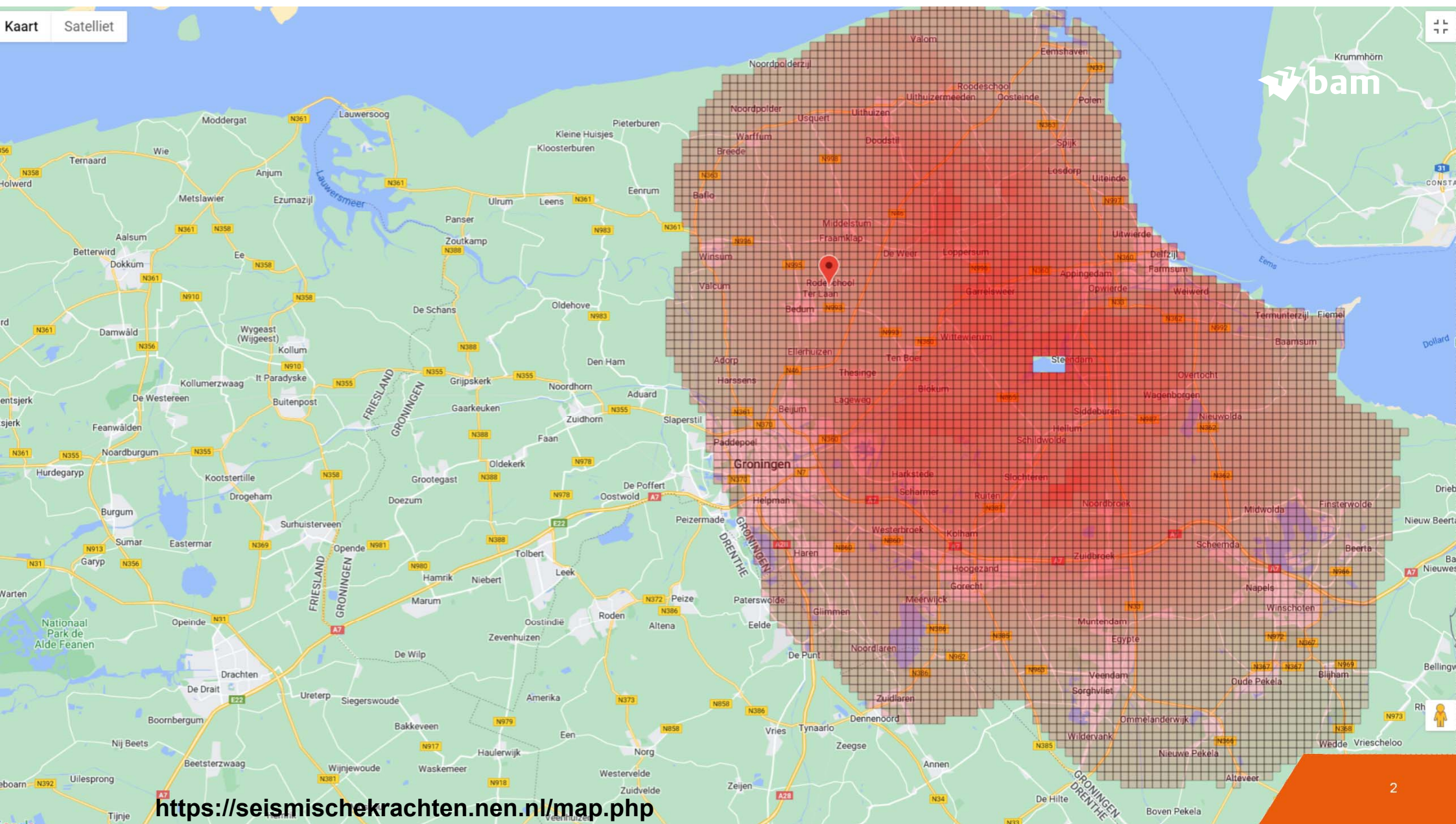


TA Bedum Groningen

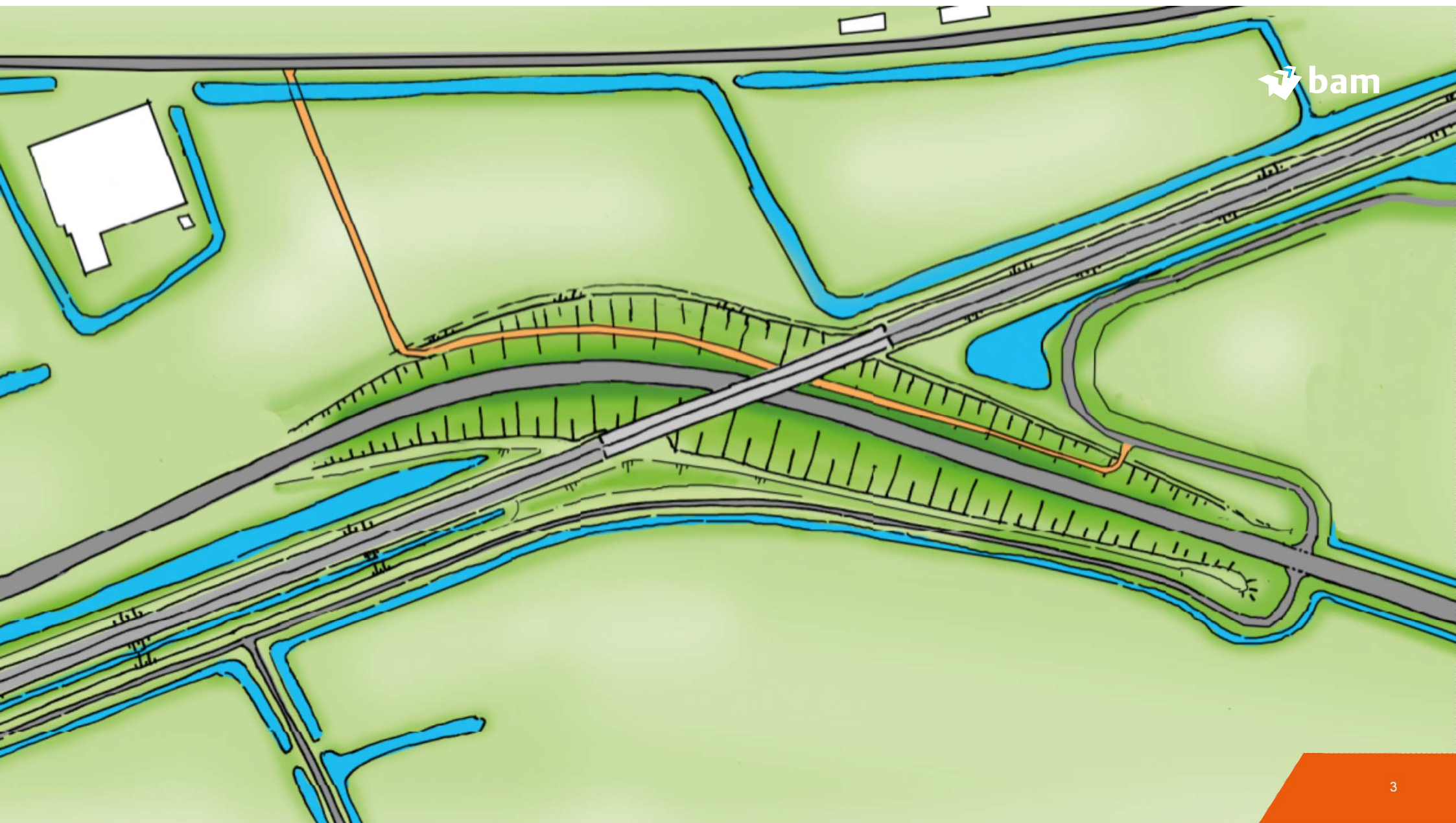
Aardbeving en Zetting

Jeroen Laagland
Afdeling Civiel, Stufib 12 januari 2023

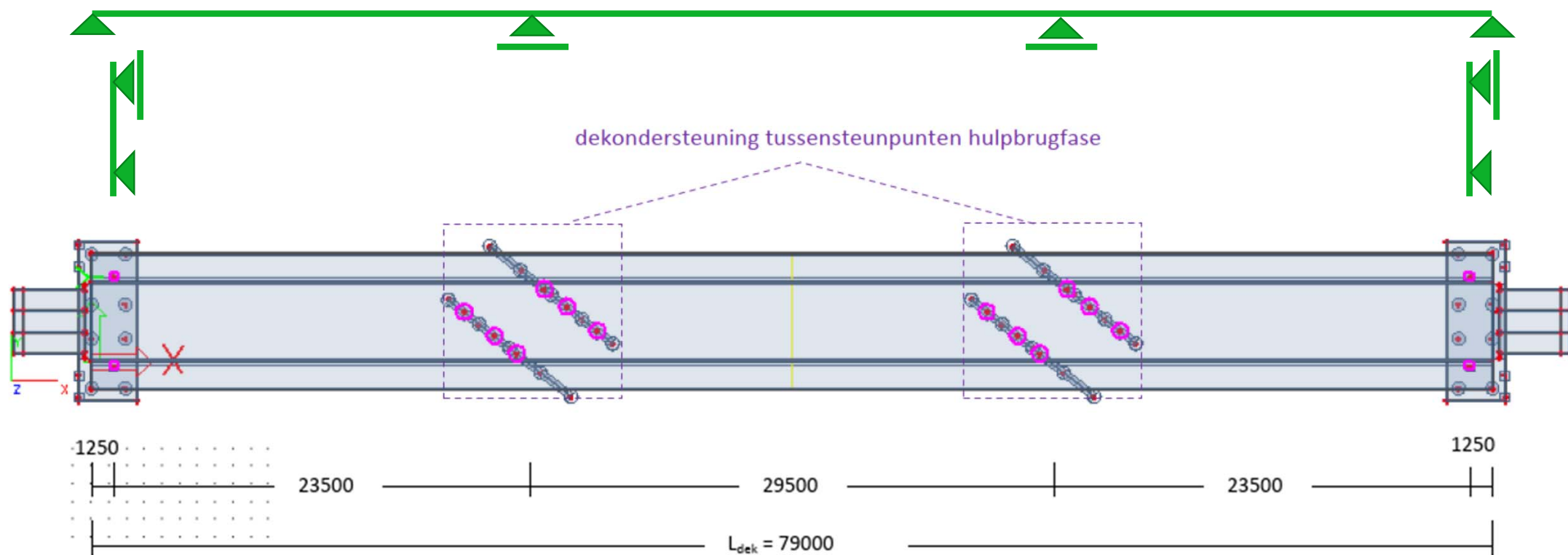
Kaart Satelliet



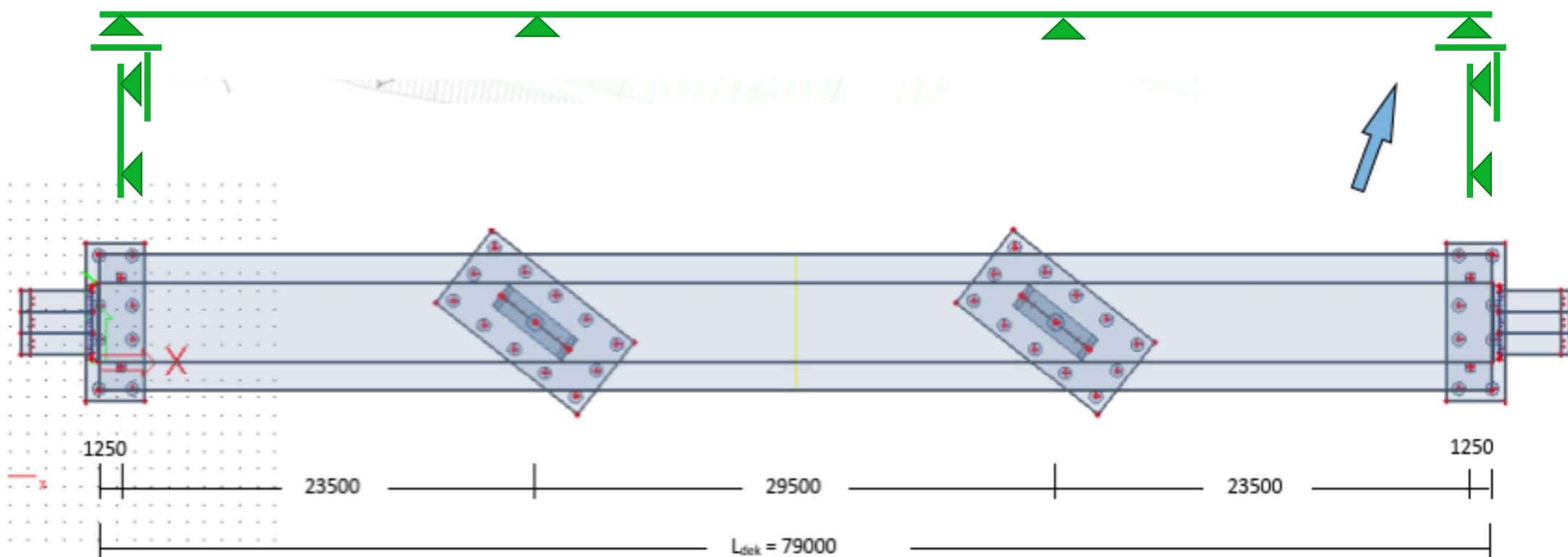
<https://seismischekrachten.nen.nl/map.php>



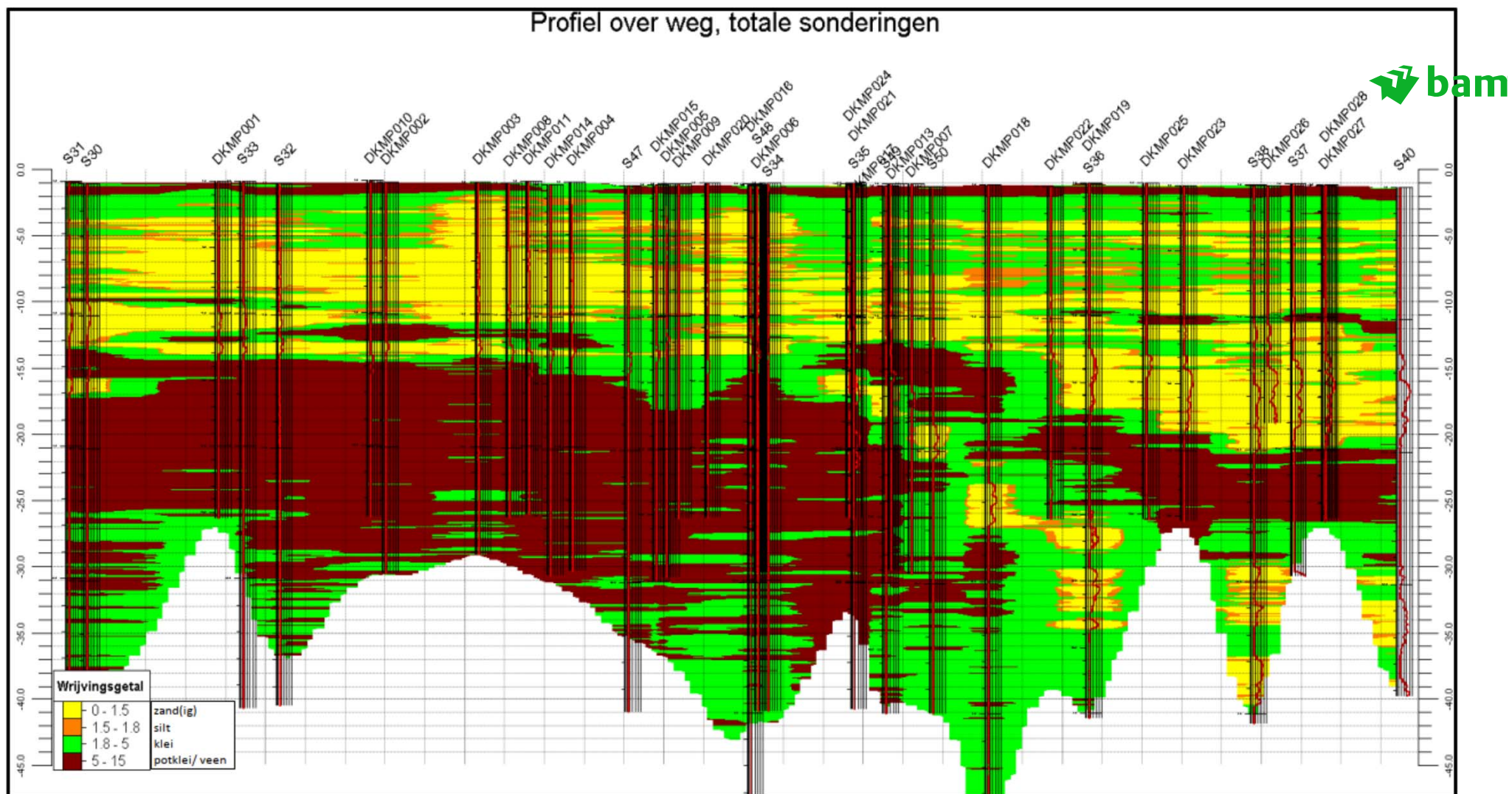




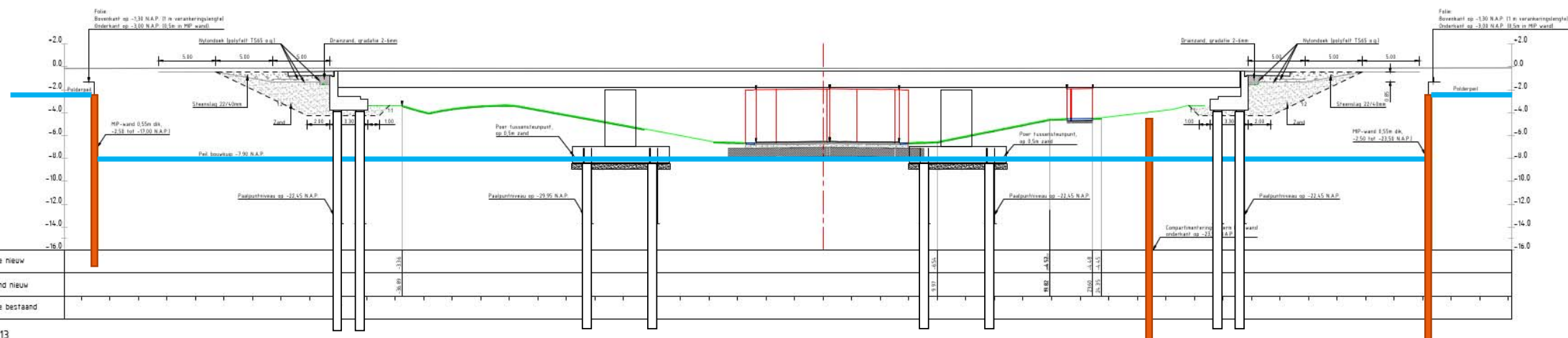
Figuur 8-12: Posities opleggingen in hulpbrug-fase



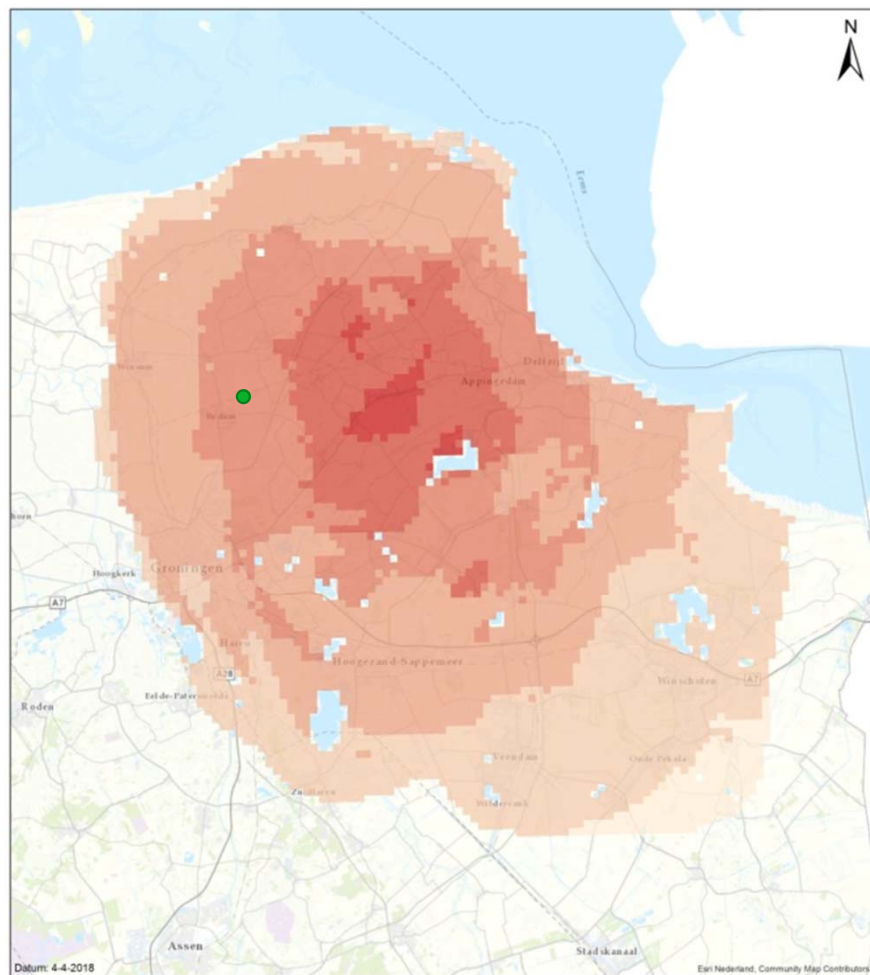
Figuur 9-1: Overzicht situatie en bovenaanzicht



Figuur 9 Beeld ondergrond op basis van alle beschikbare sonderingen. De sonderingen zijn geprojecteerd op de wegas



Spectrale versnelling NEN omhullende aardbevingsgevaar



Legenda
 spectrale versnelling bij 0,7s in g

0 - 0,1
0,1 - 0,2
0,2 - 0,3
0,3 - 0,4
0,4 - 0,5
0,5 - 0,54 (max)

Toelichting:
 Deze kaart toont het aardbevingsgevaar zoals gepresenteerd op de NEN webtool (GMM v4).
 De kaart toont:
 Kans: 1:2475
 Periode: 0,7s
 Projectnummer: 1208782-007
 Gemaakt door: BvK

0 3 6 12 Kilometers

Deltares

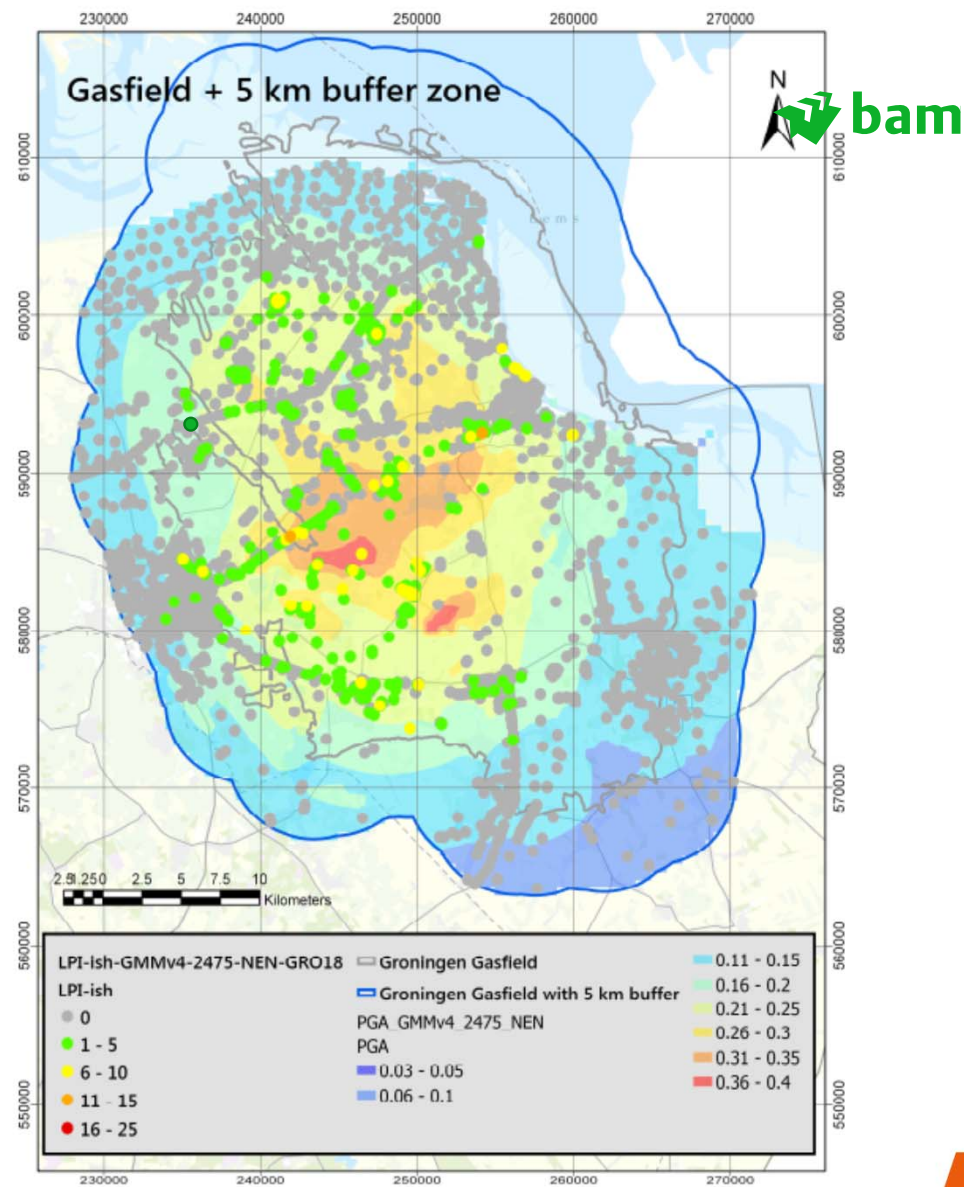


Figure 4.42 With LPI_{ish} results for the whole Groningen field + 5km area based on Green, 2018a and v4 hazard for 2475 year return period

Responsspectrum data gedownload van de Webtool NPR 9998

Datum van download: 2023-01-09 22:45
 Dataset: 2018-10-01_GMMv5_Surf
Herhalingstijd [jaar]: 475
 Tijdsperiode: T2
 Richting: Horizontaal

Locatie

RD (x, y) [m]: 237592, 592552
 GPS (lat, lng) [°]: 53.313031, 6.62642

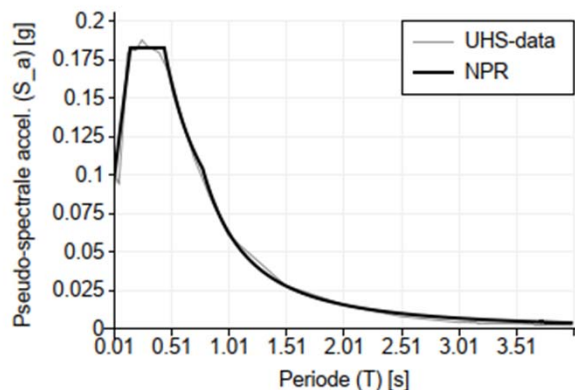
NPR 9998:2018 parameters

a_g S [g] 0.093
 p [-] 1.967
 T_B [s] 0.150
 T_C [s] 0.445
 T_D [s] 0.779

UHS-data

T [s]	S_a [g]
0.010	0.093
0.025	0.099
0.050	0.095
0.075	0.120
0.100	0.148
0.125	0.179

$$p \times (a_g \times S) = 0.183$$



75%

Responsspectrum data gedownload van de Webtool NPR 9998

Datum van download: 2023-01-09 22:39
 Dataset: 2018-10-01_GMMv5_Surf
Herhalingstijd [jaar]: 2475
 Tijdsperiode: T1
 Richting: Horizontaal

Locatie

RD (x, y) [m]: 237592, 592552
 GPS (lat, lng) [°]: 53.313031, 6.62642

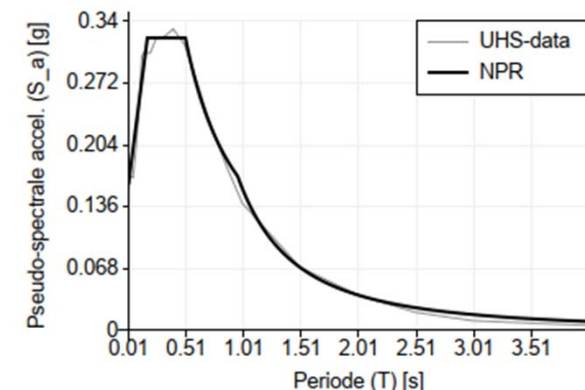
NPR 9998:2018 parameters

a_g S [g] 0.151
 p [-] 2.133
 T_B [s] 0.175
 T_C [s] 0.505
 T_D [s] 0.959

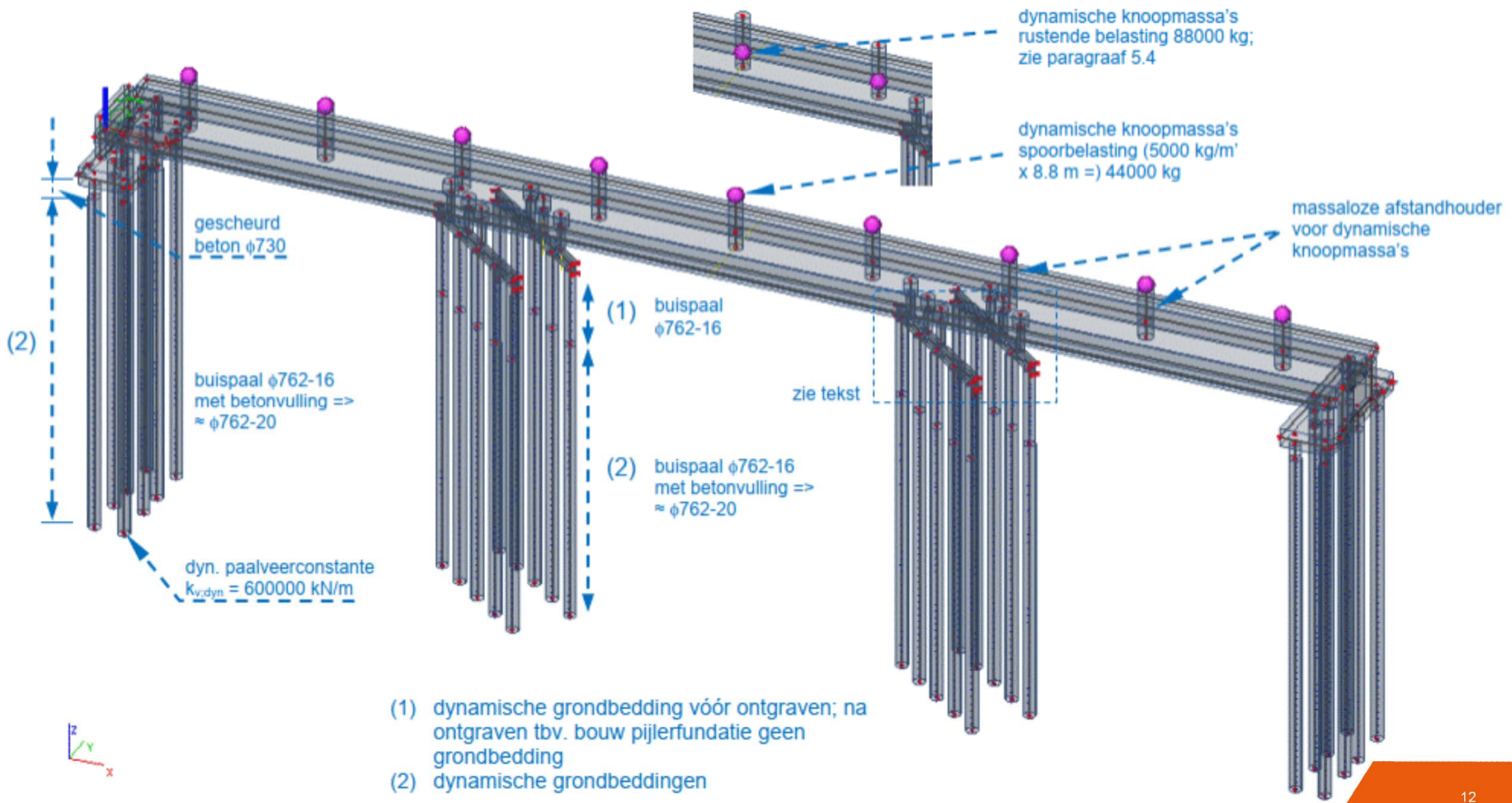
UHS-data

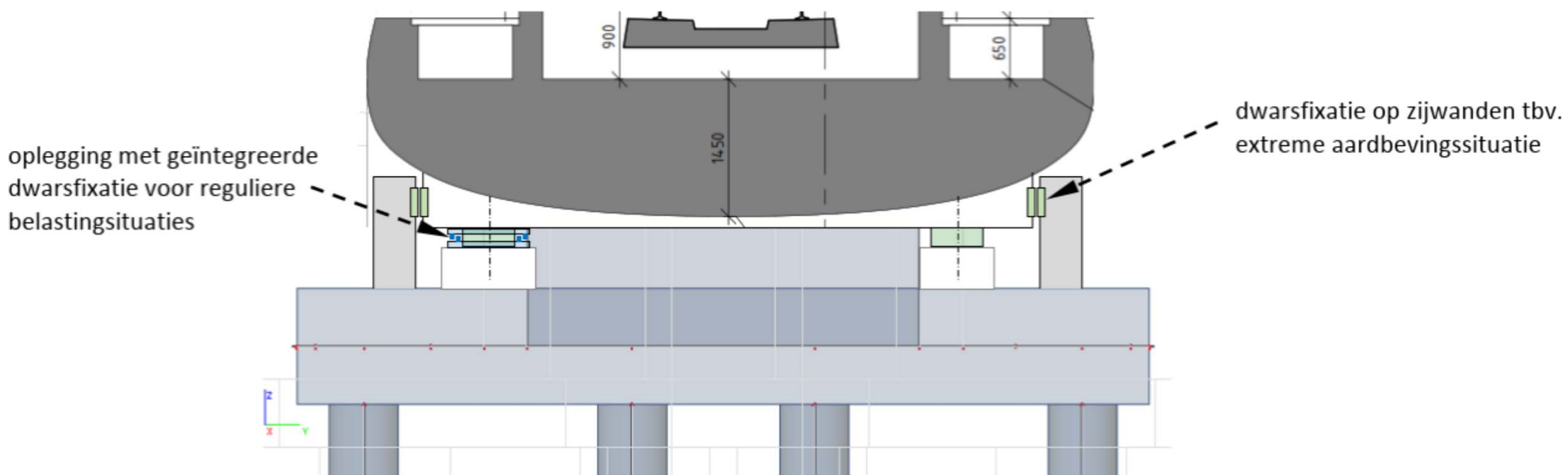
T [s]	S_a [g]
0.010	0.151
0.025	0.170
0.050	0.168
0.075	0.199
0.100	0.241
0.125	0.301

$$p \times (a_g \times S) = 0.322$$

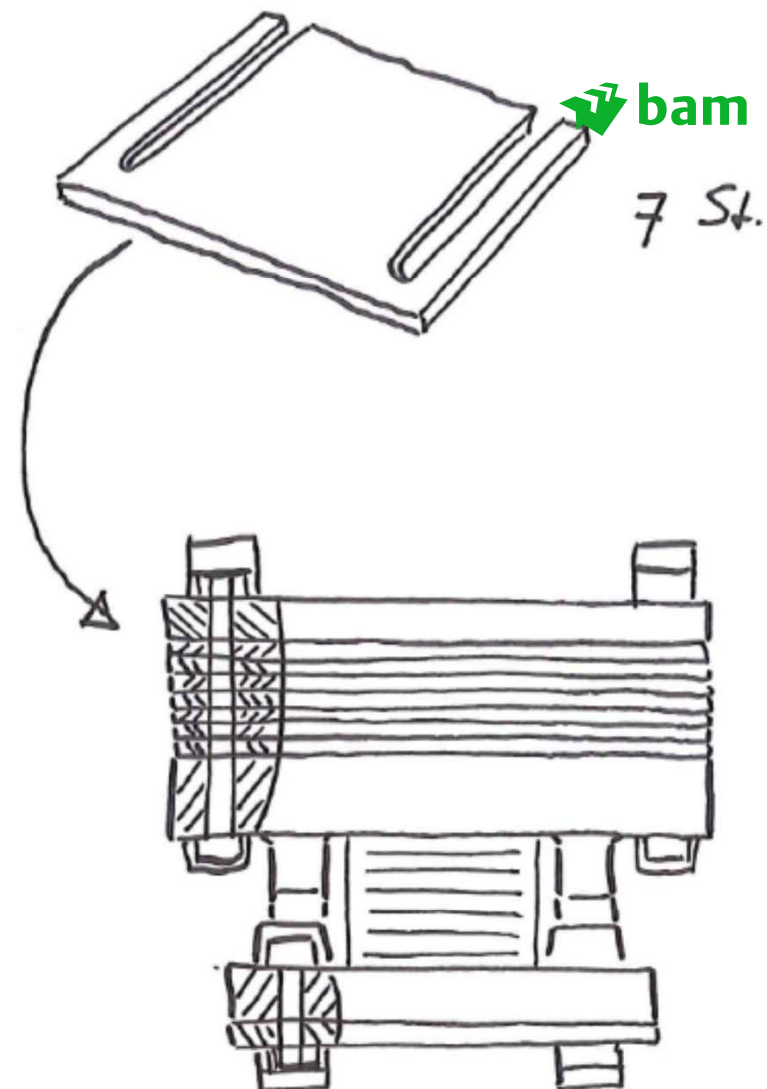
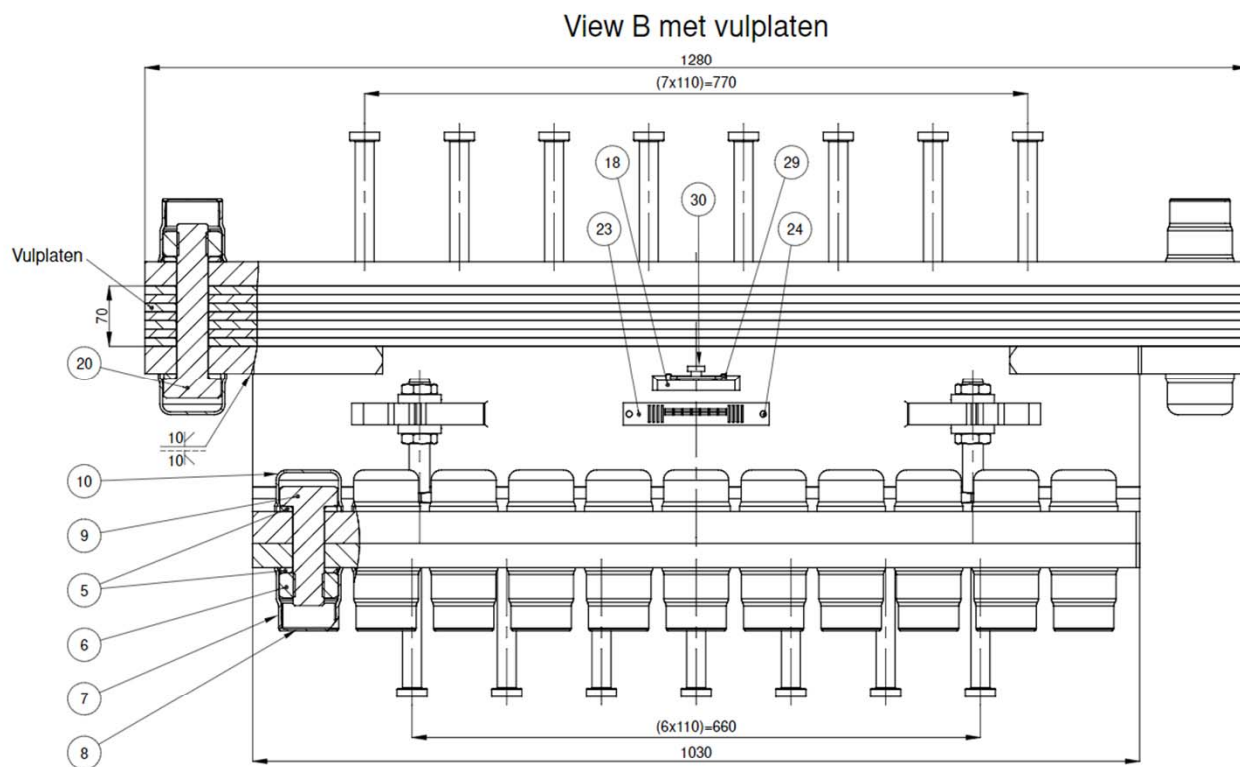


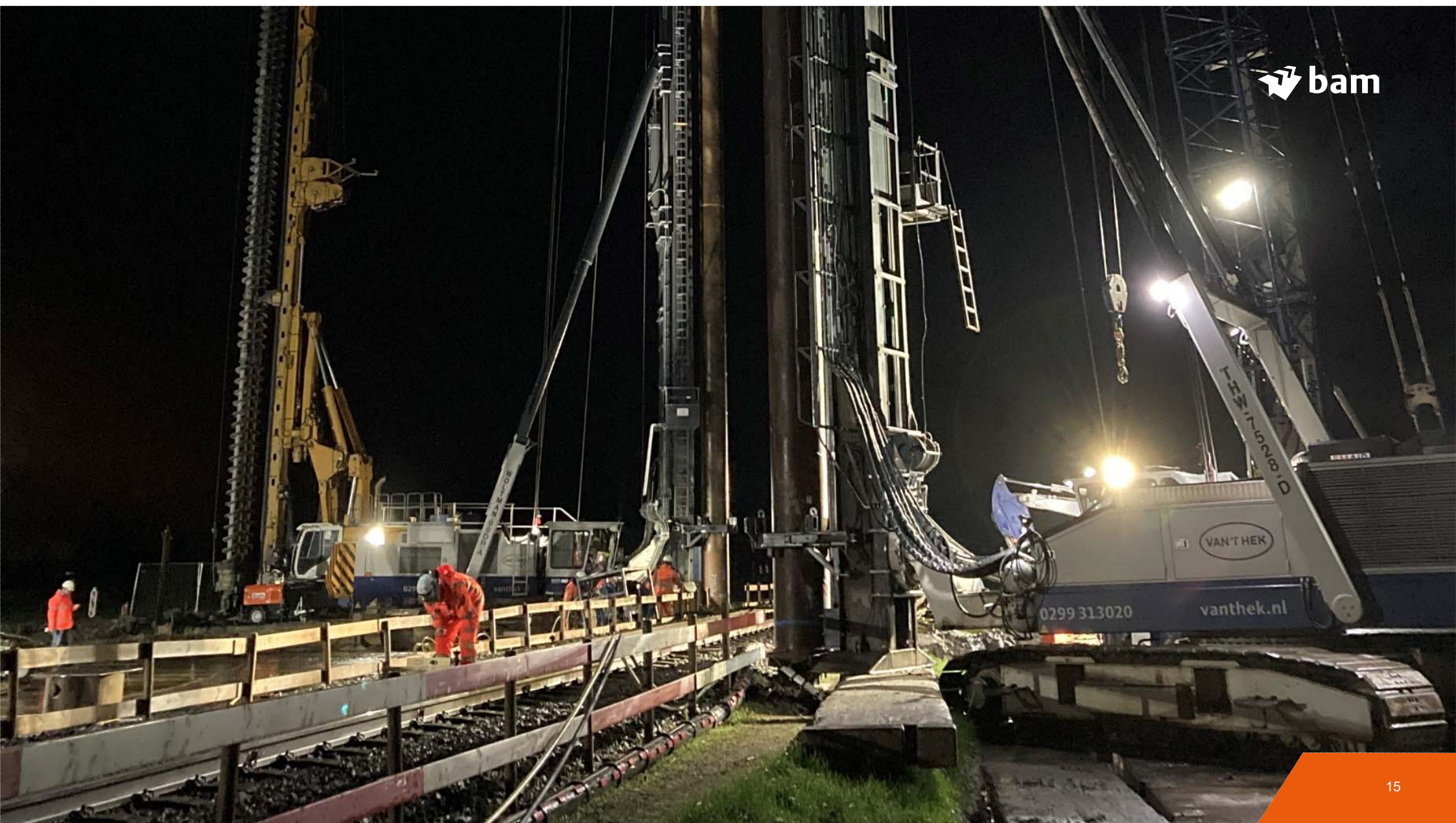
Huidige a_gS[g] = 0.066, waarbij bij een waarde van 0.05 geen beoordeling benodigd ('zeer lage seismiciteit').





Figuur 9-8: Principe afdracht zijdelingse belastingen bij eindopleggingen (landhoofden)

































Vragen



