

<b>1.3</b>	<b>TECHNICAL REPORT</b>
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**1.3.1**      **GENERAL INFORMATION**

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#### **Tree strength assessment**

A tree strength assessment shall be undertaken and consider the suitability of each tree in relation to its intended use and loads applied. The use of additional supports shall be considered. In some instances expert advice may be required.

#### **Arboricultural assessment**

A feasibility study shall be undertaken of each intended site to consider its general suitability. This should take into account soil conditions, weather patterns and evidence of previous tree failures. Local land managers and foresters may need to be consulted. The general condition of other trees in the vicinity of the course shall be considered, in order that a reasonably safe environment can be achieved.

Following initial selection by the course designer, all trees used should be subject to inspection by a competent arboriculturist to assess their physiological condition and suitability for the intended use. The assessment shall be carried out post course design and preferably before construction commences. In any event, the inspection should take place before the course is inaugurated.

Tree selection shall be based primarily on visual assessment of external features to determine each tree's physiological and structural condition. Initial assessment may prompt further investigation using simple tools (such as soft-headed hammers and rigid probes) or more complex methods (such as micro drilling and sonic tomography) to evaluate internal stem condition.

As a minimum, the inspection shall include an assessment of each tree's age (if possible), height and form.

Consideration should also be given to the effect on tree roots from compaction, erosion and physical damage during the construction phase and continued use. Suitable remedial action should be taken where necessary. Where assessment identifies work required to trees on site, to improve their suitability or to remove a danger, this should be carried out by competent arbor culturists before inauguration.

#### **Continuing tree assessment and inspection**

After inauguration, regular inspection shall be carried out by an arbor culturist at intervals of at least Teach calendar year and with a maximum interval of 15 months to monitor the trees' condition and any adverse effects relating to the construction of the course or the loadings applied to them. The minimum information to be included in all arboricultural reports is specified in Annex A.

In addition to periodic extremal assessment, staff on site should be able to carry out basic tree inspection as part of their normal site risk assessment duties. A system for reporting any alterations in the appearance or condition of trees to a named arbor culturist should be in place.

### **Tree and root system protection**

The systems used to fix the platforms, safety lines and elements shall be designed to minimize any damage to the trees. Measures should be taken to protect the root system, particularly against compaction.

### **Rocks**

When rocks are used as supporting structures the anchor pull out strength shall be at least 4 times the applied load. The choice of anchor should take into account the environmental conditions of the site.

Adrenalin Park in Skopje, Macedonia, consists of a tower and a polygon, which is composed of 11 pillars. Polygon is divided into three difficulty levels, which are separated by taking place on different heights. Each polygon consists of 11 different exercises that differ from one another in certain amount of difficulty. Zip line is also included. Polygons and zip line are accessible by a staircase located in wooden tower.

Tower is to be made entirely out of wood. It has a rectangular-shaped floor plan measuring 6.00 x 6.80 m. With a height of 12 m, it provides the entrance and exit to all polygons. The supporting structure of tower is to be based on 35 cm thick reinforced concrete plate with peripheral strip foundations 70 cm deep. Five pillars, measuring 0.40 m in diameter, represent main carriers of construction. U 220 steel profile beams (0.95 m long) connected to each pillar, fasten them into a reinforced concrete plate.

This wooden structure has three levels on heights 3.20 m, 6.20 m, 9.20 m. Those heights are consistent with heights in which polygons are taking place. Levels are accessible by a single wooden staircase. Wooden beams of dimensions 14 x 24 cm construct platforms. They are to be laid in two levels in cross directions, as to provide appropriate static safety. Wooden boards 5 cm thick are then laid on wooden beams as flooring material. Fence surrounds every platform, making the entrances and exits of polygons safe.

As said before, polygon is composed of 11 pillars. Each measuring 0.40 m in diameter with a height of 12 m. The only exception is one pillar measuring 6m in height that is used as the end element of zip line. U 220 steel profile beams (1.50 m long) connected to each pillar, fasten them into a reinforced concrete foundation measuring 1.20 x 1.20 x 1 m.

Tower and pillars are to be connected into uniform construction with steel cables. Cables have two functions as they offer wind protection. They are fastened at the end of polygon into reinforced concrete foundations measuring 1.50 x 1.50 x 1 m.

Pillars are arranged in consisting distance measuring approx. 8.50 m and 12.50 m. They are crosswise connected to each other with U 140 steel profile beams, that serve also as construction of wooden platforms located on each pillar. Three platforms, can be found on each pillar. They represent pause between different exercises of polygon. Each platform has a rectangular-shaped floor plan measuring 1.50 x 1.50 m. There are three different kinds of platforms that vary in construction:

- 1) Wooden platform with steel beams
- 2) Wooden platform made entirely out of wood
- 3) Zipline platform

Polygons are located on three different heights and are composed of different exercises. They go as followed:

### 3 m POLYGON

Starting with first exercise called Mashrooms, followed by banana bridge, tunnel, coco ball, sladges, A bridge, scales, U-net, suspended fruits, stairway to heaven, ending with xcross bridge.

### 6m POLYGON

Starting with first exercise called waves, followed by swinging beam, climbing net, box bridge, bike on hands, climbing wall, big foot bridge, suspended surf, U-slings, barrels, ending with walking nets.

### 9m POLYGON

Starting with first exercise called swinging beam-bridge, cliff hanger, suspended snake bridge, zipline, walking slings, acrobat, fisherman's bridge, surf ride, rodeo walk, suspended islands, ending with climbing nets.

57 m long zip line is also planned. Starting on 4.50 m, descending for 1.50 m, it ends on the other side of Adrenalin Park. Area under the zipline must be protected with fence to avoid chrashes between zipline user and other people in the area.

School polygon is placed on ground floor where users are taught safe measures and secure fastening. There can only be 6 users on polygon at the same time. Exercises are guided by trained instructor, who can also provide rescue on site.