Annex No. 1 to SIWZ

Local Government Institution of Culture – Innovation Centre Mill of Knowledge
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DETAILED DESCRIPTION OF THE CONTRACT SUBJECT-MATTER

EXHIBITION "THE RIVER"

PART I – GENERAL REQUIREMENTS

Basic information on purpose and location of the exposition in the exhibition space and description of the contract subject matter

Innovation Centre Mill of Knowledge is a local government institution of culture established by the municipality of the City of Toruń. It shall be located in a historic part of so-called Richter Mills originated in 1940s. The building consists of two parts – former mill and grain elevators featuring heights of respectively 8 and 10 storeys, where ICMK shall use 6 and 7 storeys, respectively.
Two remaining storeys of the mill building where the expositions shall be located are designed for another institution. Location of the Centre in Toruń and in historic buildings shall determine the nature of permanent exhibitions presented: "On the Revolutions," "The River," "Power and Energy," "Ideas".
The permanent Exhibition "The River", comprising 22 exhibits along with accordingly arranged space shall occupy 3rd and 4th floors of the building.

1 Basic information

1.1 Exposition audience

The Exposition is aimed at individuals and organized groups:

- Children and adolescents,

- Adults and whole families.

Children under 12 years of age will have to visit the Innovation Centre Mill of Knowledge under adult supervision. Organized groups will visit the Innovation Centre Mill of Knowledge only with carers.

1.2 Exhibition specification

Exhibition "The River" shall include sites related to the following subject matters:

- Hydrology,
- Hydrophysisc,
- Hydrotechnics,
- Biology,
- Chemistry,
- Geography,
- Ecology.

1.3 Exhibition specification

The main theme of the Exhibition is a geo-biological environment of the river and the riverside areas. The exhibition shall correspond to the Vistula river geomorphology, from the sources to deltaic estuary.

The exhibition will be housed in the new building of the Innovation Centre Mill of Knowledge in former Richter Mills 3rd and 4th floors of the building, in a designated area of total exhibition area of 360.09 m^2 (for the exhibition area plan see attachment). The Exhibition will be located between the northern wall and railing protecting the Foucault Pendulum zone. The Exhibition "The River" shall be located adjacent to the glass balustrade protecting the Exposition "Foucault Pendulum" zone forming part of the Exhibition "On the Revolutions".

1.4 Exhibition components

1.4.1 Sites

The Exhibition shall host 22 sites and non-slip floor of rubber mats around them. Among the 22 sites there will be 4 major ones: The Source imitating a river source, Small Basin imitating the artificial reservoir on the Vistula River in Włocławek, Large Basin imitating a deltaic estuary of sea and River Beds between the Source and the Small Basin and between Small Basin and Large Basin. The remaining 18 sites will be located at the major ones. The major sites will operate in a single closed water circulation. In places of limited access due to a significant height of sites, platforms will be installed to enable the use of experimental sites.

1.4.2 Exposition messages

Each site shall bear an exposition message merged with the site or the arrangement in the immediate vicinity.

An exposition message includes:

- The site name in Polish and English;
- The experiment execution instructions for the Visitor (step by step) in Polish and English;
- c. Description of the phenomenon presented in Polish and English;
- The curiosity name in Polish and English;

The exhibition message content must be legible and appealing to take advantage of the site both, in terms of the information conveyed and the volume/length of the text. At the same time, the descriptions must be prepared in a manner that will enable the Employer to modify the content description at a later date (if necessary).
Descriptions must be prepared in Polish and English.

All descriptions of the Exhibition sites must have a consistent appearance, distinctive for the entire Exhibition. The Contractor must integrate the descriptions into sites or surroundings.

1.4.3 Arrangement of the Exhibition space

The entire Exhibition and space around (floors, walls, etc.) should be uniformly arranged. The arrangement of space is to include additional elements such as: small area for children, relaxation points for visitors and elements proposed by the Contractor.

1.5 Technical description of the building

1.5.1 The building

Ultimately, the Innovation Centre Mill of Knowledge shall be located in the buildings of mill and grain elevator under conversion, originating in the 1940s, which are located at streets Łokietka 5 and Dworcowa 8-10 in Toruń. The building consists of two main functional parts, which will be used by two different owners: Innovation Centre Mill of Knowledge and Technological Incubator of Toruń. For the Centre of the art Mill Knowledge, there is seven-storey exhibition space designed (the building of the former elevators – building “E”, see section T_A_W_P_01, axis 7-10) and the scientific labs for the general public (in a part of the former grain mill – building “D”, see section T_A_W_P_01, axis 1-6) separated by communication zone (two stairways and lift unit). Third floor has a double height. Technological Incubator of Toruń is to occupy the uppermost eighth storey of elevator part (building “E”) and two uppermost levels of the mill (building “D”).

In the ground part, the building is based on the shape of a rectangle with sides of 29.6 m and 37.3 m. It uses reinforced concrete framing. It is supported on reinforced concrete columns featuring rectangular cross section and transverse dimensions various on individual floors. Horizontally, at the level of ceilings, between the columns, stretch joists with distinctive change (increase) of height at the supports. The deck panel with reinforcement features a thickness of 12 cm, 15 cm on the flat roof. Roof panel featuring thickness of 15 cm is provided to transfer loads from air conditioning equipment. On the roof panel, above a number of holes, there is a steel structure turret provided. It shall be used to suspend the Foucault Pendulum. The ceiling operational load in the exhibition part amounts to 5.0 kN/m^2, while in the roof section – 3.0 kN/m^2. External doorway leading to the main lobby features dimensions of 216.5 cm width and 250 cm height; it is followed by another doorway, 195 cm wide and 250 cm high. (see the ground floor plan T_A_W_R_01).
The Exhibition "The River" shall belong to the exposition space (building "E") on 3rd and 4th floors of the building, whereas the 4th floor is devoid of ceiling. Thanks to the above, the whole exposition space, designed for this very Exhibition, is expanded. It will be directly adjacent to the Exposition „Foucault Pendulum", located in the space passing through all floors. Also, the viewing galleries located on 3rd and 4th floors will enable observation of the pendulum motion.

1.5.2 The exhibition space

The Exhibition "The River" shall stretch in the area of 360 m^2 of the exhibition space on the second floor along with the Exhibition outskirts of 127 m^2. In the central point of the space, there is a hole in the ceiling of around 55 m^2 area surrounded by a balustrade of laminated glass with a handrail at a height of 1.10 m to protect the zone where the Foucault Pendulum shall be presented (see the first floor plan T_A_W_R_03). The height between the floor and the ceiling in the exhibition space on the first floor is 6.30 m (due to no ceiling on the 3rg floor). However, due to finishing and design works, that height is subject to slight change.
Entrance openings leading from entrance enclosures to the exhibition room feature the following dimensions: 180x200 cm and 90x200 cm. Hardware of interior doors leading to the exhibition space made of aluminium sections in RAL 9003 colour, filled with sight glass.
The exhibition space floor made of resin Harz EP22 with addition of silica sand with thickness of 5 mm (note: update against the detailed design). Moreover, the floor is to be covered with non-slip rubber mats. Brick walls filled with polyurethane foam, reinforced from inside with reinforced concrete wall. The interior thermally insulated using low-density foamed-concrete panels – multipor. The entire exhibition space is free from window openings. The middle part of the first floor includes two reinforced concrete columns, section 80x80cm. The system suspended ceilings made of panels with mineral-fibre perforated core and coating with acoustic non-woven fabric, panel thickness of 19 mm. At walls and around the

Pendulum zone, gypsum system suspended ceiling, panel thickness 1x1.25 cm, on ceiling sections CD 60; wall UD 30 (see ceilings plan of second and third floors T_A_W_S_03-04).
The Contractor agrees to ensure that the Employer shall not lose the guarantee of the General Contractor of construction works or that the Contractor shall provide guarantees for works completed, related to breach of works already completed, for a period of not less than the guarantee provided by the General Contractor. All costs associated with such a change are on the Contractor's account.
In the event that any finishing works are implemented at the same time and place that the Contractor install the sites, the Contractor is obliged to do so with approval of the General Contractor of construction works in a manner that ensures safe operation and proper aesthetics. All costs involved are on the Contractor's account. In the event that the Contract subject is implemented after completion of the construction works, the Contractor is obligated to fulfil all the necessary engineering processes related to the foundation of the Exhibition and to restore the original state, or another one providing aesthetics and safe use.

1.5.3 Media

1.5.3.1 Electrical systems

The internal electrical system shall run on the walls of the second floor and on both reinforced concrete columns (in 19 points in total) where high level tightness sockets 2P+Z 230V shall be installed (see the arrangement of sockets plan Rys_E02_elektryka_zmiany; note: update against the detailed design). Additionally, similar sockets shall be deployed in part of the exhibition space in 8 floor boxes UDH3 with high level tightness cartridges HBKK Q06. From the area of the Exhibition “The River” sites, the floor boxes with ducts were removed (indicated with “x” on the Rys_E02_elektryka_zmiany). The other floor sockets shall be powered from below rooms. In the wall, in six points, high level tightness industrial sockets (400 V) shall be installed. Next to the above-mentioned sockets, in 13 points of the walls and in each floor box, telecommunication sockets RJ-45 shall be provided. For telecommunication sockets RJ-45 it is advisable to apply PLEXO adapters to secure required tightness.
General electrical sockets mounted at a height of 0.3 m, industrial sockets 400V at a height of 0.5 m, while in the bathrooms and utility rooms at a height of 1.1 m with buffer zones of 60 cm from the edge of the tub or shower. A protection system has been applied consisting rapid self shut-off in case of single-phase short circuits or ground faults. Complementary protections against direct contact are the circuit breakers for alternating and pulsating rectified currents with a sensitivity of 30mA. Conductor cross-sections used and their short-circuit protection provide indirect protection by rapid shut-off.

1.5.3.2 Lighting

In the exhibition space and on the ground floor of the building, the lighting level at the working plane shall be provided, i.e. at a height of 0.85 m from the floor level, featuring illumination of about 400 lx. The design also covers the Exhibition lighting system control – control cabinets are located in the technical room from the east (see lighting system plan R_08).

In addition, the building shall feature low illumination LED emergency lighting.

1.5.3.3 Water and sanitary systems

Directly in the Exhibition "The River" zone there are eleven water intakes located on the walls near the plumbing system risers. For the Exhibition powering and its operations (water refilling, rinsing filters, etc.), there are 4 pieces of valves DN15 provided on level +2. On cold water risers W02, W04, W05, W10 at height of 3 m above the level +2 floor, equal tee pieces PP fi20/fi20 are mounted. Directly behind the tees, there ball shut-off valves DN15 fitted. In the level +2 floor, in three points, there are floor drains DN110 designed for water drainage when emptying the Exhibition components and for routine purposes (e.g. residual waters from water treatment station). From the bottom to the level +2, there are pipes DN110 led through the ceiling. Tight passage through the ceiling with siphoned drains and discharge into the nearest sanitary sewer riser (see the plumbing system on the second floor RYS_3_wod-kan_zmiany).

Sewage system made of PVC sewer pipes with bell and spigot joints and gaskets. Mounted to the ceiling by means of conventional clamps, passage through the ceiling ribs in a protective sleeve. The power supply vertical cables run through installation shafts or enclosed wall trenches along with the hot water supply system and air circulation air circulation.

1.5.3.4 Ventilations and air conditioning

Mechanical intake and exhaust ventilation with air-conditioning of rooms. The core of the system shall consist of three roof ventilation units and one suspended unit in the attic, which shall direct the external air to relevant rooms. The ventilation system for the entire exhibition space has been designed as a laminar flow system using base displacement supply diffusers. Such a system is designed to eliminate the influence of ventilation air motion on the exhibits' operation. The plan of ventilation and air-conditioning system on second and third floors is shown on Figures T_S_W_S_03-04.

Additionally, the ventilation systems N2 and W2 are designed to include air drying installation on supply vents, along with an air dryer. It is designed to dry the supply air in order to offset humidity gains in the rooms coming from the Exhibition "The River". Drying air in the volume of 1500 m^3/h shall be drawn from the supply ventilation system N2. The air will be supplied to the air dryer BDHM-90R, and then after drying, the air will be directed

back into the supply system N2 though two vents DN250, 750 m^3/h. In the exhaust vent W2, before ventilation unit, there will be relative humidity sensor installed – it will measure the relative humidity and run the air dryer. The dryer will start up when the relative humidity exceeds 55% and will not stop until the relative humidity drops below 45% (see the roof air drying installation RYS_O1_sanit_zmiany).
Ceiling and wall mounted air conditioners Fan-Coil featuring a functionality of air cooling shall be used in office rooms, conference rooms and computer rooms. The server rooms shall be equipped with an internal air cooling system using freon systems.

1.4.4 The building shall also include the following equipment, systems and devices:

- Fire alarm system,
- Audible warning system,
- Automation system of ventilation and building management,
- Telecommunication system for intrusion detection system, access control, CCTV,
- structural network system (computers, telephones, network equipment and telephone exchange).

There is also scheduled a distribution of WiFi network available in the building excluding the exhibition rooms (exhibition space) through the use of overhead Access Points.
It is required that network devices comply with the communication protocol IPv6.

1.4.5 Conditions of works course in the building

Scheduled date of works completion, of the entire investment, is November 2012. The works on second and third floors should be accomplished by August 2012: machine gypsum plasters lay until May this year, flooring works (primer) until June this year, and troweling painting of walls until July this year, just like installation of system suspended ceilings. Finishing of floors and installation of door woodwork is scheduled by August 2012. Installation works related to electrical and telecommunication systems in the exhibition part on level +2 are expected to last until October 2012 and shall include laying of cable routes, pipes, trays – May this year, sockets and fixtures – mid-August this year. The installation of elevators is expected to be completed by October this year. Sanitary systems and ventilation system should be mounted by November this year. These terms are prognoses only and are subject to change.
When developing the “The River” Exhibition, the Contractor shall in no way affect the design, structure, systems, arrangement and finishing works completes thus far, etc., or execute other works that could in any way violate the conditions of the guarantee provided by the General Contractor of construction works named Pol-Aqua, or otherwise compromise the standard of the building. In case any changes to the Investment Detailed Design are necessary, the Contractor is obliged to agree upon them in advance with the Investor, i.e.

the Municipality of the City of Toruń and obtain a written consent of the General Contractor and the Design Supervision to any interference and/or change. Any and all costs involved are on the Contractor's account. Also, any changes of designs, even if necessary for the implementation of the Contract subject, shall be on account of the Contractor, who agrees to incur all the costs involved. The Contractor is responsible for any damage that may possibly arise during the implementation of the Contract subject, even if revealed at a later date, but were resulted from the Contractor's activities. When delivering the Contract subject the Contractor is obliged to implement it in accordance with Polish regulations, including those related to fire protection and safe use of the building, H&S rules and standards. During the period of the Contract implementation the Contractor agrees to cooperate with the General Contractor of construction works and other contractors who will perform subcontracted works at the construction site. Until the completion of the works by the General Contractor, the Contractor's employees are responsible to the management of the construction site with regard to H&S and fire protection issues. Prior to commencing the "The River" Exhibition, the Contractor is obliged to verify all necessary measurements in real world.

1.6 Types of the Exhibition sites

The Employer expects three types of sites within the Exhibition.

1.6.1 Sites installed in basins located on non-slip floor

1.6.1.1 Small Basin

A site primarily meant for children. Any shape (circle, square, oval) basin corresponds to the artificial reservoir on the Vistula River in Włocławek. The basin shall include three experimental sites (Water Elevator, Archimedes' Screw, and Dam). The sites shall be installed in a way that enables independent use with no obstacles. The Small Basin shall be watered from bed one, imitating the upper and middle reaches of river. From the Small Basin, water shall flow to bed two imitating the lower reaches of river. Despite connections with water flowing beds, water of the Small Basin should be as still as possible.

1.6.1.2 Large Basin

A site primarily meant for children. Any shape (circle, square, oval) basin corresponding to the deltaic Vistula estuary to the Baltic Sea. The basin shall include three experimental sites (Fountains, Water Gun, First Come, First Served!). The sites shall be installed in a way that enables independent use with no obstacles. The Large Basin shall be watered from bed two, imitating the lower reaches of the Vistula River. The basin water shall be as still as possible.

1.6.2 Sites installed in beds located on non-slip floor

1.6.2.1 Bed one

Bed one imitates the upper and middle reaches of river (the bed must have two different gradients). Bed one is connected with the model of Source and Small Basin. The bed shall include one site (Water Wheel). It should feature changeable width. The bed water shall be flowing.

1.6.2.2 Bed two

Bed two imitates the lower reaches the Vistula River. The bed is connected with the Small Basin and the Large Basin. Within the main reaches of the bed, on both banks, there will be two additional channels. The channels are to be connected with the main bed from one side, and with the Large Basin from the other side. Bed two shall include three sites. One of the sites shall be located in the main reaches (Obstacles), while the other two sites (River Morphology, Keep up with Nature) shall be located within two additional channels. The bed should feature changeable width. The shape of bed and channels should resemble the lower reaches of the Vistula River as far as possible. The bed and channels water shall be flowing.
All sites are included in Table 1. point 2.4.

1.6.3 Sites installed in the wall of the river model

On both sides of the river model walls, there will be sites located. The sites: Guessing Game!, Put Your Hands In!, On a Micro Scale, On a Macro Scale, shall be located in the southern wall of the River model, i.e. from the side of Foucault Pendulum, while sites: Questions and Answers, For or Against?, shall be located in the River model wall from the north.

1.7 Interactiveness types of sites

All sites comprised by the Exhibition shall be interactive. As meeting this requirement shall be regarded those sites that present one of the following interactiveness types as minimum:

- Manual: a site involves manual work
- Movement: a site requires moving of the whole body and physical coordination
- Sense: a site requires use of senses (e.g. vision, touch, smell, etc.)
- Intellectual: interaction using the visitors' knowledge.

2 Description of the Contract subject matter

2.1 Designs

2.1.1 Develop and provide the Employer with graphic and detailed designs of individual components of the Exhibition, in particular:

2.1.1.1 Develop and provide the Employer with graphic and detailed designs of sites of the Exhibition.

2.1.1.2 Develop and provide the Employer with graphic design of the entire Exhibition space arrangement.

2.1.1.3 Create and provide the Employer with graphic designs of the Exposition messages for all sites, comprising the following:

a. The site name in Polish and English;

b. The experiment execution instructions for the visitor (step by step) in Polish and English;

c. Description of the phenomenon presented in Polish and English;

d. The curiosity in Polish and English;

2.1.2 Develop and deliver updated visualizations of sites along with exposition messages and the entire Exhibition, showing the Exposition from each side, day and night times, based on the designs referred to in Sections 2.1.1.1, 2.1.1.2 and 2.1.1.3, following the final acceptance by the Employer:

2.1.2.1 in electronic form featuring parameters enabling production of prints of size 0.7 m × 0.5 m, without compromising their quality. The files prepared must hold appropriate parameters providing clear and accurate picture when printed. Required parameters: CMYK colour, resolution min. 300 dpi in 1:1 scale, files saved as "tif" in 1:1 scale;

2.1.2.2 in the form of overprint on PVC board sized 0.7 m × 0.5 m for three visualizations selected by the Employer from among electronic visualizations provided by the Contractor.

2.1.2.3 Develop and provide the Employer with a design of all presentations meant for the multimedia sites. In particular, for each site, the designs must include the following:

a. A list of all presentations, including specifications of their contents and a list of means of multimedia communication

b. Graphic designs of the presentations

c. A sample of video for use in a presentation

d. A sample of animation for use in a presentation

e. The structure of the entire multimedia software detailing the transitions between subsequent presentations.

2.1.3 Provide the Employer with an estimate including prices of Exhibition components, listed in Section 1.3 and all other expenses necessary for the implementation of the Contract subject (following the final acceptance of the designs by the Employer).

2.1.4 Providing the Employer with information on expected yearly costs of the Exhibition operation.

2.2 Execution and delivery of the Exhibition components

2.2.1 Complete all components of the Exhibition as per designs listed in Section 2.1, with necessary tests, accepted by the Employer.

When producing the river beds and basins, the Contractor is obliged to complete all works necessary to install those basins, i.e. the whole instrumentation (pipes, ducts, etc.) along with water treatment system.

2.2.2 Test in the presence of the Employer representatives all Exhibition components and, based on the test results, introduce necessary changes.

2.2.3 Develop exposition messages prepared against designs of point 2.1.1.3 approved by the Employer.

2.2.4 Create fully functional multimedia site software with animations, videos and other interactive software deployed, according to designs listed in Section 2.1 approved by the Employer, in a form that allows software changes as well as adding new videos and animations.

2.2.5 Delivery of all Exhibition components, i.e. sites, exposition messages, space arrangement to the Employer premises.

2.3 Installation and commissioning of all Exhibition components as well as documentation and personnel training

2.3.1 Delivery, commissioning and integration of the Exhibition components.

2.3.2 Delivery of spare parts that can be used for repairs (referred to in Section 2.3.6), carried out during the guarantee period by trained employees of the Employer.

2.3.3 Delivery of all consumables for individual components of the Exhibition for four initial months of its presentation, from the date when it is accepted by the Employer, Innovation Centre Mill of Knowledge.

2.3.4 Deployment of exposition messages in the Exhibition space, prepared against designs of point 2.1.1.3 approved by the Employer and delivery to the Employer of messages on CD or DVD, in an electronic form that allows any modifications.

2.3.5 Delivery to the Employer of fully functional multimedia site software with animations, videos and other interactive software deployed, according to designs listed in Section 2.1 approved by the Employer, in a form that allows software changes as well as adding new videos and animations. In particular, the Contractor shall provide the following:

- **a.** A list of all presentations, including specifications of their contents
- **b.** Graphic designs of the presentations
- **c.** All animations used in electronic form on a CD or DVD
- **d.** All videos used in electronic form on a CD or DVD
- **e.** All computer programs developed for presentation in electronic form on a CD or DVD

f. All other presentation components produced using means of multimedia communication in electronic form on a CD or DVD

g. The structure of the entire multimedia software detailing the transitions between subsequent presentations.

2.3.6 Create and provide the Employer with documentation of the Exhibition containing at least the following information (as-built documentation):

a. A list of the Exhibition components (sites and arrangement items)

b. Names of sites, adherence to the Exhibition and its thematic zone

c. Purposes of the sites

d. Graphic and detailed designs of the Exhibition and its individual components

e. Detailed method of operation of individual sites

f. Detailed descriptions of phenomena presented at individual sites

g. Number of visitors able to use a site simultaneously

h. Detailed information on the media and consumables necessary for proper operation of the sites

i. A list of repairs that may be performed by the personnel of the Innovation Centre Mill of Knowledge trained by the Contractor during the guarantee period, without compromising the guarantee conditions.

2.3.7 Create and provide Employer with manuals, rules of control, service and maintenance of individual Exhibition components in Polish as a hard copy and electronic form as wells as the guarantee cards.

2.3.8 Handover to the Employer of the test results referred to in Section 2.2.2.

2.3.9 Transfer onto the Employer of software licenses and copyrights for the photos, graphics, drawings, fragments of source texts, videos and animations, and other software and works used in all Exhibition components.

2.3.10 Handover to the Employer of declaration of conformity of the Contract subject with applicable regulations and standards; the components of the Exposition and arrangement must conform to European safety standards and have attached declarations of conformity proven by CE marks.

2.3.11 Transfer onto the Employer of copyrights for the Contract subjects under the conditions specified in the Contract.

2.3.12 Training of Innovation Centre Mill of Knowledge for the operation, control, maintenance and service of the Exhibition components, produced by the Contractor, to the extent enabling the employees to perform repairs (referred to in Section 2.3.6), also during the guarantee period. Training for a group of up to 10 persons shall be carried out at the premises of the Employer in Polish or English. The Contractor shall propose the training duration in the schedule.

2.4 Specifications of sites

The Employer has prepared a list of 22 sites (Tab. 1.), which are thematically associated with physics, biology, geography, geology and hydrology. The sites are divided with respect to locations in: Small Basin, Large Basin, River Beds, and walls of the River model.

Table 1. Sites to be produced by the Contractor.

Exhibition "The River"		
Item	**Site name**	**Classification**
1	The River source	Exhibits comprised in the River
2	The River model beds	
3	Small Basin	
4	Large Basin	
5	Water Wheel	Experiments on the river
6	Obstacles	
7	River Morphology	
8	Keep up with Nature	
9	Water Treatment	Experiments placed in the River walls
10	Guessing Game!	
11	Put Your Hands In!	
12	Questions and Answers	
13	For or Against?	
14	On a Micro Scale	
15	On a Macro Scale	
16	Water Elevator	Experiments in the Small Basin
17	Archimedes' Screw	
18	Dam	
19	Fountains	Experiments in the Large Basin
20	Water Gun	
21	First Come, First Served!	
22	Water Power Plant	The Contractor shall choose place for the experiment

3. The Employer requirements regarding the Contract subject matter

3.1 The requirements for the Exhibition arrangement and the space around

The following items must occur on non-slip floor Small and Large Basins, Source and two main beds along with two side channels flowing out from the second bed.

The design concept should be consistently applied throughout the Exposition space and include designs of the sites, consider the nature of site descriptions, proposed pictogram of the Exhibition and its scenery as well as additional components of the space arrangement. The design concept should not impede the use of sites for visitors or interfere with the educational communication.

Moreover, the Employer requires that the Exhibition arrangement and colours:

- Are consistent and colours are consistently used throughout the entire arrangement
- Are not monotonous nor too provocative
- Include no aggressive themes
- Include water and river-related themes.

The Exhibition arrangement should also cover the walls and surfaces that are not developed for the sites.

3.1.1 Requirements concerning the scenery near Bed One and Two

The Employer requires around both beds appropriately adjusted mockups corresponding to given geographic area in terms of appearance and included components. The arrangement mockups are expected to fit tight to the beds; they cannot be independent components. The mockups may not impede the access to sites located in beds.

- Around the Bed One, the mockups should include items typical for adjacent areas around Upper and Middle Vistula: flora, fauna, landform, etc.
- Around the Bed Two, the mockups should include items typical for adjacent areas around Lower Vistula: flora, fauna, landform, etc.

3.1.2 Requirements concerning the arrangement: Large Basin, Small Basin, and Source

The Employer requires the Basins and Source to be uniformly arranged in a way the best reflecting the realistic source of the river Vistula, Dam in Włocławek and deltaic estuary to the Baltic Sea. The arrangement of main sites, i.e. Basins and Source should not impede communications between the sites. The wall around the Source should be in part arranged so as to enable observations of hydrotechnical equipment operations inside the site.

3.1.3 Requirements concerning the arrangement of side walls of the River

The Employer requires the side walls of the River model to be arranged in accordance with subject matters of the sites placed in the side walls.

3.1.4 Requirements concerning additional components of the space arrangement

When planning the arrangement of additional components, special attention should be paid to the harmony and uniformity of the Exhibition sites distribution as well as general distribution of the Exhibition. Please establish at least one major or several minor relaxation areas in the form of benches or chairs featuring unusual shapes corresponding to the whole Exhibition with regards to design and colours. To this end, allowable is use of architectural details in the form of partitions or wall pieces. The arrangement must include additional elements that spark the imagination and curiosity of Visitors, such as puzzles, riddles, quizzes, graphics, short passages of text, integrated into the walls, floors, architectural details, etc. The additional arrangement of the Exhibition should include themes related to water and water environment. The arrangement should include some components meant for children, such as: space on the walls or tables for quizzes, riddles, or jigsaws designed specifically for children. Additional arrangement components cannot be accumulated in a single point; they must be uniformly distributed within the entire exhibition space.

3.2 Requirements concerning the Exhibition content and descriptions of sites

3.2.1 All sites must have exposition messages, which should be incorporated into the sites or placed on stands, or built in arrangement components in the vicinity of the sites. The multimedia sites should have appropriately selected multimedia presentations. The messages and animations should be consistent in terms of graphic solutions and have a distinctive appearance consistent with the design concept established. The exposition messages must be attached in such a way as to be visible to the visitors. The Employer allows the possibility of changing the messages contents at a later period of operation; hence they must be constructed in such a way that the replacement or alteration does not cause interference in the sites. The Employer requires the Contractor to submit the exposition messages also in electronic version, enabling the content modifications.

3.2.2 The contents of the exposition messages, animations, videos and multimedia presentations must contain scientific and educational texts; they cannot include explanations of the phenomena, which are contrary to scientific knowledge. The Exhibition content cannot contain fairytale or science fiction elements, or those that breach moral norms.

3.2.3 The choice of the exposition messages must be adapted to a wide audience, but not disregarding the foundations of knowledge and texts must be approachable, using

comprehensible vocabulary. The whole content of the exposition messages must be presented legibly and orderly.

3.2.4 Any other texts (e.g. voice messages, guidelines at the multimedia sites, quizzes) must be available to visitors in two languages at least: Polish and English.

3.3 The requirements regarding the Exhibition components

General requirements for all Exhibition components:

- All the Exhibition components, which are the subject of this Contract, should be unique, created especially for the Innovation Centre Mill of Knowledge.
- The Exhibition components must be resistant to the actions of the visitors, both conforming and non-conforming with descriptions on Exposition messages, or in the manual of the multimedia site.
- The Exhibition components must remain efficient despite daily mass and multiple uses.

3.4 Education requirements

3.4.1 The Exhibition components must be designed in such a way that their reception by persons with different kinds of disability is the fullest.

3.4.2 The Exhibition components should be adapted to needs of persons of different ages and different intellectual, manual or physical abilities.

3.5 Technical and operational requirements

It is assumed that the Innovation Centre Mill of Knowledge each day may be visited by approximately 700 persons. The above information should be taken into account when designing the Exhibition for technical and operational requirements.

3.5.1 The Exhibition components must be durable and resistant to the actions of the visitors:

- Must remain efficient, despite daily mass and multiple use
- Must be resistant to the actions of the visitors, both conforming and non-conforming with the Exposition messages
- Must be easy to keep clean, especially in the case of scribbling with a marker, ink, paint, etc.
- All sites and basins must be constructed with minimization of water pouring in view.
- All basins must be tight.

3.5.2 The Exhibition contents must meet the EU standards concerning the lamps and

lighting, also for the workplace. The lighting sources should not dazzle the visitors nor expose their eyes to any risk. For more full reception of the Exhibition contents and due to partial lack of the natural lighting of the Exhibition area, individual lighting of the Exposition components should be considered. The lighting shall emphasize the most important components of the Exhibition, but may not impede the use of sites.

3.5.3 The Exhibition components must be made in such a way that the presence in the exhibition area does not expose the audience to danger and that their use is safe even for persons without training and without the aid of the animator.

3.5.4 Please ensure passable halls and corridors between the Exhibition components, which should be also available for persons with disabilities, using wheelchairs.

3.5.5 The materials used for the implementation of the Exhibition components must have safety approvals and comply with European standards for this type of facilities, be resistant to wear, washable and easy to maintain. The materials and technical solutions applied to the implementation of the Exhibition components and possible consumables should be ecological and energy efficient.

3.5.6 The Exhibition components maintenance should be internally feasible for the Employer.

3.5.7 Any and all doors, cabinets, doors fitted as part of the Exhibition, protecting the equipment installed inside, intended for the operation or servicing of the Exhibition components, should be equipped with locks with keys. The Contractor shall hand over the keys to the Employer, including spare ones.

3.5.8 The Exhibition operation (all items at the same time) must meet the requirements of standards of noise levels in places of work and public use.

3.5.9 Each of the Exhibition components should have scheduled production of spare parts, which can be used for repairs (referred to in Section 2.3.2), performed during the guarantee period by trained employees of the Employer.

3.5.10 Each of the relevant Exposition components should have scheduled securing of consumables for four months of the Innovation Centre Mill of Knowledge activity.

3.5.11 The Employer requires the Contractor to install the Basins along with beds and a single closed water circulation system including a water treatment solution. The basins and beds are supposed to be equipped with sufficient number of outflows to secure safe water level in sites.

3.5.12 Due to considerable vertical dimensions of some sites, the Employer requires the Contractor to install non-slip platforms with appropriate dimensions in places of difficult access to the sites.

3.5.13 Due to possible splashouts of water from the basins, the Employer requires the Contractor to purchase and install (deploy) non-slip rubber mats near the basins and beds.

3.5.14 The Employer requires all movable components of sites of arrangement, such as: balls or obstacles to have magnetic strips to prevent theft.
3.5.15 The Employer requires the sites to be distanced min. 2 metres from the side walls of the exhibition room to enable communications.

PART II – THE SPECIFICATION OF SITES

The documentation includes specifications for 22 sites listed in this Attachment to SIWZ in Table no. 1, point 2.4.

Name 1.	**The River source**
General description	A model of River at the beginning, i.e. source shall be surrounded with a mockup of folded mountains. It shall constitute a visualization of source, which start its reaches in the mountains. The visualization is to include i.a. the section of geological horizons.
Educational purpose	Get acquainted with the principle of mountain source formation and structure.
Dimensions	Adapted to the model of river. Minimum height: 2.5 m, minimum diameter: 2.0 m
Components	• Model of mountain where the source is to start • Side wall with geological sections • Water supply from the system in several points
The Employer requirements	• The model of mountain should resemble the river Vistula source as far as possible • One of the side walls should be covered with a transparent element to enable observation of the section of source geological horizons. • The Contractor shall propose the type of interactiveness for visitors. • The site should be arranged in a manner typical of mountainous areas, i.e. it should include elements associated with for instance: mountain vegetation, animals, etc.

Name 2.	The River model beds
General description	The Bed One [1] shall include the upper and middle reaches of the river. It will be located between the Source and the Small Basin. The Bed Two [2] shall include the middle and lower reaches of the river model. It will be located between the Small and Large Basin. Then, the Bed Two [2] will be split into two additional channels [3, 4], connected with the Large Basin. The River Model has to correspond to the Vistula, therefore, the Bed One must have a minimum of two bends to form meanders.
Educational purpose	Demonstration of varied width of the river bed depending on the river course. The beds shall comprise experimental sites to bring individual educational value. In addition, the side walls of the beds in the river model will include space for interactive experimental sites.
Dimensions	Adapted to the model of river. Minimum total length of beds is 16 m.
Components	• Bed One [1] • Bed Two [2] • Two additional channels [3, 4] • Plinth for placement of beds • Arrangement of external walls of beds
The Employer requirements	• The Bed One [1] should be placed between the Source and the Small Basin, i.e. in the upper and middle reaches of the river model. Just at the beginning, the bed shall be narrow with sharp slope, and then it shall gradually widen and decrease the slope up to ca. 1%. • The Bed Two [2] should be placed between the Small and Large Basins, i.e. in the lower reaches of the river model. It shall be wide with slope of ca. 1% and in further section form a delta with two additional channels and eventually join with the Large Basin. • Two additional channels [3, 4] shall diverge from the main Bed Two situated between the Small and Large Basins. The additional channels shall be deployed on both sides of the bed [2] so as the whole forms a deltaic estuary of the river model and at the same time it is an additional space to use as an experimental site. • The additional channels shall be connected with the Large Basin in a way that prevents contaminations entering from the sites

included.

- The site must have a minimum of two bends to produce a model of meandering river.
- The beds should be made of stainless steel.
- The arrangement solution should fit the experimental sites.
- The beds' edges should be rounded.

Name 3.	Small Basin
General description	The small water reservoir situated in the middle reaches of the river corresponding to the artificial water reservoir formed following water dump-up in the vicinity of Włocławek.
Educational purpose	Demonstration of the method and purpose of creation of artificial water reservoirs as well as various means of water transport from lower parts to higher ones.
Dimensions	Minimum diameter 3 m. Height to be specified by the Contractor.
Components	• Small water reservoir • Base for placement of basin
The Employer requirements	• The small water reservoir should be located between Bed One and Bed Two connected with a waterway. • The Small Basin along with the base should be made of stainless steel. • The Basin edges should be rounded.

Name 4.	Large Basin
General description	Large water reservoir situated in the lower reaches of the river, corresponding to the Baltic Sea. Made of stainless steel
Educational purpose	The Large Basin shall comprise sites for children.
Dimensions	The maximum dimensions 3 m x 4 m. Maximum height 0.5 m;
Components	• Large water reservoir • Base for placement of basin
The Employer requirements	• The large water reservoir should be connected with the other bed of the river model by means of waterway. • The Large Basin along with the base should be made of stainless steel. • The Basin edges should be rounded.

Name 5.	Water Wheel
General description	The Water Wheel situated in the upper reaches of the river, between the Source and the Small Basin. Uses the water kinetic energy, which shall be transformed into mechanical energy setting in motion for instance a thresher, whereas demonstrating the river use in every-day life from the beginning of economic development.
Educational purpose	Water kinetic energy transformation into mechanical energy.
Dimensions	Minimum diameter 0.5 m, appropriately selected wheel width, depending on the bed width.
Components	• Undershot water wheel • A component demonstrating transformation of kinetic energy of water flowing into mechanical energy.
Usage	A visitor approaches the river bed, which includes permanently fixed undershot water wheel. Engages a system of e.g. thresher and observes what is happening.
The Employer requirements	• Demonstration of transformation of kinetic energy of water flowing into mechanical energy setting in motion for instance a thresher • Water Wheel situated in the upper reaches of the river, between the Source and the Small Basin • The site components should be made of stainless materials.

Name 6.	Obstacles
General description	The obstacles placed in the middle, slower reaches of the river, between the Small and Large Basins. Made of heavy plastic. A visitor has a chance to observe whirlpools produced when a fluid flows through various types of obstacles.
Educational purpose	Demonstration of varied flows on a river. In addition, familiarization of visitors with definitions of laminar and turbulent flows.
Dimensions	Adapted to the bed size.
Components	• Set of plastic obstacles • Clamps for fitting of the above obstacles
Usage	Visitors place individual obstacle in the water stream. They observe whether the river flow has changed the strength. They may try a different deployment of the obstacles and re-observation of the flow in the river model.
The Employer requirements	• Faster and slower flows should be noticeable. • The shapes of the plastic obstacles should be various. • Some obstacles should feature shapes resembling natural obstacles present in Vistula, such as river shoals (backwaters, streamlines). • The Contractor must provide one set of spare obstacles. • The clamps installed in a way enabling easy and free-form deployment of the obstacles.

Name 7.	River Morphology
General description	The exhibit demonstrates shapes of geomorphological channels of river. A visitor has an opportunity to get information on factors affecting the changes in the river bed.
Educational purpose	Demonstrate the shapes of the river bed.
Dimensions	Adapted to the river bed between the Small and Large Basins.
Components	• Additional river channel • Various size pebbles • Base for placement of additional channel
Usage	A visitor places pebbles in various points of the artificial bed. They have a chance to construct dams and observe the water flow between the pebbles.
The Employer requirements	• The site should be situated in additional river channel [3] or [4]. • The additional channel [3] or [4] shall diverge from the main [2] bed two of the river model. • The channel [3] or [4] water shall be supplied from the main bed two [2]. • The site must be protected against water splashouts. • The site should include neutralization of contaminations carried by the site components. • The Contractor has to adapt the site dimensions to the Exhibition • The channel edges should be rounded.

Name 8.	Keep up with Nature
General description	The exhibit demonstrates the phenomenon of erosion in natural environment. A visitor objective is to polish the stone and to compare it to the natural stone “polished” by the river.
Educational purpose	Demonstrate the phenomenon of erosion in natural environment.
Dimensions	Adapted to the river bed between the Small and Large Basins.
Components	• Separate channel of the river model • Various size stones • Base for placement of bed • Stone polishing item
Usage	A visitor objective is to make the coarse stone resembling a shape of round one taken from the river stream. This experiment will convince them that what Mother Nature creates takes time.
The Employer requirements	• The site should be situated in additional river channel [3] or [4], which produces a deltaic estuary. • The separate channel [3] or [4] shall diverge from the main [2] bed two of the river model. • The channel [3] or [4] water shall be supplied from the main bed [2]. • The site must be protected against water splashouts. • The site should include neutralization of contaminations carried by the site components. • The selection of materials for stones must make the polishing effects visible in a short time. • The Contractor has to adapt the site dimensions to the Exhibition

Name 9.	Site related to water treatment
General description	An exhibit related to water treatment located inside or next to the wall of the river model, just by the source. Partly fenced with a transparent veil of heavy-duty material, and partly covered with a mockup of mountains and source. The purpose is to demonstrate the method of water treatment in the Exhibition “The River” and in our households.
The Employer requirements	• The site must refer to the water treatment processes, i.e. mechanical, chemical, and biological filtrations. • The site should demonstrate the water treatment solution taking place before it reaches our households or the Exhibition “The River”. • The site should be located in basins, beds, or walls of the river model. • The site involves interactiveness (a possibility to conduct experiments). The Contractor shall propose the type of interactiveness.

Name 10.	Guessing Game!
General description	An exhibit thematically referring to animals of Poland with habitats along the Vistula river, depending on the landforms.
Educational purpose	Demonstrate various species of animals with wild habitats in Poland, especially by the Vistula river.
Dimensions	A single site in the wall of the river must feature minimum dimensions of 0.4 m x 0.4 m.
Components	• Ten (10) experimental stations • Free-form mechanism triggering sound • A place to listen by air route and by bone route, e.g. a trumpet or membrane • An animal visualization using for instance magnetic jigsaw
Usage	A visitor approaches an ear to the trumpet or an elbow to the membrane, and press the button to trigger sound. They listen to animal sounds. They can also do the magnetic jigsaw and check what animals they heard.
The Employer requirements	• The experimental stations should be deployed in the river model wall at appropriate distances. • The button to trigger sounds and place for listening, e.g. a trumpet or membrane, should be located in the river model wall. • The animal visualization (e.g. magnetic jigsaw) corresponding with the audible sound should be located just next to the experimental station. • The Contractor must agree with the Employer upon selected animal species. • The Contractor has to adapt the sound volume to the Exhibition surroundings. • The Contractor must provide three sets of spare parts that are likely to break down. • The Contractor must provide one spare set of jigsaw for each image.

Name 11.	Put Your Hands In!
Educational purpose	Demonstrate various species of animals and plants occurring in Poland, especially by the Vistula river.
Dimensions	A single site in the wall of the river must feature minimum dimensions of 0.4 m x 0.4 m.
Components	• Four (4) experimental points • Oval hole covered with a curtain • Inside the hole, an imitation of for instance soft fur of an animal or pill of alpine anemone. • A picture showing for instance a beast of nice, fragile flower
Usage	A visitor inserts a hand inside the hole. Seeing the picture, they learn that the “beast” was not so terrifying and the “plant” is even nice to touch.
The Employer requirements	• The experimental stations should be situated in the river model wall at appropriate distances. • The Contractor must agree with the Employer upon selected animal and plant species. • The experimental stations should be appropriately located in a place correlated with the river model arrangement. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 12.	Questions and Answers
General description	Colourful, various shapes, turned two-side plates, placed in the side walls of the river model. They include questions and answers related to industries and transportation by the Vistula river.
Educational purpose	Demonstrate curiosities concerning the economic and social development in riverside towns.
Dimensions	A single site in the wall must feature minimum dimensions of 0.5 m x 0.5 m.
Components	• Seven (7) two-side turned plates deployed in the northern wall of the river model at appropriate distances • One side of a plate should include a print with a questions, and the other a print with an answer • Plate fitting, e.g. metal bar to enable rotation of the plates with questions and answers or different technical solution
Usage	A visitor approaches a plate, reads the question, provides an answer, and then turns the plate around to check the answer correctness.
The Employer requirements	• The Contractor must agree with the Employer upon selected questions and answers concerning Poland. • The plates should be appropriately located in a place correlated with the river model arrangement. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 13.	For or Against?
General description	Colourful, various shapes, turned two-side plates, placed in the side walls of the river model. Include sentences with pros and cons on socio-geographical issues of Poland. Enabled collection of statistical data and drawing conclusions.
Educational purpose	Intrigue a visitor about sociological issues concerning an industrial society.
Dimensions	A single site in the wall must feature minimum dimensions of 0.5 m x 0.5 m.
Components	• Six (6) two-side turned plates deployed in the wall of the river model at appropriate distances • One side of a plate should include a print with a pro, and the other a print with a con • Plate fitting, e.g. metal bar to enable rotation of the plates with pros and cons or different technical solution • A counter of pro and con answers to enable a summary and production of a bar graph
Usage	A visitor approaches the river model wall with the plates, read a pro concerning a sociological issue, and then turns the plate around to read a con on the same issue. With a press on “pro” or “against” button they identify with an opinion on a specific issue, and ICMK gains ability to collect statistical data.
The Employer requirements	• The Contractor must agree with the Employer upon selected pros and cons. • The plates should be appropriately located in a place correlated with other sites and with the river model arrangement. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 14.	On a Micro Scale
General description	An experiment placed in the side wall of the river model, e.g. between the Source and the Small Basin. A visitor shall be able to observe lives of bacteria and protozoa in the water watching an animation through spectacles integrated with the wall.
Educational purpose	Get acquainted with vital processes of bacteria and protozoa in the water.
Dimensions	The site in the wall must feature the minimum dimensions of: 0.5 m x 0.5 m.
Components	• Multimedia presentation • The main item to observe the presentation must be arranged as a microscope eyepiece for example • Knob for image focus, e.g. joystick
Usage	A visitor approaches the river model wall, uses the spectacles and observes vital processes of bacteria and protozoa in the water. A visitor can magnify the image and compare structures of prokaryotes and eukaryotes.
The Employer requirements	• The Contractor must agree with the Employer upon multimedia presentation project. • The site should be appropriately located in a place correlated with the river model arrangement. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 15.	On a Macro Scale
General description	An experiment placed in the side wall of the river model, e.g. between the Small and Large Basins. A visitor shall be able to observe lives of for instance fishes and insects in the water watching an animation through a ship cabin window integrated with the wall.
Educational purpose	Get acquainted with water animals' life cycle.
Dimensions	A single site in the wall must feature minimum dimensions of 0.5 m x 0.5 m.
Components	• Multimedia presentation • The main item to observe the presentation must be arranged as for example ship cabin window (round) • Knob for image focus, e.g. joystick
Usage	A visitor approaches the river model wall, uses the window and observes the life of animals in their natural habitat, which is water. They can magnify the image and compare their external appearances.
The Employer requirements	• The Contractor must agree with the Employer upon multimedia project. • The site should be appropriately located in a place correlated with the river model arrangement. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 16.	Water Elevator
General description	The exhibit shall be located in the Small Basin, just at the edge. With a crank rotation, the user shall set in motion a belt with cups catching water from the basin and conveying it to the cascade.
Educational purpose	Get acquainted with one of means of water transportation from lower parts to higher ones.
Dimensions	The site in the basin cannot be lower than 1.5 m.
Components	• Belt with cups • Crank fitted to the elevator, moving the belt • A structure with trays forming a cascade
Usage	A visitor approaches the basin edge, grasps the crank, catches water into the cups and conveys it to the cascade located in the middle.
The Employer requirements	• The site should be located in the Small Basin so as not to be covered by a neighbouring site that would make the access difficult. • All components should be made of stainless steel. • The maximum amount of water pumped must set the cascade trays in motion. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down.

Name 17.	Archimedes' Screw
General description	The exhibit shall be located in the Small Basin, just at the edge. With a crank rotation, the user shall set in motion a screw, which shall catch water from the basin and convey it to the cascade.
Educational purpose	Get acquainted with a discovery of Greek scientist used for water transportation from lower areas.
Dimensions	The screw length cannot be less than 1.5 m.
Components	• Screw made of stainless steel • Crank fitted to the screw made of stainless steel
Usage	A visitor approaches the small reservoir edge, starts rotating the crank pumping water by means of Archimedes' Screw from the Small Basin into the cascade located in the middle, which belong to a neighbouring site.
The Employer requirements	• Water cannot be poured out when pumping. • The maximum amount of water pumped must set in motion the cascade trays, which belong to a neighbouring site. • The site should be located in the Small Basin so as not to be covered by a neighbouring site that would make the access difficult. • The Contractor has to adapt the site dimensions to the Exhibition • The Contractor must provide a set of spare parts that are likely to break down. • All components should be made of stainless steel.

Name 18.	Dam
General description	A model of dam on a river in the middle, slower reaches of the river, right in the connection between the Small Basin and the bed two of the river model referring to the Dam in Włocławek. This barrier dumps-up water and produces an artificial water reservoir. A visitor can get acquainted with functions of impounding basins. The water flows out of the basin with slightly slower stream, with no adjustment option. A user has an opportunity to get information concerning floods and methods of counteracting towards their effects.
Educational purpose	Demonstration of water dams as river constructions producing artificial water reservoirs used also as water power plants.
Dimensions	Adapted to sizes of the Small Basin and connecting bed.
Components	• Arrangement of the Dam on the Vistula River in Włocławek • Permanent water flow
Usage	To be presented by the Contractor
The Employer requirements	• The site must be located on the border between the Small Basin and the bed two of the river model. • The Contractor shall propose the type of interactiveness.

Name 19.	Fountains
General description	An exhibit placed in the Large Basin, at appropriate distance from the other experimental sites. Due to the basin dimensions and accessibility, it is mainly designed for children.
Educational purpose	Get acquainted with water pressure holding the balls within the water stream.
Dimensions	Adapted to the Large Basin and deployment of sites included.
Components	• Mini fountains • Balls (e.g. made of plastic); • Feeder/reservoir for balls
Usage	A visitor places balls in the water stream coming from the fountain. If the balls are not centrally placed, they will fall into the basin.
The Employer requirements	• Fountains placed in the Large Basin so as not to interfere with the experiments conducted at the adjacent site. • Additional place in the basin for balls collection.

Name 20.	Water Gun
General description	An exhibit placed in the Large Basin, just at the deltaic estuary of the river, at appropriate distance from the other exhibits. Right at the basin edge, there will be the beginning of steel track located where a visitor can place a ball. Using the water stream from the water gun, they will try to guide the ball through folded tunnel leading back to the Large Basin.
Educational purpose	The experiment purpose is to demonstrate that using a water stream under pressure enables rolling balls upwards.
Dimensions	Adapted to the Large Basin and deployment of sites included.
Components	• Movable items producing the water pressure (such as a gun) • A minimum of three openwork tracks to roll the balls upwards (these may be kinds of labyrinth with various levels of difficulty)
Usage	Using the gun, a visitor produces a water stream, and then using that water stream tries to push the ball on the track. They can try to accomplish the task on three levels of difficulty.
The Employer requirements	• Three devices producing water pressure • Three tracks of various levels of difficulty • Light balls • A track end preventing the balls from falling to the basin at the starting point • A design of tracks which shall: - prevent water accumulation - enable the experiment performer to observe the ball • The device producing water pressure must be partially locked with respect to movements to the right, left, up, and down and should have limited water spurting force in order to prevent the water from pouring out if the basin or on third parties.

Name 21.	First Come, First Served!
General description	This exhibit shall be located in the Large Basin. The visitors will have an opportunity to compete using various types of ships.
Educational purpose	Transformation of potential energy into kinetic energy.
Dimensions	Adapted to the Large Basin and deployment of sites included.
Components	• Five (5) mechanically driven ships • A few obstacles deployed in the basin, preventing the ships from travelling in too vast areas.
Usage	A visitor approaches the basin edge. Mechanically starts a ship placed on water. The site should also provide for competitions between the visitors.
The Employer requirements	• The site location preventing from collisions with other sites. • The ships should be made of heavy-duty materials. • The Contractor must provide a set of spare parts that are likely to break down.

Name 22.	Water Power Plant
Educational purpose	Demonstration of water power plants, which constitute sources of cheap renewable energy, the most extensively used around the world.
Dimensions	Adapted to dimensions of the place where they will be located.
Usage	To be presented by the Contractor
The Employer requirements	• The Contractor shall propose the type of interactiveness. • The place within the Exhibition to be proposed by the Contractor.