



INTERNATIONAL ORIENTEERING FEDERATION

ISSOM 20XX

International Specification for Sprint Orienteering Maps

Final Draft



INTERNATIONAL ORIENTEERING FEDERATION

This International Specification for Sprint Orienteering Maps (ISSOM201X) has been compiled and edited by the IOF Map Commission (XXX/201X).



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ISBN: XXX

INTERNATIONAL ORIENTEERING FEDERATION

Drottninggatan 47 3½ tr, SE-65225 KARLSTAD, SWEDEN

Website: www.orienteering.org

E-mail: iof@orienteering.org

IOF INTERNATIONAL SPECIFICATION FOR SPRINT ORIENTEERING MAPS

1 INTRODUCTION

The sprint orienteering format has been defined by the IOF as follows:

Sprint orienteering is a fast, visible, easy-to-understand format, allowing orienteering to be staged within areas of significant population. The sprint profile is high speed. Sprint is built on very high speed running in very runnable parks, streets or forests.

The main characteristics of the ISSOM:

- ISSOM is based on the ISOM2017; but competitors and mapmakers must understand that sprint maps are special maps.
- Many of the requirements in ISOM2017 will also apply to sprint maps.
- The most important difference between ISOM2017 and ISSOM is that thick black lines are only used for uncrossable features.

Sprint orienteering differs from the longer established forms of foot orienteering. Whilst foot orienteering events traditionally have been staged mainly in forested areas, sprint events can be staged in any type of terrain. The use of parks and urban terrain in particular has important advantages: it brings the sport to where people are, and offers opportunities for increasing public and media awareness of orienteering, in accordance with the objectives of the Leibnitz Convention.

To achieve fairness, it is necessary for mapmakers and course planners to collaborate more closely than for other disciplines. The correct mapping of reduced running speed, both to degree and extent, is extremely important for sprint orienteering because of the short winning times.

In urban areas, it is not unusual to find multilevel areas. ISSOM allows for the representation of simple underpasses and overpasses.

1.1 Conventions

Several words are used to signify the requirements in this specification:

- *Must / Shall / Required* mean that the definition is an absolute requirement.
- *Must not / Shall not / May not* mean that the definition is an absolute prohibition.
- *Should / Recommended* mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.
- *Should not / Not recommended* mean that there may exist valid reasons in particular circumstances when the particular behaviour is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behaviour/action described with this label.
- *May / Optional* mean that an item is truly optional.

2 PRINCIPLES

2.1 Map legibility

Map legibility depends on the chosen map scale and a well-chosen set of symbols as well as the application of generalisation rules. The ideal representation would be realised if every feature could be represented in true shape. Obviously, this is impossible, and an effort to draw each feature true to scale would result in a map impossible to read. Depending on the chosen map scale, some symbols must represent features and be exaggerated in size, often far beyond the actual ground limits of the feature represented. In addition, not all features are essential for the purpose of the map.

Features that are important for navigation, indicate runnability, or which are uncrossable in sprint orienteering, have been listed in Chapter 4. Features that are not important for a competitor taking part in a sprint orienteering event should not be mapped. Examples of this are waste baskets, fire hydrants, parking meters and individual street lights.

2.2 Barriers - Black line width is used to show passability

It is impossible to declare an exact height when an obstacle becomes impassable. Effective passability depends very much on the physical characteristics of the competitors such as body height and strength.

- Barriers, such as high walls, high fences and high rock faces, affect route choices and shall be represented unambiguously. Therefore, these features shall be represented with a prominent thick black line.
- Obstacles which can be crossed, such as fences and small rock faces, are represented with a significantly thinner black line than the barrier features.
- Features which can be crossed very easily, such as steps and edges of paved areas, are represented with a very thin black line.

This principle makes it impossible to use the road and track symbols of ISOM 2017 in an unmodified form. The large scale of sprint orienteering maps makes it possible for roads and vehicle tracks to be represented in their true shape.

2.3 The main ‘running’ level of multilevel structures should be represented

Multilevel structures such as bridges, canopies, underpasses or underground buildings are common in urban areas. The cartographic representation of more than one level is quite difficult.

Hence only the main ‘running’ level should be represented on the map. However, underground passages (e.g. underpasses, lighted tunnels) or overpasses (e.g. bridges), which are important for the competitors should be represented on the map.

3 BASIC ELEMENTS

3.1 Scale

The map scale shall be 1 : 4 000. The IOF competition rules regulate the use of map enlargements for IOF events. When a map is enlarged, all lines, symbols and screens shall be enlarged proportionally. This also applies to the overprint symbols.

For older age groups where reading fine lines and small symbols may cause problems due to deteriorating vision, enlarged maps are recommended for all formats. Enlargement to the scale 1 : 3 000 is always recommended for the youngest age groups where the capacity of reading complex maps is not fully developed.

3.2 Contour interval

The contour interval value shall be either 2 m or 2.5 m. The contour is the most important element in the cartographic representation of the terrain and the only one which determines relief forms geometrically. The brownness (percentage of brown) is the most important indicator of the slope of the ground for the competitor. Contour interval, contour line width and map scale should therefore be balanced in order to obtain maps with similar brownness for the same terrain using all foot orienteering map specifications. The ISSOM contour interval has been chosen to correspond with the ISOM contour interval regarding brownness (taking into account line width and scale).

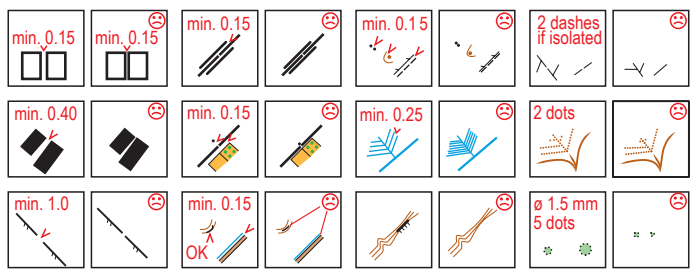
3.3 Dimensions of map symbols

No deviations from the given dimensions within these specifications are permitted. It is however accepted that due to limitations in printing technology the final map symbol dimensions may vary up to +/-5%.

Dimensions in this book are given at the printed scale of 1 : 4 000.

All line widths and symbol dimensions must be kept strictly to their specified value. Certain minimum dimensions must also be observed. These are based on both printing technology and the need for legibility.

MINIMUM DIMENSIONS



- All features smaller than the dimensions above must be either exaggerated or omitted, depending on whether or not they are of significance to the competitor. When a feature is enlarged, neighbouring features must be displaced so that the correct relative positions are maintained.

Vegetation, open areas, marshes, etc. are shown with dot or line screens. The following table lists the permissible combinations of screens:

Other symbols (like 211, 411, 412, 413, 421, 528.1, 529) cannot be combined with other symbols.

The map format should not exceed DIN A3.

The document “CMYK printing and colour definition for Orienteering maps” applies.

4 DEFINITION OF SYMBOLS

Definitions of features to be mapped and specifications of map symbols are given in the following sections. Symbols are classified into seven categories:

Landforms	(brown)
Rock and boulders	(black+grey)
Water and marsh	(blue)
Vegetation	(green+yellow)
Man-made features	(black)
Technical symbols	(black+blue)
Course symbols	(purple)

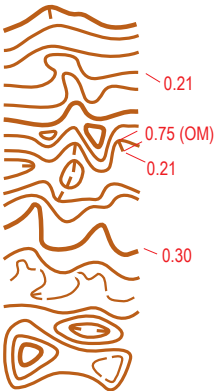
Note: dimensions are specified in mm at the scale of 1 : 4 000.

All drawings are in double scale for clarity only.

<	gap or infill between two lines
—	line thickness
—	distance
∅	diameter
↑	symbol orientated to north
(OM)	= Outside measure
(IM)	= Inside measure
(CC)	= Centre to centre

4.1 Landforms

101 Contour



A line joining points of equal height. The standard vertical interval between contours is 2 or 2.5 m. To emphasize the 3-dimensional effect of the contour line image, contour lines shall be represented as continuous lines through all symbols, also *building* (526.1) and *canopy* (526.2). However, contour lines shall be cut out for better legibility, if they touch the following symbols: *small earth wall* (108.1), *small knoll* (112), *small elongated knoll* (113), *small depression* (115), *pit or hole* (116), *prominent landform feature* (118). The relative height difference between neighbouring features must be represented on the map as accurately as possible. Absolute height accuracy is of less importance. It is permissible to alter the height of a contour slightly if this will improve the representation of a feature. This deviation should not exceed 25% of the contour interval and attention must be paid to neighbouring features. The smallest bend in a contour is 0.4 mm from centre to centre of the lines.

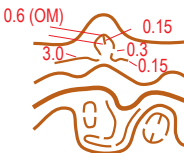
Colour: brown.

102 Index contour

Every fifth contour shall be drawn with a thicker line. This is an aid to the quick assessment of height difference and the overall shape of the terrain surface. Where an index contour coincides with an area of much detail, it may be shown with *symbol contour* (101).

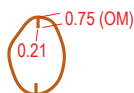
Colour: brown.

103 Form line



An intermediate contour line. Form lines are used where more information can be given about the shape of the ground. They are used only where representation is not possible with ordinary contours. Only one form line may be used between neighbouring contours.

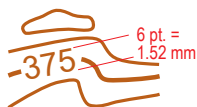
Colour: brown.



104 Slope line

Slope lines should be drawn on the lower side of a contour line where it is necessary to clarify the direction of slope, e.g. along the line of a re-entrant or in a depression. The slope line shall have the same line width to which it is attached, except for the index contour.

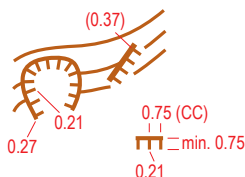
Colour: brown.



105 Contour value

Contour values may be included to aid assessment of large height differences. The figures shall be orientated so that the top of the figure is on the higher side of the contour. They are inserted in the index contours in positions where other detail is not obscured.

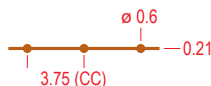
Colour: brown.



106 Earth bank

A steep earth bank is an abrupt change in ground level which can be clearly distinguished from its surroundings, e.g. gravel or sand pits, roads and railway cuttings or embankments. The tags should show the full extent of the slope, but may be omitted if two banks are close together. *Impassable banks* shall be drawn with the symbol *impassable cliff* (201). The line width of very high earth banks may be 0.37 mm.

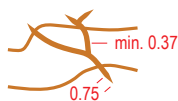
Colour: brown.



108.1 Small earth wall

A small distinct earth wall, usually man made. The minimum height is 0.5 m. Larger earth walls should be represented with the symbols *contour* (101), *form line* (103) or *earth bank* (106).

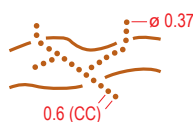
Colour: brown.



109 Erosion gully or trench

An erosion gully or trench which is too small to be represented with the symbol *earth bank* (106), *contour* (101), *index contour* (102) or *form line* (103) is represented by a single line. The line width reflects the size of the gully. The end of the line is pointed. Minimum depth is 1 m. Minimum length is 3 mm on the map.

Colour: brown.



110 Small erosion gully

A small erosion gully or trench. Minimum depth is 0.5 m.

Colour: brown.



112 Small knoll

A small obvious mound or rocky knoll which cannot be drawn to scale with a *contour* (101), *index contour* (102) or *form line* (103). The height of the knoll should be a minimum of 1 m from the surrounding ground.

Colour: brown.



113 Small elongated knoll

A small obvious elongated knoll which cannot be drawn to scale with a *contour* (101), *index contour* (102) or *form line* (103). The maximum length should be 6 m and the maximum width 2 m. The height of the knoll should be a minimum of 1 m from the surrounding ground. Knolls larger than this shall be shown by contours. The symbol may not be drawn in free form or such that two elongated knoll symbols touch or overlap.

Colour: brown.



115 Small depression

A small shallow natural depression or hollow which cannot be represented by the *symbol contour* (101) or *form line* (103) is represented by a semi-circle. The minimum diameter should be 2 m. The minimum depth from the surrounding ground should be 1 m. The symbol is orientated to north.

Colour: brown.



116 Pit or hole

A pit or hole with distinct steep sides which cannot be represented to scale with the symbol *earth bank* (106). The minimum diameter shall be 2 m. The minimum depth from the surrounding ground shall be 1 m. The symbol is orientated to north.

Colour: brown.



117 Broken ground

An area of pits or knolls, which is too complex to be represented in detail. The density of randomly placed dots may vary according to the detail on the ground.

Colour: brown.

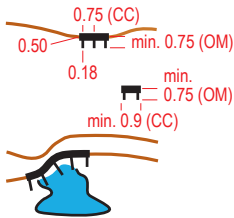


118 Prominent landform feature

A small landform feature which is significant or prominent. The symbol is orientated to north.

Colour: brown.

4.2 Rock and boulders



201 Impassable cliff

An impassable cliff, quarry or earth bank (see symbol *earth bank* 106). Tags are drawn downwards, showing its full extent from the top line to the foot. For vertical rock faces the tags may be omitted if space is short, e.g. narrow passages between cliffs (the passage should be drawn with a width of at least 0.3 mm). The tags may extend over an area symbol representing detail immediately below the rock face. When a rock face drops straight into water making it impossible to pass under the cliff along the water's edge, the bank line is omitted or the tags shall clearly extend over the bank line. Minimum height is 1.5 meters.

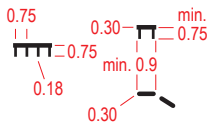
Colour: black.



202 Gigantic boulder or rock pillar

A gigantic boulder, rock pillar or massive cliff shall be represented in plan shape without tags.

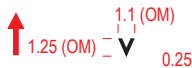
Colour: black.



203 Passable rock face

A small vertical rock face may be shown without tags. If the direction of fall of the rock face is not apparent from the contours or to improve legibility, short tags should be drawn in the direction of the fall. Minimum height is 0.6 m. For passable rock faces shown without tags the end of the line may be rounded to improve legibility.

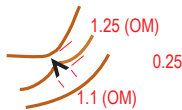
Colour: black.



204 Rocky pit

A rocky pit, hole or mineshaft which may constitute a danger to the competitor. The symbol is orientated to north.

Colour: black.



205 Cave

A cave is represented by the same symbol as a rocky pit. In this case the symbol shall be orientated to point up the slope as indicated opposite. This symbol should generally not be used in urban areas. The centre of gravity of the symbol marks the opening.

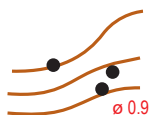
Colour: black.



206 Boulder

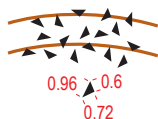
A small distinct boulder. The minimum height is 1 m. Every boulder marked on the map shall be immediately identifiable on the round.

Colour: black.



207 Large boulder

A particularly large and distinct boulder. Gigantic boulders shall be represented in plan shape with the symbol *gigantic boulder or rock pillar* (202). Colour: black.



208 Boulder field

An area which is covered with so many blocks of stone that they cannot be marked individually is represented with randomly orientated solid triangles. The runnability is reduced and is indicated by the density of the triangles. A minimum of two triangles shall be used. The triangles can be enlarged by up to 20 %.

Colour: black.



209 Boulder cluster

A distinct group of boulders so closely clustered together that they cannot be marked individually. The boulders in the cluster should be higher than 1 m. A boulder cluster must be easily identifiable as a group of boulders. To be able to show the distinction between neighbouring (maximum 8 m apart), boulder clusters with significant difference in boulder size, it is permitted to enlarge this symbol by 20% (edge length 1.44 mm) for some of the boulder clusters. The symbol is orientated to north.

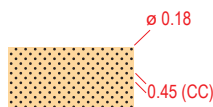
Colour: black.



210 Stony ground

An area of stony or rocky ground which reduces runnability. The dots shall be randomly distributed with density according to the amount of rock. A minimum of three dots shall be used.

Colour: black.



211 Open sandy ground

An area of soft sandy ground or gravel with no vegetation which reduces runnability. Where an area of sandy ground is open and has good runnability, it is represented with symbol *open land* (401), *open land with scattered trees* (402) or *paved area* (529).

Colour: black 12.5% and yellow 50%.

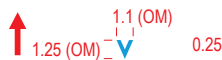


212 Bare rock

An area of runnable rock without earth or vegetation. An area of rock covered with grass, moss or other low vegetation shall be represented according to its openness and runnability (401/402/403/404).

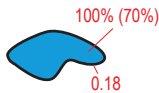
Colour: black 30%.

4.3 Water and marsh



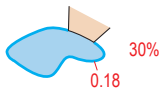
303 Waterhole

A water-filled pit or an area of water which is too small to be shown to scale. The symbol is orientated to north. Colour: blue.



304.1 Uncrossable body of water

An area of deep water such as a lake, pond, river or fountain which may constitute a danger to the competitor. The dark blue colour and the bordering black line indicates that the feature cannot be crossed. The minimum dimension of the blue area without the black line is 0.5 mm². Colour: blue 100% or 70% for dominant areas, black.



305.1 Crossable body of water

An area of shallow water such as a pond, river or fountain that can be crossed. The body of water shall be less than 0.5 m deep and runnable. If the body of water is not runnable it shall be represented with the symbol *uncrossable body of water* (304.1). If no other line symbol touches the border of the passable body of water, the border shall be represented with a blue line. The minimum dimension of the blue area without the blue line is 0.5 mm². Colour: blue 30%, blue.



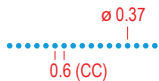
306 Crossable small watercourse

A crossable watercourse less than 2 m wide. Colour: blue.



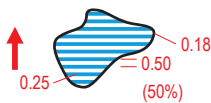
307 Minor watercourse

A natural or man-made minor watercourse which may contain water only intermittently. Colour: blue.



308 Narrow marsh

A marsh or trickle of water which is too narrow to be shown with symbol *marsh* (310). Colour: blue.



309 Uncrossable marsh

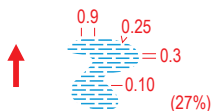
A marsh which is uncrossable or which may constitute a danger to the competitor. The feature cannot be crossed. At least two blue lines shall be clearly visible. Colour: blue, black.



310 Marsh

A crossable marsh, usually with a distinct edge. The symbol shall be combined with vegetation symbols to show runnability and openness. At least two blue lines shall be clearly visible.

Colour: blue.



311 Indistinct marsh

An indistinct or seasonal marsh or area of gradual transition from marsh to firm ground, which is crossable. The edge is generally indistinct and the vegetation similar to that of the surrounding ground. The symbol shall be combined with vegetation symbols to show runnability and openness. At least three blue lines shall be clearly visible.

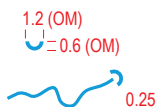
Colour: blue.



312 Small fountain or well

Small well or fountain, which is at least 1 m high or at least 1 m in diameter.

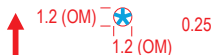
Colour: blue.



313 Spring

The source of a stream with a distinct outflow. The symbol is orientated to open downstream.

Colour: blue.



314 Prominent water feature

A small water feature which is significant or prominent. The symbol is orientated to north.

Colour: blue.

4.4 Vegetation

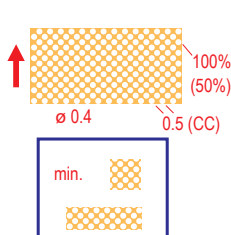


401 Open land

An area of cultivated land, lawn, field, meadow, grassland, etc. without trees, offering very good runnability.

Minimum area: 0.7 mm x 0.7 mm (footprint 2.8 m x 2.8 m).

Colour: yellow.



402 Open land with scattered trees

An area of meadows with scattered trees or bushes, with grass or similar ground cover offering very good runnability. Areas smaller than 10 mm² at the map scale are shown as *open land* (401). Symbols *prominent large tree* (418) and *prominent bush or small tree* (419) may be added.

Minimum area: 4 mm x 4 mm (footprint 16 m x 16 m).

Colour: yellow.



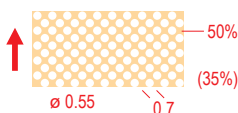
50%

403 Rough open land

An area of heath or moorland, a felled area, a newly planted area (trees lower than ca. 1 m) or other generally open land with rough ground vegetation, i.e. heather or tall grass. This symbol may be combined with symbols *vegetation: slow running, good visibility* (407) and *vegetation: walk, good visibility* (409) to show reduced runnability.

Minimum area: 1 mm x 1 mm (footprint 4 m x 4 m).

Colour: yellow 50%.



404 Rough open land with scattered trees

An area of rough open land with scattered trees or bushes.

Areas smaller than 6.25 mm² (footprint 100 m²) in the map scale are either mapped as *rough open land* (403) or *forest* (405). Symbols *prominent large tree* (418) and *prominent bush or small tree* (419) may be added.

Minimum area: 2.5 mm x 2.5 mm (footprint 10 m x 10 m).

Colour: yellow 50%, white screen of 35%



405 Forest

Typical open forest for the particular type of terrain. If no part of the forest is easily runnable then no white should appear on the map.

Minimum area: 1 mm x 1 mm (footprint 4 m x 4 m) for openings in screens of other colours, except for *vegetation: walk* (408) and *open land* (401), where the minimum area is 0.7 mm x 0.7 mm (footprint 2.8 m x 2.8 m) and for openings in *impassable vegetation: fight* (410), where the minimum area is 0.55 mm x 0.55 mm (footprint 2.2 m x 2.2 m).

Colour: white.



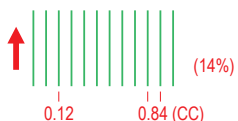
30%

406 Vegetation: slow running

An area with dense vegetation (low visibility) which reduces running to about. 60-80% of normal speed.

Minimum area: 1 mm x 1 mm (footprint 4 m x 4 m).

Colour: green 30%.



407 Vegetation: slow running, good visibility

An area of good visibility that is difficult to run through due for instance undergrowth (brambles, heather, low bushes, cut branches, etc.) Running speed reduces to about 60-80% of normal speed. This symbol shall not be combined with the symbol *vegetation: slow running* (406) or *vegetation: walk* (408). At least two green lines shall be clearly visible.

Colour: green.

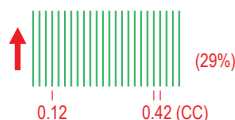


408 Vegetation: walk

An area with dense trees or thicket (low visibility) which reduces running to ca. 20-60% of normal speed.

Minimum area: 0.7 mm x 0.7 mm (footprint 2.8 m x 2.8 m).

Colour: green 60%.



409 Vegetation: walk, good visibility

An area of good visibility that is difficult to run through due for instance undergrowth (brambles, heather, low bushes, cut branches, etc.). Running speed reduces to about 20-60% of normal speed. This symbol shall not be combined with the symbol *vegetation: slow running* (406) or *vegetation: walk* (408). At least two green lines shall be clearly visible.

Colour: green.



410 Impassable vegetation

An area of dense vegetation (trees or undergrowth) which is impassable. Running speed is almost 0%.

Minimum area: 0.55 mm x 0.55 mm (footprint 2.2 m x 2.2 m).

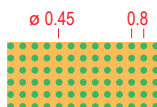
Colour: green 100%.



411 Forest runnable in one direction

When an area of forest provides good running in one direction but less good in others, white stripes are left in the screen symbol (406, 408, 410) to show the direction with good runnability. At least two white lines shall be clearly visible.

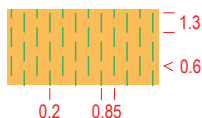
Colour: green, white.



412 Orchard

Land planted with fruit trees or bushes. The dot lines may be orientated to represent the direction of planting. At least three dotted lines shall be clearly visible.

Colour: green, yellow.



413 Orchard, one direction (e.g. Vineyard)

Land planted with fruit trees or bushes, with a distinct direction of planting which reduces the runnability. The green lines shall be orientated to show the direction of planting. At least three lines shall be clearly visible.

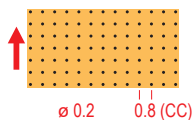
Colour: green, yellow.

0.07

414 Distinct cultivation boundary

The boundary of symbol *cultivated land (seasonally out of bounds)* (415) when not shown with other symbols (fence, wall, path, etc.) is represented with a black line. A permanent boundary between different types of cultivated land is also represented with this symbol.

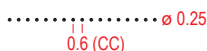
Colour: black.



415 Cultivated land (seasonally out of bounds)

Cultivated land which is seasonally out of bounds due to growing crops may be shown with a black dot screen. Since the runnability may vary, such areas should be avoided when setting courses. The symbol is combined with symbol *out of bounds area* (709) to show cultivated land that shall not be entered.

Colour: yellow, black 5%.



416 Distinct vegetation boundary

A distinct forest edge or very distinct vegetation boundary within the forest. For indistinct boundaries, the area edges are shown only by the change in colour and/or dot screen.

Colour: black.



418 Prominent large tree

A prominent large single tree.

Colour: green.



419 Prominent bush or small tree

A prominent bush or a small single tree.

Colour: green.

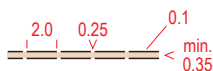


420 Prominent vegetation feature

A vegetation feature which is significant or prominent. The symbol is orientated to north.

Colour: green.

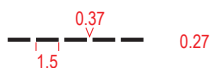
4.5 Man-made features



506.1 Unpaved footpath or track

An unpaved footpath or rough vehicle track is a way for passing mainly by foot, without a smooth, hard surface. The colour and the line width shall be the same as for the symbols *paved area* (529) and *step or edge of paved areas* (529.1).

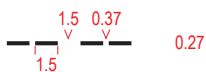
Colour: black, brown 20%.



507 Small unpaved footpath or track

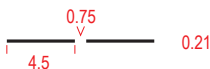
A small unpaved footpath or track.

Colour: black.



508 Less distinct small path

A less distinct path or forestry extraction track.
Colour: black.



509 Narrow ride

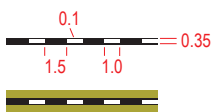
A distinct ride is a linear break in the forest (usually in a plantation), which does not have a distinct path along it. Where there is a path along a ride, the symbol *Small unpaved footpath or track* (507) shall be used.
Colour: black.



512.1 Bridge

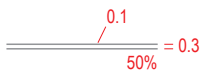
A bridge is a structure spanning and permitting passage over a river, chasm, road or the like.
Colour: black.

If underpasses under bridges are to be used in a competition, they shall be emphasized with the symbol *crossing point* (708) or *crossing section* (708.1)



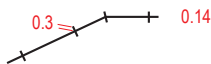
515.1 Railway

A railway is a permanent track laid with rails on which locomotives, carriages or wagons can travel. If it is forbidden to cross or run along the railroad, the forbidden area around the railway shall be represented with symbol *area with forbidden access* (528.1).
Colour: black.



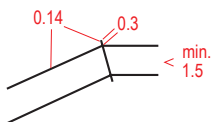
515.2 Tramway

A tramway is a public vehicle running regularly along certain streets, usually on rails. The track can be easily crossed by the competitor. Tramways are generally not represented. However, if they serve navigation or orientation, they can be represented.
Colour: black 50%.



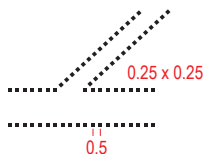
516 Power line, cableway or skilift

Power line, cableway or skilift. The bars indicate the exact location of the pylons. Colour: black.



517 Major power line

Major power lines should be drawn with a double line. The gap between the lines may indicate the extent of the powerline. Very large carrying masts shall be represented in plan shape. In this case, the cable lines can be left out (the map shows only the pylons).
Colour: black.

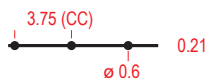


518.1 Underpass or tunnel

An underpass or a tunnel is a passage running underneath the ground, especially a passage for pedestrians or vehicles, crossing under for instance a railroad or a road.

Colour: black.

If underpasses or tunnels etc. are to be used in a competition, they shall be emphasized with the symbol *crossing point* (708) or *crossing section* (708.1).



519 Passable wall

A passable wall is a construction made of stone, brick, concrete etc., which can be passed. If such a wall is higher than 1.5 m, it shall be represented with the symbol *impassable wall* (521.1). Passable retained walls shall be drawn as *passable rock face* (203). Wide walls shall be drawn in plan shape using a ground symbol delineated by the passable wall symbol. It should be dotted if possible (minimum length around the dot 0.4 mm each side)

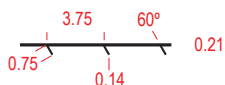
Colour: black.



521.1 Impassable wall

An impassable or uncrossable wall or retaining wall is a wall, which fulfil the function of an enclosure or solid barrier. It shall not be crossed because it may constitute a danger to the competitor due to its height. Very wide impassable walls shall be drawn in plan shape and represented with the symbol *building* (526.1).

Colour: black.

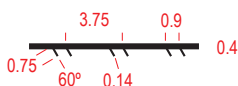


522 Passable fence or railing

A passable fence is a barrier enclosing or bordering a field, yard, etc., usually made of posts and wire or wood. It is used to prevent entrance or to confine or mark a boundary. A railing is a fencelike barrier composed of one or more horizontal rails supported by widely spaced upright poles, usually it can be slipped through.

If a fence or railing is dangerous or very difficult to cross, it shall be represented with the symbol *impassable fence or railing* (524).

Colour: black.



524 Impassable fence or railing

An impassable fence or railing shall not be crossed, due to danger to the competitor or because of its height.

Colour: black.

525 Crossing point (optional)

A crossing point is a gap or an opening in a fence, railing or wall, which can easily be passed through by a competitor. Small gaps or openings which cannot easily be passed through by competitors, shall not be represented on the map and shall be closed during the competition.

Colour: black.

526.1 Building

A building is a relatively permanent construction having a roof. Buildings within symbol *area that shall not be entered* (528.1) may just be represented in a simplified manner. Areas totally contained within a building shall be mapped as being a part of the building.

The minimum gap between buildings and between buildings and other impassable features shall be 0.40 mm. Boundaries in touching buildings shall not be represented.

Colour: black 60%, black.

526.2 Canopy

A canopy is a building construction (with a roof), normally supported by pillars, poles or walls, such as passages, gangways, courts, bus stops, gas stations or garages. Small passable parts of buildings which cannot easily be crossed by competitors, shall not be represented on the map and shall be closed during the competition.

Colour: black 20%, black.

526.3 Pillar

A pillar is an upright shaft or structure of stone, brick or other material, relatively slender in proportion to its height and any shape in section, used as a building support. Pillars smaller than 1 m × 1 m are generally not represented.

Colour: black.

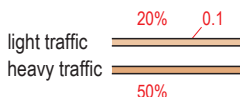
528.1 Area that shall not be entered

An area that shall not be entered such as a private area, a flower bed, a railway area etc. No feature shall be represented in this area, except very prominent features such as railways, large buildings, or very large trees. Road entrances shall be represented clearly.

Areas that shall not be entered totally contained within buildings shall be mapped as being a part of the building.

The area shall always be delineated by a boundary line (at least 0.1 mm in width).

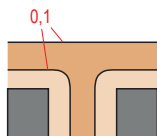
Colour: yellow 100%, green 50%.



529 Paved area

A paved area is an area with a firm level surfaces such as asphalt, hard gravel, tiles, concrete or the like. It should be bordered (or framed) by the symbol *step or edge of paved area* (529.1). Distinct differences within the paved area can be represented with the symbol *step or edge of paved area* (529.1), if they serve navigation. The black border line can be omitted where it is logical (e.g. indistinct/gradual gravel-to-grass transitions). Differences in the brown colour shall be used to show differences in the traffic of vehicles or pedestrians.

Colour: brown 20% for light traffic of vehicles or pedestrians, 50% for heavy traffic of vehicles or pedestrians, black; the colour and the line width shall be the same as for symbol *unpaved footpath or track* (506.1).

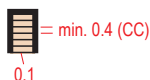


529.1 Step or edge of paved area

An edge of a paved area.

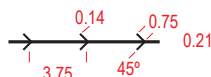
Edges within paved areas are generally not represented, unless they serve navigation.

Colour: black.



530 Stairway

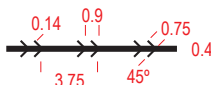
Steps of a stairway shall be represented *in a generalized manner*.



533 Passable pipeline

A pipeline (gas, water, oil, etc.) above ground level which can be crossed over or under.

Colour: black.



534 Impassable pipeline

An impassable pipeline (gas, water, oil, etc.) above ground level which shall not be crossed, because it may constitute a danger to the competitor because of its height.

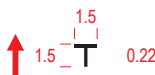
Colour: black.



535 High tower

A high tower or large pylon. Very large towers shall be represented in plan shape with the symbol *building* (526.1). The symbol is orientated to north.

Colour: black.



536 Small tower

An obvious small tower, platform or seat . The symbol is orientated to north. Colour: black.

1.0 (OM)

 0.22
 ø 0.2

537 Cairn, memorial, small monument or boundary stone

Cairn, memorial, small monument or boundary stone that are obvious. Large massive monuments shall be represented in plan shape with the symbol *building* (526.1).

Colour: black.

↑ 1.5 0.87

 1.5 60° 0.22

538 Fodder rack

A fodder rack, which is free standing or attached to a tree. The symbol is orientated to north.

Colour: black.


1.0 (OM)

 0.22

539 Prominent man-made feature – ring

A man-made feature which is significant or prominent.

Colour: black.

↑ 1.2 (OM)

 0.22 1.2 (OM)

540 Prominent man-made feature – x

A man-made feature which is significant or prominent. The symbol is orientated to north.

Colour: black.

4.6 Technical symbols

— 0.14 — 0.18

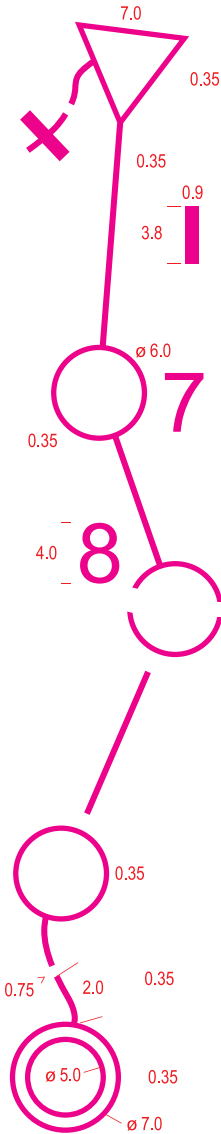
601 Magnetic north line

Magnetic north lines are lines placed on the map pointing to magnetic north. Their spacing shall be 30 mm they represent 120 m on the ground. North lines may be broken where they obscure small features such as boulders, knolls, cliffs, stream junctions, path ends, etc.

Colour: black or blue.

4.7 Overprinting symbols

Overprinting colour shall be under black 100%.



701 Start

The start or map issue point (if not at the start) is shown by an equilateral triangle which points in the direction of the first control. The centre of the triangle shows the precise position of the start point.
Colour: purple.

701.1 Map issue point

If there is a marked route to the start point, the map issue point is marked using this symbol.
Colour: purple

702 Control point

The control points are shown with circles (footprint 24 m). The centre of the circle shows the precise position of the feature. Sections of circles should be omitted to leave important detail showing.
Colour: purple.

703 Control number

The number of the control is placed close to the control point circle in such a way that it does not obscure important detail. The numbers are orientated to north. An Option for heavily building filled map is the possibility to have a white border with 0.1 or 0.15 mm in width.
Colour: purple.

704 Line

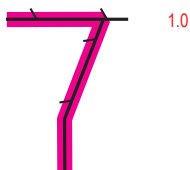
Where controls are to be visited in order, the start, control points and finish are joined together by straight lines. Sections of lines should be omitted to leave important detail showing.
Colour: purple.

705 Marked route

A marked route is shown on the map with a dashed line.
Colour: purple.

706 Finish

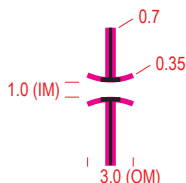
The finish is shown by two concentric circles.
Colour: purple.



707 Out of bounds boundary

An out of bounds boundary shall not be crossed. It shall be used for temporary uncrossable boundaries used for the course setting.

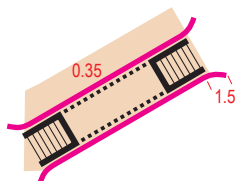
Colour: purple.



708 Crossing point

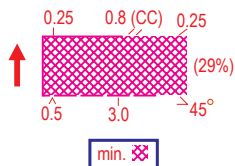
A crossing point through or over a wall or fence, or across a road or railway or through a tunnel or an out-of-bounds area is drawn on the map with two lines curving outwards. If underpasses or tunnels etc. are to be used in a competition, they shall be emphasized with symbol *crossing point* (708) or *crossing section* (708.1).

Colour: purple.



708.1 Crossing section

A crossing section through or over a building, wall or fence, or across a road or railway or through a tunnel or an out-of-bounds area is drawn on the map as a linear object, according to the plan shape. If underpasses or tunnels etc. are to be used in a competition, they shall be emphasized with symbol *crossing point* (708) or *crossing section* (708.1). Colour: purple.



709 Out of bounds area

An out of bounds area. A bounding line may be drawn if there is no natural boundary as follows:

- a solid line indicates that the boundary is marked continuously (tapes, etc.) in the terrain,
- a dashed line indicates intermittent marking in the terrain,
- no line indicates no marking in the terrain.

An out of bounds area shall not be entered.

Minimum area: 2 mm x 2 mm (footprint 8 m x 8 m).

Colour: purple (29%).

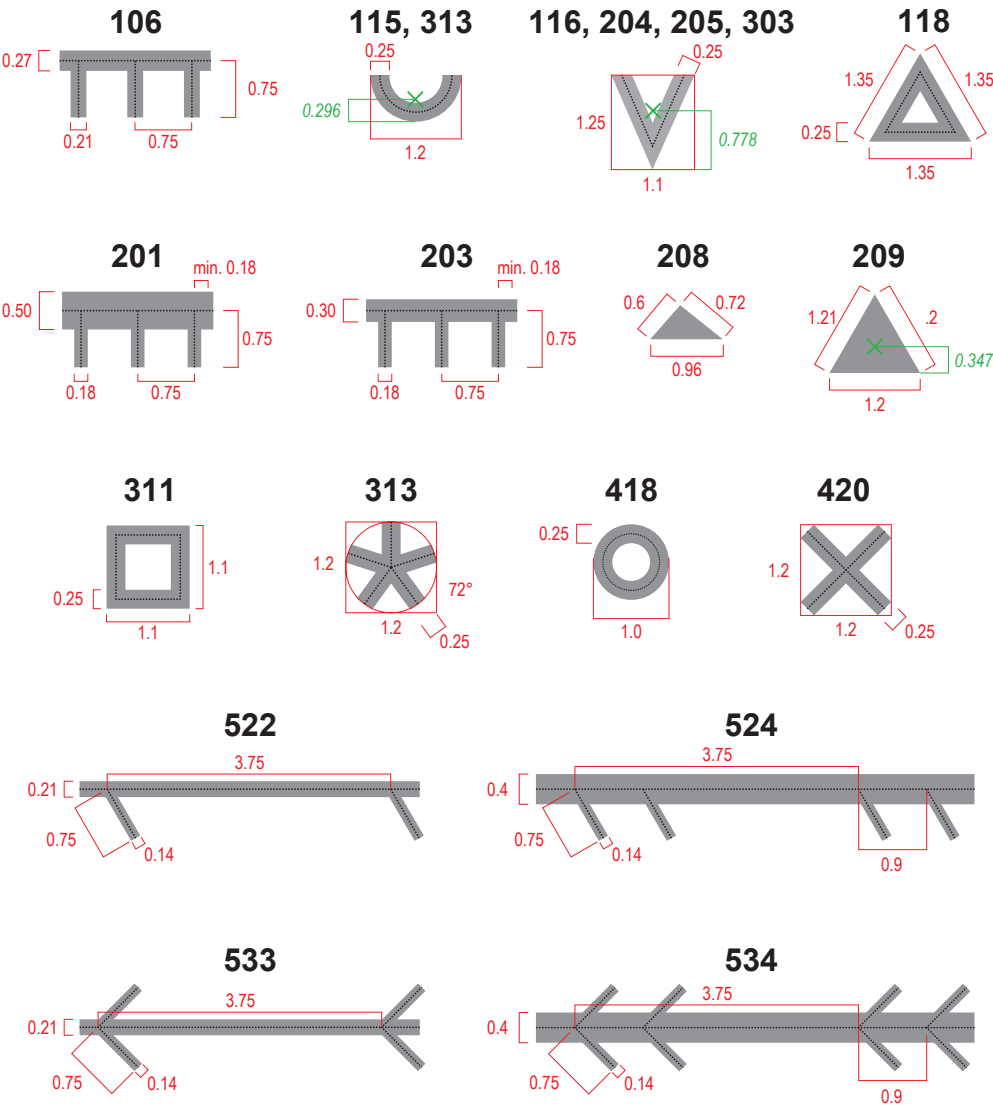


714 Temporary construction or closed area

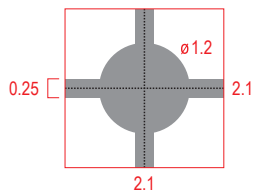
Obvious temporary constructions like platforms for spectators and speaker, closed area for spectators, outside restaurant areas, etc. shall be represented in plan shape. Colour: purple 50%.

3.8 PRECISE DEFINITION OF SYMBOLS

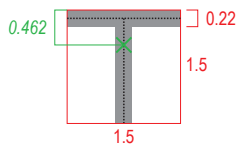
Note: dimensions are specified in mm.
All drawings are magnified (10x) for clarity only. The centre of gravity is marked (x) when it is not unambiguous



535



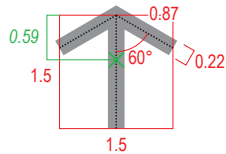
536



537



538



539



540

