

## Paper for Consideration by the ENCWG

### Comments on Chersoft paper about ECDIS Chart 1

<b>Submitted by:</b>	Hannu Peiponen / Furuno Finland
<b>Executive Summary:</b>	Chersoft has submitted paper ENCWG3-5.4_ECDIS_Chart_1_Issues. This paper contains comments related to the Chersoft paper.
<b>Related Documents:</b>	ENCWG3-5.4_ECDIS_Chart_1_Issues S-52 Presentation library ed 4.0
<b>Related Projects:</b>	N/A

#### Introduction / Background

1. The role of ECDIS Chart 1 was originally like a “chart legend” i.e. introduction for symbol shapes used in ENC charts. Initially it was allowed that a “facsimile”-copy or a “photograph” of ECDIS Chart 1 was available in the ECDIS.
2. The initial use case was such that a lot of content of the ECDIS Chart 1 was encoded as cartographic symbols.
3. Later use of cartographic symbols was declared illegal in an ENC chart. Result was that previous cartographic symbols were converted either as real charted objects or as “new objects” including symbology instructions. This was the situation until S-52 presentation library ed 4.0.1
4. The final change introduced for S-52 Presentation library ed 4.0.2 was to make the ECDIS Chart 1 to pass the ENC chart validation test of the drafted S-58.

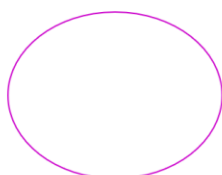
#### Analysis/Discussion

5. The change from “Chart Legend” to “legal ENC chart” has introduced issues not known before. For example, legal ENC charts require that quality (i.e. M\_QUAL) is specified. This added the CATZOG symbols behind everything.
6. Obviously the IHO ENCWG process to introduce new versions of ECDIS Chart 1 digital files missed testing of the results. If such a test would have been organized the Chersoft reported issues would have been recognized before publishing of edition 4.0.2,
7. Chersoft proposes that the viewing group for M\_QUAL should be turned off. This works well for most of the ECDIS Chart 1 screens, but not for “Depths, currents, etc.(H,I)” as it has the “chart legend” style example of the quality of data A1, B, D and U. If M\_QUAL is turned off then quality of data A1, B, D and U are not displayed. On the other hand, if M\_QUAL is turned on then the all-around use of background M\_QUAL destroys possibility for user to understand clearly what-is-what about quality (see screen samples in the annex of this paper).
8. The M\_QUAL on or off issue is quite problematic. The S-57 UOC specifies that it is mandatory that the M\_QUAL cover areas containing depth data or bathymetry. The problematic part is use of S-58 validation checks for ENC chart cells of the ECDIS Chart 1. The ECDIS Chart 1 is intended for the real end user, the mariner using ECDIS for navigation. Therefore, the situation between screen samples and detailed instructions how to get each screen sample by setting viewing groups or independent mariner selectors is different from the use case of S-64 which is intended to be used by developers and type approval inspectors. The ECDIS Chart 1 should remain so that it is usable by the mariners regardless of what the mariner has selected on or off. This principle means that M\_QUAL (or the related independent mariner selector ‘Accuracy’) should be ‘on’ for the reference screen samples in S-52.
- 9 Chersoft has noted also that
  - Chart “Information about chart display (A,B)” contains now a syntax error in text string “MANUFACTURER’S FEATURES”. Somebody fixed grammar of English language without further thinking as the apostrophe is a specified as string delimiter in the syntax of the presentation library. Result has been loss of the feature. We fully agree with Chersoft and the result in our ECDIS is exactly same as Chersoft reported. Obviously, this need a fix – return to old version with grammar mistake or new wording such as “FEATURE OF MANUFACTURER”. Further it can be noted that the S-58 did not catch this serious error resulting to loss of feature in the ENC chart.

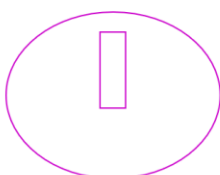
- Chart “Information about chart display (A,B)” has also been amended for the light description string. We agree with Chersoft as the amended ENC chart for Ed 4.0.2 contains now string “FI(2) W 10 s”. Obviously, the screen sample was not updated for Ed 4.0.2
- Second chart with name “Information about chart display (A,B)” has also been amended for the swept areas. We agree with Chersoft as the amended ENC chart for Ed 4.0.2 contains values of swept depths (before just mandatory attribute with empty value). Obviously, the screen sample was not updated for Ed 4.0.2
- Chart “Natural and man-made feature (C,D,E)” include land elevation contour labels. Such labels are not part of the standardized S-52 presentation library. We agree with Chersoft that the screen sample shall be fixed for no land elevation contour labels.
- Chersoft reported doubtful depth contour value in chart “Depths, currents, etc. (H,I)”. They claim that a 10 m contour label should be 30 m. We agree with Chersoft, that the amended ENC chart for Ed 4.0.2 contains now 10 m contour. Obviously, the screen sample was not updated for Ed 4.0.2.
- Chart “Aids and services (P,R,S,T)” has been amended for boyos used with fog signals. We agree with Chersoft, that the amended ENC chart for Ed 4.0.2 contains now different boyos. Obviously, the screen sample was not updated for Ed 4.0.2.

10. Chersoft has claimed that the .dai file has an issue and as result they get a circle full of single colour. This claim can be rejected as the symbol NEWOBJ01 is correct in the .dai file. Below is the specification of the symbols and step-by-step instructions how this symbol is drawn

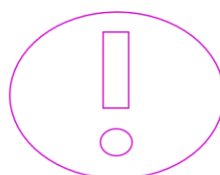
DAI-file	Interpretation (see S-52 Preslib clause 8)
SYMD 39NEWOBJ01V003000030000600006000000000000	Symbol 'NEWOBJ01'
SXPO 11new object	
SCRF 6ACHMGD	Set pen 'A' for color CHMGD
SVCT 29SPA;SW1;PU300,300;PM0;CI300;	Select pen A; Select 0.3 mm (1 pixel) line width; Move to 300,300; Start drawing of a polygon (PM0); Draw a 1 pixel width big circle
SVCT 43PM1;PU250,70;PD350,70;PD350,350;PD250,350;	Close first polygon (PM1); Draw a rectangle (line of exclamation mark)
SVCT 32PD250,70;PU300,475;CI60;PM2;FP;	Draw a small circle (dot of exclamation mark); Exit polygon mode (PM2); Fill the polygon (FP);



Set pen 'A' for color CHMGD  
Select pen A;  
Select 0.3 mm (1 pixel) line width;  
Move to 300,300;  
Start drawing of a polygon (PM0);  
Draw a 1 pixel width big circle



Close first polygon (PM1);  
Draw a rectangle  
(line of exclamation mark)



Draw a small circle  
(dot of exclamation mark);



Exit polygon mode (PM2);  
Fill the polygon (FP);

11. Chersoft did not report that the “ECDIS SYMBOLS” screen sample has also issue. We have noted that swept area and magnetic variation have now numeric values displayed. Further there are now more ‘information available symbols’. Obviously, the screen sample was not updated for Ed 4.0.2.

## Conclusions

12. Either content of the ECDIS Chart 1 or the printed standard S-52 Presentation Library or even both should be amended to fix the reported issues.

## Recommendations

13. How to amend the M\_QUAL/CATZOG issue depends on what is the target. We see two alternatives as target

- Return to original motivation of ECDIS Chart 1 as easy to interpret “Chart legend”. This would require that some part of the chart encoding (for example M\_QUAL) do not pass S-58. In this version the base would be the ECDIS Chart 1 as published for Presentation Library Ed 4.0.1 with small amendments, for example magnetic variation fixed for value of variation. The printed screen samples would be fixed as appropriate.
- Go for full S-58 compliance resulting to usability issues as the result (see screen samples in the annex of this paper).

14. The simple to fix screen sample issues for Ed 4.0.2 should be fixed by new screen samples for

- ECDIS SYMBOLS
- Information about chart display (A,B) (both first and second)
- Natural and man-made feature (C,D,E)
- Depths, currents, etc. (H,I)
- Aids and services (P,R,S,T)

15. The drawing of NEWOBJ01 issue could be solved by adding the description of paragraph 9 of this document into clause 8 of the S-52 Presentation Library Ed 4.0.3

#### **Justification and Impacts**

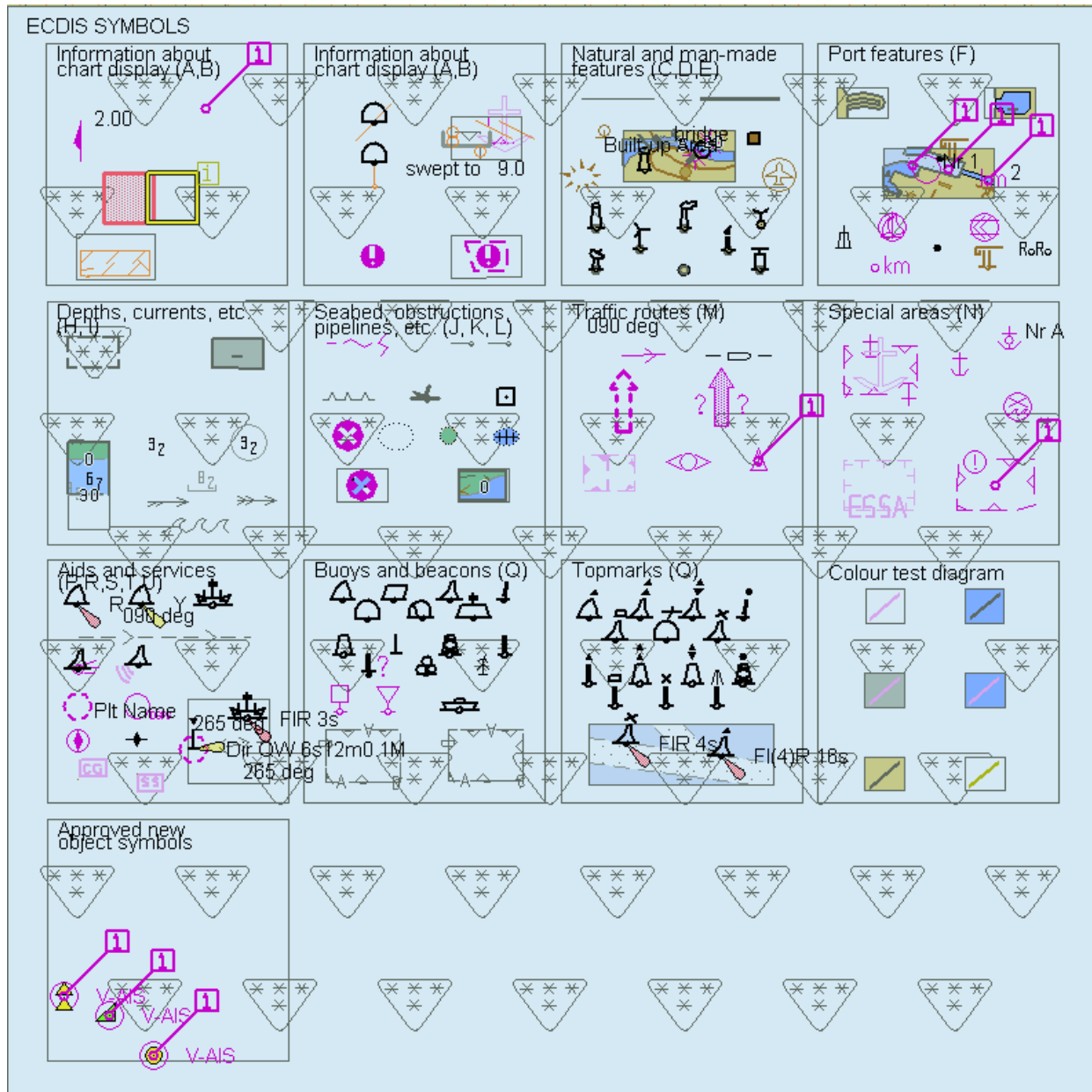
16. Something shall be done

#### **Action Required of ENCWG**

The ENCWG is invited to:

- a) to note the comments and proposals of this paper during discussion about Chersof input paper
- b) to consider publishing of new edition 4.0.3 of S-52 presentation Library

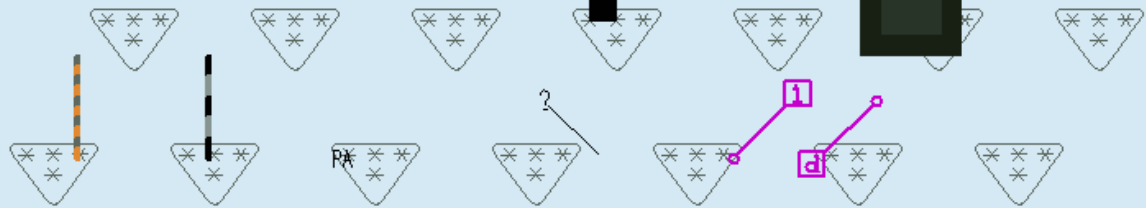
Annex – Updated screen samples for Ed 4.0.2 (including very bad use of M\_QUAL/CATZOG)



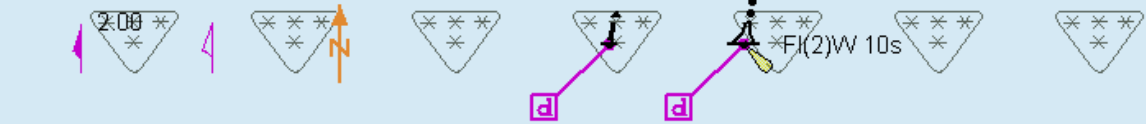
Information about chart display (A,B)

Test symbol for size checking

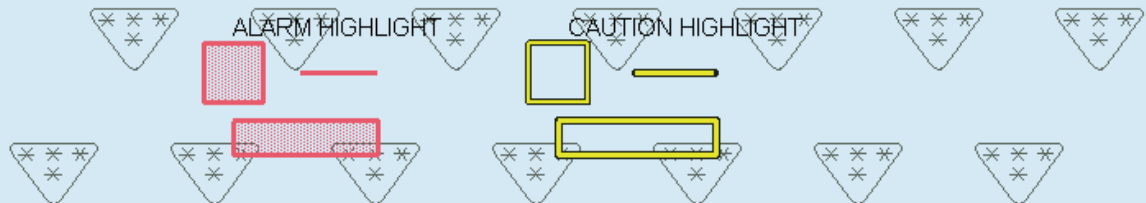
Test symbol for color checking



Periodic End date 27-08-2014

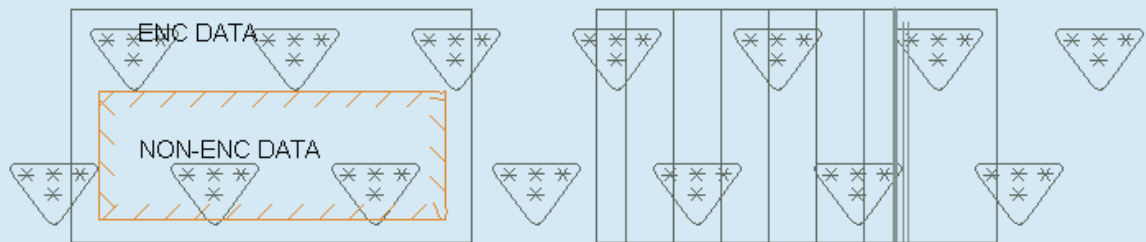


MARINERS NOTES MANUFACTURE  
Caution Information Caution Information



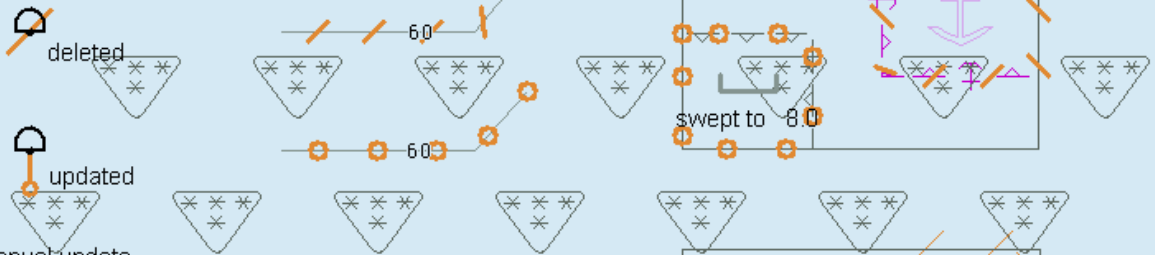
NON-ENC Data on Display

Over scale part of a Display

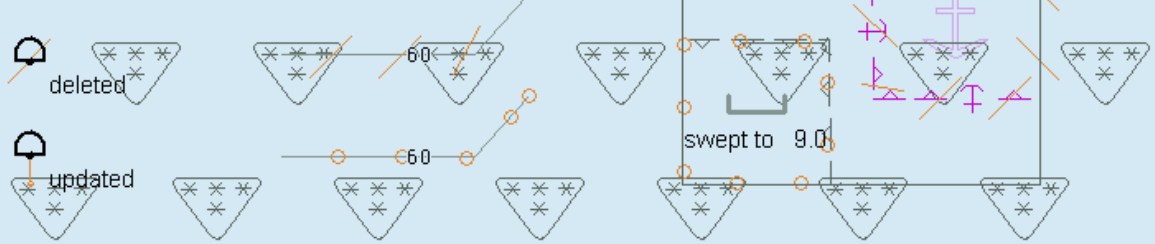


Information about chart display (A,B)

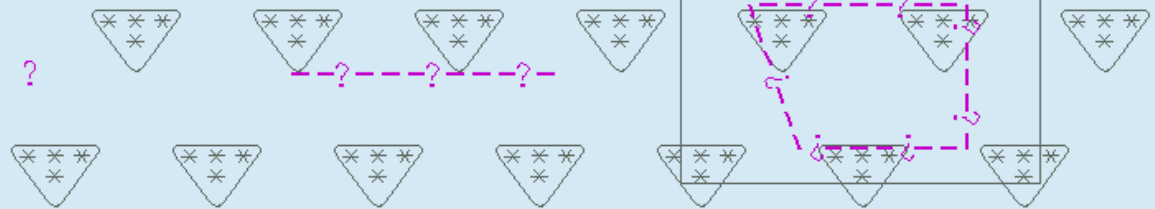
Automatic update



Manual update



No symbol exists in the symbol library



Default symbol for NEWOBJ





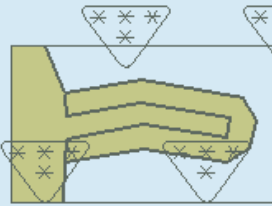
Port Features (F)



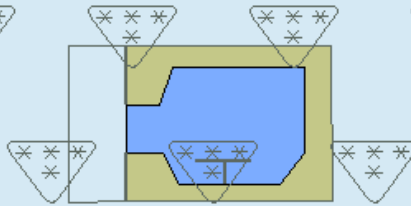
shoreline construction

lock gate

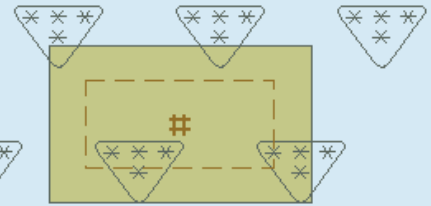
dam



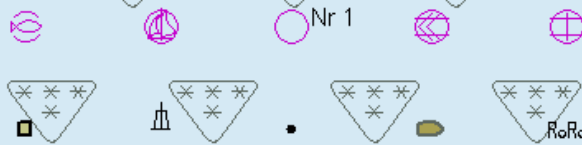
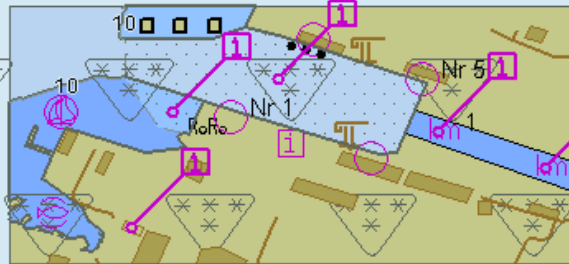
breakwater



tidal basin



timber yard



Nr 1

RoRo



km

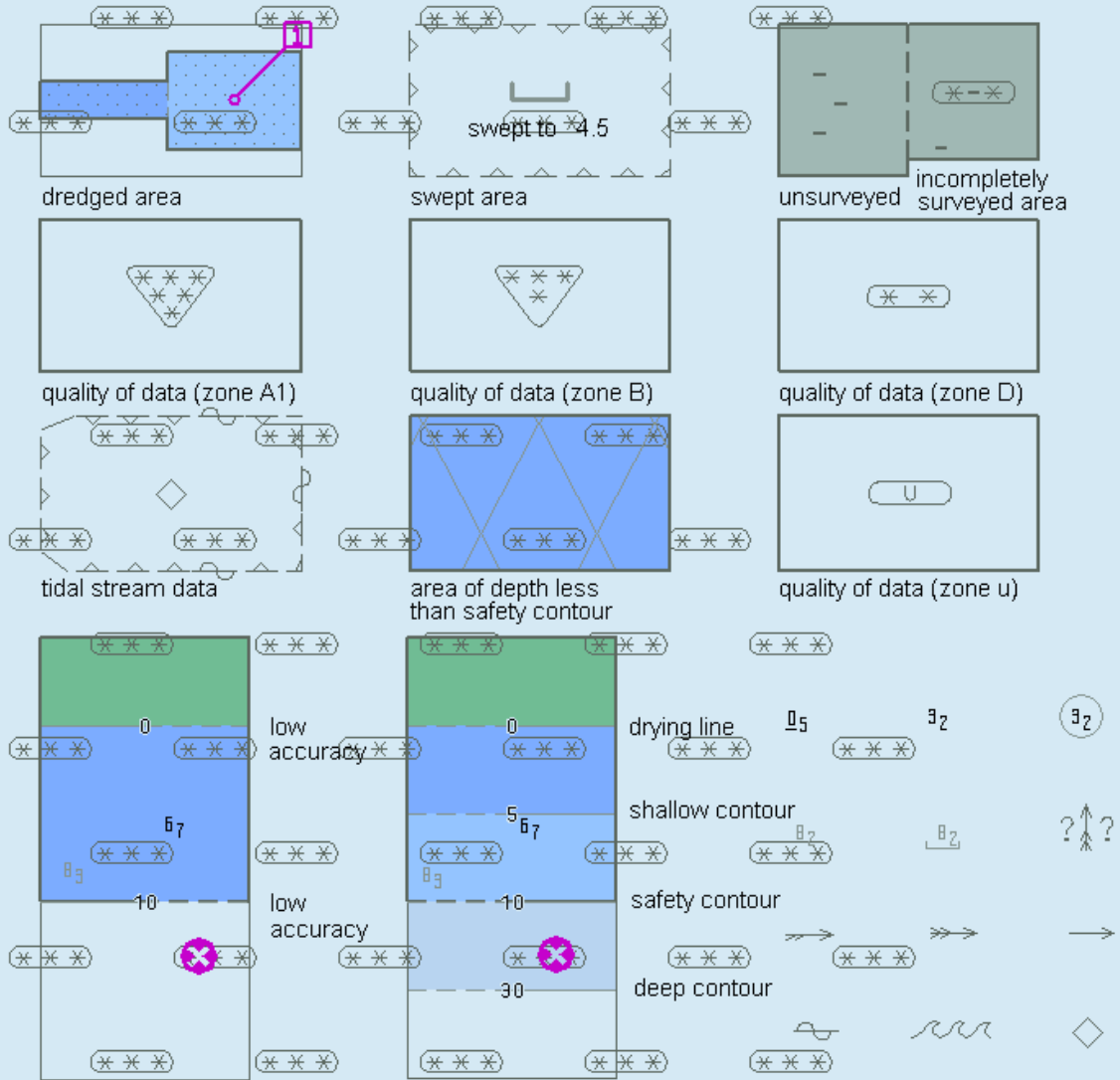
km

#

RoRo

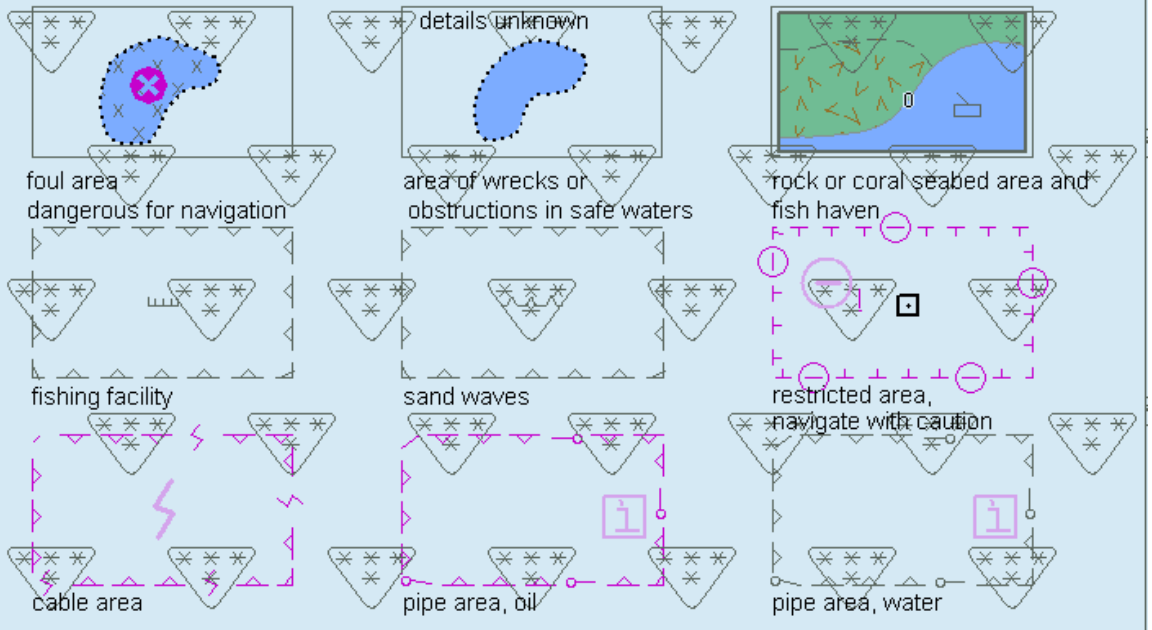
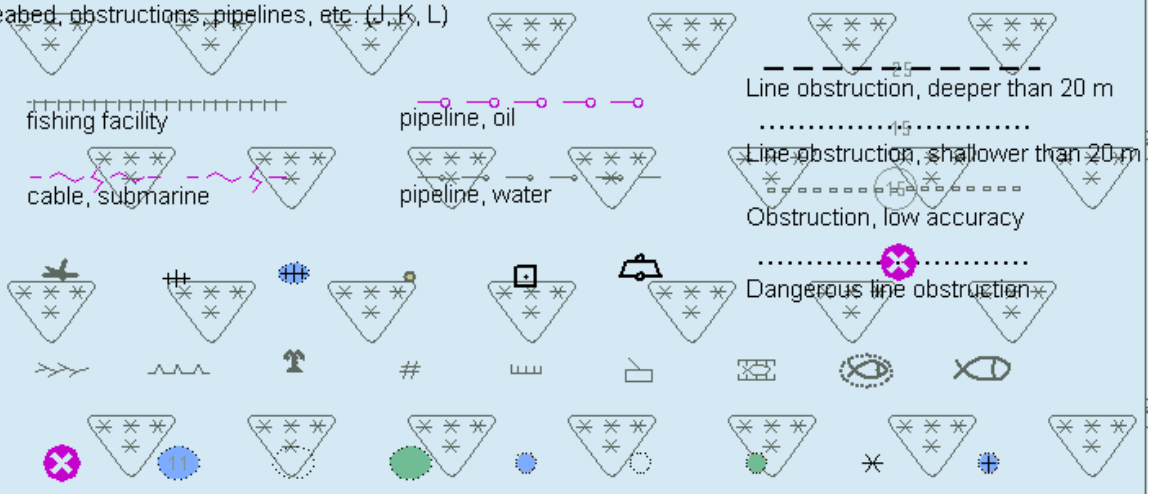


Depths, currents, etc. (H, I)

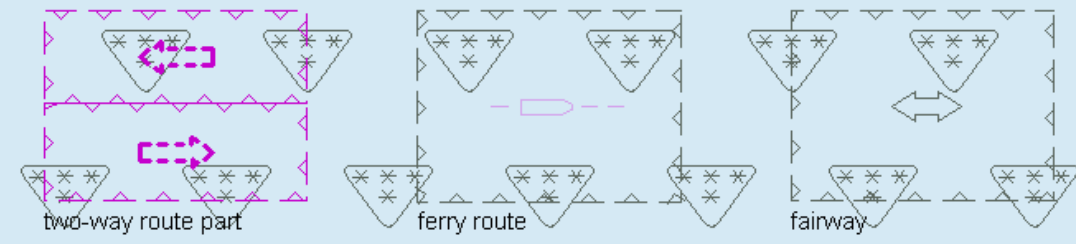
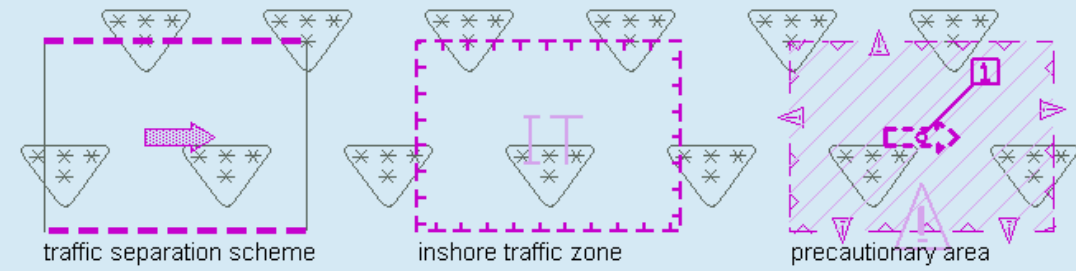
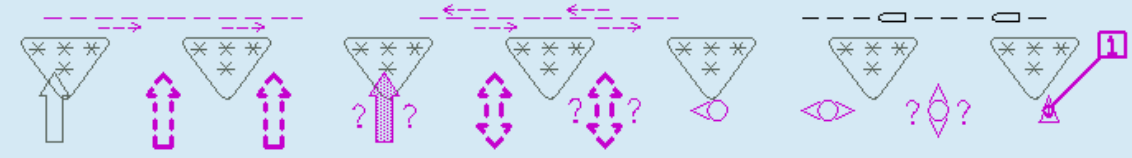
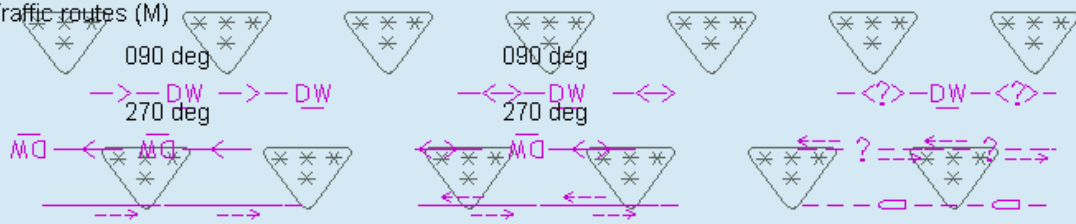


2 or 4 colours for symbolizing of depth areas with underwater hazard in safe waters

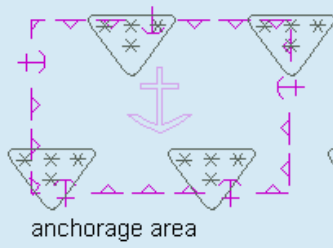
Seabed obstructions, pipelines, etc. (J, K, L)



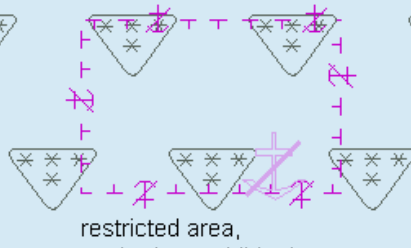
Traffic routes (M)



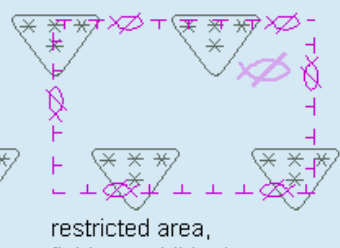
Special areas (N)



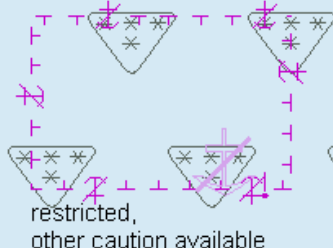
anchorage area



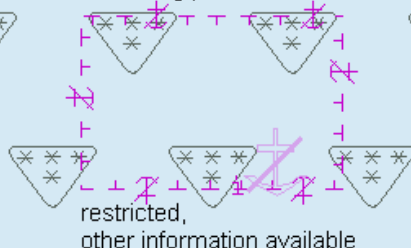
restricted area,  
anchoring prohibited



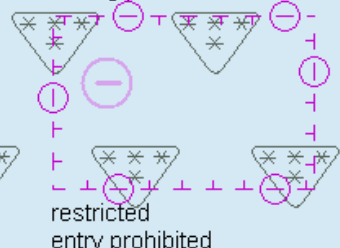
restricted area,  
fishing prohibited



restricted,  
other caution available



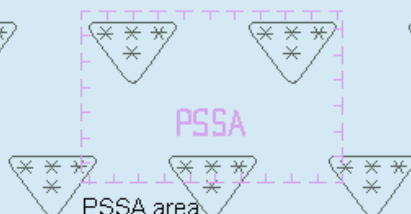
restricted,  
other information available



restricted  
entry prohibited



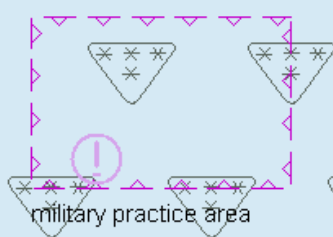
ESSA area



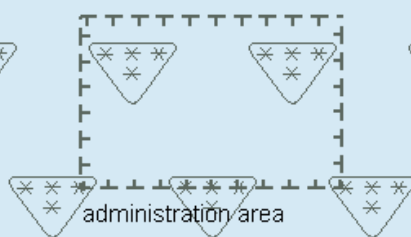
PSSA area



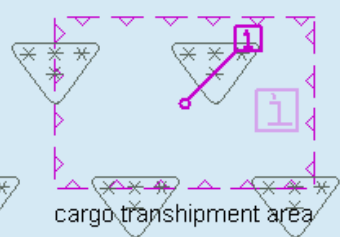
caution area



military practice area



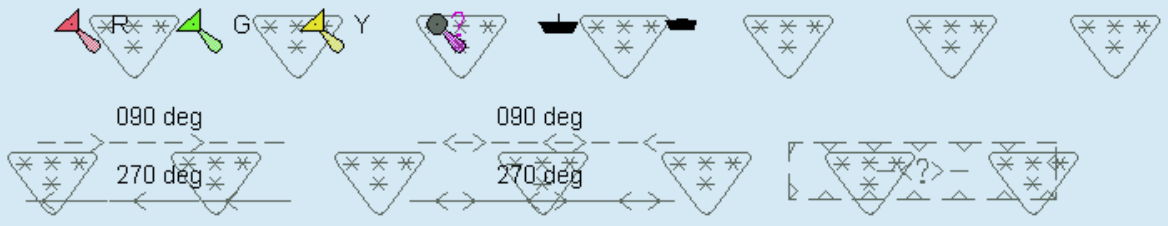
administration area



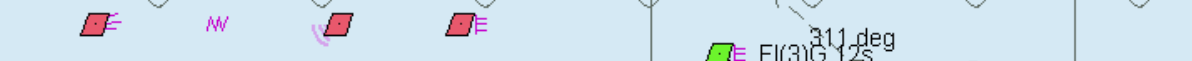
cargo transshipment area

Aids and services (P,R,S,T)

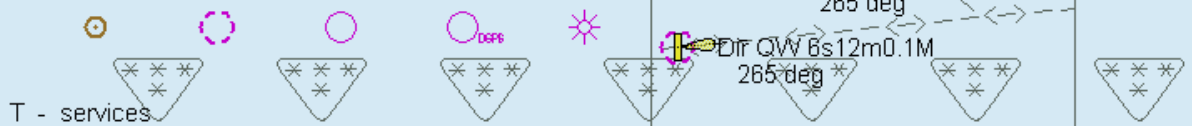
P - lights and recommended tracks



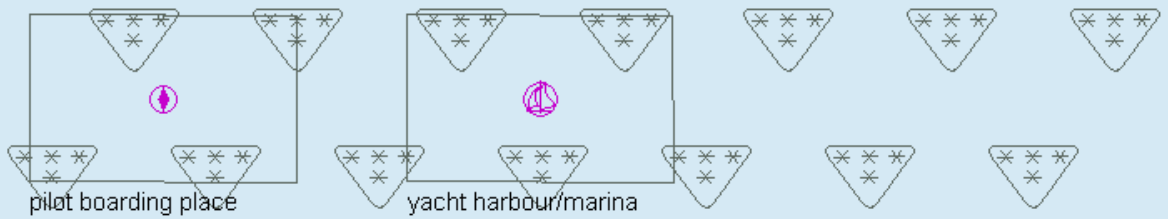
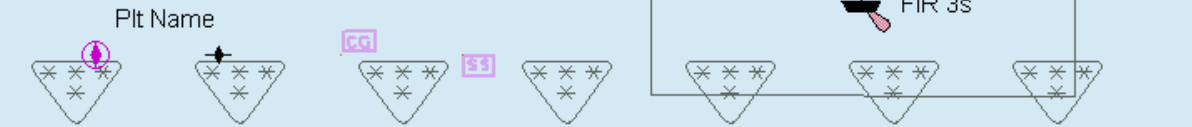
R - fog signals



S - radio, radar

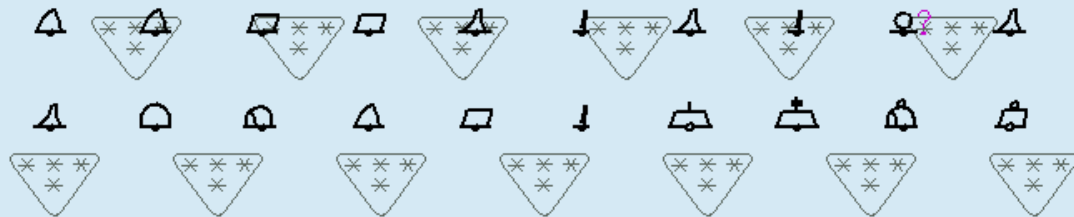


T - services



Buoys and beacons (Q)

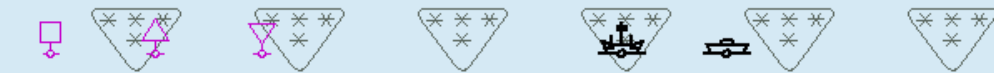
Buoys



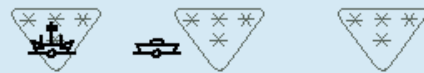
Beacons



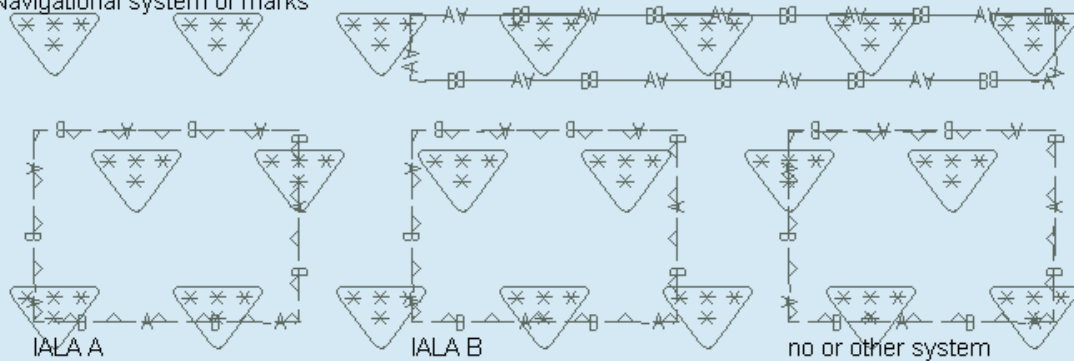
Daymarks



Light float and light vessel

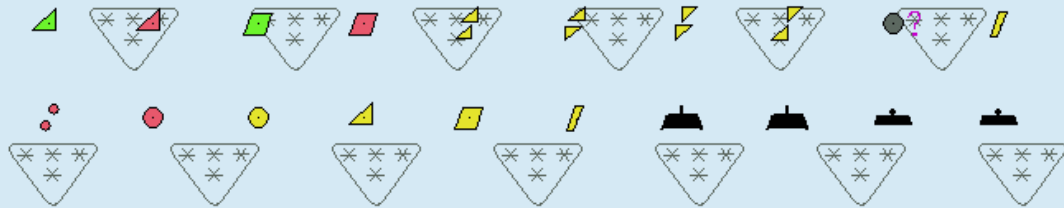


Navigational system of marks



Buoys and beacons (Q)

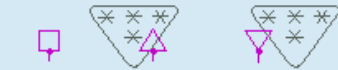
Buoys



Beacons



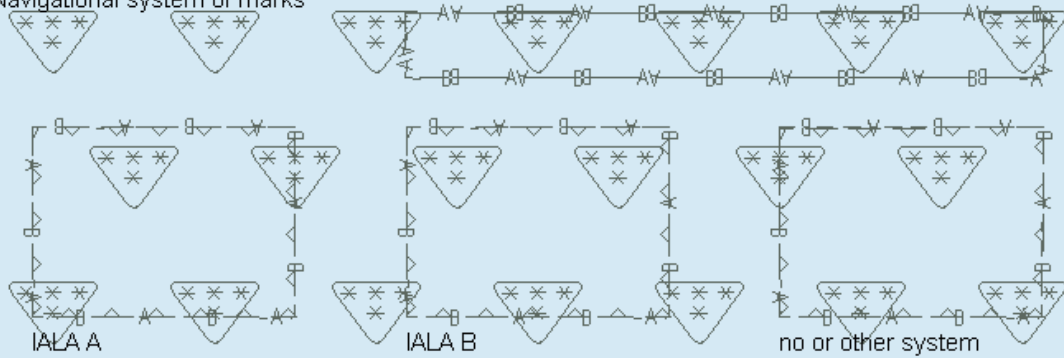
Daymarks



Light float and light vessel



Navigational system of marks



IALA A

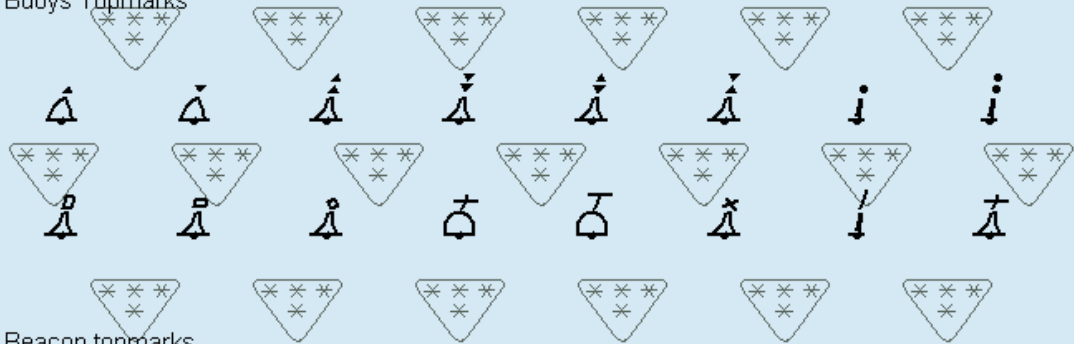
IALA B

no or other system

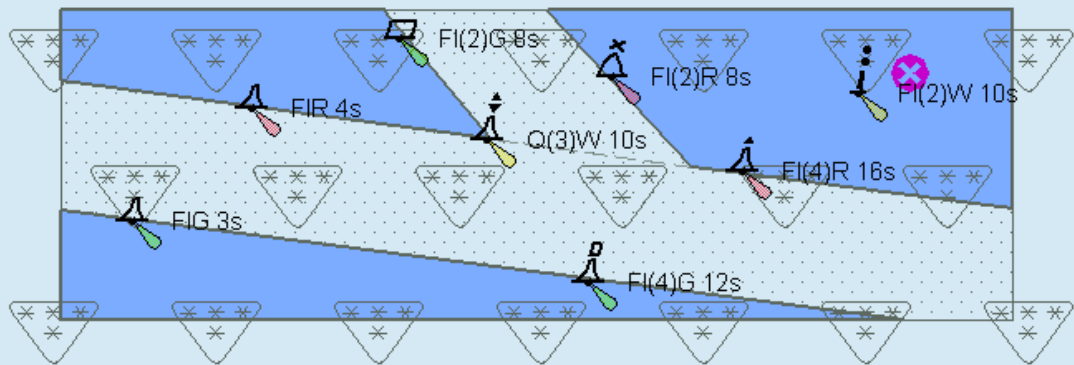
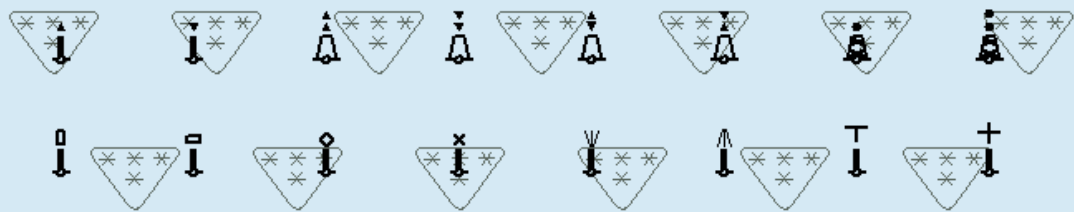
Topmarks (Q)



Buoys Topmarks

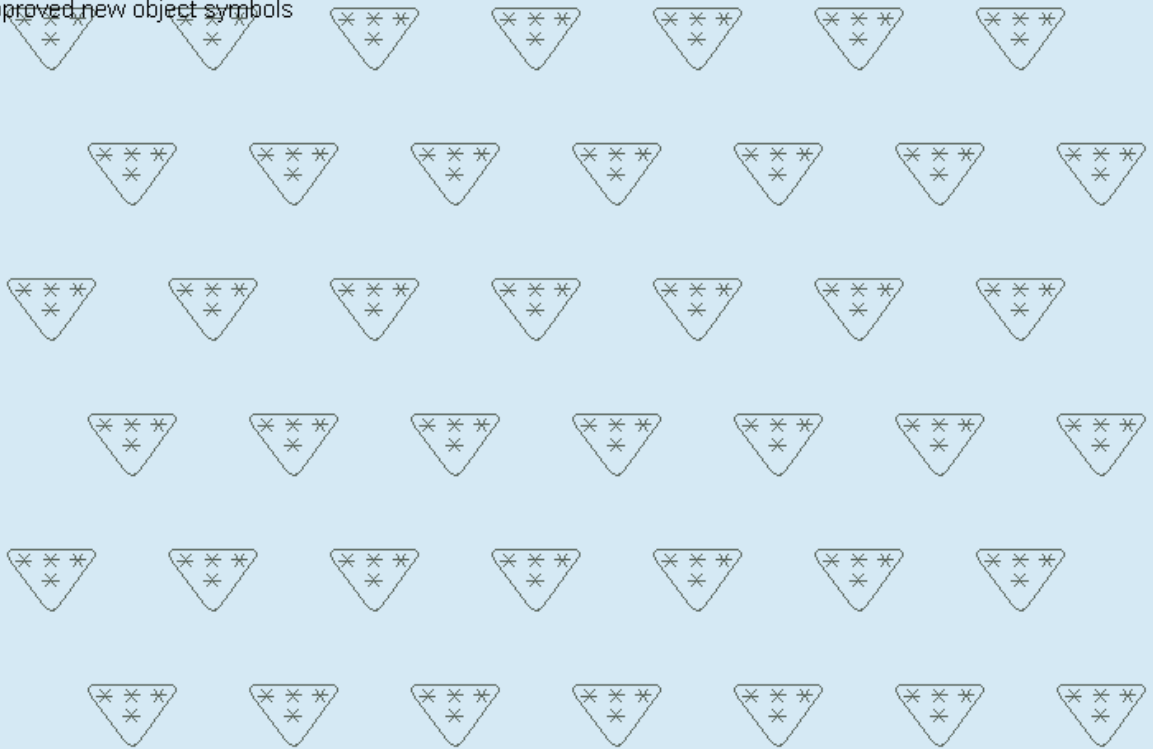


Beacon topmarks





Approved new object symbols



Cardinal marks

Lateral marks

Other marks

