-399.90	-1473.6
5	3543.1	-917.43	244.57	3.1651	-353.92	-1462.7
6	7672.2	-1311.5	328.58	3.1651	-464.94	-2064.4
7	-2445.6	-1018.0	297.60	3.1651	-448.16	-1594.3
8	2170.3	-1003.8	273.73	3.1651	-397.54	-1577.3
9	6514.6	-1356.2	346.86	3.1651	-489.64	-2105.5
MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

PILE GROUP	STRESS, KN/ M**2
1	5619.1
2	8059.3
3	1.1713E+04
4	5203.7
5	6547.0
6	1.0728E+04
7	6382.0
8	6137.3
9	1.0211E+04
MINIMUM	5203.7
Pile N.	4
MAXIMUM	1.1713E+04
Pile N.	3

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-2.6162E-03	-1.6985E-05	-1136.6	-457.22	-1066.7	-99.112	-499.31	-27.618	254.17	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
2	-2.6162E-03	-1.6324E-05	-1129.4	-406.23	-1052.7	-93.897	-491.50	-25.992	2781.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
3	-2.6162E-03	-1.6530E-05	-1384.3	-491.76	-1396.6	-123.01	-703.13	-37.702	4840.7	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
4	-2.5850E-03	-1.7114E-05	-1033.3	-399.90	-918.19	-87.131	-412.44	-23.161	595.38	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	25.000	0.0000	0.0000
5	-2.5850E-03	-1.6456E-05	-1028.6	-353.92	-908.62	-82.782	-407.63	-21.894	2005.0	7.8279E+06	7.8279E+06
x(M)	0.0000	8.0000	4.2500	0.0000	0.0000	6.5000	2.0000	8.2500	25.000	0.0000	0.0000
6	-2.5850E-03	-1.6619E-05	-1320.1	-464.94	-1297.6	-117.37	-640.28	-35.194	4341.6	7.8279E+06	7.8279E+06
x(M)	0.0000	7.2500	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
7	-2.5538E-03	-1.7045E-05	-1095.7	-448.16	-1007.5	-97.164	-471.21	-26.897	1383.9	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
8	-2.5538E-03	-1.6392E-05	-1088.5	-397.54	-993.62	-92.043	-463.45	-25.303	1228.1	7.8279E+06	7.8279E+06
x(M)	0.0000	7.7500	4.2500	0.0000	0.0000	6.2500	2.0000	8.0000	25.000	0.0000	0.0000
9	-2.5538E-03	-1.6546E-05	-1346.3	-489.64	-1341.2	-122.47	-677.86	-37.485	3686.5	7.8279E+06	7.8279E+06
x(M)	0.0000	7.0000	4.0000	0.0000	0.0000	5.7500	2.0000	7.5000	25.000	0.0000	0.0000
Min.	-2.6162E-03	-1.7114E-05	-1384.3	-491.76	-1396.6	-123.01	-703.13	-37.702	254.17	7.8279E+06	7.8279E+06
Pile N.	1	4	3	3	3	3	3	3	1	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	5.8127E-05	7.6926E-04	1717.8	333.95	339.39	300.07	94.934	144.11	5619.1	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
2	5.8409E-05	7.3807E-04	1700.8	318.64	336.28	276.20	93.680	134.54	8059.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.0000	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
3	6.1757E-05	7.0688E-04	2223.2	371.53	465.44	343.93	143.31	182.34	1.1713E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
4	5.7728E-05	7.6926E-04	1473.6	308.15	294.58	262.69	78.440	120.80	5203.7	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
5	5.7986E-05	7.3807E-04	1462.7	294.87	292.87	242.06	77.695	113.22	6547.0	7.8279E+06	7.8279E+06
x(M)	8.0000	0.0000	0.0000	4.2500	6.5000	0.0000	8.2500	2.0000	0.0000	0.0000	0.0000
6	6.1648E-05	7.0688E-04	2064.4	359.24	436.88	324.76	131.86	168.49	1.0728E+04	7.8279E+06	7.8279E+06

x(M)	7.2500	0.0000	0.0000	4.0000	5.7500	0.0000	7.7500	2.0000	0.0000	0.0000	0.0000
7	5.6789E-05	7.6926E-04	1594.3	329.99	323.86	294.45	89.890	140.16	6382.0	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
8	5.7061E-05	7.3807E-04	1577.3	314.59	320.72	270.79	88.622	130.75	6137.3	7.8279E+06	7.8279E+06
x(M)	7.7500	0.0000	0.0000	4.2500	6.2500	0.0000	8.0000	2.0000	0.0000	0.0000	0.0000
9	6.0233E-05	7.0688E-04	2105.5	370.51	450.80	342.72	138.52	181.13	1.0211E+04	7.8279E+06	7.8279E+06
x(M)	7.0000	0.0000	0.0000	3.7500	5.7500	0.0000	7.5000	2.0000	0.0000	0.0000	0.0000
Max.	6.1757E-05	7.6926E-04	2223.2	371.53	465.44	343.93	143.31	182.34	1.1713E+04	7.8279E+06	7.8279E+06
Pile N.	3	1	3	3	3	3	3	3	3	1	1

LOAD CASE : 11
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8438	1.0000
2	0.5719	1.0000
3	0.5845	1.0000
4	0.7870	1.0000
5	0.4962	1.0000
6	0.5048	1.0000
7	0.8661	1.0000
8	0.6037	1.0000
9	0.6162	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
41130.6	3786.00	-1067.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-361.000	-17067.5	-44997.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.88968E-03	7.61136E-04	-2.44001E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-4.55099E-07	-6.38736E-05	-1.74976E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.3896E-03	7.6336E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
2	1.6022E-03	7.6336E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
3	8.1486E-04	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
4	2.6771E-03	7.6131E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
5	1.8897E-03	7.6131E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
6	1.1023E-03	7.6131E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
7	2.9645E-03	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
8	2.1771E-03	7.5926E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
9	1.3897E-03	7.5926E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	5734.5	493.83	-142.09	-0.2078	143.34	597.28
2	3900.6	392.86	-109.46	-0.2078	100.72	468.93
3	2066.7	398.42	-109.09	-0.2078	98.496	475.68
4	6404.0	472.12	-136.20	-0.2078	136.24	569.02
5	4570.1	358.90	-99.893	-0.2078	88.326	422.70

6	2736.1	363.06	-99.243	-0.2078	85.786	427.75
7	7073.5	497.09	-144.56	-0.2078	146.49	598.26
8	5239.5	402.20	-113.47	-0.2078	106.03	478.46
9	3405.6	407.53	-113.00	-0.2078	103.65	484.85
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.3896E-03	7.6336E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
2	1.6022E-03	7.6336E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
3	8.1486E-04	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
4	2.6771E-03	7.6131E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
5	1.8897E-03	7.6131E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
6	1.1023E-03	7.6131E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
7	2.9645E-03	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
8	2.1771E-03	7.5926E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
9	1.3897E-03	7.5926E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	5734.5	493.83	-142.09	-0.2078	143.34	597.28
2	3900.6	392.86	-109.46	-0.2078	100.72	468.93
3	2066.7	398.42	-109.09	-0.2078	98.496	475.68
4	6404.0	472.12	-136.20	-0.2078	136.24	569.02
5	4570.1	358.90	-99.893	-0.2078	88.326	422.70
6	2736.1	363.06	-99.243	-0.2078	85.786	427.75
7	7073.5	497.09	-144.56	-0.2078	146.49	598.26
8	5239.5	402.20	-113.47	-0.2078	106.03	478.46
9	3405.6	407.53	-113.00	-0.2078	103.65	484.85
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	5098.9
2	3654.8
3	2635.6
4	5389.8
5	3889.4
6	2865.0
7	5861.7
8	4444.0
9	3423.5
MINIMUM	2635.6
Pile N.	3
MAXIMUM	5861.7
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-1.9194E-05	-2.4611E-04	-597.28	-178.91	-205.94	-140.56	-78.174	-106.56	3245.1	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
2	-1.9940E-05	-2.4406E-04	-468.93	-156.91	-166.71	-108.43	-61.874	-74.792	2207.3	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
3	-1.9858E-05	-2.4202E-04	-475.68	-156.79	-168.69	-108.04	-62.820	-75.373	1169.5	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
4	-1.9218E-05	-2.4611E-04	-569.02	-175.17	-197.56	-134.77	-74.988	-100.40	3623.9	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
5	-2.0183E-05	-2.4406E-04	-422.70	-149.99	-153.85	-98.999	-55.560	-65.992	2586.1	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
6	-2.0145E-05	-2.4202E-04	-427.75	-149.71	-155.14	-98.338	-56.312	-66.241	1548.3	7.8279E+06	7.8279E+06

x(M)	6.5000	0.0000	0.0000	3.2500	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
7	-1.9068E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	4002.8	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
8	-1.9705E-05	-2.4406E-04	-478.46	-159.87	-171.19	-112.39	-64.069	-78.705	2965.0	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
9	-1.9677E-05	-2.4202E-04	-484.85	-159.65	-173.04	-111.89	-64.937	-79.215	1927.2	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
Min.	-2.0183E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	1169.5	7.8279E+06	7.8279E+06
Pile N.	5	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	7.6336E-04	6.1939E-06	555.33	143.34	489.09	65.999	346.92	24.673	5098.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	0.0000	0.0000	0.0000
2	7.6336E-04	6.4206E-06	489.68	100.72	389.65	53.155	246.85	19.525	3758.5	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
3	7.6336E-04	6.3566E-06	493.06	98.496	395.12	53.268	251.79	19.613	2730.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
4	7.6131E-04	6.2472E-06	541.34	136.24	467.72	63.664	325.78	23.723	5389.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	0.0000	0.0000	0.0000
5	7.6131E-04	6.5372E-06	466.84	88.326	356.12	49.342	217.15	17.739	4065.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
6	7.6131E-04	6.4646E-06	469.45	85.786	360.22	49.377	220.63	17.802	3035.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
7	7.5926E-04	6.1752E-06	557.90	146.49	492.27	67.027	353.26	25.111	5861.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	0.0000	0.0000	0.0000
8	7.5926E-04	6.3984E-06	496.01	106.03	398.83	54.745	257.80	20.274	4536.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
9	7.5926E-04	6.3290E-06	499.17	103.65	404.07	54.800	262.62	20.330	3507.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
Max.	7.6336E-04	6.5372E-06	557.90	146.49	492.27	67.027	353.26	25.111	5861.7	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 12
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6877	1.0000
2	0.5245	1.0000
3	0.5845	1.0000
4	0.6603	1.0000
5	0.4962	1.0000
6	0.5539	1.0000
7	0.8661	1.0000
8	0.7401	1.0000
9	0.7866	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
44651.6	1340.00	-1605.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-5.00000	-25249.5	-13499.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
2.05765E-03	2.29901E-04	-3.33995E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-4.63435E-07	-9.40729E-05	-5.34166E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM
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* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.8747E-03	2.3204E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
2	1.6343E-03	2.3204E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
3	1.3939E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
4	2.2980E-03	2.2995E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
5	2.0576E-03	2.2995E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
6	1.8173E-03	2.2995E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
7	2.7213E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
8	2.4810E-03	2.2787E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
9	2.2406E-03	2.2787E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
MINIMUM	1.3939E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.7213E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	4535.2	156.15	-186.84	-0.2116	165.14	190.92
2	3975.3	133.51	-155.00	-0.2116	123.49	161.95
3	3415.4	142.53	-164.29	-0.2116	133.53	173.60
4	5521.2	150.14	-182.22	-0.2116	159.61	181.75
5	4961.3	127.08	-149.52	-0.2116	116.61	152.04
6	4401.4	135.90	-158.74	-0.2116	126.68	163.50
7	6507.1	172.64	-215.95	-0.2116	200.56	207.75
8	5947.3	158.09	-193.65	-0.2116	171.90	189.97
9	5387.4	163.96	-198.79	-0.2116	176.19	197.16
MINIMUM	3415.4	127.08	-215.95	-0.2116	116.61	152.04
Pile N.	3	5	7	1	5	5
MAXIMUM	6507.1	172.64	-149.52	-0.2116	200.56	207.75
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)
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* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.8747E-03	2.3204E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
2	1.6343E-03	2.3204E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
3	1.3939E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
4	2.2980E-03	2.2995E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
5	2.0576E-03	2.2995E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
6	1.8173E-03	2.2995E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
7	2.7213E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
8	2.4810E-03	2.2787E-04	-3.3409E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
9	2.2406E-03	2.2787E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
MINIMUM	1.3939E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.7213E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	4535.2	156.15	-186.84	-0.2116	165.14	190.92
2	3975.3	133.51	-155.00	-0.2116	123.49	161.95
3	3415.4	142.53	-164.29	-0.2116	133.53	173.60
4	5521.2	150.14	-182.22	-0.2116	159.61	181.75
5	4961.3	127.08	-149.52	-0.2116	116.61	152.04
6	4401.4	135.90	-158.74	-0.2116	126.68	163.50
7	6507.1	172.64	-215.95	-0.2116	200.56	207.75
8	5947.3	158.09	-193.65	-0.2116	171.90	189.97
9	5387.4	163.96	-198.79	-0.2116	176.19	197.16
MINIMUM	3415.4	127.08	-215.95	-0.2116	116.61	152.04
Pile N.	3	5	7	1	5	5
MAXIMUM	6507.1	172.64	-149.52	-0.2116	200.56	207.75
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	3328.2
2	2864.2
3	2593.7
4	3854.4
5	3385.8
6	3114.9

7	4553.8
8	4138.7
9	3846.7
MINIMUM	2593.7
Pile N.	3
MAXIMUM	4553.8
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.4132E-06	-3.3617E-04	-190.92	-253.92	-62.177	-185.13	-23.216	-162.20	2566.4	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
2	-6.5818E-06	-3.3409E-04	-161.95	-230.90	-53.119	-153.70	-18.714	-127.23	2249.6	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
3	-6.5175E-06	-3.3200E-04	-173.60	-238.29	-56.607	-162.86	-20.365	-138.95	1932.7	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
4	-6.3819E-06	-3.3617E-04	-181.75	-250.70	-60.255	-180.59	-22.307	-156.87	3124.3	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
5	-6.5512E-06	-3.3409E-04	-152.04	-226.83	-51.093	-148.30	-17.753	-121.40	2807.5	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
6	-6.5088E-06	-3.3200E-04	-163.50	-234.26	-54.351	-157.38	-19.353	-132.82	2490.7	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
7	-6.1654E-06	-3.3617E-04	-207.75	-274.38	-69.727	-213.80	-27.440	-198.48	3682.3	7.8279E+06	7.8279E+06
x(M)	5.7500	0.0000	0.0000	3.0000	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
8	-6.2692E-06	-3.3409E-04	-189.97	-259.29	-63.668	-191.83	-24.177	-172.32	3365.5	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
9	-6.2133E-06	-3.3200E-04	-197.16	-263.17	-65.884	-196.86	-25.466	-180.38	3048.7	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
Min.	-6.5818E-06	-3.3617E-04	-207.75	-274.38	-69.727	-213.80	-27.440	-198.48	1932.7	7.8279E+06	7.8279E+06
Pile N.	2	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	2.3204E-04	9.3603E-06	174.17	165.14	154.98	89.951	121.39	33.542	3493.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
2	2.3204E-04	9.6281E-06	158.64	123.49	132.62	77.173	96.296	26.995	3093.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
3	2.3204E-04	9.4851E-06	164.95	133.53	141.53	81.370	106.06	29.231	2803.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
4	2.2995E-04	9.4361E-06	170.34	159.61	149.03	87.920	116.00	32.465	4036.3	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
5	2.2995E-04	9.7301E-06	154.31	116.61	126.25	74.902	90.786	25.806	3634.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
6	2.2995E-04	9.5416E-06	160.56	126.68	134.96	79.147	100.18	28.075	3344.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
7	2.2787E-04	9.1403E-06	185.16	200.56	171.20	102.54	144.69	40.178	4681.3	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.0000	0.0000	0.0000	4.5000	2.0000	5.7500	3.0000	0.0000	0.0000
8	2.2787E-04	9.2633E-06	175.59	171.90	156.85	93.549	126.90	35.430	4309.4	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
9	2.2787E-04	9.1684E-06	179.25	176.19	162.64	96.264	134.02	36.872	4009.4	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
Max.	2.3204E-04	9.7301E-06	185.16	200.56	171.20	102.54	144.69	40.178	4681.3	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 13
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.7455	1.0000
2	0.5414	1.0000
3	0.5845	1.0000
4	0.7067	1.0000
5	0.4962	1.0000
6	0.5374	1.0000
7	0.8661	1.0000
8	0.6960	1.0000
9	0.7322	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
44651.6	2002.00	-1605.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-5.00000	-25249.5	-21147.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
2.05765E-03	3.59394E-04	-3.42487E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-7.93281E-08	-9.42478E-05	-8.32471E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.0082E-03	3.5983E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
2	1.6335E-03	3.5983E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
3	1.2589E-03	3.5983E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
4	2.4323E-03	3.5948E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
5	2.0576E-03	3.5948E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
6	1.6830E-03	3.5948E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
7	2.8564E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
8	2.4818E-03	3.5912E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
9	2.1071E-03	3.5912E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
MINIMUM	1.2589E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.8564E-03	3.5983E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	4846.0	241.02	-194.55	-0.036222	178.73	292.09
2	3973.5	199.94	-158.36	-0.036222	133.12	239.73
3	3101.0	209.34	-166.14	-0.036222	142.62	251.80
4	5833.8	233.25	-188.12	-0.036222	170.99	282.24
5	4961.3	189.39	-149.53	-0.036222	121.86	225.73
6	4088.8	198.76	-157.29	-0.036222	131.48	237.93
7	6821.6	261.64	-213.42	-0.036222	201.73	316.99
8	5949.1	230.84	-185.95	-0.036222	168.05	278.95
9	5076.6	237.82	-191.64	-0.036222	174.60	287.56
MINIMUM	3101.0	189.39	-213.42	-0.036222	121.86	225.73
Pile N.	3	5	7	1	5	5
MAXIMUM	6821.6	261.64	-149.53	-0.036222	201.73	316.99
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.0082E-03	3.5983E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
2	1.6335E-03	3.5983E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
3	1.2589E-03	3.5983E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
4	2.4323E-03	3.5948E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
5	2.0576E-03	3.5948E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
6	1.6830E-03	3.5948E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
7	2.8564E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
8	2.4818E-03	3.5912E-04	-3.4258E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
9	2.1071E-03	3.5912E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
MINIMUM	1.2589E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.8564E-03	3.5983E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	4846.0	241.02	-194.55	-0.036222	178.73	292.09
2	3973.5	199.94	-158.36	-0.036222	133.12	239.73
3	3101.0	209.34	-166.14	-0.036222	142.62	251.80
4	5833.8	233.25	-188.12	-0.036222	170.99	282.24
5	4961.3	189.39	-149.53	-0.036222	121.86	225.73
6	4088.8	198.76	-157.29	-0.036222	131.48	237.93
7	6821.6	261.64	-213.42	-0.036222	201.73	316.99
8	5949.1	230.84	-185.95	-0.036222	168.05	278.95
9	5076.6	237.82	-191.64	-0.036222	174.60	287.56
MINIMUM	3101.0	189.39	-213.42	-0.036222	121.86	225.73
Pile N.	3	5	7	1	5	5
MAXIMUM	6821.6	261.64	-149.53	-0.036222	201.73	316.99
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	3775.7
2	3076.1
3	2628.2
4	4297.2
5	3581.7
6	3134.2
7	4994.3
8	4349.4
9	3888.1
MINIMUM	2628.2
Pile N.	3
MAXIMUM	4994.3
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-9.5699E-06	-3.4294E-04	-292.09	-257.97	-98.363	-192.66	-37.410	-162.71	2742.3	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
2	-9.8799E-06	-3.4258E-04	-239.73	-232.30	-81.996	-156.99	-29.102	-122.88	2248.5	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
3	-9.8181E-06	-3.4222E-04	-251.80	-237.66	-85.427	-164.66	-30.853	-131.29	1754.8	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
4	-9.6077E-06	-3.4294E-04	-282.24	-253.45	-95.404	-186.33	-35.918	-155.39	3301.3	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
5	-9.9624E-06	-3.4258E-04	-225.73	-226.10	-78.055	-148.27	-27.089	-113.81	2807.5	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
6	-9.8779E-06	-3.4222E-04	-237.93	-231.60	-81.604	-155.93	-28.912	-121.98	2313.8	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
7	-9.3464E-06	-3.4294E-04	-316.99	-271.29	-106.39	-211.23	-42.163	-185.30	3860.3	7.8279E+06	7.8279E+06
x(M)	5.7500	0.0000	0.0000	3.0000	4.7500	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
8	-9.6105E-06	-3.4258E-04	-278.95	-251.98	-94.504	-184.20	-35.468	-153.19	3366.5	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
9	-9.5740E-06	-3.4222E-04	-287.56	-256.06	-97.235	-189.79	-36.854	-159.89	2872.8	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
Min.	-9.9624E-06	-3.4294E-04	-316.99	-271.29	-106.39	-211.23	-42.163	-185.30	1754.8	7.8279E+06	7.8279E+06
Pile N.	5	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	3.5983E-04	9.1405E-06	270.18	178.73	239.05	93.120	183.18	35.503	3866.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.2500	0.0000	0.0000
2	3.5983E-04	9.5354E-06	241.97	133.12	198.51	78.291	138.83	27.595	3260.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
3	3.5983E-04	9.3915E-06	248.59	142.62	207.79	81.621	148.49	29.344	2792.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
4	3.5948E-04	9.2316E-06	265.16	170.99	231.39	90.543	174.76	33.994	4406.2	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.0000	3.2500	0.0000	0.0000
5	3.5948E-04	9.6564E-06	234.41	121.86	188.08	74.506	128.48	25.879	3790.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	3.2500	0.0000	0.0000
6	3.5948E-04	9.5404E-06	241.17	131.48	197.34	77.914	137.84	27.407	3322.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	3.2500	0.0000	0.0000
7	3.5912E-04	9.0021E-06	283.38	201.73	259.36	101.57	207.86	39.853	5041.1	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
8	3.5912E-04	9.2476E-06	263.59	168.05	229.01	89.762	172.33	33.535	4465.2	7.8279E+06	7.8279E+06

x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.0000	3.2500	0.0000	0.0000
9	3.5912E-04	9.1582E-06	268.14	174.60	235.89	92.018	180.09	34.937	3988.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.2500	0.0000	0.0000
Max.	3.5983E-04	9.6564E-06	283.38	201.73	259.36	101.57	207.86	39.853	5041.1	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 14
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.6241	1.0000
2	0.5069	1.0000
3	0.5845	1.0000
4	0.6099	1.0000
5	0.4962	1.0000
6	0.5700	1.0000
7	0.8661	1.0000
8	0.7822	1.0000
9	0.8380	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
29058.6	507.000	-1232.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
0.00000	-19151.0	-6046.50

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.31378E-03	8.81303E-05	-2.41998E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-3.68681E-07	-7.11604E-05	-2.32137E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	1.0980E-03	8.9813E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
2	9.9356E-04	8.9813E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
3	8.8910E-04	8.9813E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
4	1.4183E-03	8.8154E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
5	1.3138E-03	8.8154E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
6	1.2093E-03	8.8154E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
7	1.7385E-03	8.6494E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
8	1.6340E-03	8.6494E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
9	1.5295E-03	8.6494E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
MINIMUM	8.8910E-04	8.6494E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	1.7385E-03	8.9813E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	2726.2	57.243	-135.56	-0.1683	109.82	60.792
2	2482.9	50.521	-116.68	-0.1683	84.874	52.284
3	2239.6	55.236	-126.41	-0.1683	95.652	58.270
4	3472.0	54.406	-133.63	-0.1683	107.53	55.878
5	3228.7	47.988	-115.07	-0.1683	82.911	47.743
6	2985.4	52.408	-124.40	-0.1683	93.243	53.363
7	4217.9	64.613	-166.63	-0.1683	147.23	66.802
8	3974.6	60.963	-154.48	-0.1683	131.32	62.458
9	3731.3	63.622	-159.14	-0.1683	135.26	65.629

MINIMUM	2239.6	47.988	-166.63	-0.1683	82.911	47.743
Pile N.	3	5	7	1	5	5
MAXIMUM	4217.9	64.613	-115.07	-0.1683	147.23	66.802
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.0980E-03	8.9813E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
2	9.9356E-04	8.9813E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
3	8.8910E-04	8.9813E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
4	1.4183E-03	8.8154E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
5	1.3138E-03	8.8154E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
6	1.2093E-03	8.8154E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
7	1.7385E-03	8.6494E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
8	1.6340E-03	8.6494E-05	-2.4207E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
9	1.5295E-03	8.6494E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
MINIMUM	8.8910E-04	8.6494E-05	-2.4373E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	1.7385E-03	8.9813E-05	-2.4041E-04	-3.6868E-07	-7.1160E-05	-2.3214E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	2726.2	57.243	-135.56	-0.1683	109.82	60.792
2	2482.9	50.521	-116.68	-0.1683	84.874	52.284
3	2239.6	55.236	-126.41	-0.1683	95.652	58.270
4	3472.0	54.406	-133.63	-0.1683	107.53	55.878
5	3228.7	47.988	-115.07	-0.1683	82.911	47.743
6	2985.4	52.408	-124.40	-0.1683	93.243	53.363
7	4217.9	64.613	-166.63	-0.1683	147.23	66.802
8	3974.6	60.963	-154.48	-0.1683	131.32	62.458
9	3731.3	63.622	-159.14	-0.1683	135.26	65.629
MINIMUM	2239.6	47.988	-166.63	-0.1683	82.911	47.743
Pile N.	3	5	7	1	5	5
MAXIMUM	4217.9	64.613	-115.07	-0.1683	147.23	66.802
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	1921.6
2	1705.9
3	1605.4
4	2330.5
5	2115.8
6	2013.6
7	2874.8
8	2688.0
9	2565.2
MINIMUM	1605.4
Pile N.	3
MAXIMUM	2874.8
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-2.6791E-06	-2.4373E-04	-60.792	-189.51	-23.968	-134.44	-8.7122	-131.90	1542.7	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
2	-2.7240E-06	-2.4207E-04	-52.284	-176.14	-21.278	-115.77	-7.3813	-109.51	1405.0	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
3	-2.7038E-06	-2.4041E-04	-58.270	-183.50	-23.052	-125.37	-8.2739	-123.09	1267.3	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.5000	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
4	-2.6425E-06	-2.4373E-04	-55.878	-188.17	-23.243	-132.53	-8.3976	-129.51	1964.8	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
5	-2.6880E-06	-2.4207E-04	-47.743	-174.97	-20.662	-114.18	-7.1291	-107.65	1827.1	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
6	-2.6670E-06	-2.4041E-04	-53.363	-182.09	-22.330	-123.39	-7.9713	-120.64	1689.4	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.5000	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
7	-2.5087E-06	-2.4373E-04	-66.802	-211.92	-27.949	-165.07	-10.972	-174.78	2386.8	7.8279E+06	7.8279E+06
x(M)	5.5000	0.0000	0.0000	2.7500	4.2500	0.0000	5.7500	2.0000	25.000	0.0000	0.0000
8	-2.5415E-06	-2.4207E-04	-62.458	-203.50	-26.374	-153.08	-10.090	-159.38	2249.1	7.8279E+06	7.8279E+06

x(M)	5.7500	0.0000	0.0000	2.7500	4.5000	0.0000	5.7500	2.0000	25.000	0.0000	0.0000
9	-2.5160E-06	-2.4041E-04	-65.629	-207.42	-27.440	-157.65	-10.701	-167.86	2111.5	7.8279E+06	7.8279E+06
x(M)	5.5000	0.0000	0.0000	2.7500	4.2500	0.0000	5.7500	2.0000	25.000	0.0000	0.0000
Min.	-2.7240E-06	-2.4373E-04	-66.802	-211.92	-27.949	-165.07	-10.972	-174.78	1267.3	7.8279E+06	7.8279E+06
Pile N.	2	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	8.9813E-05	7.3730E-06	69.260	109.82	56.829	65.625	51.430	23.815	2151.7	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.0000	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
2	8.9813E-05	7.5260E-06	64.313	84.874	50.185	57.906	43.195	20.072	1970.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.0000	0.0000	0.0000	4.5000	2.0000	6.2500	3.0000	0.0000	0.0000
3	8.9813E-05	7.3361E-06	67.771	95.652	54.847	62.564	49.018	22.344	1857.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.0000	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
4	8.8154E-05	7.3872E-06	67.540	107.53	54.009	64.820	49.177	23.395	2568.2	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.0000	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
5	8.8154E-05	7.5474E-06	62.805	82.911	47.665	57.209	41.342	19.756	2388.2	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.0000	0.0000	0.0000	4.5000	2.0000	6.2500	3.0000	0.0000	0.0000
6	8.8154E-05	7.3736E-06	66.054	93.243	52.037	61.716	46.782	21.900	2274.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.0000	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
7	8.6494E-05	7.1379E-06	74.814	147.23	64.061	79.112	64.484	30.894	3064.9	7.8279E+06	7.8279E+06
x(M)	0.0000	5.5000	3.0000	0.0000	0.0000	4.2500	2.0000	5.7500	2.7500	0.0000	0.0000
8	8.6494E-05	7.1435E-06	72.366	131.32	60.464	74.098	59.427	28.355	2900.5	7.8279E+06	7.8279E+06
x(M)	0.0000	5.5000	3.0000	0.0000	0.0000	4.2500	2.0000	5.7500	2.7500	0.0000	0.0000
9	8.6494E-05	7.0869E-06	74.124	135.26	63.087	76.765	63.224	29.763	2776.0	7.8279E+06	7.8279E+06
x(M)	0.0000	5.5000	3.0000	0.0000	0.0000	4.2500	2.0000	5.7500	2.7500	0.0000	0.0000
Max.	8.9813E-05	7.5474E-06	74.814	147.23	64.061	79.112	64.484	30.894	3064.9	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 15
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.7036	1.0000
2	0.5291	1.0000
3	0.5845	1.0000
4	0.6730	1.0000
5	0.4962	1.0000
6	0.5495	1.0000
7	0.8661	1.0000
8	0.7286	1.0000
9	0.7725	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
40382.6	1404.00	-1290.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
0.00000	-27913.0	-15054.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.85400E-03	2.44737E-04	-3.15587E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-3.96921E-07	-1.00815E-04	-5.89431E-05

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD

1	1.6656E-03	2.4658E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
2	1.4003E-03	2.4658E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
3	1.1351E-03	2.4658E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
4	2.1192E-03	2.4480E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
5	1.8540E-03	2.4480E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
6	1.5888E-03	2.4480E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
7	2.5729E-03	2.4301E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
8	2.3077E-03	2.4301E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
9	2.0424E-03	2.4301E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
MINIMUM	1.1351E-03	2.4301E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.5729E-03	2.4658E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	4048.1	165.30	-153.08	-0.1812	82.180	194.19
2	3430.3	139.91	-123.54	-0.1812	44.397	161.92
3	2812.5	148.69	-130.90	-0.1812	51.969	173.17
4	5104.7	159.02	-148.58	-0.1812	76.931	184.97
5	4487.0	132.82	-117.97	-0.1812	37.567	151.40
6	3869.2	141.45	-125.32	-0.1812	45.225	162.58
7	6161.4	181.62	-176.34	-0.1812	110.02	211.20
8	5543.6	164.64	-155.02	-0.1812	83.162	190.50
9	4925.8	170.54	-159.25	-0.1812	86.482	197.72
MINIMUM	2812.5	132.82	-176.34	-0.1812	37.567	151.40
Pile N.	3	5	7	1	5	5
MAXIMUM	6161.4	181.62	-117.97	-0.1812	110.02	211.20
Pile N.	7	7	5	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)
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* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	1.6656E-03	2.4658E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
2	1.4003E-03	2.4658E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
3	1.1351E-03	2.4658E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
4	2.1192E-03	2.4480E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
5	1.8540E-03	2.4480E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
6	1.5888E-03	2.4480E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
7	2.5729E-03	2.4301E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
8	2.3077E-03	2.4301E-04	-3.1569E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
9	2.0424E-03	2.4301E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
MINIMUM	1.1351E-03	2.4301E-04	-3.1747E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.5729E-03	2.4658E-04	-3.1390E-04	-3.9692E-07	-1.0082E-04	-5.8943E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
1	4048.1	165.30	-153.08	-0.1812	82.180	194.19
2	3430.3	139.91	-123.54	-0.1812	44.397	161.92
3	2812.5	148.69	-130.90	-0.1812	51.969	173.17
4	5104.7	159.02	-148.58	-0.1812	76.931	184.97
5	4487.0	132.82	-117.97	-0.1812	37.567	151.40
6	3869.2	141.45	-125.32	-0.1812	45.225	162.58
7	6161.4	181.62	-176.34	-0.1812	110.02	211.20
8	5543.6	164.64	-155.02	-0.1812	83.162	190.50
9	4925.8	170.54	-159.25	-0.1812	86.482	197.72
MINIMUM	2812.5	132.82	-176.34	-0.1812	37.567	151.40
Pile N.	3	5	7	1	5	5
MAXIMUM	6161.4	181.62	-117.97	-0.1812	110.02	211.20
Pile N.	7	7	5	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	2927.1
2	2447.9
3	2137.2
4	3493.3
5	3009.9
6	2698.8
7	4205.3
8	3764.4
9	3438.8

MINIMUM 2137.2
Pile N. 3
MAXIMUM 4205.3
Pile N. 7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-6.8792E-06	-3.1747E-04	-194.19	-246.43	-67.373	-151.42	-25.220	-149.66	2290.7	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	2.7500	4.7500	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
2	-7.0766E-06	-3.1569E-04	-161.92	-225.37	-57.170	-122.30	-20.137	-115.80	1941.2	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
3	-6.9896E-06	-3.1390E-04	-173.17	-231.11	-60.735	-129.54	-21.840	-125.57	1591.6	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
4	-6.8716E-06	-3.1747E-04	-184.97	-243.27	-65.329	-147.00	-24.240	-144.25	2888.7	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
5	-7.0733E-06	-3.1569E-04	-151.40	-221.30	-54.753	-116.81	-19.040	-109.62	2539.1	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	5.0000	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
6	-7.0099E-06	-3.1390E-04	-162.58	-227.12	-58.194	-124.04	-20.592	-119.16	2189.5	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.0000	4.7500	0.0000	6.2500	2.0000	25.000	0.0000	0.0000
7	-6.6599E-06	-3.1747E-04	-211.20	-263.81	-75.088	-174.31	-29.437	-179.73	3486.6	7.8279E+06	7.8279E+06
x(M)	5.7500	0.0000	0.0000	2.7500	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
8	-6.7672E-06	-3.1569E-04	-190.50	-248.65	-67.746	-153.32	-25.691	-153.80	3137.0	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	2.7500	4.7500	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
9	-6.7122E-06	-3.1390E-04	-197.72	-252.34	-70.263	-157.45	-26.978	-160.70	2787.4	7.8279E+06	7.8279E+06
x(M)	5.7500	0.0000	0.0000	2.7500	4.5000	0.0000	6.0000	2.0000	25.000	0.0000	0.0000
Min.	-7.0766E-06	-3.1747E-04	-211.20	-263.81	-75.088	-174.31	-29.437	-179.73	1591.6	7.8279E+06	7.8279E+06
Pile N.	2	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	2.4658E-04	9.0918E-06	188.00	82.180	164.02	87.642	132.72	32.660	3225.0	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
2	2.4658E-04	9.4416E-06	170.83	44.397	138.95	74.879	104.00	26.163	2790.4	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.2500	3.0000	0.0000	0.0000
3	2.4658E-04	9.2342E-06	176.90	51.969	147.62	78.747	113.64	28.125	2466.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
4	2.4480E-04	9.1572E-06	184.03	76.931	157.81	85.723	126.72	31.652	3808.0	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
5	2.4480E-04	9.5417E-06	166.03	37.567	131.92	72.335	97.539	24.992	3369.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.2500	3.0000	0.0000	0.0000
6	2.4480E-04	9.3562E-06	172.10	45.225	140.46	76.243	106.84	26.791	3046.0	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.5000	2.0000	6.0000	3.0000	0.0000	0.0000
7	2.4301E-04	8.8278E-06	199.71	110.02	180.08	98.168	155.83	38.470	4481.6	7.8279E+06	7.8279E+06
x(M)	0.0000	5.5000	3.0000	0.0000	0.0000	4.2500	2.0000	5.7500	3.0000	0.0000	0.0000
8	2.4301E-04	9.0283E-06	187.77	83.162	163.34	88.978	134.81	33.387	4076.1	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.0000	0.0000	0.0000	4.5000	2.0000	5.7500	3.0000	0.0000	0.0000
9	2.4301E-04	8.8936E-06	191.95	86.482	169.16	91.207	142.01	34.868	3741.6	7.8279E+06	7.8279E+06
x(M)	0.0000	5.7500	3.0000	0.0000	0.0000	4.2500	2.0000	5.7500	3.0000	0.0000	0.0000
Max.	2.4658E-04	9.5417E-06	199.71	110.02	180.08	98.168	155.83	38.470	4481.6	7.8279E+06	7.8279E+06
Pile N.	1	5	7	7	7	7	7	7	7	1	1

LOAD CASE : 16
CASE NAME : Load Case
LOAD TYPE : Special, Sp

REDUCTION FACTORS FOR CLOSELY-SPACED PILE GROUPS, COMBINED Y AND Z DIRECTIONS
ESTIMATED USING MOVEMENT IN THE DIRECTION OF PILE CAP DISPLACEMENTS

GROUP NO	P-FACTOR	Y-FACTOR
1	0.8438	1.0000
2	0.5719	1.0000
3	0.5845	1.0000
4	0.7870	1.0000
5	0.4962	1.0000
6	0.5048	1.0000
7	0.8661	1.0000
8	0.6037	1.0000
9	0.6162	1.0000

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

VERT. LOAD, KN	HOR. LOAD Y, KN	HOR. LOAD Z, KN
41130.6	3786.00	-1067.00

MOMENT X , KN- M	MOMENT Y, KN- M	MOMENT Z, KN- M
-361.000	-17067.5	-44997.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

VERTICAL , M	HORIZONTAL Y, M	HORIZONTAL Z, M
1.88968E-03	7.61136E-04	-2.44001E-04

ANGLE ROT. X,RAD	ANGLE ROT. Y,RAD	ANGLE ROT. Z,RAD
-4.55099E-07	-6.38736E-05	-1.74976E-04

THE GLOBAL STRUCTURAL COORDINATE SYSTEM

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
1	2.3896E-03	7.6336E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
2	1.6022E-03	7.6336E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
3	8.1486E-04	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
4	2.6771E-03	7.6131E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
5	1.8897E-03	7.6131E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
6	1.1023E-03	7.6131E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
7	2.9645E-03	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
8	2.1771E-03	7.5926E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
9	1.3897E-03	7.5926E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
1	5734.5	493.83	-142.09	-0.2078	143.34	597.28
2	3900.6	392.86	-109.46	-0.2078	100.72	468.93
3	2066.7	398.42	-109.09	-0.2078	98.496	475.68
4	6404.0	472.12	-136.20	-0.2078	136.24	569.02
5	4570.1	358.90	-99.893	-0.2078	88.326	422.70
6	2736.1	363.06	-99.243	-0.2078	85.786	427.75
7	7073.5	497.09	-144.56	-0.2078	146.49	598.26
8	5239.5	402.20	-113.47	-0.2078	106.03	478.46
9	3405.6	407.53	-113.00	-0.2078	103.65	484.85
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

THE PILE COORDINATE SYSTEM (LOCAL AXES)

* PILE TOP DISPLACEMENTS *

PILE GROUP	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
1	2.3896E-03	7.6336E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
2	1.6022E-03	7.6336E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
3	8.1486E-04	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
4	2.6771E-03	7.6131E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
5	1.8897E-03	7.6131E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
6	1.1023E-03	7.6131E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
7	2.9645E-03	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
8	2.1771E-03	7.5926E-04	-2.4406E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
9	1.3897E-03	7.5926E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS *

PILE GROUP	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M

1	5734.5	493.83	-142.09	-0.2078	143.34	597.28
2	3900.6	392.86	-109.46	-0.2078	100.72	468.93
3	2066.7	398.42	-109.09	-0.2078	98.496	475.68
4	6404.0	472.12	-136.20	-0.2078	136.24	569.02
5	4570.1	358.90	-99.893	-0.2078	88.326	422.70
6	2736.1	363.06	-99.243	-0.2078	85.786	427.75
7	7073.5	497.09	-144.56	-0.2078	146.49	598.26
8	5239.5	402.20	-113.47	-0.2078	106.03	478.46
9	3405.6	407.53	-113.00	-0.2078	103.65	484.85
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

PILE GROUP	STRESS, KN/ M**2
1	5098.9
2	3654.8
3	2635.6
4	5389.8
5	3889.4
6	2865.0
7	5861.7
8	4444.0
9	3423.5
MINIMUM	2635.6
Pile N.	3
MAXIMUM	5861.7
Pile N.	7

* EFFECTS FOR LATERALLY LOADED PILE *

* MINIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	-1.9194E-05	-2.4611E-04	-597.28	-178.91	-205.94	-140.56	-78.174	-106.56	3245.1	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
2	-1.9940E-05	-2.4406E-04	-468.93	-156.91	-166.71	-108.43	-61.874	-74.792	2207.3	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
3	-1.9858E-05	-2.4202E-04	-475.68	-156.79	-168.69	-108.04	-62.820	-75.373	1169.5	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
4	-1.9218E-05	-2.4611E-04	-569.02	-175.17	-197.56	-134.77	-74.988	-100.40	3623.9	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
5	-2.0183E-05	-2.4406E-04	-422.70	-149.99	-153.85	-98.999	-55.560	-65.992	2586.1	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
6	-2.0145E-05	-2.4202E-04	-427.75	-149.71	-155.14	-98.338	-56.312	-66.241	1548.3	7.8279E+06	7.8279E+06
x(M)	6.5000	0.0000	0.0000	3.2500	5.2500	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
7	-1.9068E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	4002.8	7.8279E+06	7.8279E+06
x(M)	6.0000	0.0000	0.0000	3.2500	4.7500	0.0000	6.5000	2.0000	25.000	0.0000	0.0000
8	-1.9705E-05	-2.4406E-04	-478.46	-159.87	-171.19	-112.39	-64.069	-78.705	2965.0	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
9	-1.9677E-05	-2.4202E-04	-484.85	-159.65	-173.04	-111.89	-64.937	-79.215	1927.2	7.8279E+06	7.8279E+06
x(M)	6.2500	0.0000	0.0000	3.2500	5.0000	0.0000	6.7500	2.0000	25.000	0.0000	0.0000
Min.	-2.0183E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	1169.5	7.8279E+06	7.8279E+06
Pile N.	5	1	7	7	7	7	7	7	3	1	1

* MAXIMUM VALUES AND LOCATIONS *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2	FLEX. RIG. z-DIR KN- M**2	FLEX. RIG. y-DIR KN- M**2
1	7.6336E-04	6.1939E-06	555.33	143.34	489.09	65.999	346.92	24.673	5098.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	0.0000	0.0000	0.0000
2	7.6336E-04	6.4206E-06	489.68	100.72	389.65	53.155	246.85	19.525	3758.5	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
3	7.6336E-04	6.3566E-06	493.06	98.496	395.12	53.268	251.79	19.613	2730.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
4	7.6131E-04	6.2472E-06	541.34	136.24	467.72	63.664	325.78	23.723	5389.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.5000	0.0000	0.0000	0.0000
5	7.6131E-04	6.5372E-06	466.84	88.326	356.12	49.342	217.15	17.739	4065.9	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
6	7.6131E-04	6.4646E-06	469.45	85.786	360.22	49.377	220.63	17.802	3035.1	7.8279E+06	7.8279E+06
x(M)	0.0000	6.5000	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
7	7.5926E-04	6.1752E-06	557.90	146.49	492.27	67.027	353.26	25.111	5861.7	7.8279E+06	7.8279E+06
x(M)	0.0000	6.0000	3.2500	0.0000	0.0000	4.7500	2.0000	6.2500	0.0000	0.0000	0.0000
8	7.5926E-04	6.3984E-06	496.01	106.03	398.83	54.745	257.80	20.274	4536.8	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000
9	7.5926E-04	6.3290E-06	499.17	103.65	404.07	54.800	262.62	20.330	3507.6	7.8279E+06	7.8279E+06
x(M)	0.0000	6.2500	3.5000	0.0000	0.0000	5.0000	2.0000	6.7500	3.5000	0.0000	0.0000

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    Max.  7.6336E-04  6.5372E-06      557.90      146.49      492.27      67.027      353.26      25.111      5861.7  7.8279E+06  7.8279E+06
Pile N.       1           5           7           7           7           7           7           7           7           1           1


            *****     SUMMARY FOR LOAD CASES AND COMBINATIONS      *****


            *****     LOAD CASES RESULTS      *****

  LOAD CASE :     1

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
       LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
           24153.0        10777.8       -2736.80       -158.000       -30054.2   -1.08479E+05

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
        DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.14622E-03    2.83651E-03   -7.60056E-04    6.38318E-06   -1.28665E-04   -4.42370E-04

    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ===========  ===========  ===========  ===========  ===========  ===========
    MINIMUM    -1.4234E-03   2.8082E-03  -7.8891E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
    Pile N.          3            1           3           1           1           1
    MAXIMUM     3.7159E-03   2.8657E-03  -7.3146E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
    Pile N.          7            7           1           1           1           1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ===========  ===========  ===========  ===========  ===========  ===========
    MINIMUM        -3408.6       988.26      -358.99       2.9146       381.66       1613.0
    Pile N.          3            5           1           1           5           5
    MAXIMUM         8273.6       1474.4      -251.17       2.9146       529.94       2351.3
    Pile N.          7            7           5           1           1           7

    * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ===========  ===========  ===========  ===========  ===========  ===========
    MINIMUM    -1.4234E-03   2.8082E-03  -7.8891E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
    Pile N.          3            1           3           1           1           1
    MAXIMUM     3.7159E-03   2.8657E-03  -7.3146E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
    Pile N.          7            7           1           1           1           1

    * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ===========  ===========  ===========  ===========  ===========  ===========
    MINIMUM        -3408.6       988.26      -358.99       2.9146       381.66       1613.0
    Pile N.          3            5           1           1           5           5
    MAXIMUM         8273.6       1474.4      -251.17       2.9146       529.94       2351.3
    Pile N.          7            7           5           1           1           7

    * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.       DISPL.       MOMENT       MOMENT        SHEAR        SHEAR     SOIL REACT  SOIL REACT      TOTAL
            y-DIR        z-DIR        z-DIR        y-DIR        y-DIR        z-DIR        y-DIR       z-DIR       STRESS
              M            M          KN- M        KN- M          KN           KN         KN/ M       KN/ M      KN/ M**2
 ======  ==========  ==========  ==========  ==========  ==========  ==========  ==========  ==========  ==========
   Min. -6.6804E-05 -7.8891E-04     -2351.3     -377.01     -485.52     -354.94     -147.24     -182.07      379.51
Pile N.       1           3           7           1           1           1           1           1           9
   Max.  2.8657E-03  1.7614E-05      1453.6      529.94      1458.6      124.69      734.30      37.698  1.1945E+04
Pile N.       7           6           1           1           7           1           7           1           7

  LOAD CASE :     2

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
       LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
           30322.0       -10087.0        2687.30        108.000        30654.2    1.00144E+05

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
        DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.44877E-03   -2.58459E-03    7.37937E-04    6.93170E-06    1.30987E-04    4.14494E-04

    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ===========  ===========  ===========  ===========  ===========  ===========
    MINIMUM    -1.0059E-03  -2.6162E-03   7.0688E-04   6.9317E-06   1.3099E-04   4.1449E-04
    Pile N.          7            1           3           1           1           1
    MAXIMUM     3.9034E-03  -2.5538E-03   7.6926E-04   6.9317E-06   1.3099E-04   4.1449E-04
    Pile N.          3            7           1           1           1           1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
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              **********  **********  **********  **********  **********  **********
     MINIMUM       -2445.6      -1411.9       244.57       3.1651      -491.76      -2223.2
     Pile N.             7            3            5            1            3            3
     MAXIMUM        8554.3      -917.43       348.08       3.1651      -353.92      -1462.7
     Pile N.             3            5            3            1            5            5

     * PILE TOP DISPLACEMENTS, LOCAL *
                 DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
                **********  **********  **********  **********  **********  **********
     MINIMUM    -1.0059E-03  -2.6162E-03   7.0688E-04   6.9317E-06   1.3099E-04   4.1449E-04
     Pile N.            7            1            3            1            1            1
     MAXIMUM     3.9034E-03  -2.5538E-03   7.6926E-04   6.9317E-06   1.3099E-04   4.1449E-04
     Pile N.            3            7            1            1            1            1

     * PILE TOP REACTIONS, LOCAL *
                 AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
                **********  **********  **********  **********  **********  **********
     MINIMUM       -2445.6      -1411.9       244.57       3.1651      -491.76      -2223.2
     Pile N.             7            3            5            1            3            3
     MAXIMUM        8554.3      -917.43       348.08       3.1651      -353.92      -1462.7
     Pile N.             3            5            3            1            5            5

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
              y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
                M           M         KN- M       KN- M          KN          KN        KN/ M       KN/ M      KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -2.6162E-03 -1.7114E-05     -1384.3     -491.76     -1396.6     -123.01     -703.13     -37.702      254.17
Pile N.          1           4           3           3           3           3           3           3           1
    Max.  6.1757E-05  7.6926E-04      2223.2      371.53      465.44      343.93      143.31      182.34  1.1713E+04
Pile N.          3           1           3           3           3           3           3           3           3

   LOAD CASE :     3

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
         LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            24638.0        3351.70       -9088.20       -362.000   -1.00730E+05       -33529.7

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
          DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
         1.15980E-03    8.35891E-04   -2.29418E-03   -7.39636E-06   -3.99564E-04   -1.41654E-04

     * PILE TOP DISPLACEMENTS, GLOBAL *
                 DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
                **********  **********  **********  **********  **********  **********
     MINIMUM    -1.2757E-03   8.0275E-04  -2.3279E-03  -7.3964E-06  -3.9956E-04  -1.4165E-04
     Pile N.            3            7            1            1            1            1
     MAXIMUM     3.5953E-03   8.6932E-04  -2.2613E-03  -7.3964E-06  -3.9956E-04  -1.4165E-04
     Pile N.            7            1            3            1            1            1

     * PILE TOP REACTIONS, GLOBAL *
                 FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
                **********  **********  **********  **********  **********  **********
     MINIMUM        -3067.9       310.93      -1251.9      -3.3772       1257.2       478.51
     Pile N.            3            5            7            1            5            5
     MAXIMUM         8093.2       424.75      -837.69      -3.3772       1869.0       622.08
     Pile N.            7            7            5            1            7            7

     * PILE TOP DISPLACEMENTS, LOCAL *
                 DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
                **********  **********  **********  **********  **********  **********
     MINIMUM    -1.2757E-03   8.0275E-04  -2.3279E-03  -7.3964E-06  -3.9956E-04  -1.4165E-04
     Pile N.            3            7            1            1            1            1
     MAXIMUM     3.5953E-03   8.6932E-04  -2.2613E-03  -7.3964E-06  -3.9956E-04  -1.4165E-04
     Pile N.            7            1            3            1            1            1

     * PILE TOP REACTIONS, LOCAL *
                 AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
                **********  **********  **********  **********  **********  **********
     MINIMUM        -3067.9       310.93      -1251.9      -3.3772       1257.2       478.51
     Pile N.            3            5            7            1            5            5
     MAXIMUM         8093.2       424.75      -837.69      -3.3772       1869.0       622.08
     Pile N.            7            7            5            1            7            7

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
              y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
                M           M         KN- M       KN- M          KN          KN        KN/ M       KN/ M      KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -2.0972E-05 -2.3279E-03     -622.08     -1257.3     -145.39     -1237.3     -45.342     -646.15      1.1406
Pile N.          2           1           7           7           7           7           7           7           1
    Max.  8.6932E-04  5.5622E-05      432.97      1869.0      419.72      423.10      221.19      132.08  1.0525E+04
Pile N.          1           4           7           7           7           7           7           7           7
```

LOAD CASE : 4

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
30322.0	-2810.50	8957.30	362.000	1.02181E+05	27318.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

DISP X, M	DISP Y, M	DISP Z, M	ROT X,RAD	ROT Y,RAD	ROT Z,RAD
1.44517E-03	-6.96896E-04	2.28310E-03	-2.60160E-06	4.09963E-04	1.19490E-04

* PILE TOP DISPLACEMENTS, GLOBAL *

	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
MINIMUM	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS, GLOBAL *

	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
MINIMUM	-2287.5	-370.06	825.39	-1.1879	-1772.8	-546.31
Pile N.	7	3	5	1	3	3
MAXIMUM	8441.0	-260.21	1221.7	-1.1879	-1202.7	-396.61
Pile N.	3	5	3	1	5	5

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	-9.3737E-04	-7.0872E-04	2.2718E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	7	7	1	1	1	1
MAXIMUM	3.8277E-03	-6.8531E-04	2.2952E-03	-2.6016E-06	4.0996E-04	1.1949E-04
Pile N.	3	1	3	1	1	1

* PILE TOP REACTIONS, LOCAL *

	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
MINIMUM	-2287.5	-370.06	825.39	-1.1879	-1772.8	-546.31
Pile N.	7	3	5	1	3	3
MAXIMUM	8441.0	-260.21	1221.7	-1.1879	-1202.7	-396.61
Pile N.	3	5	3	1	5	5

* EFFECTS FOR LATERALLY LOADED PILE *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2
Min.	-7.0872E-04	-5.5360E-05	-373.13	-1772.8	-365.72	-422.11	-192.64	-131.91	202.82
Pile N.	7	5	3	3	3	3	3	3	9
Max.	1.7163E-05	2.2952E-03	546.31	1249.6	126.30	1207.1	39.525	640.99	1.0375E+04
Pile N.	8	3	3	3	3	3	3	3	3

LOAD CASE : 5

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
39417.0	-3026.10	2687.30	108.000	30813.8	30055.8

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

DISP X, M	DISP Y, M	DISP Z, M	ROT X,RAD	ROT Y,RAD	ROT Z,RAD
1.80793E-03	-5.67007E-04	5.31496E-04	5.19968E-07	1.20433E-04	1.20199E-04

* PILE TOP DISPLACEMENTS, GLOBAL *

	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
MINIMUM	7.2509E-04	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	2.8908E-03	-5.6479E-04	5.3396E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS, GLOBAL *

	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
MINIMUM	1857.6	-398.01	253.84	0.2374	-426.54	-521.06
Pile N.	7	3	5	1	3	3
MAXIMUM	6901.8	-286.92	349.75	0.2374	-305.29	-375.88
Pile N.	3	5	3	1	5	5

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	7.2509E-04	-5.6947E-04	5.2928E-04	5.1997E-07	1.2043E-04	1.2020E-04
Pile N.	7	1	3	1	1	1

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     MAXIMUM     2.8908E-03  -5.6479E-04   5.3396E-04   5.1997E-07   1.2043E-04   1.2020E-04
     Pile N.          3           7           1           1           1           1

     * PILE TOP REACTIONS, LOCAL *
                 AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
                ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         1857.6      -398.01       253.84       0.2374      -426.54      -521.06
     Pile N.          7           3           5           1           3           3
     MAXIMUM         6901.8      -286.92       349.75       0.2374      -305.29      -375.88
     Pile N.          3           5           3           1           5           5

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
  ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -5.6947E-04 -1.4006E-05     -418.01     -426.54     -394.40     -144.97     -273.75     -55.274      1051.2
 Pile N.       1           5           3           3           3           3           3           3           7
    Max.  1.4872E-05  5.3396E-04      521.06      388.24      156.55      346.39      60.192      248.08      5937.9
 Pile N.       5           1           3           3           3           3           3           3           3

   LOAD CASE :     6

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            14000.0        3242.80       -2687.30       -108.000       -30638.8       -32727.2

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        6.22415E-04    6.01000E-04   -5.20796E-04   -2.03474E-07   -1.14155E-04   -1.24227E-04

     * PILE TOP DISPLACEMENTS, GLOBAL *
                 DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
                ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM    -4.5031E-04   6.0021E-04  -5.2182E-04  -2.0347E-07  -1.1415E-04  -1.2423E-04
     Pile N.          3           7           1           1           1           1
     MAXIMUM     1.6951E-03   6.0204E-04  -5.1999E-04  -2.0347E-07  -1.1415E-04  -1.2423E-04
     Pile N.          7           1           3           1           1           1

     * PILE TOP REACTIONS, GLOBAL *
                 FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
                ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         -1137.6       307.98      -352.90    -0.092908       319.06       413.60
     Pile N.          3           5           7           1           5           5
     MAXIMUM          4116.9       422.20      -254.27    -0.092908       446.79       560.66
     Pile N.          7           7           5           1           7           7

     * PILE TOP DISPLACEMENTS, LOCAL *
                 DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
                ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM    -4.5031E-04   6.0021E-04  -5.2182E-04  -2.0347E-07  -1.1415E-04  -1.2423E-04
     Pile N.          3           7           1           1           1           1
     MAXIMUM     1.6951E-03   6.0204E-04  -5.1999E-04  -2.0347E-07  -1.1415E-04  -1.2423E-04
     Pile N.          7           1           3           1           1           1

     * PILE TOP REACTIONS, LOCAL *
                 AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
                ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         -1137.6       307.98      -352.90    -0.092908       319.06       413.60
     Pile N.          3           5           7           1           5           5
     MAXIMUM          4116.9       422.20      -254.27    -0.092908       446.79       560.66
     Pile N.          7           7           5           1           7           7

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
  ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -1.5712E-05 -5.2183E-04     -560.66     -380.45     -163.64     -349.57     -62.770     -244.51      93.139
 Pile N.       5           1           7           7           7           7           7           7           6
    Max.  6.0204E-04  1.3624E-05      437.74      446.79      418.37      141.93      286.32      54.115      4493.4
 Pile N.       1           5           7           7           7           7           7           7           7

   LOAD CASE :     7

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            21955.0        3242.80       -8957.30       -362.000   -1.02154E+05       -32749.2

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.02851E-03    8.04032E-04   -2.26778E-03   -7.30243E-06   -4.00922E-04   -1.36407E-04
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    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM    -1.3895E-03   7.7131E-04  -2.3010E-03  -7.3024E-06  -4.0092E-04  -1.3641E-04
    Pile N.          3            7           1           1           1           1
    MAXIMUM     3.4465E-03   8.3703E-04  -2.2353E-03  -7.3024E-06  -4.0092E-04  -1.3641E-04
    Pile N.          7            1           3           1           1           1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM        -3330.3       300.99      -1234.8      -3.3344       1220.6       462.72
    Pile N.          3            5           7           1           5           5
    MAXIMUM         7870.5       410.27      -825.32      -3.3344       1823.8       599.60
    Pile N.          7            7           5           1           7           7

    * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM    -1.3895E-03   7.7131E-04  -2.3010E-03  -7.3024E-06  -4.0092E-04  -1.3641E-04
    Pile N.          3            7           1           1           1           1
    MAXIMUM     3.4465E-03   8.3703E-04  -2.2353E-03  -7.3024E-06  -4.0092E-04  -1.3641E-04
    Pile N.          7            1           3           1           1           1

    * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM        -3330.3       300.99      -1234.8      -3.3344       1220.6       462.72
    Pile N.          3            5           7           1           5           5
    MAXIMUM         7870.5       410.27      -825.32      -3.3344       1823.8       599.60
    Pile N.          7            7           5           1           7           7

    * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
             M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M      KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
   Min. -2.0260E-05 -2.3010E-03     -599.60     -1246.7     -140.70     -1220.3     -43.943     -641.46      231.33
Pile N.       2           1           7           7           7           7           7           7           1
   Max.  8.3703E-04  5.4978E-05      417.84      1823.8      405.39      420.27      214.16      131.37  1.0248E+04
Pile N.       1           4           7           7           7           7           7           7           7

  LOAD CASE :     8

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            30868.0       -2790.70        8873.70        362.000    1.04257E+05        27456.5

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.47684E-03   -6.95797E-04    2.28569E-03   -2.58768E-06    4.17997E-04    1.20712E-04

    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM    -9.4735E-04  -7.0756E-04   2.2745E-03  -2.5877E-06   4.1800E-04   1.2071E-04
    Pile N.          7            7           1           1           1           1
    MAXIMUM     3.9010E-03  -6.8427E-04   2.2977E-03  -2.5877E-06   4.1800E-04   1.2071E-04
    Pile N.          3            1           3           1           1           1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM        -2310.5      -367.59       816.87      -1.1816      -1734.1      -538.40
    Pile N.          7            3           5           1           3           3
    MAXIMUM         8550.7      -258.25       1211.4      -1.1816      -1167.4      -389.54
    Pile N.          3            5           3           1           5           5

    * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM    -9.4735E-04  -7.0756E-04   2.2745E-03  -2.5877E-06   4.1800E-04   1.2071E-04
    Pile N.          7            7           1           1           1           1
    MAXIMUM     3.9010E-03  -6.8427E-04   2.2977E-03  -2.5877E-06   4.1800E-04   1.2071E-04
    Pile N.          3            1           3           1           1           1

    * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM        -2310.5      -367.59       816.87      -1.1816      -1734.1      -538.40
    Pile N.          7            3           5           1           3           3
    MAXIMUM         8550.7      -258.25       1211.4      -1.1816      -1167.4      -389.54
    Pile N.          3            5           3           1           5           5
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     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -7.0756E-04 -5.5483E-05     -373.21     -1734.1     -363.26     -423.36     -192.06     -132.13      204.32
Pile N.         7           5           3           3           3           3           3           3           9
    Max.  1.7160E-05  2.2977E-03      538.40      1253.1      126.44      1196.8      39.530      639.51  1.0319E+04
Pile N.         8           3           3           3           3           3           3           3           3

   LOAD CASE :     9

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            24153.0        10777.8       -2736.80       -158.000       -30054.2   -1.08479E+05

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.14622E-03    2.83651E-03   -7.60056E-04    6.38318E-06   -1.28665E-04   -4.42370E-04

     * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM    -1.4234E-03   2.8082E-03  -7.8891E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
     Pile N.          3            1           3           1           1           1
     MAXIMUM     3.7159E-03   2.8657E-03  -7.3146E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
     Pile N.          7            7           1           1           1           1

     * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM        -3408.6       988.26      -358.99       2.9146       381.66       1613.0
     Pile N.          3            5           1           1           5           5
     MAXIMUM         8273.6       1474.4      -251.17       2.9146       529.94       2351.3
     Pile N.          7            7           5           1           1           7

     * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM    -1.4234E-03   2.8082E-03  -7.8891E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
     Pile N.          3            1           3           1           1           1
     MAXIMUM     3.7159E-03   2.8657E-03  -7.3146E-04   6.3832E-06  -1.2867E-04  -4.4237E-04
     Pile N.          7            7           1           1           1           1

     * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM        -3408.6       988.26      -358.99       2.9146       381.66       1613.0
     Pile N.          3            5           1           1           5           5
     MAXIMUM         8273.6       1474.4      -251.17       2.9146       529.94       2351.3
     Pile N.          7            7           5           1           1           7

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -6.6804E-05 -7.8891E-04     -2351.3     -377.01     -485.52     -354.94     -147.24     -182.07      379.51
Pile N.         1           3           7           1           1           1           1           1           9
    Max.  2.8657E-03  1.7614E-05      1453.6      529.94      1458.6      124.69      734.30      37.698  1.1945E+04
Pile N.         7           6           1           1           7           1           7           1           7

   LOAD CASE :    10

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            30322.0       -10087.0        2687.30        108.000        30654.2    1.00144E+05

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.44877E-03   -2.58459E-03    7.37937E-04    6.93170E-06    1.30987E-04    4.14494E-04

     * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM    -1.0059E-03  -2.6162E-03   7.0688E-04   6.9317E-06   1.3099E-04   4.1449E-04
     Pile N.          7            1           3           1           1           1
     MAXIMUM     3.9034E-03  -2.5538E-03   7.6926E-04   6.9317E-06   1.3099E-04   4.1449E-04
     Pile N.          3            7           1           1           1           1

     * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
```

MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	-1.0059E-03	-2.6162E-03	7.0688E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	7	1	3	1	1	1
MAXIMUM	3.9034E-03	-2.5538E-03	7.6926E-04	6.9317E-06	1.3099E-04	4.1449E-04
Pile N.	3	7	1	1	1	1

* PILE TOP REACTIONS, LOCAL *

	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
MINIMUM	-2445.6	-1411.9	244.57	3.1651	-491.76	-2223.2
Pile N.	7	3	5	1	3	3
MAXIMUM	8554.3	-917.43	348.08	3.1651	-353.92	-1462.7
Pile N.	3	5	3	1	5	5

* EFFECTS FOR LATERALLY LOADED PILE *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2
Min.	-2.6162E-03	-1.7114E-05	-1384.3	-491.76	-1396.6	-123.01	-703.13	-37.702	254.17
Pile N.	1	4	3	3	3	3	3	3	1
Max.	6.1757E-05	7.6926E-04	2223.2	371.53	465.44	343.93	143.31	182.34	1.1713E+04
Pile N.	3	1	3	3	3	3	3	3	3

LOAD CASE : 11

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
41130.6	3786.00	-1067.00	-361.000	-17067.5	-44997.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

DISP X, M	DISP Y, M	DISP Z, M	ROT X,RAD	ROT Y,RAD	ROT Z,RAD
1.88968E-03	7.61136E-04	-2.44001E-04	-4.55099E-07	-6.38736E-05	-1.74976E-04

* PILE TOP DISPLACEMENTS, GLOBAL *

	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS, GLOBAL *

	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	8.1486E-04	7.5926E-04	-2.4611E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	3	7	1	1	1	1
MAXIMUM	2.9645E-03	7.6336E-04	-2.4202E-04	-4.5510E-07	-6.3874E-05	-1.7498E-04
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS, LOCAL *

	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
MINIMUM	2066.7	358.90	-144.56	-0.2078	85.786	422.70
Pile N.	3	5	7	1	6	5
MAXIMUM	7073.5	497.09	-99.243	-0.2078	146.49	598.26
Pile N.	7	7	6	1	7	7

* EFFECTS FOR LATERALLY LOADED PILE *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2
Min.	-2.0183E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	1169.5
Pile N.	5	1	7	7	7	7	7	7	3
Max.	7.6336E-04	6.5372E-06	557.90	146.49	492.27	67.027	353.26	25.111	5861.7
Pile N.	1	5	7	7	7	7	7	7	7

LOAD CASE : 12

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
44651.6	1340.00	-1605.00	-5.00000	-25249.5	-13499.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

DISP X, M	DISP Y, M	DISP Z, M	ROT X,RAD	ROT Y,RAD	ROT Z,RAD
2.05765E-03	2.29901E-04	-3.33995E-04	-4.63435E-07	-9.40729E-05	-5.34166E-05

* PILE TOP DISPLACEMENTS, GLOBAL *

	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
MINIMUM	1.3939E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.7213E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS, GLOBAL *

	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
MINIMUM	3415.4	127.08	-215.95	-0.2116	116.61	152.04
Pile N.	3	5	7	1	5	5
MAXIMUM	6507.1	172.64	-149.52	-0.2116	200.56	207.75
Pile N.	7	7	5	1	7	7

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	1.3939E-03	2.2787E-04	-3.3617E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.7213E-03	2.3204E-04	-3.3200E-04	-4.6343E-07	-9.4073E-05	-5.3417E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS, LOCAL *

	AXIAL, KN	LAT. y, KN	LAT. z, KN	MOM x, KN- M	MOM y, KN- M	MOM z, KN- M
MINIMUM	3415.4	127.08	-215.95	-0.2116	116.61	152.04
Pile N.	3	5	7	1	5	5
MAXIMUM	6507.1	172.64	-149.52	-0.2116	200.56	207.75
Pile N.	7	7	5	1	7	7

* EFFECTS FOR LATERALLY LOADED PILE *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2
Min.	-6.5818E-06	-3.3617E-04	-207.75	-274.38	-69.727	-213.80	-27.440	-198.48	1932.7
Pile N.	2	1	7	7	7	7	7	7	3
Max.	2.3204E-04	9.7301E-06	185.16	200.56	171.20	102.54	144.69	40.178	4681.3
Pile N.	1	5	7	7	7	7	7	7	7

LOAD CASE : 13

* TABLE L * COMPUTATION ON PILE CAP

* EQUIVALENT CONCENTRATED LOAD AT ORIGIN *

LOAD X, KN	LOAD Y, KN	LOAD Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
44651.6	2002.00	-1605.00	-5.00000	-25249.5	-21147.0

* DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *

DISP X, M	DISP Y, M	DISP Z, M	ROT X,RAD	ROT Y,RAD	ROT Z,RAD
2.05765E-03	3.59394E-04	-3.42487E-04	-7.93281E-08	-9.42478E-05	-8.32471E-05

* PILE TOP DISPLACEMENTS, GLOBAL *

	DISP. X, M	DISP. Y, M	DISP. Z, M	ROT. X,RAD	ROT. Y,RAD	ROT. Z,RAD
MINIMUM	1.2589E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	3	7	1	1	1	1
MAXIMUM	2.8564E-03	3.5983E-04	-3.4222E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	7	1	3	1	1	1

* PILE TOP REACTIONS, GLOBAL *

	FOR. X, KN	FOR. Y, KN	FOR. Z, KN	MOM X, KN- M	MOM Y, KN- M	MOM Z, KN- M
MINIMUM	3101.0	189.39	-213.42	-0.036222	121.86	225.73
Pile N.	3	5	7	1	5	5
MAXIMUM	6821.6	261.64	-149.53	-0.036222	201.73	316.99
Pile N.	7	7	5	1	7	7

* PILE TOP DISPLACEMENTS, LOCAL *

	DISP. x, M	DISP. y, M	DISP. z, M	ROT. x,RAD	ROT. y,RAD	ROT. z,RAD
MINIMUM	1.2589E-03	3.5912E-04	-3.4294E-04	-7.9328E-08	-9.4248E-05	-8.3247E-05
Pile N.	3	7	1	1	1	1

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     MAXIMUM     2.8564E-03   3.5983E-04  -3.4222E-04  -7.9328E-08  -9.4248E-05  -8.3247E-05
     Pile N.          7            1           3            1           1           1

     * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         3101.0       189.39      -213.42    -0.036222       121.86       225.73
     Pile N.          3            5           7            1           5           5
     MAXIMUM         6821.6       261.64      -149.53    -0.036222       201.73       316.99
     Pile N.          7            7           5            1           7           7

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
  ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -9.9624E-06 -3.4294E-04     -316.99     -271.29     -106.39     -211.23     -42.163     -185.30      1754.8
 Pile N.       5           1           7           7           7           7           7           7           3
    Max.  3.5983E-04  9.6564E-06      283.38      201.73      259.36      101.57      207.86      39.853      5041.1
 Pile N.       1           5           7           7           7           7           7           7           7

   LOAD CASE :    14

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            29058.6        507.000       -1232.00        0.00000       -19151.0       -6046.50

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.31378E-03    8.81303E-05   -2.41998E-04   -3.68681E-07   -7.11604E-05   -2.32137E-05

     * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM     8.8910E-04   8.6494E-05  -2.4373E-04  -3.6868E-07  -7.1160E-05  -2.3214E-05
     Pile N.          3            7           1           1           1           1
     MAXIMUM     1.7385E-03   8.9813E-05  -2.4041E-04  -3.6868E-07  -7.1160E-05  -2.3214E-05
     Pile N.          7            1           3           1           1           1

     * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         2239.6       47.988      -166.63      -0.1683       82.911       47.743
     Pile N.          3            5           7           1           5           5
     MAXIMUM         4217.9       64.613      -115.07      -0.1683       147.23       66.802
     Pile N.          7            7           5           1           7           7

     * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM     8.8910E-04   8.6494E-05  -2.4373E-04  -3.6868E-07  -7.1160E-05  -2.3214E-05
     Pile N.          3            7           1           1           1           1
     MAXIMUM     1.7385E-03   8.9813E-05  -2.4041E-04  -3.6868E-07  -7.1160E-05  -2.3214E-05
     Pile N.          7            1           3           1           1           1

     * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
     MINIMUM         2239.6       47.988      -166.63      -0.1683       82.911       47.743
     Pile N.          3            5           7           1           5           5
     MAXIMUM         4217.9       64.613      -115.07      -0.1683       147.23       66.802
     Pile N.          7            7           5           1           7           7

     * EFFECTS FOR LATERALLY LOADED PILE *

   PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
             y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
               M           M         KN- M       KN- M         KN          KN        KN/ M       KN/ M     KN/ M**2
  ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
    Min. -2.7240E-06 -2.4373E-04     -66.802     -211.92     -27.949     -165.07     -10.972     -174.78      1267.3
 Pile N.       2           1           7           7           7           7           7           7           3
    Max.  8.9813E-05  7.5474E-06      74.814      147.23      64.061      79.112      64.484      30.894      3064.9
 Pile N.       1           5           7           7           7           7           7           7           7

   LOAD CASE :    15

   * TABLE L *   COMPUTATION ON PILE CAP

   * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
        LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
            40382.6        1404.00       -1290.00        0.00000       -27913.0       -15054.0

   * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
         DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
        1.85400E-03    2.44737E-04   -3.15587E-04   -3.96921E-07   -1.00815E-04   -5.89431E-05
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    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     1.1351E-03   2.4301E-04  -3.1747E-04  -3.9692E-07  -1.0082E-04  -5.8943E-05
    Pile N.          3            7            1            1            1            1
    MAXIMUM     2.5729E-03   2.4658E-04  -3.1390E-04  -3.9692E-07  -1.0082E-04  -5.8943E-05
    Pile N.          7            1            3            1            1            1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2812.5       132.82      -176.34      -0.1812       37.567       151.40
    Pile N.          3            5            7            1            5            5
    MAXIMUM         6161.4       181.62      -117.97      -0.1812       110.02       211.20
    Pile N.          7            7            5            1            7            7

    * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     1.1351E-03   2.4301E-04  -3.1747E-04  -3.9692E-07  -1.0082E-04  -5.8943E-05
    Pile N.          3            7            1            1            1            1
    MAXIMUM     2.5729E-03   2.4658E-04  -3.1390E-04  -3.9692E-07  -1.0082E-04  -5.8943E-05
    Pile N.          7            1            3            1            1            1

    * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2812.5       132.82      -176.34      -0.1812       37.567       151.40
    Pile N.          3            5            7            1            5            5
    MAXIMUM         6161.4       181.62      -117.97      -0.1812       110.02       211.20
    Pile N.          7            7            5            1            7            7

    * EFFECTS FOR LATERALLY LOADED PILE *

  PILE     DISPL.      DISPL.      MOMENT      MOMENT       SHEAR       SHEAR    SOIL REACT  SOIL REACT     TOTAL
           y-DIR       z-DIR       z-DIR       y-DIR       y-DIR       z-DIR       y-DIR       z-DIR      STRESS
             M           M          KN- M       KN- M         KN          KN        KN/ M       KN/ M      KN/ M**2
 ******  **********  **********  **********  **********  **********  **********  **********  **********  **********
   Min. -7.0766E-06 -3.1747E-04     -211.20     -263.81     -75.088     -174.31     -29.437     -179.73      1591.6
Pile N.       2           1           7           7           7           7           7           7           3
   Max.  2.4658E-04  9.5417E-06      199.71      110.02      180.08      98.168      155.83      38.470      4481.6
Pile N.       1           5           7           7           7           7           7           7           7

  LOAD CASE :    16

  * TABLE L *   COMPUTATION ON PILE CAP

  * EQUIVALENT CONCENTRATED LOAD AT ORIGIN *
       LOAD X, KN     LOAD Y, KN     LOAD Z, KN    MOM X, KN- M   MOM Y, KN- M   MOM Z, KN- M
           41130.6        3786.00       -1067.00       -361.000       -17067.5       -44997.0

  * DISPLACEMENT OF GROUPED PILE FOUNDATION AT ORIGIN *
        DISP X, M      DISP Y, M      DISP Z, M      ROT X,RAD      ROT Y,RAD      ROT Z,RAD
       1.88968E-03    7.61136E-04   -2.44001E-04   -4.55099E-07   -6.38736E-05   -1.74976E-04

    * PILE TOP DISPLACEMENTS, GLOBAL *
                DISP. X, M   DISP. Y, M   DISP. Z, M   ROT. X,RAD   ROT. Y,RAD   ROT. Z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     8.1486E-04   7.5926E-04  -2.4611E-04  -4.5510E-07  -6.3874E-05  -1.7498E-04
    Pile N.          3            7            1            1            1            1
    MAXIMUM     2.9645E-03   7.6336E-04  -2.4202E-04  -4.5510E-07  -6.3874E-05  -1.7498E-04
    Pile N.          7            1            3            1            1            1

    * PILE TOP REACTIONS, GLOBAL *
                FOR. X, KN   FOR. Y, KN   FOR. Z, KN MOM X, KN- M MOM Y, KN- M MOM Z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2066.7       358.90      -144.56      -0.2078       85.786       422.70
    Pile N.          3            5            7            1            6            5
    MAXIMUM         7073.5       497.09      -99.243      -0.2078       146.49       598.26
    Pile N.          7            7            6            1            7            7

    * PILE TOP DISPLACEMENTS, LOCAL *
                DISP. x, M   DISP. y, M   DISP. z, M   ROT. x,RAD   ROT. y,RAD   ROT. z,RAD
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM     8.1486E-04   7.5926E-04  -2.4611E-04  -4.5510E-07  -6.3874E-05  -1.7498E-04
    Pile N.          3            7            1            1            1            1
    MAXIMUM     2.9645E-03   7.6336E-04  -2.4202E-04  -4.5510E-07  -6.3874E-05  -1.7498E-04
    Pile N.          7            1            3            1            1            1

    * PILE TOP REACTIONS, LOCAL *
                AXIAL, KN    LAT. y, KN   LAT. z, KN MOM x, KN- M MOM y, KN- M MOM z, KN- M
               ***********  ***********  ***********  ***********  ***********  ***********
    MINIMUM         2066.7       358.90      -144.56      -0.2078       85.786       422.70
    Pile N.          3            5            7            1            6            5
    MAXIMUM         7073.5       497.09      -99.243      -0.2078       146.49       598.26
    Pile N.          7            7            6            1            7            7
```

* EFFECTS FOR LATERALLY LOADED PILE *

PILE	DISPL. y-DIR M	DISPL. z-DIR M	MOMENT z-DIR KN- M	MOMENT y-DIR KN- M	SHEAR y-DIR KN	SHEAR z-DIR KN	SOIL REACT y-DIR KN/ M	SOIL REACT z-DIR KN/ M	TOTAL STRESS KN/ M**2
Min.	-2.0183E-05	-2.4611E-04	-598.26	-180.59	-208.20	-142.99	-79.124	-109.31	1169.5
Pile N.	5	1	7	7	7	7	7	7	3
Max.	7.6336E-04	6.5372E-06	557.90	146.49	492.27	67.027	353.26	25.111	5861.7
Pile N.	1	5	7	7	7	7	7	7	7