FEDERATION INTERNATIONALE DE L'AUTOMOBILE

CIRCUIT DRAWING FORMAT

Release 5

FOREWORD

The creators of a new circuit intended for international events shall submit a comprehensive dossier of plans and specifications to the ASN of the country of the circuit, for project approval and submission to the FIA (see Appendix O of the International Sporting Code).

This standard provides the list of requirements applied to the circuit drawings.

TABLE OF CONTENT

1. GENERAL

1.1. Format

The file will stem from the AutoCAD software and will therefore have the extension « .dwg ».

1.2. Units and geographical reference

The drawing units will be metres.
The drawings will be to scale 1.
A direct orthonormal reference will be used.

The co-ordinate system shall be preferably similar to the one used in the region or the country of the circuit. It is important that once a co-ordinate system is chosen, it shall be kept identical for all the updates of the drawing.

1.3. Layer management

The objects shall be included according to the layer management as described in the following table.
The layers which name is prefixed "FIA" are the sole use of the FIA.
The objects which are not listed in the table (outside the second line of protection) shall be shown on the drawing as detailed as possible but shall be included in the layers which are convenient to the circuit or any other standards.

1.4. Object management

The objects shall be imperatively in 2D (Altitude=0), except the track centreline, track right, track left and first line of protection, which shall be in 3D (z showing the altitude)
The objects shall be drawn in the model space only.
The colour and line type shall be defined "bylayer".
The scale of the line types shall be 1.
The width of the line shall be 0 unless stated otherwise.

1.5. Template

A template for AutoCAD is available from the FIA web site (see link below). It possesses the necessary layers as well as the types of lines and blocks to use.

1.6. More information

If more detailed information is needed about the drawing format, please contact the FIA at the address below:

FIA
Circuit and Safety department
Chemin de Blandonnet, 2
1215 Genève 15
Tél: +41 22 544 44 00,
Fax: +41 22 544 44 50

2. OBJECT LAYER MANAGEMENT

The objects which are contained within the second lines of protection (spectator fence) shall be included in the following layers.
These layers shall be prefixed **F1_** (underscore NOT dash as a separator)

| **TRACK** | | | | |

Object description	Layer name	Object type Line type	Comments	Lay out
Left edge of the track	F1_TRACK_LEFT	Object: Polyline Line: Continuous Width: 0.5	There must be **one** polyline only in this layer	
	F1_TRACK_LEFT_3D	Object: Polyline 3D Line: Continuous	There must be **one** polyline only in this layer	
Right edge of the track	F1_TRACK_RIGHT	Object: Polyline Line: Continuous Width: 0.5	There must be **one** polyline only in this layer	
	F1_TRACK_RIGHT_3D	Object: Polyline 3D Line: Continuous	There must be **one** polyline only in this layer	
Track centre line	F1_TRACK_CENTRELINE	Object: Polyline 3D Line: Continuous	MUST BE SUPPLIED IN 3D ONLY IF THE TRACK EDGES ARE NOT IN 3D	
Track transversal gradient	F1_TRACK_GRADIENT_LAT	Text		
Track longitudinal gradient	F1_TRACK_GRADIENT_LONG	Text	Not necessary if the track centreline is supplied in 3D	

| **TRACK MARKING** | | | | |

Object description	Layer name	Object type Line type	Comments	Lay out
Start line	F1_TRACK_START_LINE	Object: Polyline + text Line: Continuous		
Starting grid	F1_TRACK_STARTING_GRID	Bloc name: Bloc_starting_grid		
Finish line	F1_TRACK_FINISH_LINE	Object: Polyline + text Line: Continuous		
Whitelining	F1_TRACK_WHITELINING	Line: Continuous	Any white line shown on the track or pit lane	

PIT LANE

Object description	Layer name	Object type Line type	Comments	Lay out
Left edge of the track passing through the pit lane	F1_ PITLANE _LEFT	Object: Polyline 2D Line: Continuous Width: 0.5	There must be **one** polyline only in this layer	
	F1_ PITLANE _LEFT_3D	Object: Polyline 3D Line: Continuous	There must be **one** polyline only in this layer	
Right edge of the track passing through the pit lane	F1_ PITLANE _RIGHT	Object: Polyline Line: Continuous Width: 0.5	There must be **one** polyline only in this layer	
	F1_ PITLANE _RIGHT_3D	Object: Polyline 3D Line: Continuous	There must be **one** polyline only in this layer	
Track centre line of the track passing through the pit lane	F1_ PITLANE _CENTRELINE	Object: Polyline 3D Line: Continuous	MUST BE SUPPLIED IN 3D ONLY IF THE TRACK EDGES ARE NOT IN 3D	
Pit entry speed limit lane	F1_PIT_ENTRY_SPEED_LIMIT_LANE	Line: Continuous		
Pit exit speed limit lane	F1_PIT_EXIT_SPEED_LIMIT_LANE	Line: Continuous		
Signalling platform or pit wall (excludes the wall on the track side itself which is in the "F1_wall" layer)	F1_PIT_WALL	Line: Continuous		
	F1_PIT_WALL_3D	Object: Polyline 3D Line: Continuous		

RIGID BARRIER

Object description	Layer name	Object type Line type	Comments	Lay out
Concrete wall Permanent (first line of protection)	F1_WALL	Object: Polyline Line:Continuous width: 0.3		
	F1_WALL_3D	Object: Polyline 3D Line: Continuous		
Concrete wall Temporary (first line of protection)	F1_WALL_TEMP	Object: Polyline Line:Continuous width: 0.3		
	F1_WALL_TEMP_3D	Object: Polyline 3D Line: Continuous		
Guardrail-armco (first line of protection)	F1_GUARDRAIL	Object: Polyline Line: FIA_guardrail width: 0.3		
	F1_GUARDRAIL_3D	Object: Polyline 3D Line: Continuous		
Guardrail-armco (first line of protection) Temporary	F1_GUARDRAIL_TEMP	Object: Polyline Line: FIA_guardrail width: 0.3		
	F1_GUARDRAIL_TEMP_3D	Object: Polyline 3D Line: Continuous		

RUN-OFF AREA

Object description	Layer name	Object type Line type	Comments	Lay out
Gravel beds	F1_RUN_OFF_GRAVEL	Object: Polyline Line: Continuous Hatch: F1-AR-sand	The gravel bed must be marked out using a **closed** polyline	
Text describing the type of gravel used	F1_RUN_OFF_GRAVEL_TEXT	Text		
Tarmacked area (where asphalt is used within the first line of protection only as a run-off area, but exclude the asphalted service roads)	F1_RUN_OFF_ASPHALT	Object: Polyline Line: Continuous Hatch: F1Cross	The tarmacked area (other than the track) must be marked out using a **closed** polyline	

VERGE AND KERBS

Object description	Layer name	Object type Line type	Comments	Lay out
Track verge in asphalt	F1_VERGE_ASPHALT	Object: Polyline Line: Continuous Hatch: Cross		
Track verge in "grasscrete"	F1_VERGE_GRASSCRETE	Object: Polyline Line: Continuous Hatch: Square		
Track verge in artificial grass similar to "Astroturf"	F1_VERGE_ARTIFICIAL_GRASS	Object: Polyline Line: Continuous Hatch: Honey		
Track kerbs 10cm or 5cm Vallelunga Type 1	F1_KERB_10CM_POSITIVE Or F1_KERB_5CM_POSITIVE	Object: Polyline Line: Continuous Width: 0.2	The Vallelunga type is a progressive, wide-ribbed kerb for the apexes, rising to 5 or 10cm above track level at the rear. The kerbs shall be outside the track edges	Type 1
Track kerbs 5cm ou 2.5cm Melbourne Type 2	F1_KERB_5CM_NEGATIVE Or F1_KERB_2.5CM_NEGATIVE	Object: Polyline Line: Continuous Width: 0.2	The Melbourne or Negative type is a progressive, wide-ribbed kerb sinking to 5cm below track level at the rear, for the exits of corners The kerbs shall be outside the track edges	Type 2
Track kerbs 5cm bevelled Type 3	F1_KERB_5CM_BEVELLED	Object: Polyline Line: Continuous Width: 0.2	The Bevelled, is a smooth inclined kerb, with a flat rear surface 5cm above track level for the apexes. The kerbs shall be outside the track edges	Type 3
Track kerbs Combinaison Type 4	F1_KERB_COMBINAISON	Object: Polyline Line: Continuous Width: 0.2	A smooth profile kerb, 80cm wide, rising to 12cm above track level, for the apex of all corners. This should be installed behind 5cm Vallelunga or Bevelled kerb .	Type 4
Track kerb of other types	F1_KERB_OTHER	Object: Polyline Line: Continuous Width: 0.2	The kerbs shall be outside the track edges	
Text describing the type of kerb used (Type 1, Type 2, Type 3 or Type 4)	F1_KERB_TEXT	Text		Type ...

ENERGY ABSORBING BARRIER				
Object description	**Layer name**	**Object type Line type**	**Comments**	**Lay out**
Barrier of 1 row of tyres	F1_TYRE_1	Object: Polyline Line: Fia_Tyre_1		
Barrier of 1 row of tyres+tube	F1_TYRE_1_BELT	Object: Polyline Line: FIA_Tyre_1		
Barrier of 1 row of tyres+tube inserts+belt	F1_TYRE_1_TUBE_BELT	Object: Polyline Line: FIA_Tyre_1_tube		
Barrier of 2 rows of tyres	F1_TYRE_2	Object: Polyline Line: Fia_Tyre_2		
Barrier of 2 rows of tyres+Conveyor belt	F1_TYRE_2_BELT	Object: Polyline Line: Fia_Tyre_2		
Barrier of 2 rows of tyres+tube insert+belt	F1_TYRE_2_TUBE_BELT	Object: Polyline Line: Fia_Tyre_2_tube		
Barrier of 3 rows of tyres	F1_TYRE_3	Object: Polyline Line: Fia_Tyre_3		
Barrier of 3 rows of tyres+Conveyor belt	F1_TYRE_3_BELT	Object: Polyline Line: Fia_Tyre_3		
Barrier of 3 rows of tyres+tube insert+belt	F1_TYRE_3_TUBE_BELT	Object: Polyline Line: Fia_Tyre_3_tube		
Barrier of 4 rows of tyres	F1_TYRE_4	Object: Polyline Line: Fia_Tyre_4		
Barrier of 4 rows of tyres+Conveyor belt	F1_TYRE_4_BELT	Object: Polyline Line: Fia_Tyre_4		
Barrier of 4 rows of tyres+tube insert+belt	F1_TYRE_4_TUBE_BELT	Object: Polyline Line: Fia_Tyre_4_Tube		
Barrier of 5 rows of tyres	F1_TYRE_5	Object: Polyline Line: Fia_Tyre_5		
Barrier of 5 rows of tyres+Conveyor belt	F1_TYRE_5_BELT	Object: Polyline Line: Fia_Tyre_5		
Barrier of 5 rows of tyres+tube insert+belt	F1_TYRE_5_TUBE_BELT	Object: Polyline Line: Fia_Tyre_5_Tube		
Barrier of 6 rows of tyres	F1_TYRE_6	Object: Polyline Line: Fia_Tyre_6		
Barrier of 6 rows of tyres+Conveyor belt	F1_TYRE_6_BELT	Object: Polyline Line: Fia_Tyre_6		
Barrier of 6 rows of tyres+tube insert+belt	F1_TYRE_6_TUBE_BELT	Object: Polyline Line: Fia_Tyre_6_tube		
Tecpro Barrier TEC1	F1_TEC1	Object: Polyline		
Tecpro Barrier TEC2	F1_TEC2	Object: Polyline		
Tecpro Barrier TEC2+	F1_TEC2+	Object: Polyline		

Object description	Layer name	Object type / Line type	Comments	Lay out
Tecpro Barrier TEC3	F1_TEC3	Object: Polyline	Tecpro Barrier TEC3	
Tecpro Barrier TEC3+	F1_TEC3+	Object: Polyline	Tecpro Barrier TEC3+	
Tecpro Barrier TEC4++	F1_TEC4++	Object: Polyline	Tecpro Barrier TEC4++	
All other type of barrier	F1_TYRE_OTHER	Object: Polyline Line: Fia_Tyre_other	air fence,…	
Description of the type of barrier	F1_TYRE_OTHER_TEXT	text	Description of the type of barrier: air-fence,…	
Conveyor belt	F1_CONVEYOR_BELT	Line: Continuous Width: 0.2		

FENCE

Object description	Layer name	Object type Line type	Comments	Lay out
Fences for debris Permanent (second line of protection)	F1_FENCE_DEBRIS	Line: FIA_debris_fence		
Fences for debris Temporary (second line of protection)	F1_FENCE_DEBRIS_TEMP	Line: FIA_debris_fence		
Fences for spectators (second line of protection)	F1_FENCE_SPECTATOR	Line: FIA_spectator_fence		
Fences for spectators Temporary (second line of protection)	F1_FENCE_SPECTATOR_TEMP	Line: FIA_spectator_fence		

MARSHALL POST

Object description	Layer name	Object type Line type	Comments	Lay out
Gantry	F1_GANTRY	Bloc		
Gantry function	F1_GANTRY_TEXT	Text	The starter position shall be stated as "starter"	
Post with extinguishers and their label	F1_POST_FIRE	Bloc name+number: Bloc_post_fire	The text shall contain the post number as identified to the safety delegate	FP12
Description of the fire post	F1_POST_FIRE_TEXT	Text	Materials, number of men,…	
Observation post and their label	F1_POST_OBSERVATION	Bloc name+ text: Bloc_post_observation	The text shall contain the number of the post as identified to the safety delegate	MP12
Description of the observation post	F1_POST_OBSERVATION_TEXT	Text	Materials, numbers of men	
Signalling lights	F1_POST_LIGHTS	Bloc name: bloc_post_lights		

SAFETY VEHICLE

Object description	Layer name	Object type Line type	Comments	Lay out
All vehicles:	F1_VEHICLE	Bloc name:		
Safety car		bloc_vehicle_safety_car		SC
Medical car		bloc_vehicle_Medical		MV
Recovery vehicle		bloc_vehicle_Recovey		RV
Extrication/rescue vehicle		bloc_vehicle_Extrication		EXV
Fire vehicle		bloc_vehicle_Fire		FV
Other vehicle		bloc_vehicle_Other	Any text can be introduced in the bloc_vehicle_other	
Description of the vehicle type	F1_VEHICLE_TEXT	text		

Services roads

Object description	Layer name	Object type Line type	Comments	Lay out
Service road surfaced to be used by the recovery and safety vehicles	F1_ROAD_SURFACED	Line: Continuous		
Service road unsurfaced to be used by the recovery and safety vehicles.	F1_ROAD_UNSURFACED	Line: dash		

BUILDING

Object description	Layer name	Object type Line type	Comments	Lay out
Building	F1_BUILDING	Line: Continuous	Outline of the building	
Race control tower	F1_RACE_CONTROL_TEXT	Text	The race control tower shall be indicated by the text "Race control" located next or above the building	
Medical centre	F1_MEDICAL_CENTRE_TEXT	Text	The medical centre shall be indicated by the text "Medical centre" located next or above the building	

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<table>
<tr><td colspan="5">MISCELLANEOUS</td></tr>
<tr>
<td>Object description</td>
<td>Layer name</td>
<td>Object type
Line type</td>
<td>Comments</td>
<td>Lay out</td>
</tr>
<tr>
<td>Starting lights</td>
<td>F1_START_LIGHTS</td>
<td>Bloc name:
Bloc_start_lights</td>
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<td></td>
</tr>
<tr>
<td>Signage</td>
<td>F1_TRACK_SIGNAGE</td>
<td>Bloc name:
Bloc_track_signage</td>
<td>Distance to corner signage</td>
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<tr>
<td>Turn number as defined by the F1 safety delegate</td>
<td>F1_TURN_NUM</td>
<td>Text
Font : arial - 8</td>
<td>Shall be in the format of Tx with x the corner number</td>
<td>T1</td>
</tr>
<tr>
<td>Turn name</td>
<td>F1_TURN_NAME</td>
<td>Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helipad to be used by the medical helicopter</td>
<td>F1_HELIPAD</td>
<td>Bloc name:
Bloc_helipad</td>
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<tr>
<td>North orientation</td>
<td>NORTH</td>
<td>Bloc name:
Bloc_north</td>
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<tr>
<td>Embankment</td>
<td>TERRAIN</td>
<td>Line: Continuous</td>
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</tr>
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3D GROUND MODEL

The 3D triangles of the ground model of the circuit and of the whole site (if available), should be exported as 3D polylines and submitted in .dwg or .dxf file format, and/or LandXML file of the site and track (not compulsory).

3.   SAMPLE

An AutoCAD template with typical extracts of plans to FIA drawing requirements is available from the FIA website at the following link:

[AutoCAD template with typical extracts of plans](#)