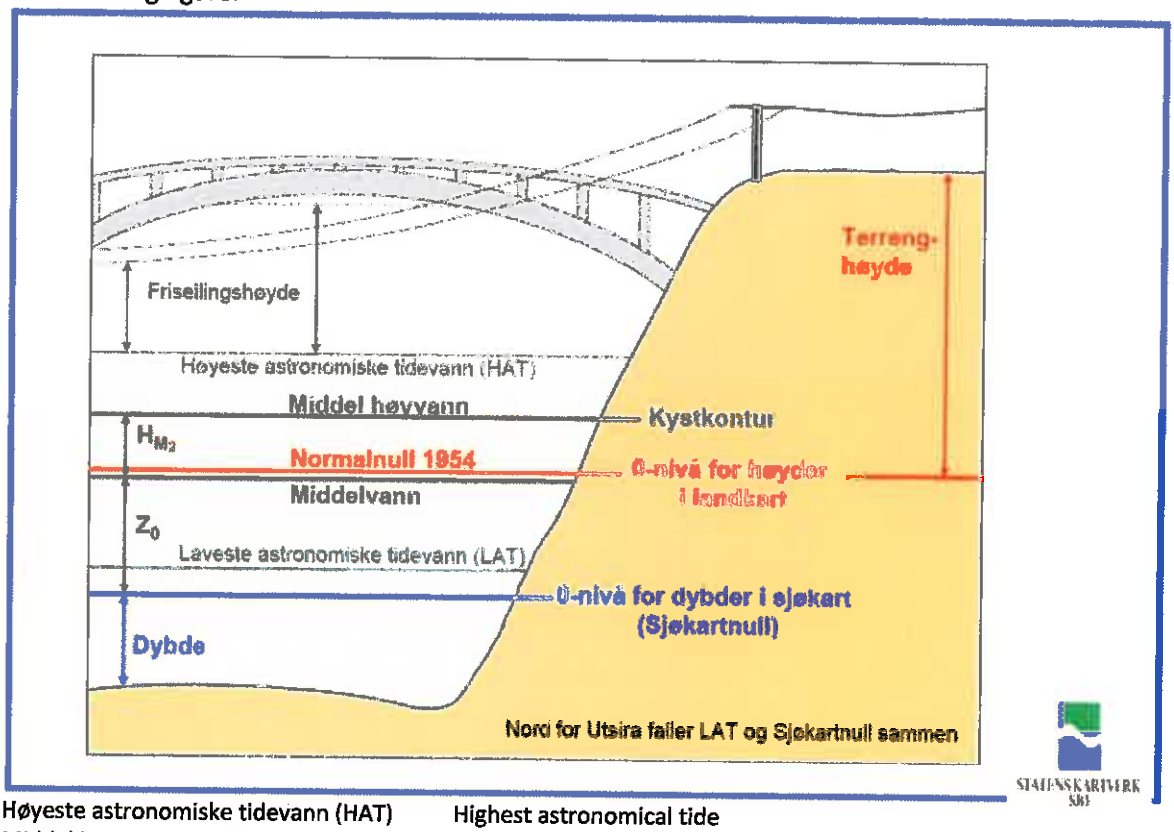
Note on bottom mapping at Drag 9th of June 2008.

To evaluate the size of vessels and quays at Drag there was made a bottom-map, with one meter equidistance, as shown in the attachment. Instrument used was a Garmin 400C echo sounder. The echo sounder oscillate with narrow beam. The oscillators position was decided with GPS; differential phase measurement. The log interval was every other second.

The contour lines on the map are based on Normal zero 1954 as height reference (meter above sea level). For comparison between Normal zero 1954 and the 0-level for depth in sea maps, it is left to the following figure.



Høyeste astronomiske tidevann (HAT)	Highest astronomical tide
Middel høyvann, Kystkontur	Middle high tide, Coastal contour
Normalnull 1954	Normal zero 1954 (0-level for land maps)
Middelvann	Middel tide
Laveste astronomiske tidevann	Lowest astronomical tide
0-nivå for dybder I sjøkart	0-level for depth in sea maps
Dybde	Depth

With reference to Narvik harbour the Statens kartverk (The governmental map authority in Norway) has given 1,77m as possible value for Z_0 at Drag. Normal zero is here ca 0,1m above the (Middelvann) middle tide. If there in addition is added an unsecurity on the measurement on ca 0.6m, this makes -2,5 meter above sea level for the depth on the map. As example -10 meter contour line represents a depth of -7.5 meter.

The edges of the quay are also measured. In addition to this note the results are also stored in the files Kai.dgn med Bildekai.jpg as reference, and Ekkolodd2008.dgn.

Gimse 12. juni
Erik Ludvigsen
(Translated by Svein Olerud on August 6th 2008)