



DIMENSION	A	B	C	D	E	F	G	H	K
METERS	3.0	2.2	2.4	1.5	0.8	0.1	0.1-0.2	0.9min	1.2min

MAX UPLIFT LEG= 54121 KGs = 530.93 KN

MAX COMPRESSION LEG= 60076 KGs = 589.35 KN

TRANSVERSE SHEAR LEG= 4,642 KGs = 45.54 KN

LONGITUDINAL SHEAR LEG= 4126 KGs = 40.48 KN

VOLUME OF CONCRETE LEG(min)= 17.04M³

ASSOCIATED DRAWINGS

Tower Pegging -
Tower Details -
Former.....
Temporary Stiffeners.....
Type A Foundation (Rock) - Consult ESB
Type B Foundation (Normal) -
Type D Foundation (Wet Clay) - Consult ESB
Type C Foundation (Piped) - This Drawing

PLACING OF TYPE C FOUNDATIONS

There are a large number of sites where the bearing capacity of the soil is excellent in the undisturbed state but because of the presence of high ground or surface water, it has been found that the sides of the excavation undergo gradual collapse if the holes are left open for the lengthy period necessary to set up the tower and that undercutting is not possible or desirable. It has been found that the use of precast concrete pipes is very useful in such situations and allows the undisturbed strength of the soil in uplift to be developed.

Similarly when a foundation is being cast in dry undisturbed soil but where the stability of the excavation sides is doubtful it may be advisable to widen the excavation to the dimensions of the Type C foundation. In this case the sub-base may be omitted and depending on the stability of the excavation sides, the pipe may also be omitted. This situation also allows the reusable steel internal former to be used if available. The technique to be used is as follows :-

STAGE 1:

It is usually obvious from surface conditions when sites requiring the use of concrete pipes can be expected (e.g. wet rushy ground or surface water at or near the site). Concrete pipes and reinforcing steel should be purchased and made available before excavation begins. The minimum pipe size, for practical reasons, should be 4 feet (1.2 meters) diameter and 3 feet (0.9 meters) deep.

The holes should be excavated, one at a time, to the width (C) indicated and dug to the depth (A) indicated. Where there is considerable water inflow the holes should then be excavated 0.1-0.2 meters deeper than normal and this extra excavation filled with concrete to form a sub-base. The amount of water in the hole should be minimised by continuous pumping. Where control of the water/cement ratio is available, a drier mix could be used in this sub-base concrete. The most usual situation where a Type C foundation would be used is fissured glacial till with slow water inflow but where lumps of soil keep falling from the sides of the excavation. Where Type C is used in dry ground for safety reasons, the sub-base may be omitted and a decision on the necessity for a pipe made on purely safety grounds. The use of safety netting is recommended for doubtful cases.

STAGE 2 :

Where a pipe is required it should be placed in the correct position using the mast pegs, set approximately 0.1 meters into the sub-base, reinforcing steel placed as shown and concrete poured and vibrated immediately between the pipe and the undisturbed bank. Large lumps of soil should be removed before the concrete is placed and the concrete should be brought up to the level of the top of the pipe.

This procedure should be repeated for the other three holes until all are in a stable condition. The mast base should then be set up and levelled according to the normal procedure, the pipes cleaned internally and the reinforcing steel bent downwards into the pipe. The remainder of the base blocks should then be concreted to the dimensions shown. If the base block has inadvertently become wider than indicated on the drawing, the thickness of the block should be increased by 50% of the increased width. The reinforcing steel should also have adequate concrete cover (50mm minimum).

The neck should be formed and concreted as for a normal foundation. If there is any delay in pouring the necks, reinforcing steel should be used to ensure that the horizontal shear forces are transferred into the main block. This reinforcing steel should be placed around the periphery of the neck while maintaining the required depth of cover. Every care should be taken when placing the neck, to ensure a good bond between the block and the neck by removing the water and wire brushing the surface of the block of concrete in contact with the neck.

Very bad holes, with general collapse of the banks, very strong water inflow or peat will require a special design and should be referred to ESB.

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