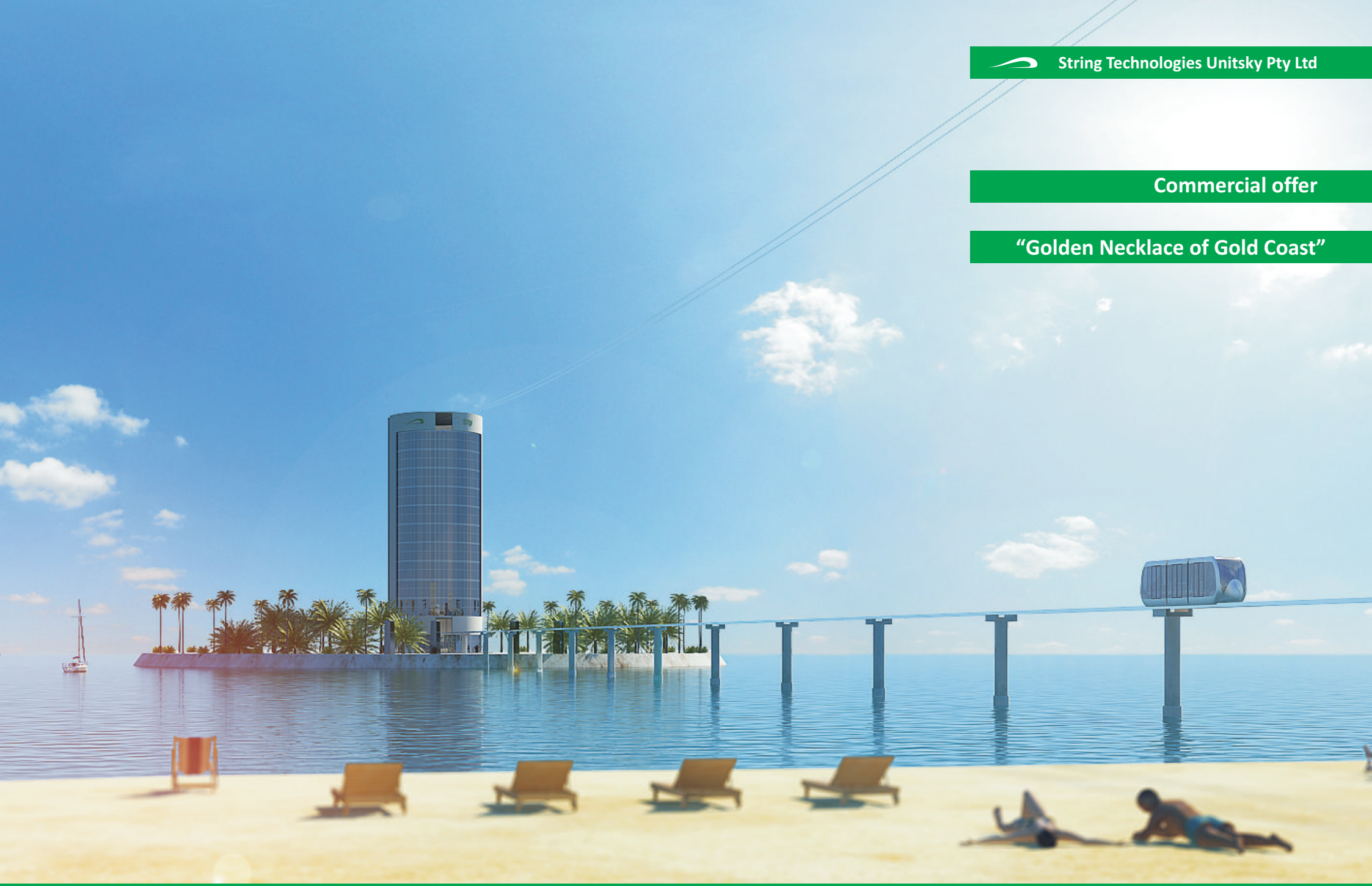
String Technologies Unitsky Pty Ltd

Commercial offer

“Golden Necklace of Gold Coast”



Aerial Metro of Gold Coast in Australia

The project combines STU high-speed string aerial metro at the altitude of 100 meters and high-rise buildings with the distance 1.5—2 km from each other and passenger station which are located on the roofs.

Buildings can be multi-purposed: residential, office, retail, sports and entertainment, with a usable area of 10—20 thousand sq. meters each. The total effective area of "Golden Necklace of Gold Coast" is 300—400 thousand square meters.

The combination of STU aerial metro with high-rise buildings wouldn't increase the cost of effective space in them, but reduce the cost of metro, because supports, foundations and floors of stations will be combined with a supporting framework, foundations and floors of buildings.

Buildings may be traditional in their architecture and layout and their value and return on investment will not yield to usual high-rise buildings. However, their combination with stations of ecological, safe and affordable public transport, as well as their placement in the most attractive places along the coast and sea areas will make them more desirable to buyers.

STU aerial metro, with its lower cost (is 15—20 times cheaper compared to traditional underground metro), pays off in 3—4 years. With a city length of 40 km a passenger can ride for 30—35 minutes from one end to another. And it is at traffic peak with 20—25 stops! This will be the most high-speed metro in the world.

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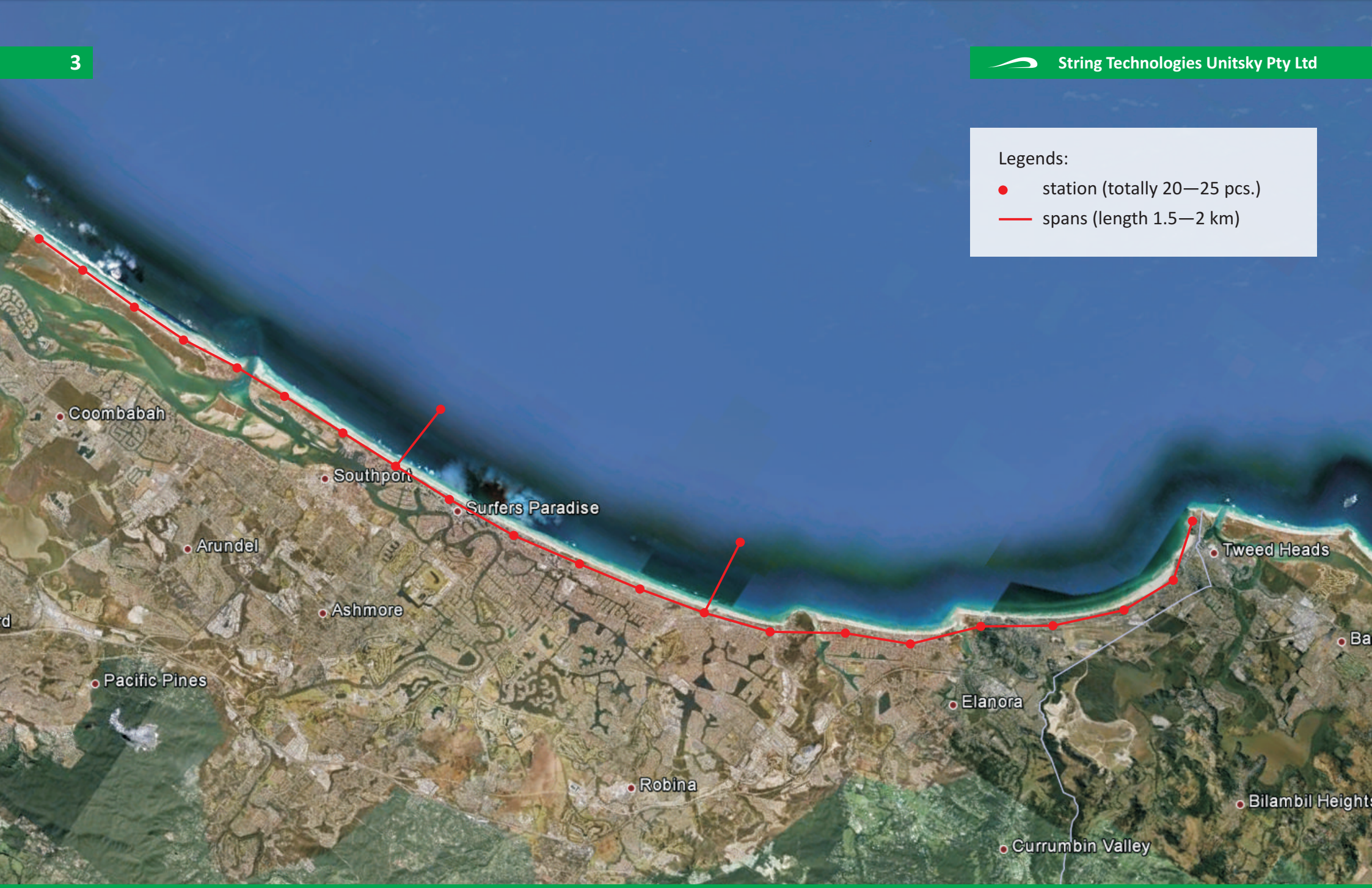


The length of aerial string metro along Gold Coast is 40 km

Relevance of Project

The Project offers a complex solution of the most acute problems for the cities and towns. The implementation of the most environmentally friendly and safe transport system, so called “aerial metro” of the “second” and the “third” level, is represented in the Project. The possibilities of the system are not represented at a full volume in order to minimize investment costs without reducing investment attractiveness of the Project.

The urgency of this Project results from existing and growing problems of the cities. The most acute problem is organization of speed, safe, economy-priced and environmentally friendly passenger and freight transportation in urban areas without considerable interference and, moreover, without destroying of existing natural landscapes, buildings and ecosystems.

Existing city transport is not secure for the environment. Besides, there are plenty of injuries and deaths in constantly occurring accidents, due to the fact that pedestrian and traffic flows are on the same level, i.e. on the terrain. In most cases even underground is not able to solve city problems, not only because of extremely high capital expenses for underground constructions (more than 100 mln. AUD/km), but also due to the fact that, for example, in the areas of flooding such transport system would be completely destroyed and would not be a subject to reconstruction. Moreover, rapid flooding of underground utilities may cause blocking of trains and mass human losses.

String Transport Yunitskiy (STU) is a universal and integrated transport system capable for carrying passengers and all types of goods in urban environments. STU uniqueness is that its track structure is raised high above the ground, has a very low consumption of materials (50 kg/m for double-track trail structure), high speed of construction and low cost (from 1 million AUD/km). No need for costly excavation mounds, pits, culverts, bridges and overpasses, and it can go without any influence over the city's rivers, lakes, parks, streets, over low-rise buildings.

Organization of mounted string transportation in the city

High-rise buildings-stations are appropriate to place within walking distance, in increments of 1500—2000 m.

Passenger station of suspended city transport is located at the top of a high-rise building. It is also the type of rail city transport. Suspended unibus, a special rolling stock, which consists of one to three and more sections is hanged to the bottom of one or two string-rails. The track structure between two adjacent buildings is implemented as a single span with no intermediate supports.

Mounted passenger station of public transport may be located at the bottom of each building, if necessary. Mounted transport type located at a height of 5—10 meters, with spans of 30—50 meters, is also a kind of off-street rail public transport. Special rolling stock from one to three or more sections (mounted unibus) with a capacity of 25—75 passengers and more is mounted on the top of two string rails.

Mounted horizontal track structure between adjacent station buildings is characterized with a high level of strength and stability. It meets the requirements for the construction of railroad bridges and trestles. The slope of a track may vary from 15% to 30% and even more (depending on the type of a mounted unibus and a track structure). Minimum radius of a track structure at the stations is 20 m. Taking into account an estimated unibus speed of 100 km/h, minimum vertical and horizontal curve radius of a track structure on the spans and on the supports will be not less than 1000 m.

Multifunctional building, combined with STU stations of “second” and “third” level

Suspended STU unibus speed at mid-span is 140 km / hour

The cost of Gold Coast aerial metro elements:

- station area of 900 square meters each (20—25 pcs.) — 60 million AUD;
- infrastructure (depot, management system, etc.) — 70 million AUD;
- double-track trail structure (40 km) — 80 million AUD;
- rolling stock (180 unibus) — 90 million AUD.

Estimated project cost (for 200 thousand pass./day) is 300 million AUD

Suspended sectional unibus

Suspended sectional unibus consists of three types of sections: head section, hind section and from one to six mid-sections depending on estimated passenger capacity. Passenger capacity of each unibus section, depending on the type of city track structure, passenger unibus and design capacity of “the third level” transport system, varies from 5 to 25 persons. The head and the hind sections of a unibus (passenger capacity of 75 persons) are identical and are equipped with highly aerodynamic tail for roundtrip. It is explained by the fact, that aerodynamic resistance to motion to a greater extent depends on the tail of a vehicle (by 70—90%), but not on the head (by 10—30%).

Each section of a unibus consists of a passenger compartment and two running compartments (the left one and the right one). The main elements of the sections (frame, lining, doors, compartment equipment, climate control, suspension system, electric drive) are unified. The arrangement of midsection is the base for the construction of head and hind sections.

The frame of the section is made of aluminum alloy. Outer lining of the cabin is made of high-strength toned translucent polycarbonate. Inner trim and exterior body kit are made of nonflammable and environmentally friendly plastics.

Traction electric drive of a suspended unibus may be provided with electricity:

- from contact wire line (current collection device is installed on the roof of the section);
- from independent power supply located in one of the sections, for example:
  - from diesel-generator (operates only on a track, on the station it is switched off and the system is battery-powered);
  - from energy storage devices, which are being charged from the mains on the stations during boarding.

In comparison with midsection, head and hind sections have different facing and are equipped with aerodynamic body kits, where driver's workplace is located (there is also the version of a suspended unibuses with automatic control system without a driver on board).

Suspended unibus capacity is 75 passengers

Mounted sectional unibus

Mounted sectional unibus consists of three types of sections: head section, hind section and from one to six midsections depending on estimated passenger capacity. Passenger capacity of each unibus section, depending on the type of city track structure, passenger unibus and design capacity of “the second level” transport system, varies from 5 to 25 persons.

Unibus is equipped with service and emergency two-leaf doors to the left and to the right side of the cabin. There are also safety frame and lower and upper handrailing. Climate control and lighting equipment are mounted in the roof of the cabin. There are also fire extinguisher, feedback equipment, first-aid kit and display board.

The main distinctive feature of a mounted unibus from a suspended one is the location of running compartments. Running compartments of mounted unibus is located in the bottom of a section, under the cabin to the left and to the right sides.

The composition of mounted and suspended unibuses are unified. Major section elements and the equipment of passenger compartments are also unified.

Automatic coupling devices of mounted unibus are located in head and hind sections.

STU mounted track along the coast (height 10 m)

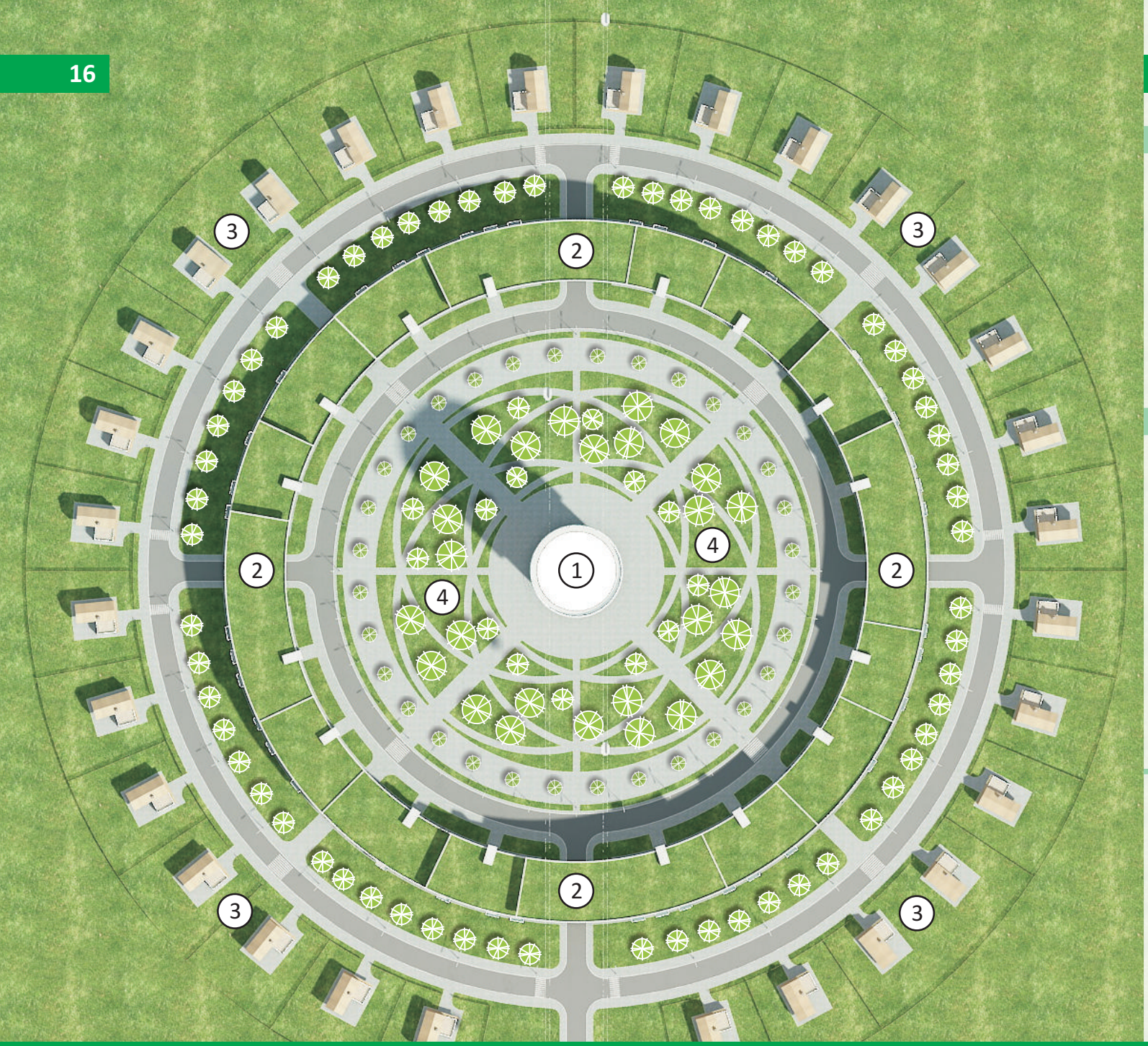
In this project, five aerial metro stations are proposed to place on the sparsely populated South Stradbrok Island.

It is offered to occupy southern part of the island by apartment complexes "Oasis", developed in STU Pty Ltd. They are based on STU technology combined with STU passenger transport.

These residential buildings will be cheaper than traditional — they require less access and internal roads, as the main traffic will be taken by STU. This will significantly reduce costly land acquisition for the traditional urban roads while improving ecology of coastal areas.

Harness the coastal areas of the Coral Sea is also proposed with the construction of multi-functional residential complexes "Island". General form of this complex is presented on page 17. Construction of "Island" is a continuation of this Project, so their technical and economic parameters were not considered in the main indicators of the Project.

Residential complex "Oasis", bird's-eye view



Top view of a residential complex "Oasis"

Legend:

1 — Multi-storey multifunctional building, combined with the String transport station
2 — Multisectional house with a variable number of storeys and exploited roof
3 — Areas with low-rise individual buildings
4 — Recreation zone

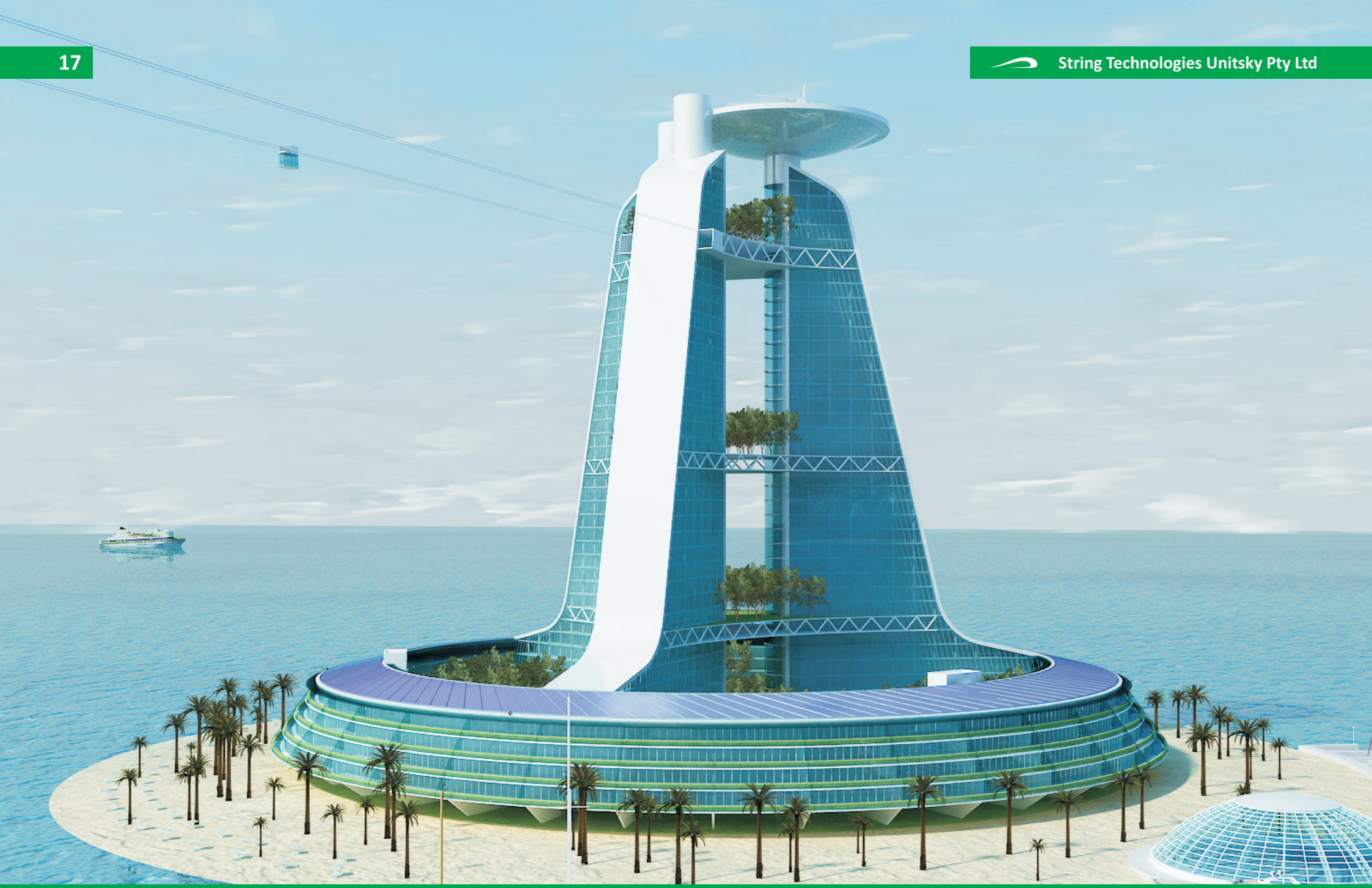
Techno-economic indicators:

Land area — 9 ha
Construction area — 15 000 m^2
Total area — 40 000 m^2
- position number 1 — 5 400 m^2
- position number 2 — 28 600 m^2
- position number 3 — 6 000 m^2

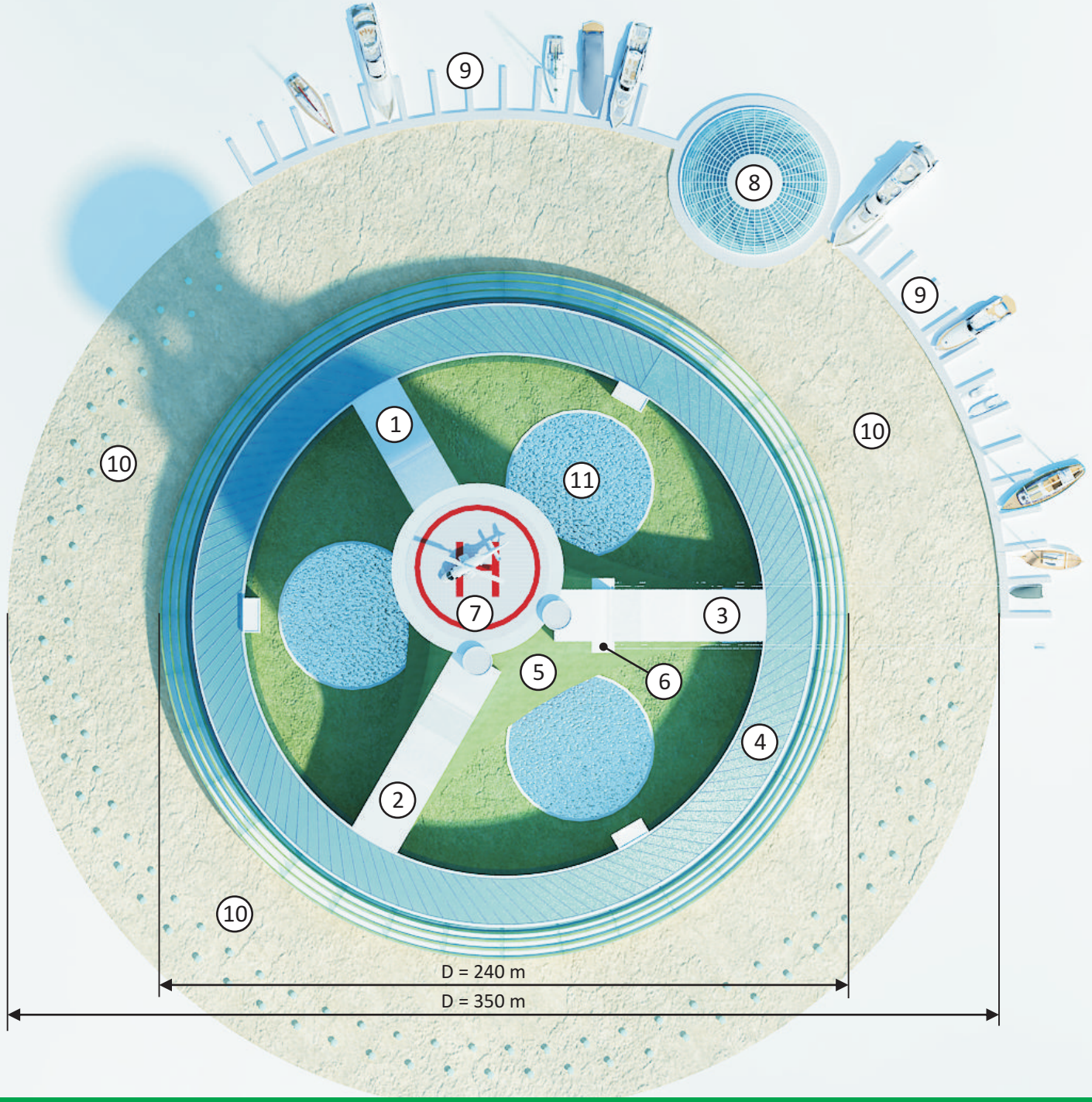
Area of exploited roof — 11 000 m^2
Area of the underground — for the calculation
Diameter — 340 m
Maximum mark — 50 m

Construction cost* — AUD 65 million
Design costs* — AUD 2.5 million

* Price is indicative only. This information was based on a simplified scheme without taking into account the cost of off-site works, land cost and cost of work related to the design and construction of the underground part of the string and the transport system. STU cost is approximately 5—7% of the value of the complex.



General view of multi-functional residential complex "Island"



Explication:

1 — high-rise building No. 1
2 — high-rise building No. 2
3 — high-rise building No. 3
4 — low-rise building No. 4
5 — operational roof of a technical storey
6 — STY station
7 — helipad
8 — yacht-club
9 — mooring
10 — beach
11 — swimming-pool

Technical and economic indices:

Area of the site — 9 ha
Built-up area — 40,000 m²
Ground area — 135,000 m²
- building 1 — 26,000 m²
- building 2 — 26,000 m²
- building 3 — 26,000 m²
- building 4 — 56,000 m²
- winter gardens — 1,000 m²

Underground area — 23,000 m²
Total area — 158,000 m²
Diameter in plan — 240 m
Maximal mark — 178 m

Cost of construction* — AUD 250 million
Cost of design* — AUD 10 million

* It is approximate cost. The estimations were made on the basis of a simplified scheme not including the cost of the off-site works, the cost of land and activities associated with design and construction of a string transport system. The cost of STU will amount to 5—7% of the total cost of the complex.

Top view of multi-functional residential complex "Island"