

project : 150/380 kV Station Breda

blad : 20

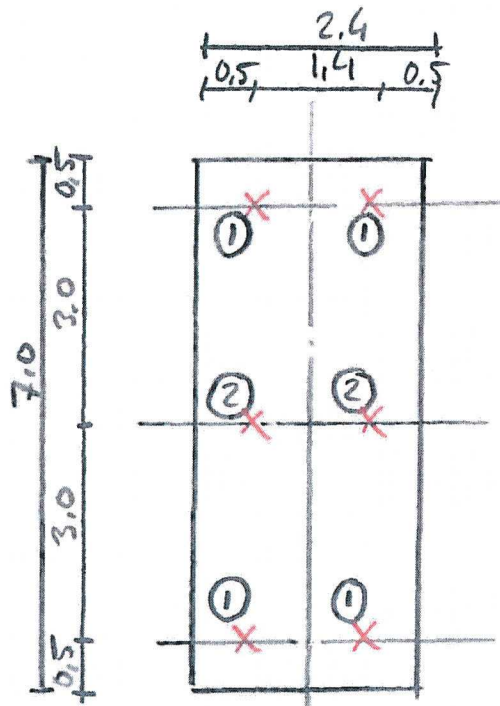
onderdeel : Trafostation

ber.nr : 110665/08

onderwerp : Constructie 2 & 3

revisie : 0

Palen



X = prefab betonpaal

Belasting/paal t.g.v. e.g. beton

• t.p.v. ① = $\frac{2.0 \cdot 2.4 \cdot 2.0 \cdot 24}{2} = 115,2 \text{ kN/paal}$

• t.p.v. ② = $\frac{3.0 \cdot 2.4 \cdot 2.0 \cdot 24}{2} = 172,8 \text{ kN/paal}$

paalreacties (rekenwaarden)

① = MAX druk = $\frac{1616}{2} + (1,2 \cdot 115,2) = 924 \text{ kN}$
MAX hor = $171/6 = 29 \text{ kN}$

② = MAX druk = $\frac{3294}{2} + (1,2 \cdot 172,8) = 1854 \text{ kN}$
MAX hor = 49 kN

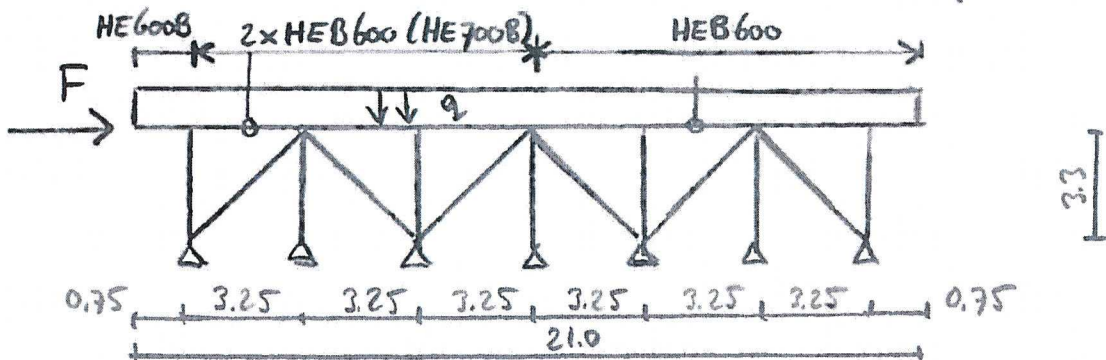
project : 150/380 kV Station Breukelen
 onderdeel : Trafotransport - hellingbaan
 onderwerp : Constructie 7

blad : 21
 ber.nr : 11066508
 revisie : 0



Constructie 7

- kolommen : HE600A-Z.
 - diagonalen : HE100A



Belasting	P.B. rep.	V.B. rep.
$q = \text{dek} = \frac{1}{2} \cdot 10.4 \cdot \frac{10.6}{1.5}$ = trafotransport. $= \left(\frac{\frac{1}{2} (10.4 + 12.5) \cdot 30.7 \cdot 8}{1.4} \right) / 5.3$	36,8 kN/m'	379 kN/m'
$F = \text{wind} = \frac{1}{2} \cdot (12.5 + 10.4) \cdot 1.0$ $+ 12 \cdot 8.0$ remmer / noedstop $630/\sqrt{2}$		113 kN.
		445 kN.

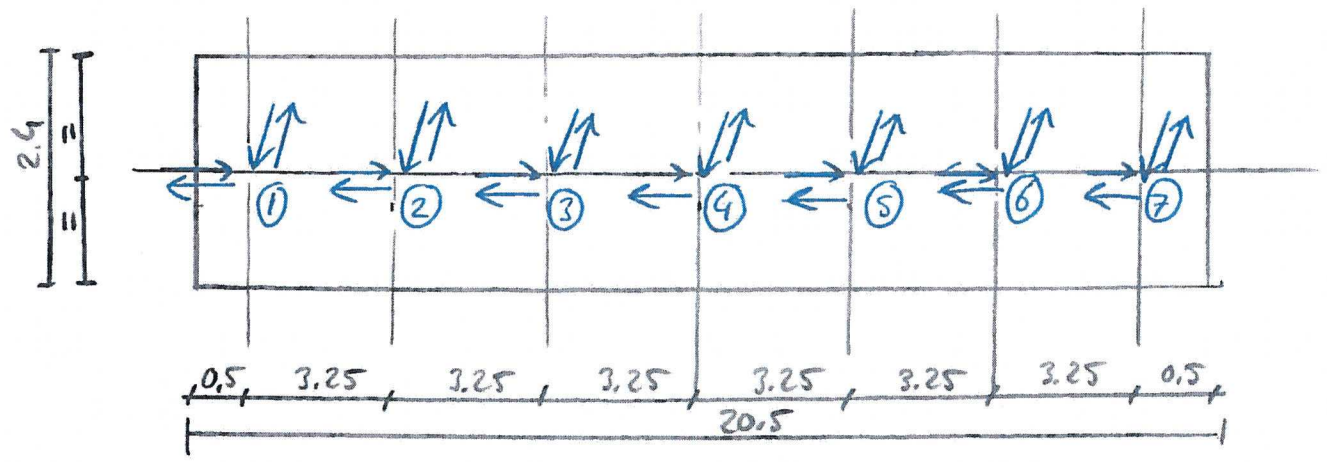
Voor T.S. uitvoer zie blad 170

project : 150/380 KV Station Breukelen
 onderdeel : Trafictransport - hellingsbaan
 onderwerp : Constructie 7

blad : 22
 ber.nr : 110665/08
 revisie : 0



Reaches uit staalconstructie : zie blad 174



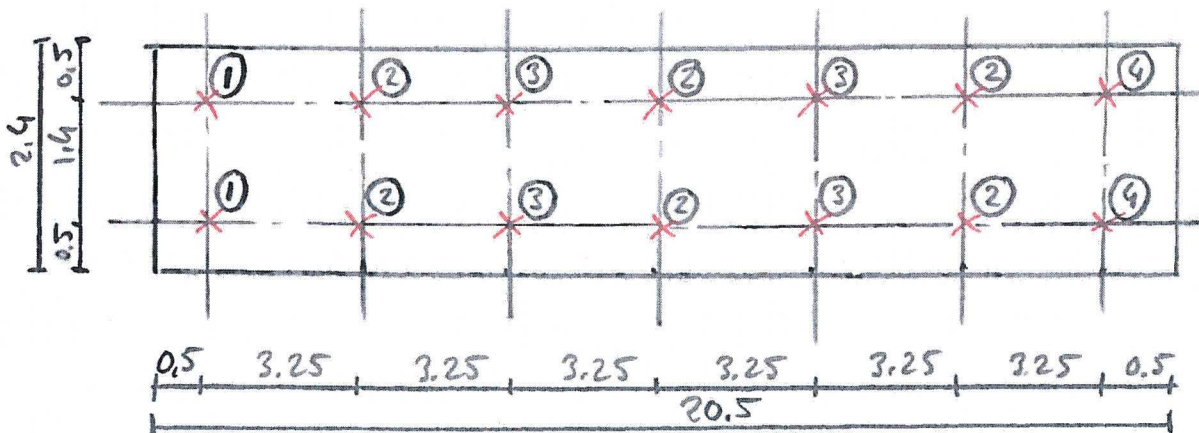
- ① $F_{vert;d} = 652 \text{ kN}$, druk
 $= -188 \text{ kN}$, trek
 $F_{hor;d} = 276 \text{ kN}$
- ② $F_{vert;d} = 2245 \text{ kN}$, druk
 $F_{hor;d} = -$
- ③ $F_{vert;d} = 1591 \text{ kN}$, druk
 $= -96 \text{ kN}$, trek
 $F_{hor;d} = 257 \text{ kN}$
- ④ $F_{vert;d} = 2050 \text{ kN}$
 $F_{hor;d} = -$
- ⑤ $F_{vert;d} = 1587 \text{ kN}$, druk
 $= -93 \text{ kN}$, trek
 $F_{hor;d} = 240 \text{ kN}$
- ⑥ $F_{vert;d} = 2234 \text{ kN}$
 $F_{hor;d} = -$
- ⑦ $F_{vert;d} = 920 \text{ kN}$, druk
 $F_{hor;d} = -$

project : 150/380 kV Station Breda
 onderdeel : Trafictransport - hellingsbaan
 onderwerp : Constructie 7

blad : 23
 ber.nr : 110665108
 revisie : 0



Palen



X = prefab betonpaal

Belasting / paal t.g.v. e.g. beton

- buitenste paal : $\frac{2.125 \cdot 2.4 \cdot 2.0 \cdot 24}{2} = 122.4 \text{ kN/paal}$
- binnenste paal : $\frac{3.25 \cdot 2.4 \cdot 2.0 \cdot 24}{2} = 187.2 \text{ kN/paal}$

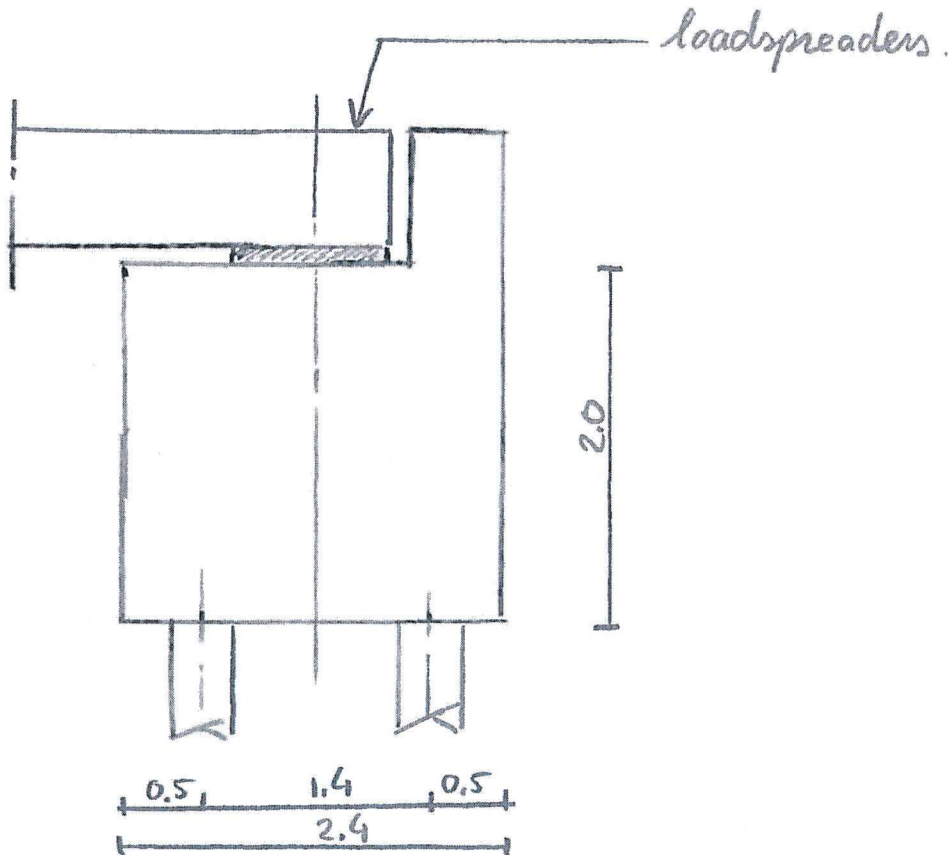
Paalreacties:

- ① : MAX druk : $\frac{652}{2} + (1.2 \cdot 122.4) = 473 \text{ kN/paal}$
 MIN druk : $\frac{188}{2} - (0.9 \cdot 122.4) = 16 \text{ kN/paal}$
 MAX hor : $\frac{1.5 \cdot 113 + 1.35 \cdot 445}{2.7} = 55 \text{ kN/paal}$
- ② : MAX druk : $\frac{2245}{2} + (1.2 \cdot 187.2) = 1347 \text{ kN/paal}$
 MAX hor : $= 55 \text{ kN/paal}$
- ③ : MAX druk : $\frac{1591}{2} + (1.2 \cdot 187.2) = 1020 \text{ kN/paal}$
 MIN druk : $\frac{96}{2} - (0.9 \cdot 187.2) = 120 \text{ kN/paal}$
 MAX hor : $= 55 \text{ kN/paal}$
- ④ : MAX druk : $\frac{920}{2} + (1.2 \cdot 122.4) = 607 \text{ kN/paal}$
 MAX hor : $= 55 \text{ kN/paal}$

project : 150/380 kV Station Breukelen
onderdeel : Trafotransport - behuizing
onderwerp : Constructie 1&8

blad : 24
ber.nr : 110665 coB
revisie : 0

Constructie 1&8



Uitzetting v. r. del; $L \cdot \alpha \cdot \Delta T$.

$$\text{, met } L = 25 + 25 + 11,4 + 9,8 = 71,2 \text{ m.}$$

$$\alpha = 12 \cdot 10^{-6}$$

$$\Delta T = \pm 20^\circ \text{C}$$

$$\text{geeft} = 71,2 \cdot 10^3 \cdot 12 \cdot 10^{-6} \cdot 20 = 17 \text{ mm}$$

project : 150/380 kV Station Breehelen.

blad : 25

onderdeel : Trafotransport - hellingbaar

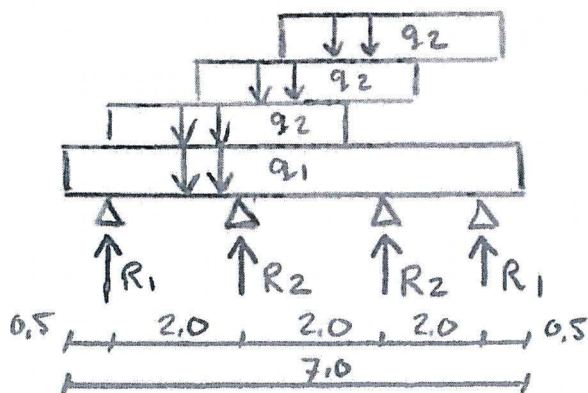
ber.nr : 110665 c08

onderwerp : Constructie 1 & 8

revisie : 0



Voor de maximale paalreacties is constructie 1 gehanteerd = maatgevend



Belasting	P.B. zep	V.B. zep.
$q_1 = \text{e.g. beton} : 2,4 \cdot 2,0 \cdot 24$	115,2 kN/m'	
$= \text{dek} : 1/2 \cdot 25 \cdot \frac{10,6}{1,5}$	88,4 kN/m'	
$q_2 = \text{trafotransport}$		
$= \left(\frac{25 \cdot 112}{1,4} \cdot 30,7 \cdot 8 \right) / 5,3$		414 kN/m'
	$\underline{\quad\quad\quad} +$	
	203,6 kN/m'	

Voor T.S. uitvoer zie blad 180:

In U.G.T.:

	star	$k_{veer} = 70000 \text{ kN/m}$	$k_{veer} = 140000 \text{ kN/m}$
R_1	779 kN	1314 kN	1305 kN
R_2	1774 kN	1229 kN	1238 kN

→ Reactiekrachten verdeeld over 2 palen geeft een
 $\text{MAX druk} = \frac{1774}{2} = 887 \text{ kN}$ (middensteunpunten volledig star).

project : 150/380kV Station Breukelen
 onderdeel : Fundering
 onderwerp : Berekening paal draagvermogen

blad : 26
 ber.nr. : 110665C08
 revisie : 0



Berekening draagvermogen vierkante prefabpaal volgens NEN6743

Toegepaste sondering van Fugro DKM55 Zie bijlage C

maaiveld = -1,2 m tov NAP

paalschacht afm. : 450 mm' inheinvivo : -15 m tov NAP
 Deq,sch = 509 mm'

MAXIMALE NEGATIEVE KLEEFBELASTING

Laag nr	o.k.laag tov NAP	gew. kN/m3		K ₀ * tang. d	S _{v,gem.} kN/m2	F _{s;nk;rep;i} kN/m
1	-1,80	15	veen	0,25	4,50	0,68
2	-3,80	6	klei	0,25	15,00	7,50
3	-6,30	5	veen	0,25	27,25	17,03
4	-6,30	0		0,25	33,50	0,00
5	-6,30	0		0,25	33,50	0,00

Bel. factor neg. kleef : 1 ---> **F_{s;nk;d} = 45kN**

POSITIEVE SCHACHTWRIJVING

Laag nr. vanaf inheinvivo	bovenkant laag tov NAP	laag - dikte (m')	conus-weerst (MN/m2)	alpha,s (Tabel 3)	pr,max;sch. tot. (MN/m')
1	-10,5	4,5	8	0,010	0,36
2	-9	1,5	11	0,010	0,17
3	-6,3	2,7	3	0,010	0,08

F_{r,max;schacht} = 1091kN

PUNTDRAAGVERMOGEN

paalkl. factor (T-2)	alpha,p = 1	H/Deq = 0,0
paalvoet vormfactor: (fig.3)	beta = 1	A1/A2 = 1,0
		s = 1
q _{c;l} = 18,5MN/m2	q _{c;ll} = 15,2MN/m2	
q _{c;lll} = 7,5MN/m2		

F_{r,max;punt} = 2465kN

REKENWAARDE UITERST DRAAGVERMOGEN

ksi = 0,72	Mat. factor = 1,22
F _{r,fund,max;rep} = ksi * (F _{r,max;punt} + F _{r,max;schacht}) = 2560kN	

F_{r,fund,max;d -neg. kleef} = 2053kN

project : Tijdelijke af- en oprit Rijksweg A2

blad : A0

onderdeel : Rijweg en fundering

ber.nr. : 110665C03

onderwerp : Bijlage A

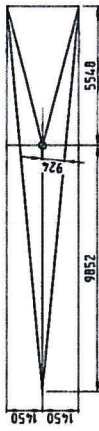
revisie : 0



Bijlage A

A Belasting opgave Mammoet transport

SPMT	Group1	Group2	Group3	Total
44 Lines	14	15	15	44
Amount Axle/Lines	128.3	112.1	112.1	352.5
Mass Item	45.0	72.2	72.2	189.4
Mass Trailer	171.3	164.3	164.3	500.0
TOTAL	6.1	6.1	6.1	18.3
Load per Axle	3.1	3.1	3.1	9.3
Load per Wheel	2.8	2.8	2.8	8.4
Ground bearing pressure	2.8	2.8	2.8	8.4
Weight Breakdown Items				
Transformer	323.1	14.750	0.000	3.772
LSP - HER300, 5275, 12m	11.2	14.750	-1.450	0.250
LSP - HER300, 5275, 12m	11.2	14.750	1.450	0.250
LSP - HER300, 5355, 5m	2.5	12.483	0.000	0.650
LSP - HER300, 5355, 5m	2.5	12.483	0.000	0.650
Total	350.5	14.752	0.000	3.502



FOR INFORMATION

DRAWING NOTES

- THIS DRAWING IS RELEASED FOR INFORMATION ONLY.
- THE EQUIPMENT SHOWN IS SUBJECT TO AVAILABILITY AND IT MAY BE NECESSARY TO SUBSTITUTE COMPONENTS FOR SUITABLE ALTERNATIVES.
- THE CLIENT IS RESPONSIBLE FOR THE PREPARATION OF THE WORK AREA TO ENSURE THAT IT IS CAPABLE OF ACCOMMODATING THE LOADS GENERATED BY THE TRANSPORT OPERATIONS.
- THE CLIENT IS RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE LOAD TO BE LIFTED.
- THE CLIENT HAS TO IDENTIFY AND CONFIRM THE SUITABILITY OF THE SUPPORT POINTS TO BE UTILIZED DURING THE TRANSPORT OPERATION.
- LOAD FIXED TO TRAILER USING 3/8" CHAINS AND RATCHED-BINDERS AND/OR SIMILAR LASHING MATERIAL TO PREVENT SLIDING AND/OR TIPPING OF THE LOAD.
- PLYWOOD/RUBBER SHEETS PLACED BETWEEN THE LOAD AND PLATFORM/TRAILER FOR FRICTION AND EVENLY LOAD DISTRIBUTION.
- TRANSFORMER WEIGHT = 323.1T

REV: 01	DESCRIPTION:	DATE:	DRAWN:	CHECKED:
01	For Information	28-08-17	DM	ASD

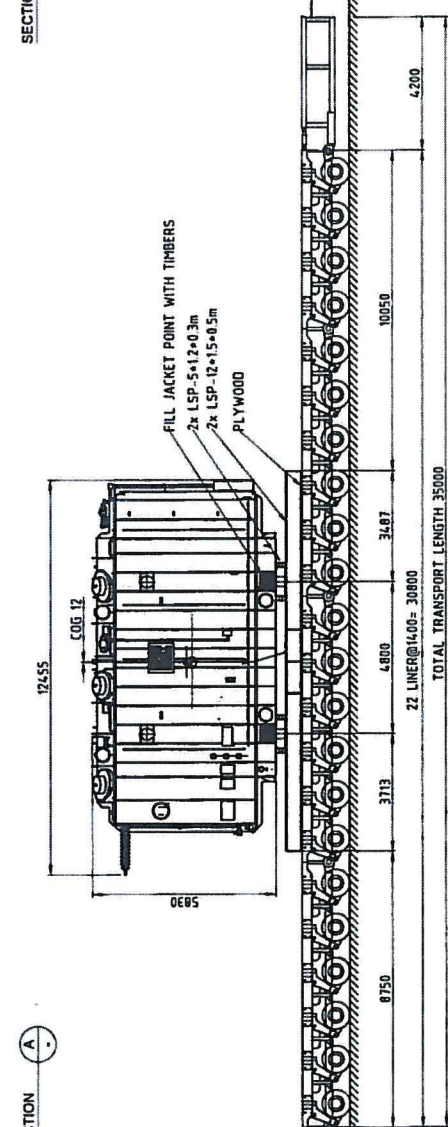
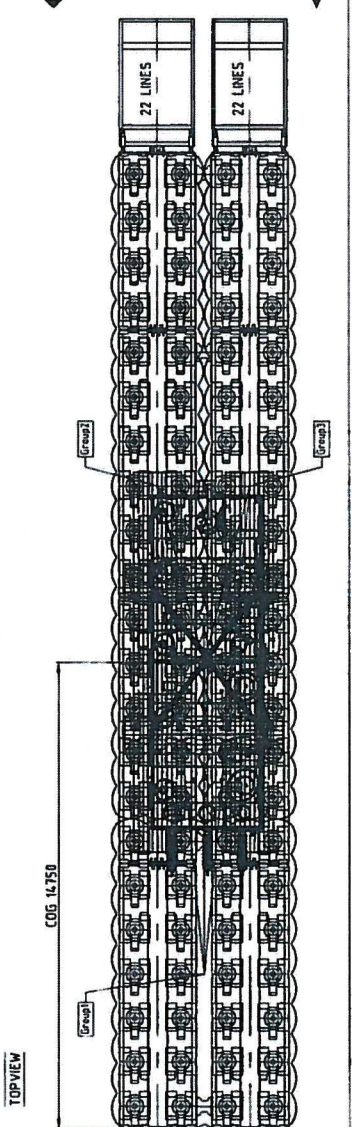
Without authorized signature the document is uncontrolled, not binding and for indicative purposes only.

CLIENT: **Tennel, Breukelen**

PROJECT: **Transport arrangement transformer**

SCALE: 1:1
 DRAWING NUMBER: 7000073308
 PROJECT NO.: 0070028215-00-D-101-11-00
 SUB: 000
 PART: 001
 REV: 01

REF: DRAWING NUMBER 01 160485-004



THIS PUBLICATION REMAINS THE PROPERTY OF THE PUBLISHER AND SHALL BE KEPT AS A CONFIDENTIAL DOCUMENT. NO PART OF IT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PUBLISHER. © 2020 MAMMOET

project : Tijdelijke af- en oprit Rijksweg A2

blad : A0

onderdeel : Rijweg en fundering

ber.nr. : 110665C0^B

onderwerp : Bijlage B

revisie : 0

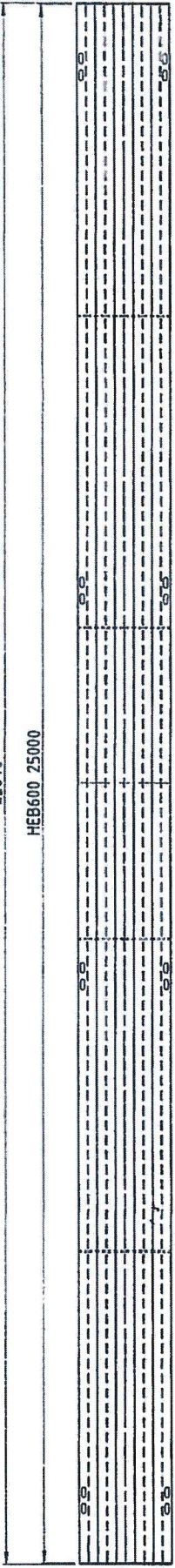


Bijlage B

B Loadspreaders

110665

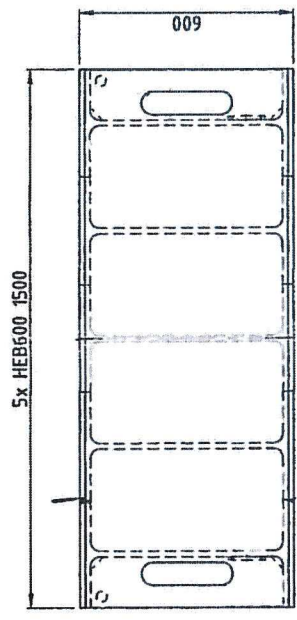
2504.0
HEB600 25000



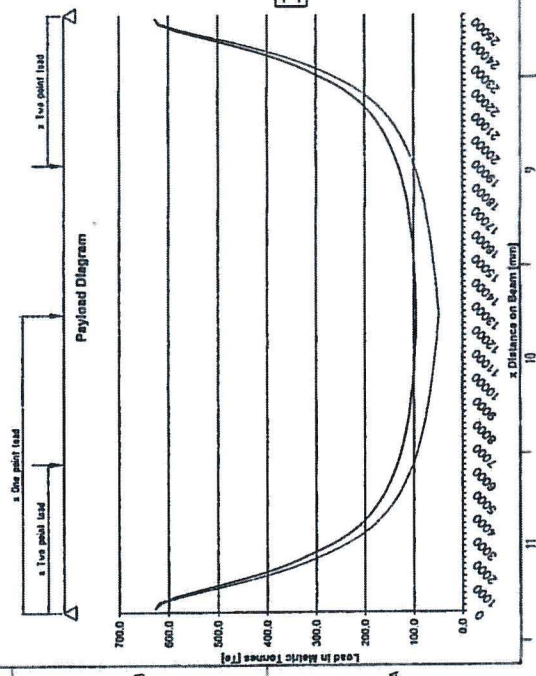
Topview



Sideview



Frontview



Payhead Diagram

Q	CAPACITY (Tol)	
V	VOLUME (m³)	22.5
M	WEIGHT (kg)	27300
Fit	FREIGHT (Tol)	27.3
	REFERENCE:	00110029636-D-S02.dwg (7000041719)
	INTERNAL PROJECT No:	40003-NL03
00	EQUIPMENT BOOK 2007	
	REV. DESCRIPTION:	DATE: 20-02-09
		DRAWN: MJ
		RSI
		CHECKED:
CLASS: 06 MATS		
SUB GROUP: Loadspreaders		
DESCRIPTION: Loadspreader HEB600 S355 L=25.00 m		
<p>THIS PUBLICATION REMAINS THE PROPERTY OF MAMMOET. IT IS TO BE USED ONLY FOR THE PROJECT AND CONTRACT SPECIFIED. CONFIDENTIAL. UNLESS CONTRACTUALLY SPECIFIED OTHERWISE, NO PART OF IT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PUBLISHER. © 2000 MAMMOET (CSBP--02-01-03)</p>		
<p>MAMMOET P.O. Box 1000, 3110 JB Rotterdam, The Netherlands Tel. +31(0)20-242424 / Fax. +31(0)20-290242 www.mammoet.com</p>		
SAP No:	7000043168	SCALE: 1:50
SIZE:	A2	DRAWING NUMBER: LSP-L2500-1-00
REV.:		EQUIPMENT No:

project : Tijdelijke af- en oprit Rijksweg A2

blad : B0

onderdeel : Rijweg en fundering

ber.nr. : 110665C08

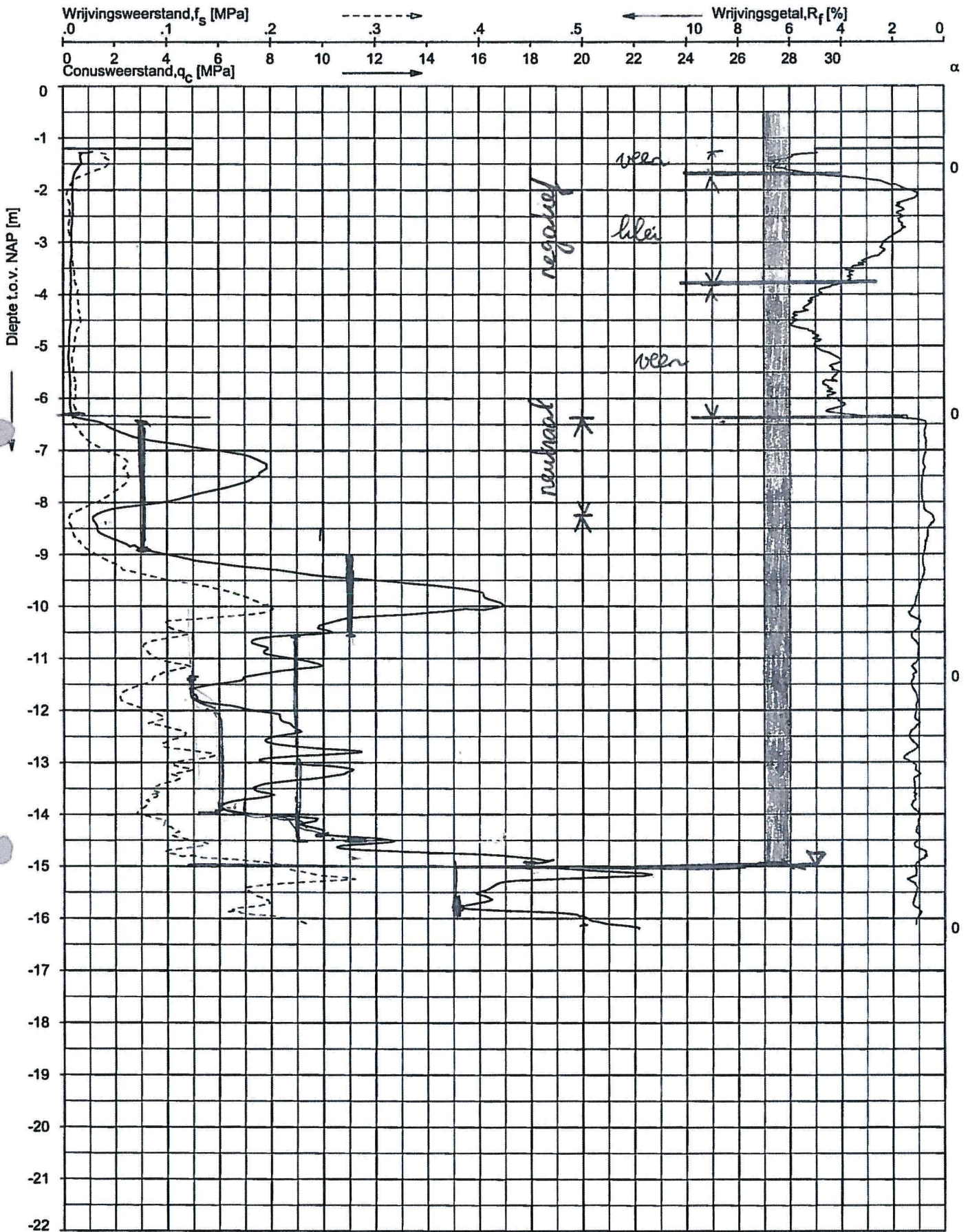
onderwerp : Bijlage C

revisie : 0



Bijlage C

C Toegepaste sondering



Opg.: AMC/WOH d.d. 30-Aug-2006 conus: F7.5CKE/B X =
 Get.: YNG d.d. 04-sep-2006 MV = NAP -1.20 m Y =

Sondering volgens norm NEN 5140
 conustype cilindrisch elektrisch
 α afwijking van de vertikaal

SONDERING MET PLAATSELIJKE KLEEFMETING

GEOTECHNISCH ASPECTEN 380/150KV STATION TE BREUKELLEN (UTRECHT)

Opdr. 6006-0307-001
 Sond. DKM55