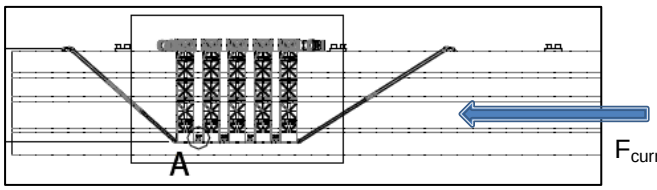
Five frames attached to each side of the barge (along its length):



Isometric view of one such frame:

The still water line is ~ 5 m above the bottom of the frame. The frames are not free to oscillate in the waves and I think that a *slender body, fixed cylinder/structure in currents'* condition would apply here. I applied the Morison equation and for a steady current only case, there is no inertia (acceleration) term. The drag forces in that case are in a range that I'd expect.

My two questions here are:

1) Should I consider wave velocity impinging on this structure? The frames are attached to the barge and in the longest waves; the barge (and the frame) would be following the wave as *"one body"*. Is it reasonable then to consider a wave of, say 12 m/sec, (corresponding to a T_{oz} of 8 secs) as a separate load on the frames? The forces look too high!
   Also, in such a case, I think the height under attack should be taken as ***(5 m + amplitude of the MPM wave)***. Although, only a very few waves would impinge that high. Is this good enough or too conservative; do you have some other suggestion?

2) If I do consider wave velocities (see 1), then accelerations must also be considered. However, the $F_{inertia}$ and F_{drag} components are 90^o out of phase with each other, as functions of time. The behavior is also likely to be more drag-dominated, especially at higher wave velocities and thin members, as in this case. Does it then make sense, to only look at F_{drag}, as being relevant for an initial estimate for the basis of design?