**By:** MS **Date** 6th January 2016

**Subject:** Lines Preparation

## Tips and Hints for DXF to LFH users

1. **Section Spacing** - The Wolfson Unit packages are sensitive to the spacing defined in the LFH file and it is useful to consider this when using another package to create the DXF file. Refer to the Wolfson Software manuals for more details on section spacing, numbers and intervals.

2. **Use half sections** - It is best to keep the DXF file simple with ideally half sections defined with positive transverse offset. This will lower the chances of any spurious lines being read and translated as sections.

3. **Limits** - The maximum number of points per curve or line is 5000 and the maximum number of curves or lines is 1000. The DXF to LFH converter will notify the user if the DXF file exceeds this.

4. **Use continuous lines** – Each transverse section defined in a DXF file must be a continuous line with no breaks, for example the line above and below a chine must be part of the same polyline.

5. **Resolution** - The resolution of the definition of the hull created in the DXF is directly related to the resolution of the final LFH file. It is therefore important to have enough points on a section such that straight lines between the points will adequately model the shape of the hull.

6. **CAD program** - DXF files must be in ASCII AutoCad 2014 or earlier, Rhinoceros, MaxSurf or similar. For further information see the File Formats section of the DXF to LFH manual.

7. **Line types** - The DXF to LFH converter can import two-point lines, arcs, polylines with and without bulges and splines. Splines defined via control points or fit points may be converted to the LFH format.

8. **2 dimensional body plans** - These can present problems in mapping the curves and also stitching curves. In general it is best to convert 2 dimensional DXF body plans to 3 dimensional files using the native CAD program, rather than the DXF to LFH converter. The 'Enter X Spacing for 2D lines' option is useful for expanding 2D DXF files to 3D.

9. **Bulbous bows** – if two separate transverse sections are found at the same longitudinal position, such as the closed transverse section through a bulbous bow and the forepeak section above, two approaches may be used:
    i) keep these transverse sections separate, or
    ii) join these entities such that no additional sectional area is introduced, eg vertical line along the vessel's centre plane joining bulb and forepeak.

## Tips and Hints for Rhinoceros users

1. **Coordinate system** - rotate the hull geometry as appropriate to match the coordinate system used in Wolfson Software. Refer to the Wolfson Software manuals for more details.

2. **Midship section** - the stern sections should have negative X values and the bow sections should have positive X values. The position of X=0 should be close to midships, as convenient, it need not lie on a defined section, but often it does.

3. **Layers** - merge all layers containing the hull geometry and delete the others, including those containing text and dimensions.

4. **Contour** - when a hull is modelled as a surface or set of surfaces, use the Contour option to obtain a set of sections at the appropriate spacing.

5. **Use half sections** - Delete all half sections having a negative transverse offset eg negative Y.

6. **Use continuous lines** - Each transverse section must be a continuous line with no breaks. Select all the lines of a section and use the Join command to create a continuous line. If the program is unable to do so, join manually any gaps between adjacent lines.

7. **Section direction** - Section points should start on the centreline and move around the section to the sheer, deck or any point above the flotation waterline. Please refer to the Section Definition topic of the HST help for more details. Use the Analyze > Direction option of Rhinoceros to show the direction of a section. Flip the direction where required.

8. **Edit scheme** - It is advisable to Save a Wolfson export scheme for dxf files following the recommended settings below. The scheme can then be applied whenever a dxf is exported for use in Wolfson Software.