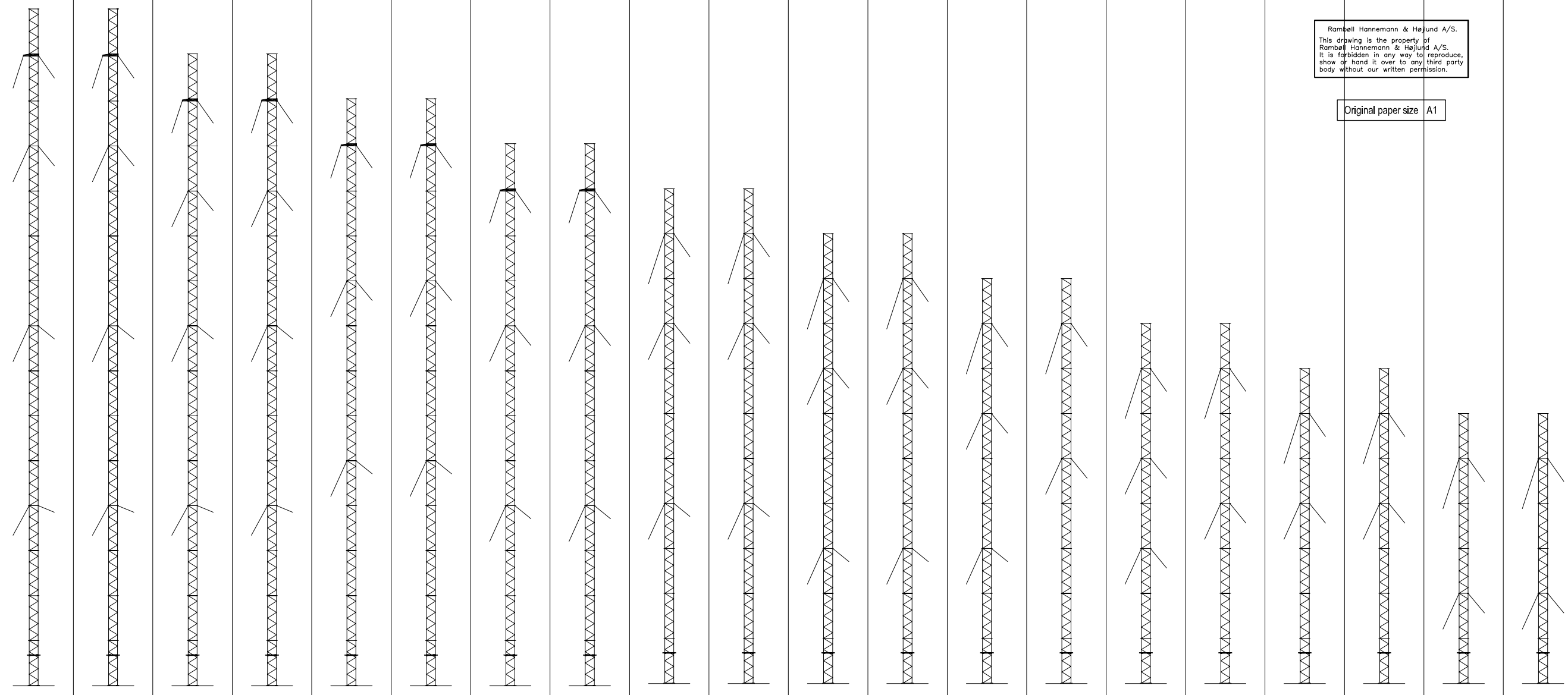
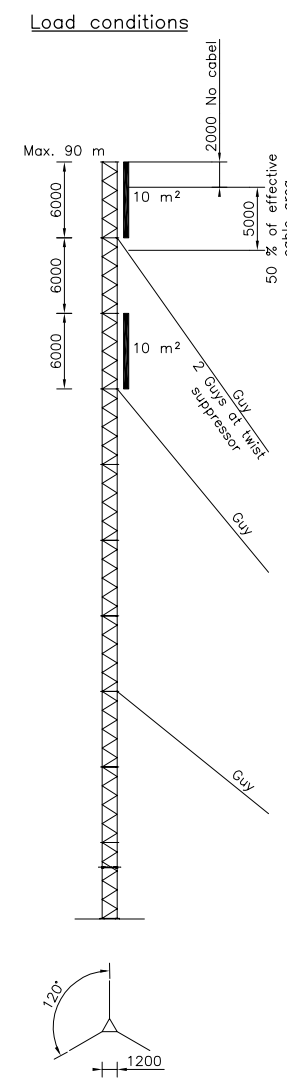


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Mast type. (Rambøll drawing)	90 m Strong	90 m Normal	84 m Strong	84 m Normal	78 m Strong	78 m Normal	72 m Strong	72 m Normal	66 m Strong	66 m Normal	60 m Strong	60 m Normal	54 m Strong	54 m Normal	48 m Strong	48 m Normal	42 m Strong	42 m Normal	36 m Strong	36 m Normal
Drawing: (Rambøll drawing)	M125	M124	M123	M122	M120	M119	M118	M117	M116	M115	M114	M113	M111	M109	M108	M107	M106	M105	M103	M102
Foundation, soil: (Eitel drawing)	TS-D-100135	TS-D-100225	TS-D-100224	TS-D-100224	TS-D-100223	TS-D-100223	TS-D-100222	TS-D-100222	TS-D-100221	TS-D-100243	TS-D-100220	TS-D-100220	TS-D-100219	TS-D-100245	TS-D-100218	TS-D-100218	TS-D-100217	TS-D-100217	TS-D-100216	TS-D-100216
Foundation, rock: (Eitel drawing)	TS-D-100236	TS-D-100236	TS-D-100235	TS-D-100235	TS-D-100234	TS-D-100234	TS-D-100233	TS-D-100233	TS-D-100232	TS-D-100246	TS-D-100231	TS-D-100231	TS-D-100230	TS-D-100248	TS-D-100229	TS-D-100229	TS-D-100228	TS-D-100228	TS-D-100227	TS-D-100227

Soil: Mast foundation TS-D-100133 (Eitel drawing)
 Rock: Mast foundation TS-D-100134, TS-D-100274 or TS-D-100284 (Eitel drawing)

Table 1: Distribution of mast types on heights, wind categories and wind speed

Height	Reference wind speed 26 m/s				Reference wind speed 25 m/s				Reference wind speed 24 m/s				Reference wind speed 23 m/s			
	TC 1	TC 2	TC 3	TC 4	TC 1	TC 2	TC 3	TC 4	TC 1	TC 2	TC 3	TC 4	TC 1	TC 2	TC 3	TC 4
36 m	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
42 m	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
48 m	Strong	Strong	Normal	Normal	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal
54 m	Strong	Strong	Strong	Normal	Strong	Strong	Normal	Normal	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal
60 m	Strong	Strong	Strong	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Strong	Normal	Normal	Normal
66 m	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
72 m	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
78 m	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
84 m	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
90 m	Strong	Strong	Strong	Normal	Strong	Strong	Normal	Normal	Strong	Normal	Normal	Normal	Normal	Normal	Normal	Normal

NOTE:

Codes
 The masts are designed according to the Swedish codes BKR 99, BSK 99 and BSV 97 (Snö och vindlast, 2. ed). The structures are designed according to safety class 1 with partial coefficient $\gamma_n = 1,0$. For the tensile strength of guys an extra partial coefficient for guy = 1,25 is used. The masts are not designed for ice loads.

Wind climate
 The masts are designed for all combinations of wind speeds ranging from 23 m/s to 26 m/s and terrain categories I to IV. The mast type to be used for each particular combination is stated in table 1.

The masts are designed for a maximum allowable rotation of +/- 0,7 degrees for the characteristic wind velocity of 25 m/s constant over height.

Load
 All masts are designed for a uniformly distributed wind area of 10 m² over the top 6 m and a uniformly distributed wind area of 10 m² from 12 m to 18 m below the mast top. In addition to this a uniformly distributed wind area from cables and feeders of 1,5 * 0,5 = 0,75 m²/m is applied to the mast up to 7 m below the top and 0,375 m²/m is applied from 2 m to 7 m below the top. A torsional contribution of 3 m² * m is added to the mast loading, distributed over the entire height of the mast.

Steel material
 Leg member tubes and diagonal tubes are of steel quality S355JRH. Tubes for legs and diagonals are according to EN10210-1. Flange plates and gusset plates welded on legs are of steel quality S355JRG2, while ladder and cable ladder are of steel quality S235JR/S235JRG2 all according to EN10025.

Bolts in flanges between sections are of quality 8.8 with corresponding nuts in class 8 in accordance with EN 20898/1 and EN 20898/2. Structural washers are in accordance with ISO 7089/ISO 7090/DIN 125 - 200HV. Dimensions of bolts in flange plates are M20. All U-clamps shall be in stainless steel in quality as S2333, annealed condition.

Welds
 Welds between leg tubes and flange plates shall be of quality level C. (according to EN 25817 and 26520). All other welds shall be quality level D.

Guys
 Guy ropes are of the spiral strand type. The rope dimension is Ø13 mm with an area of 105 mm² and the construction 1x19. Wires are hot dip galvanised. Minimum breaking load of guys is 146 kN and modulus of elasticity is 160.000 MPa. Guy tensioners are of the type "stagtinge med dable kiler".

Guy ropes are attached to the mast sections by means of a short guy tensioner. The same system is used at the foundation yet by means of a longer guy tensioner which serves as rope tensioner. The force is transferred to the guy tensioner by a wedge and a tensioned bolt secures the protruding rope end. The wedge is secured to the guy tensioner by double nuts on the threads. The lengths of the guys are cut at site by the contractor responsible for the erection of the masts.

Ladder and cable ladder
 Climbing ladder and cable ladder is an integrated unit, cable steps per 600 mm and ladder steps per 300 mm. The width of the ladder steps is 400 mm and the width of the cable steps is 2 * 230 mm. The ladder is placed inside the cross section on one of the mast faces and welded to the diagonals before hot dip galvanizing.

Surface treatment
 All structural steel members are hot dip galvanised according to EN/ISO 1461 with a minimum thickness of 115 µm. Structural bolts, nuts and washers are hot dip galvanised according to EN/ISO 1461. Stainless steel U-bolts shall be pickled on completion.

Bolts M20 between tower sections shall be tensioned to 400 Nm (dry condition). Bolts M16 in Torsion restraint shall be tensioned to 200 Nm (dry condition).

Rev. G	Date 2002.05.28	Prepared JDP/LIS	Checked RSO	Approved JDP	Rev. Date 2003.10.24	
Project 3gIS Scale 1:200 Bredevej 2 DK-2630 Virum Tlf 45 98 60 00 Fax 45 98 67 00						