

# Land-Line®

Technical information leaflet



# The product

Land-Line is comprehensive and accurate large-scale digital mapping available for Great Britain. It comprises nearly 229 000 separate map tiles of data with the quality and high standards of accuracy for which Ordnance Survey is renowned.

Land-Line provides a detailed representation of the real world in its plan position, including man-made and natural features. Intangible features such as county boundaries, administrative boundaries and spot heights are also included.

With the use of appropriate software, Land-Line can be displayed on computer screens and customised to the user's preference. The ability to manipulate Land-Line in this way makes it an extremely powerful analytical tool.

Detail is captured at the following three scales, according to the type of area:

**1:1250 scale** – for urban areas;

**1:2500 scale** – for rural areas; and

**1:10 000 scale** – for remote areas, for example, moorland and mountain.

Two products are available in the Land-Line product family:

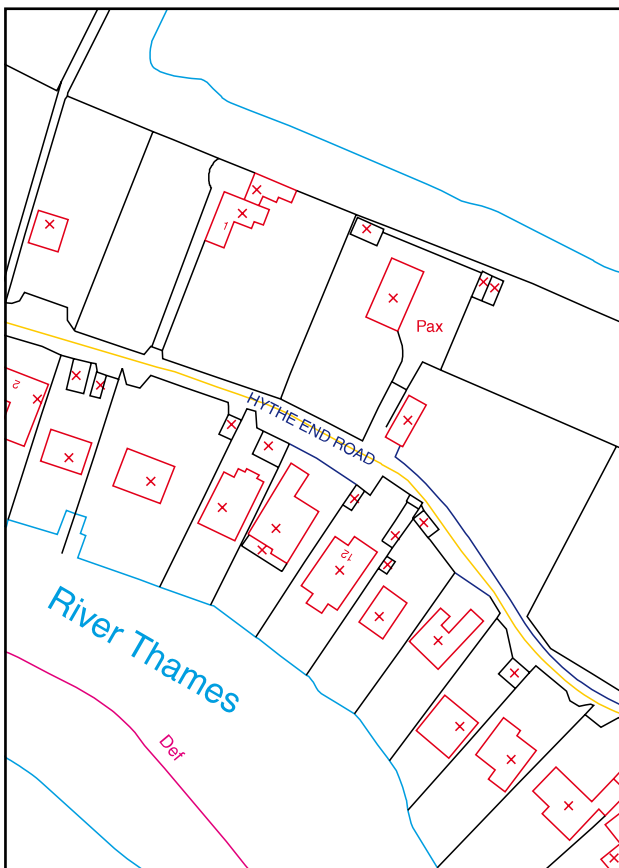
## Land-Line

For the *built environment* and water detail.

## Land-Line.Plus®

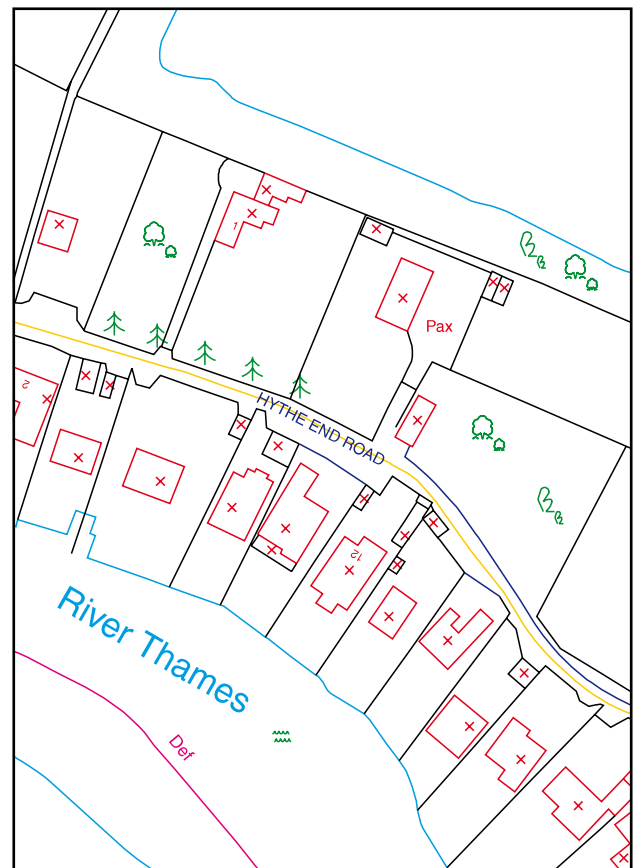
Has additional natural features for the *whole large-scale picture*.

The following extracts from a 1:2500 scale rural map tile show the key differences in the products. The line styles, colours and symbols are as supplied with Land-Line products in DXF™ (AutoCAD® release12 compatible) only.



## Land-Line

*The built environment in clear, concise detail. Thirty-seven feature codes, including buildings, roads and their centrelines, water features and tide lines, names and descriptions, administrative and voting boundaries.*



## Land-Line.Plus

*At no extra charge, complete with natural real-world features. Twenty-six additional feature codes, including cliffs and man-made slopes, areas of woodland and vegetation classifications (symbolised in DXF), areas of rock and boulders.*

# Product content

The following tables cover the key features of Land-Line products. Further information is available in the *Land-Line user guide*, which can be viewed on our website at [www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk) or obtained from Customer Service Centre. See contact details at the end of this leaflet.

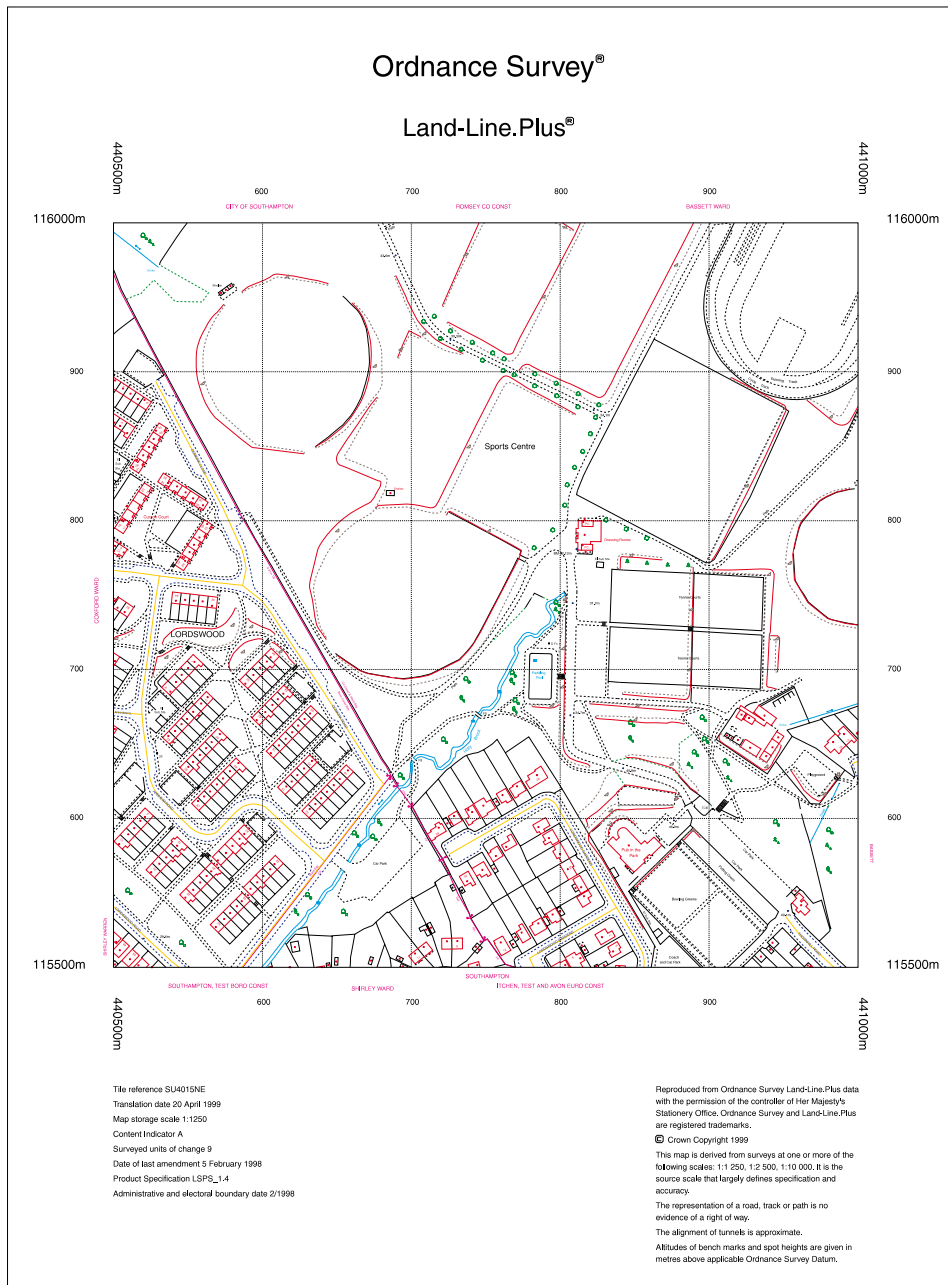
<p><b>General information</b></p>		<p>Land-Line data is an enhanced vector dataset, where features are represented as points and lines that are digitised and specifically coded to show differing features. It is not a structured dataset and, as such, does not contain defined polygons. Land-Line data products do not include any software for viewing or manipulation. Depending on your requirements, you will either need a geographical information system (GIS) or a computer-aided design (CAD) software package to use the appropriate Land-Line product format. Contact details are available at the end of this leaflet.</p>
<p><b>Land-Line product versions covered in this leaflet</b></p>	<p>LSPS_1.5 LSPS_1.6</p>	<p>For Land-Line specification date – 7 May 2001 (supplied date). For Land-Line.Plus specification date – 7 May 2001 (supplied date).</p>
<p><b>What formats are available?</b></p>		<p>Land-Line products can be supplied in two different file formats. These are: National Transfer Format (NTF) and Data Exchange Format (DXF).</p>
<p><b>Why NTF?</b></p>	<p>NTF for GIS applications</p>	<p>BS 7567 (NTF v2.0) Level 2 This is a nationally agreed standard of geographic data administered by the British Standards Institution. Its chief application is with GIS, which use Land-Line mapping with other databases to provide powerful analytical tools. NTF supplies vector coordinates of all the captured features to incorporate into your application. All surveyed detail is digitised using defined feature codes. For instance, Land-Line has 37 separate feature codes, including detail and text. Land-Line.Plus has an additional 26 feature codes for natural detail such as slopes, cliffs and vegetation. The appearance and colours of text, symbols and line work is dependent on your software and its ability to customise the displayed data.</p>
<p><b>Why DXF?</b></p>	<p>DXF for CAD systems</p>	<p>DXF (AutoCAD release 12 compatible) for CAD data applications as defined by the National Economic Development Office (NEDO) working party for exchanging two-dimensional drawings. DXF supplies vector coordinates of all the captured features to incorporate into your CAD system. The appearance and colours of text, symbols and linework is supplied with the product. These can be customised using appropriate CAD software. Land-Line in DXF supplies detail in layers conforming to an Autodesk® DXF (AutoCAD release 12 compatible) format for CAD data publication – <i>Layer naming convention for CAD in the construction industry V2.0</i>, based on guidelines written in BS 1192 : Part 5. Land-Line has 43 layers of detail and text. Land-Line.Plus has an additional 26 layers of natural detail such as slopes, cliffs and vegetation.</p>
<p><b>What coordinates are supplied?</b></p>	<p>Ordnance Survey Great Britain 1936 (OSGB36®)</p>	<p>OSGB36 is the mathematical model used to describe the shape of the earth that defines the National Grid for Great Britain. Every Land-Line tile includes the full National Grid coordinates to allow georeferencing of other Land-Line tiles, Ordnance Survey data products or your own surveys. Note, the Global Positioning System (GPS) employs a different model known as the World Geodetic System 1984 (WGS84). If survey work has been completed using GPS it will need transforming to OSGB36 to use with Land-Line, or detail will not match. Ordnance Survey provides a website – <a href="http://www.gps.gov.uk">www.gps.gov.uk</a> – that gives more information on this issue and coordinate conversion parameters.</p>

<p><b>Is metadata (data about the map data) supplied?</b></p>	<p>NTF – Fully comprehensive DXF – Some</p>	<p>Metadata is information about each map tile, covering dates of capture, specification and much more. Full details are in the <i>Land-Line user guide</i>, which can be viewed on our website or supplied through Customer Service Centre. NTF data has a fully comprehensive set of metadata supplied with each tile. DXF data has limited information within the footnotes of each tile.</p>
<p><b>Are line styles supplied?</b></p>	<p>NTF – No DXF – Yes</p>	<p>NTF data does not include any line styles. These are defined within the software used to display and manipulate Land-Line data. DXF data includes preset line styles and colours that automatically load into CAD systems when the data is imported.</p>
<p><b>Are symbols supplied?</b></p>	<p>NTF – Available as CSV files DXF – Yes</p>	<p>NTF data currently has no symbols supplied as these are defined within your system's software. However, a set of Ordnance Survey symbols is now available in comma separated value (CSV) format, downloadable from the Land-Line web page at <a href="http://www.ordnancesurvey.co.uk/productpages/landline/ntf-symbols/ntf-symbols-intro.htm">www.ordnancesurvey.co.uk/productpages/landline/ntf-symbols/ntf-symbols-intro.htm</a>. These can be incorporated into your mapping system, but you may have to seek advice from your system supplier on how to do this. DXF data has symbols as defined blocks with separate associated layers. Land-Line in DXF includes 12 defined blocks or layers such as building roof indicators, flow arrows for rivers, pylons and so on. Land-Line.Plus in DXF has 33 defined blocks or layers for the additional natural landscape features such as vegetation symbols, areas of rocks and boulders, slope and cliff indicators and so on.</p>
<p><b>Are heights supplied?</b></p>	<p>Some height information and non-ground surface-level detail is included</p>	<p>Land-Line products contain some surveyed height points known as bench marks or spot heights above the applicable sea level datum. Overhead features, such as lighting gantries along railways and the alignment of overhead power lines, are shown but without actual height values. Some underground features are also captured, such as subways. The third-dimension heights of buildings, walls and so on are not captured.</p>
<p><b>How current is the surveyed detail and can I get updated information?</b></p>	<p>This is a major benefit of using Land-Line. Your chosen supply contract can guarantee that any changes to the data, such as new houses or roads, are supplied either annually or quarterly by a determined amount of change. This is based on a cumulative count of change to each tile known as 'surveyed units of change'.</p>	<p>Detail is surveyed according to our published guidelines. Real-world detail is divided into three categories. Category A includes new housing development, roads, railways and major community, public sector and industrial developments. Currently, Ordnance Survey will capture 95% of Category A detail in urban 1:1250 scale areas within six months of its completion. See our <i>Business portfolio</i> for more information regarding supply contracts and update options. All of these are available from Customer Service Centre.</p>
<p><b>Standard symbols as supplied in DXF</b></p> <p><b>Standard symbol blocks supplied within Land-Line</b></p>	<p>○ Boundary post or stone —○ Boundary mereing △ Triangulation point ← Bench mark</p>	<p>✕ Building seed point ✕ Glass seed point ✕ Upper level of communication (ULC) ○ Point feature</p> <p>← Flow arrow + Spot height ⊠ Pylon</p> <p>© Crown copyright ® Registered trademark</p>

Additional standard symbol blocks supplied with Land-Line.Plus			
Positioned non-coniferous tree		Orchard	
Area of non-coniferous trees		Area of scrub	
Area of scattered non-coniferous trees		Area of marsh	
Positioned coniferous tree		Area of rough grassland	
Area of coniferous trees		Area of heath	
Area of scattered coniferous trees		Cliff	
Area of coppice		Slope	
Positioned boulder			
Boulders			
Boulders scattered			
Area of rock			
Area of scattered rock			
Scree			
Water			
<b>Coverage</b>			
<b>Number of tiles in the National Geographic Database (NGD)</b>	This represents Great Britain (excluding Northern Ireland, Isle of Man and the Channel Islands), made up of 66 953 at 1:1250 scale, 157 872 at 1:2500 scale and 4 049 at 1:10 000 scale.		
<b>England</b>	228 874 tiles as at April 1999	Made up of 56 991 at 1:1250 scale, 111 592 at 1:2500 scale and 642 at 1:10 000 scale. Note, some 1:10 000 scale map tiles have separate 1:2500 scale files within them.	
<b>Scotland</b>	169 225 tiles (includes cross-border tiles)	Made up of 6 392 at 1:1250 scale, 30 878 at 1:2500 scale and 3 058 at 1:10 000 scale. Note, some 1:10 000 scale map tiles have separate 1:2500 scale files within them.	
<b>Wales</b>	40 328 tiles (includes cross-border tiles)	Made up of 3 521 at 1:1250 scale, 15 926 at 1:2500 scale and 376 at 1:10 000 scale. Note, some 1:10 000 scale map tiles have separate 1:2500 scale files within them.	
<b>Scale and source</b>			
<b>Scales of map tiles</b>	1:1250 scale 1:2500 scale 1:10 000 scale	For urban areas covering 500 m by 500 m of ground detail in one map tile. For rural areas covering 1 km by 1 km of ground detail in one map tile. For remote areas covering 5 km by 5 km of ground detail in one map tile. Note, some remote 1:10 000 scale tiles, known as 'part-basic' tiles, appear to have missing 1 km by 1 km squares or very rarely 500 m by 500 m squares. These are separate 1:2500 or 1:1250 scale tiles, hence the absence of detail. Due to these areas being more densely populated, they have been surveyed to a greater level of accuracy and must be purchased separately. The 1:10 000 scale part-basic tiles are priced to take this into account.	

<b>Source</b>	From the NGD	Land-Line products are derived from digital map data held within the Ordnance Survey NGD.
<b>Accuracy</b>		
<b>Relative accuracy</b>	<p>1:1250 scale: within <math>\pm</math> 0.5 m over a maximum measured distance of 60.0 m</p> <p>1:2500 scale: within <math>\pm</math> 1.8 m over a maximum measured distance of 200.0 m</p> <p>1:10 000 scale: within <math>\pm</math> 4.0 m over a maximum measured distance of 500.0 m</p>	Relative accuracy compares the scaled distance between features measured from the map data with distances measured between features on the ground. Ordnance Survey is continually sampling data and testing the accuracy of well-defined points of detail. The figures quoted represent a 68% confidence level of tested points and are a simplified version of a complex table defined within an information sheet released in September 1998, titled <i>Accuracy of large-scale mapping</i> . More details are available through Customer Service Centre.
<b>Absolute accuracy</b>	<p>1:1250 scale: within <math>\pm</math> 0.5 m</p> <p>1:2500 scale: within <math>\pm</math> 2.8 m</p> <p>1:10 000 scale: within <math>\pm</math> 4.1 m*</p> <p>* Note: Some generalisation of detail does occur at this scale. This means some points may appear to be less accurate than figures quoted.</p>	Absolute accuracy compares how closely the coordinates of a point in the Land-Line data agree with the <b>true</b> National Grid coordinates of the same point on the ground. The figures quoted represent a 63% confidence level of tested points and are a simplified version of a complex table defined within a Customer Information sheet released in September 1998, titled <i>Accuracy of large-scale mapping</i> . More details are available through our Customer Service Centre – contact details appear at the end of this leaflet.
<b>Quality assurance</b>	Yes	Ordnance Survey ensures that quality assurance and quality control procedures apply at all times.
<b>Are tiles edgematched?</b>	Yes	All Land-Line tiles are edgematched to provide fully seamless coverage.
<b>Supply</b>		
<b>How many Land-Line tiles can I order?</b>	1 to 228 874	From one tile to full national cover is available. See Products and services catalogue and associated price list available from Customer Service Centre.
<b>What media is available?</b>	Standard option	<ul style="list-style-type: none"> <li>CD-ROM</li> </ul>
<b>What are the file sizes of tiles supplied in NTF?</b>	<p>1:1250 scale NTF</p> <p>1:2500 scale NTF</p> <p>1:10 000 scale NTF</p>	<p>Land-Line Plus      Average size 0.19 Mb      Maximum 1.51 Mb</p> <p>Land-Line      Average size 0.22 Mb      Maximum 1.51 Mb</p> <p>Land-Line Plus      Average size 0.11 Mb      Maximum 1.09 Mb</p> <p>Land-Line Plus      Average size 0.13 Mb      Maximum 1.12 Mb</p> <p>Land-Line      Average size 0.22 Mb      Maximum 1.35 Mb</p> <p>Land-Line Plus      Average size 0.25 Mb      Maximum 1.50 Mb</p>

<p><b>What are the file sizes of files supplied in DXF?</b></p>	<p>1:1250 scale DXF 1:2500 scale DXF 1:10 000 scale DXF</p>	<p>Land-Line Land-Line.Plus Land-Line Land-Line.Plus Land-Line Land-Line.Plus</p> <p>Average size 0.63 Mb Average size 0.72 Mb Average size 0.43 Mb Average size 0.48 Mb Average size 0.76 Mb Average size 0.80 Mb</p> <p>Maximum 6.39 Mb Maximum 6.40 Mb Maximum 4.53 Mb Maximum 4.64 Mb Maximum 5.45 Mb Maximum 5.91 Mb</p>	
<p><b>How can I order Land-Line?</b></p>	<p>Customer Services 8.30 am to 5.00 pm</p>	<p>Ordinance Survey staff can answer your queries concerning any digital map products. Contact details appear at the end of this leaflet.</p>	
<p><b>What is needed to use the product?</b></p>			
<p><b>What software is required to use Land-Line?</b></p>	<p>GIS applications for NTF CAD software for DXF Other mapping system suppliers</p>	<p>Land-Line data products do not include any software for viewing or manipulation. There are many applications that can run NTF and DXF data.</p>	
<p><b>What hardware is required to use Land-Line?</b></p>	<p>No specific constraints</p>	<p>Providing there is sufficient memory and storage facilities there are no specific constraints on the hardware used.</p>	



*Land-Line.Plus tile reference SU4015NE – as supplied in DXF release 12*

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