INSTITUTE
GIPROSTROYMOST
SAINT PETERSBURG

CABLE STAYED BRIDGES

JSC Institute Giprostroymost –

Saint Petersburg

Since 1968

A rational engineering solution is at the heart of all projects developed and implemented by the Institute. Combining the expertise of both structure and technology developers, the Institute solidified its leading position among its peers in the industry.

Over the 55 years, the Institute Giprostroymost – St. Petersburg contributed to construction and reconstruction of over 750 infrastructural, civil and industrial facilities. Hi-tech structures designed by the Institute team are spread over various regions of Russia and abroad – in Vietnam, Latvia, Finland, Kazakhstan & Turkmenistan.

JSC Institute Giprostroymost – St. Petersburg is widely recognized for solution of complex challenges with a lot of ingenuity involved. For each project development innovative solutions are implemented, which then often become the mainstay of transport infrastructure construction. Such an innovative approach produces truly unique structures that combine cutting-edge technologies, economic effectiveness and a distinctive architectural appearance.

BRIDGE OVER THE **MOSCOW RIVER NEAR NOVOZAVODSKAYA** STREET, MOSCOW CITY

PROJECT DESCRIPTION

Cable stayed bridge is being conceived over the Moscow River near Novozavodskaya Street.

The above construction is considered as a part of the of transportation infrastructure development of the Mnevnikovskaya Bay territory adjacent to the Northwestern Expressway including the access roads, with reconstruction of existed utility network (Stage I).

New bridge crossing is being designed in accordance with architect conception of the Moscow City. Cable stayed system is being presented via sail shape steel structure.

WORK ON THE PROJECT

Project Documentation Stage:

- the entire cycle of engineering survey
- hydrological calculation
- air dynamic testing
- full range of design work on main structures with proper calculations
- traffic management design
- reconstruction of utilities
- design of outdoor illumination with architectural lighting, power supply, water drainage and navigation lights
- design of structures included in the infrastructure of a linear facility
- construction organization design
- environment safety design
- fire safety design
- structural monitoring for the period of construction as well as per period of site service
- maintenance design for the period of service
- estimate documentation design

CLIENT

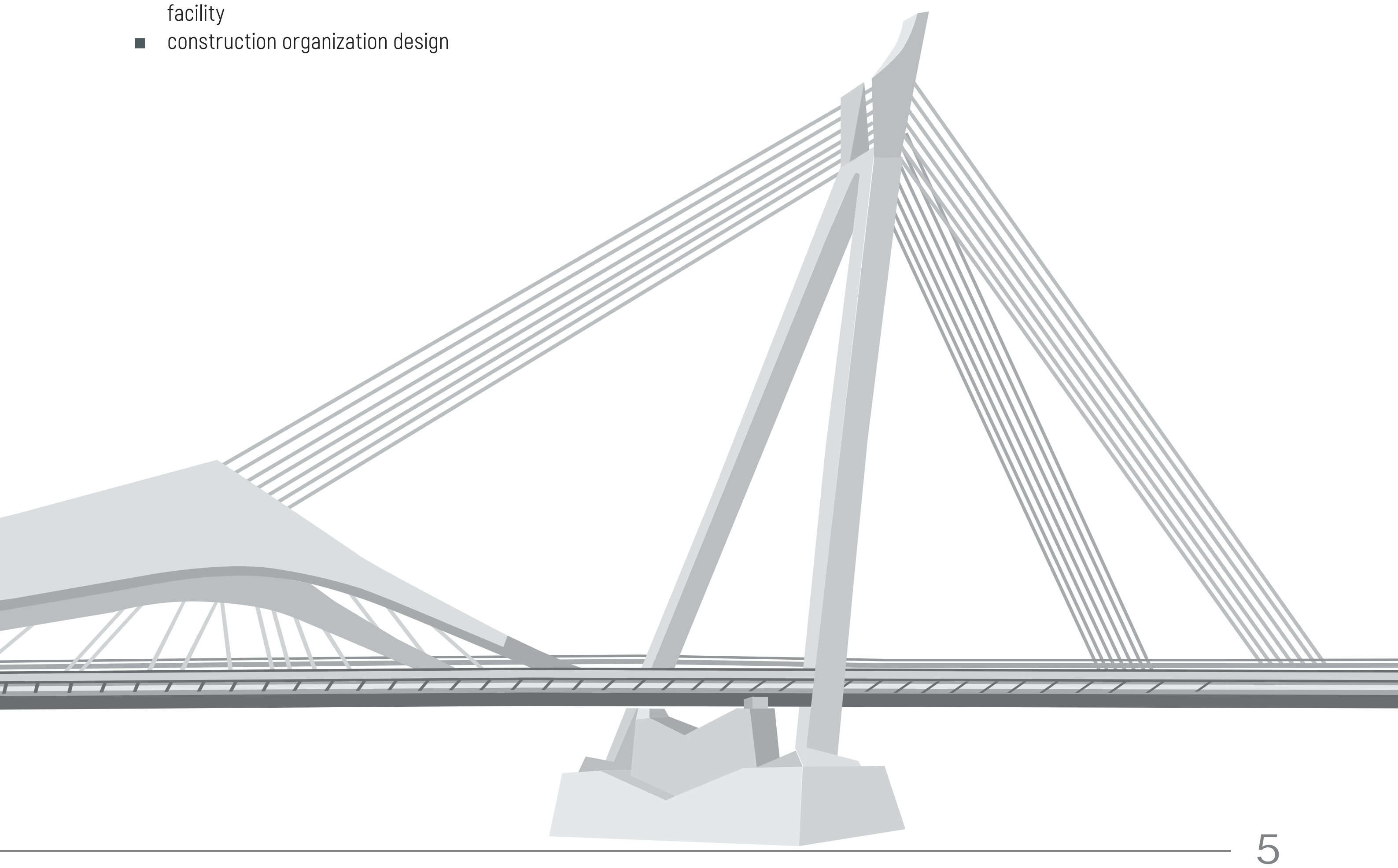
Moscow Federal Enterprise 'Road and Bridge Construction Department'

DESIGN PERIOD

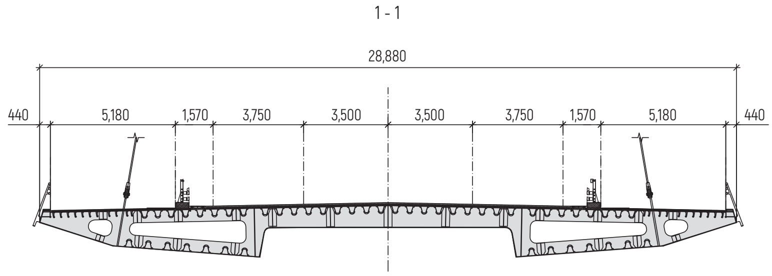
2022 – 2023

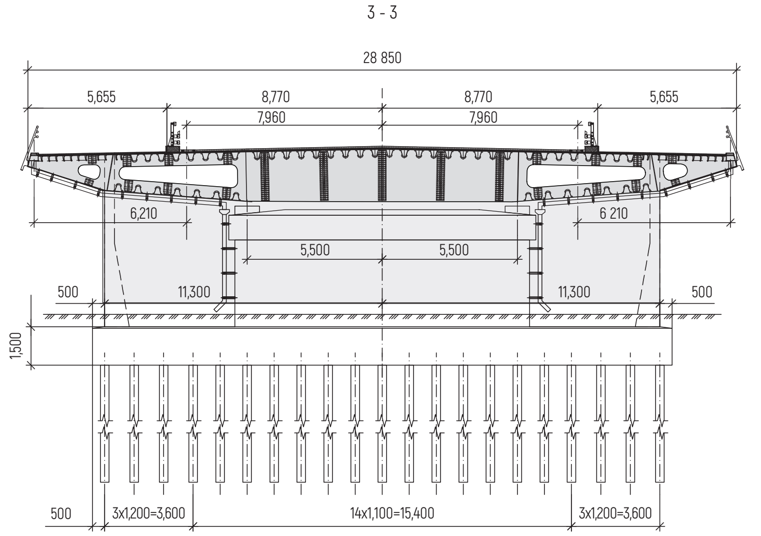
CONSTRUCTION PERIOD

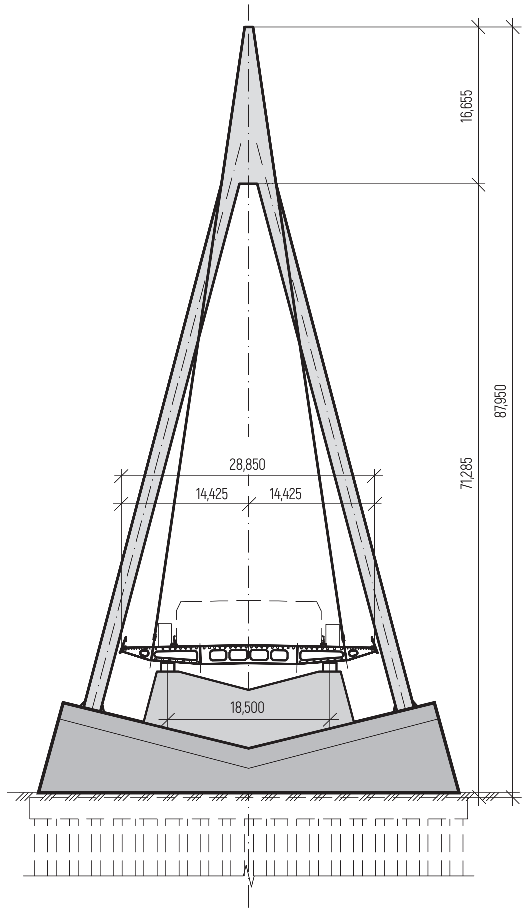
2024 – 2027

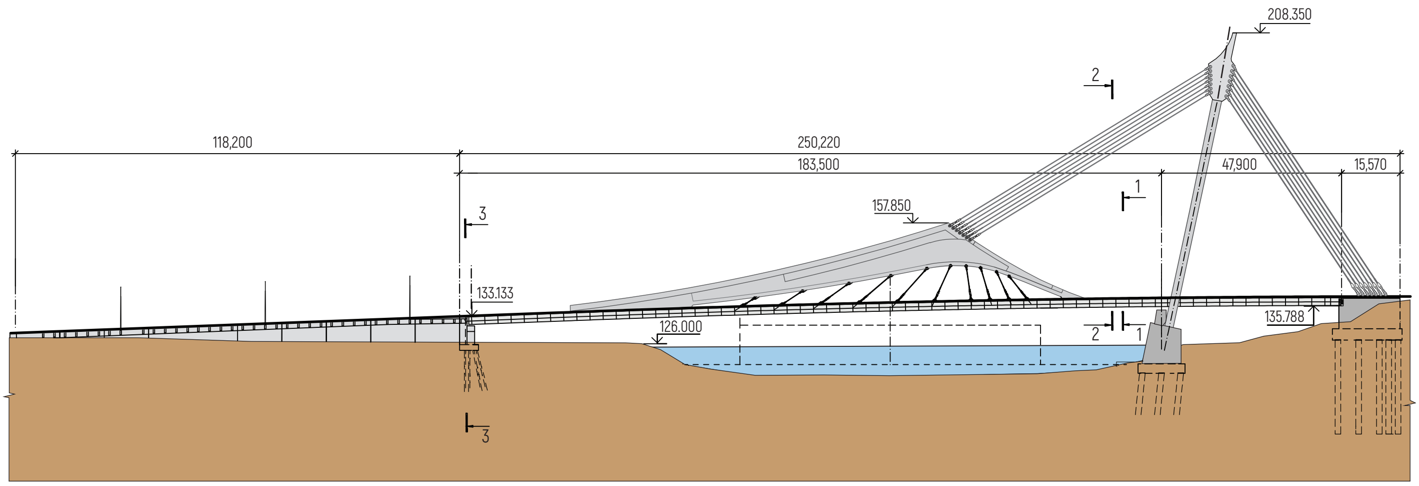


BRIDGE DIAGRAM









BRIDGE SCHEMA
183.5+47.9

BRIDGE CLEARANCE
10.5 x 80 m

PYLON HEIGHT
82 m

LENGTH OF THE BRIDGE FROM ABUTMENTS
250.22 m

CARRIAGEWAY OVERALL DIMENSION
Г – 16.5

BICYCLE LANE WIDTH
1.5 m

BRIDGE WIDTH
29 m

PEDESTRIAN LANE WIDTH
3 m

LANES QUANTITY
4

BRIDGE CROSSING OVER THE **LENA RIVER, YAKUTSK** REGION, YAKUTIA SOHA REPUBLIC, **RF**

PROJECT DESCRIPTION

Being designed bridge crossing should be constant comfortable link with Federal Motorway 'Vilui' with highways 'Lena' and 'Kolima'. This bridge should ensure the shortest connection of Eastern Siberia with Sea of Ohotsk ports via Irkutsk up to Magadan City.

Total length of new cable stayed bridge over the Lena River with approaches is considered as 14.7 kilometers.

TECHNICAL FEATURES

- bridge length – 3.1 km
- width of the bridge – 21 m
- clearance dimension– 2 x 3.75 m
- pylon height from carriageway level – 240 m, 160 m
- lanes quantity – 2 pcs
- navigation passage dimension – 2 x 140 m
- clearance height– 17 m

WORK ON THE PROJECT

Project Documentation Stage:

- general design
- fulfillment engineering survey
- development carriageway
- development main structures
- development technology of construction
- development SAC&D
- development
- passage Federal Expertise

Work Documentation Stage.

CLIENT

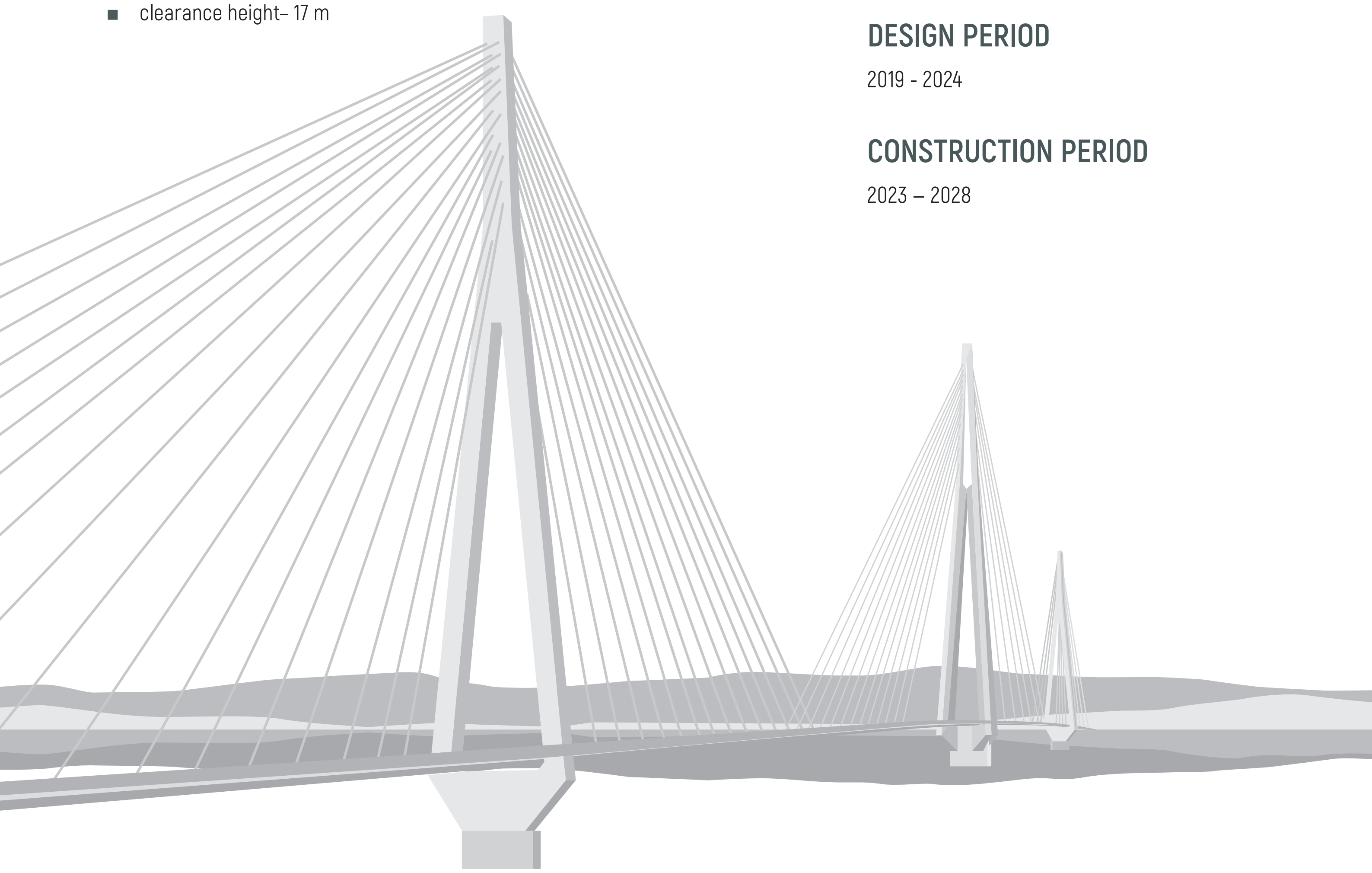
VIS Ltd

DESIGN PERIOD

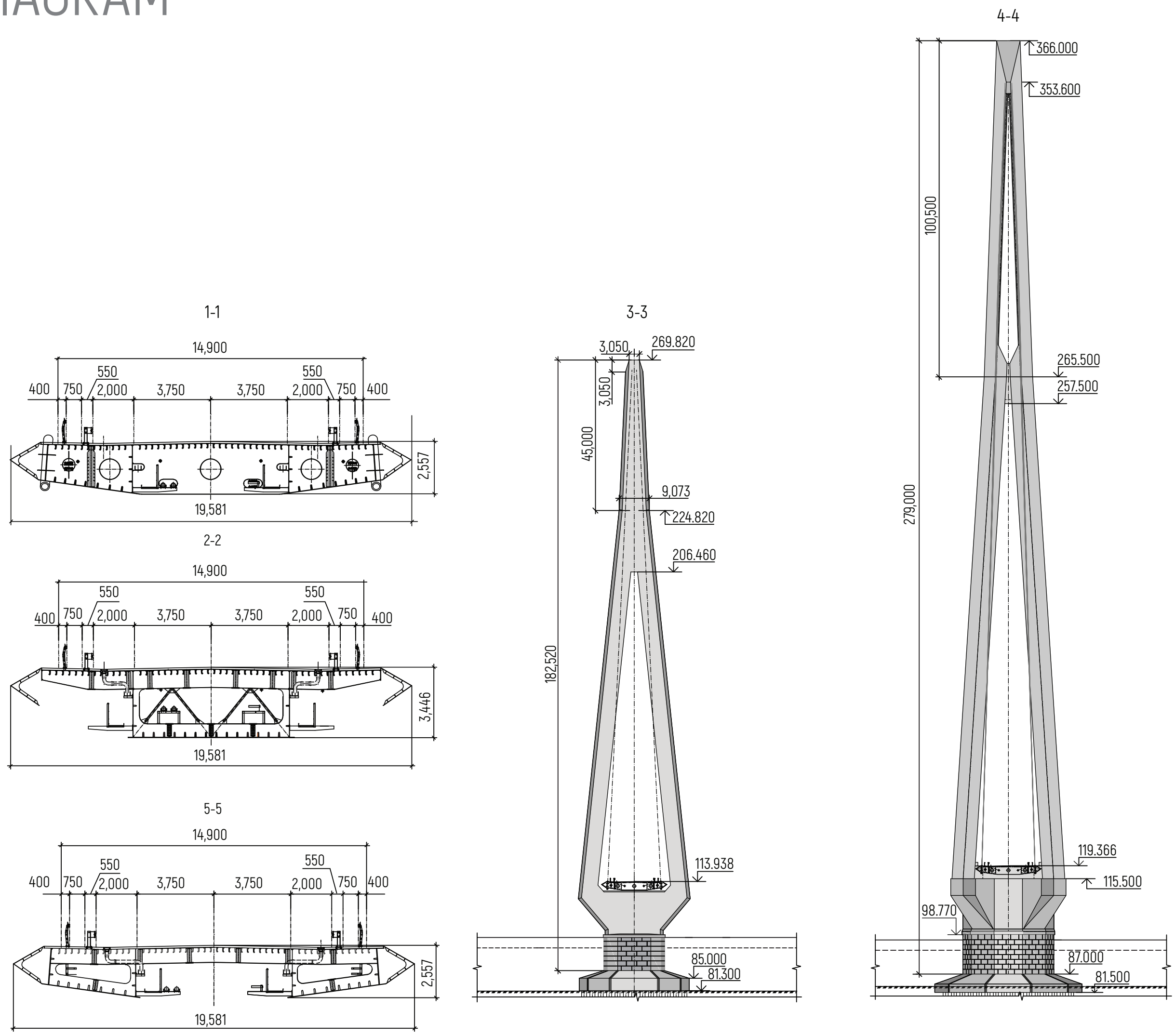
2019 - 2024

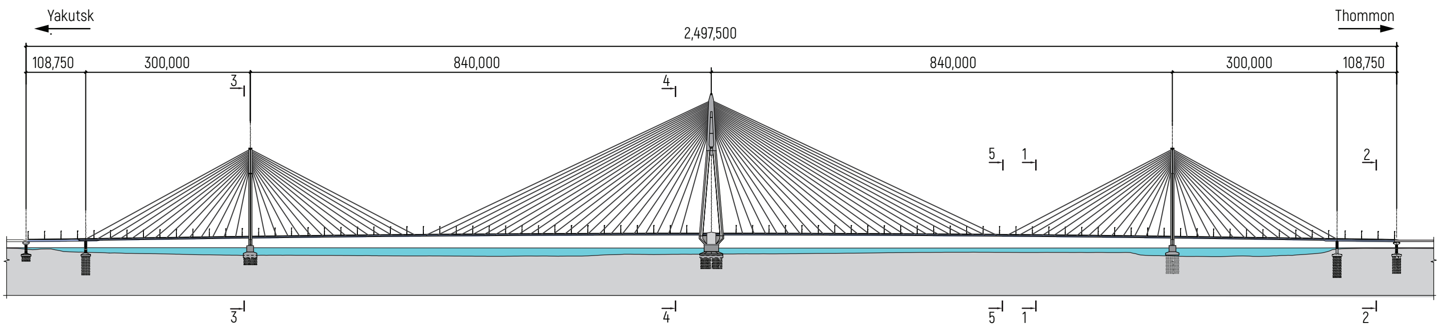
CONSTRUCTION PERIOD

2023 – 2028



BRIDGE DIAGRAM





BRIDGE SCHEMA
105+300+2x840+300+105

TOTAL BRIDGE LENGTH
5.36 km

BRIDGE WIDTH
21 m

UNDERCLEARANCE
2x140 m
CLEARANCE HEIGHT
17 m

NUMBER OF LANES
2

HEIGHT OF THE CENTRAL PYLON
279 m

HEIGHT OF SIDE PYLONS
182.5 m

BRIDGE CROSSING OVER THE **KALININGRAD BAY** (KÖNIGSBERG MEERBUSEN)

PROJECT DESCRIPTION

Being designed construction site allows us to arrange new Ring Road via Southern and Northern highways connection around Kaliningrad as well as helps us to downsize the distance between existed settlements by 40km. Project realization shall put together transportation flows of North-West plus direct them towards Highway-1A ‘Riga – Kaliningrad – Danzig’, which should improve transportation status quo of the city as well as the above plan can remove heavy trucks out of that cluttered downtown. Subsequent to project completion urban budget must be in much better condition due to extra taxes flow.

New bridge crossing should connect settlements Kosmodemiyanskogo and Shosseini. Total length of road infrastructure including Pregel River is considered as 15 km long. Speedy 4 -lane highway should be part of Ring Road within popular recreational zone.

TECHNICAL FEATURES

- total length of bridge crossing – 2,684 m
- spans – solid reinforced concrete
- total length of motorway – 8,075 km
- road class – IB
- lanes number – 4 pcs.
- width of earthwork – 27.5 m
- carriageway width – 2×7.5 m

SITES OF ROAD CONSTRUCTION

- technological flyovers – 4 pcs.
- approach flyovers – 2pcs.
- bridges – 1 pcs.

WORK ON THE PROJECT

Project Documentation Stage:

- general design
- engineering survey
- carriageway design
- design of main structures
- construction technology development
- SAC&D with DD preparation
- estimation paperwork development
- passage of environmental expertise
- passage of Government expertise

Work Documentation Stage.

CLIENT

OOO VIS

CONCESSIONER

Tenth Concession Company LLC

GRANTOR

Government of the Kaliningrad region

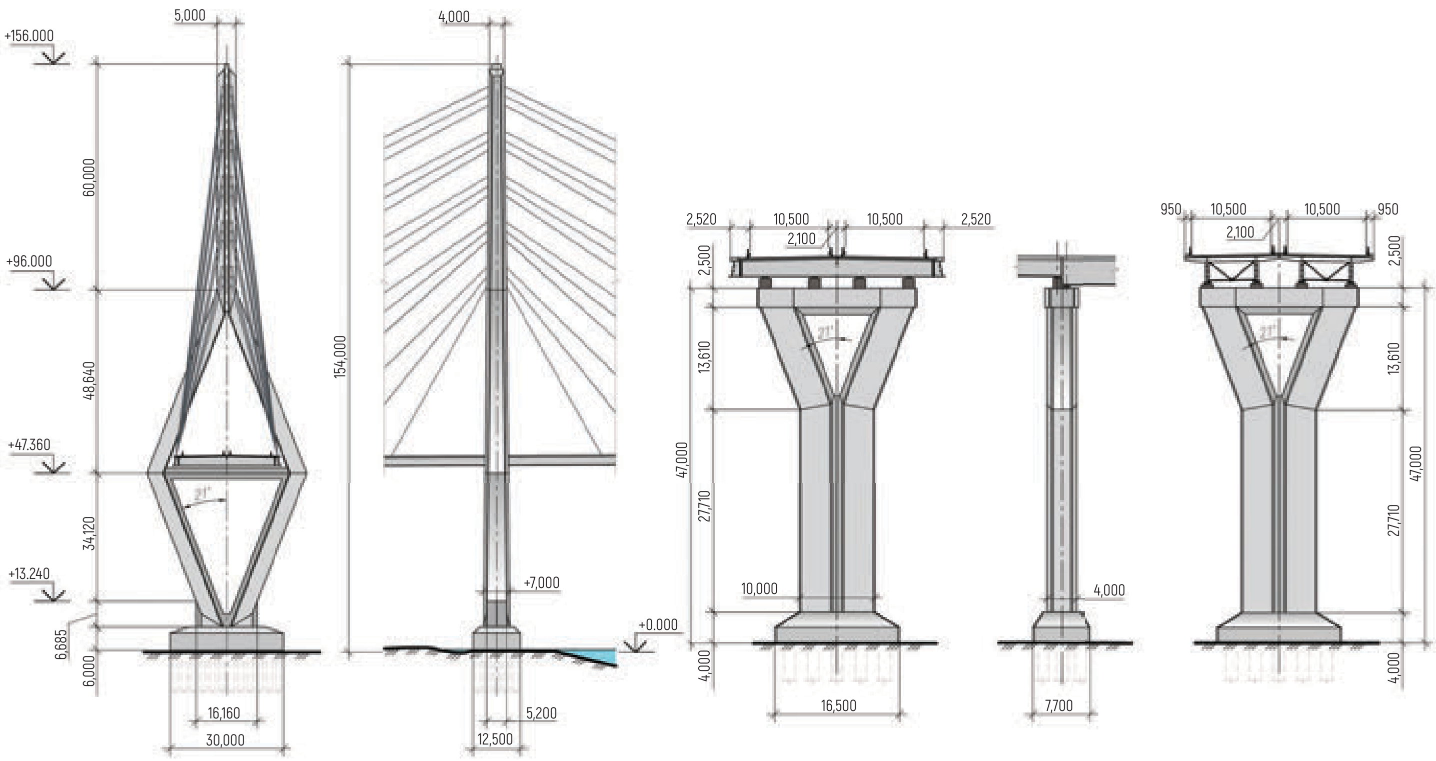
DESIGN PERIOD

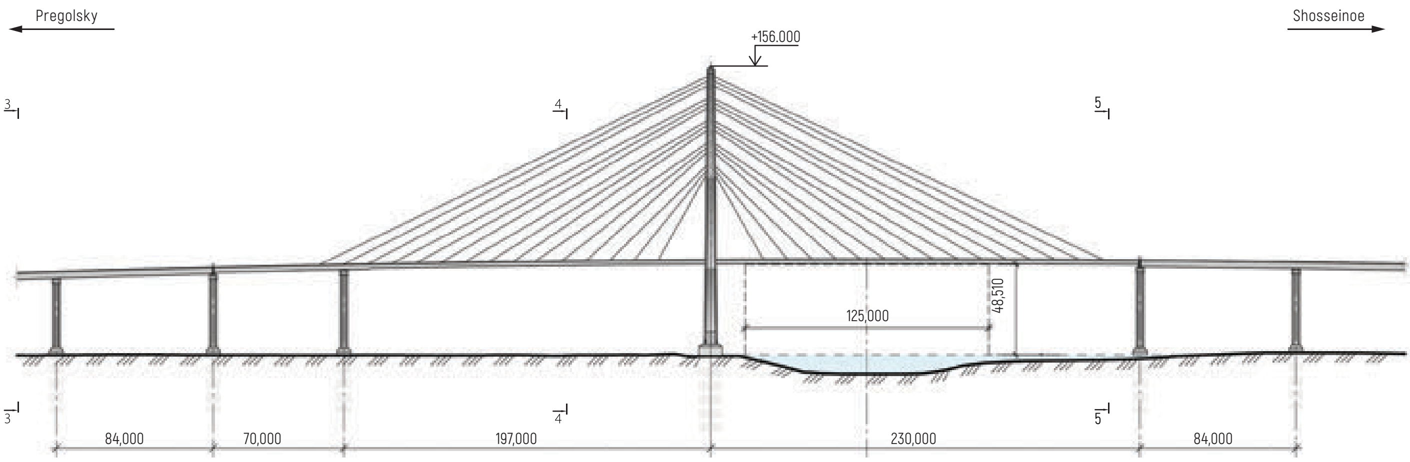
2019 – 2023

CONSTRUCTION PERIOD

2024 – 2027

BRIDGE DIAGRAM





BRIDGE SCHEMA
70+197+230

TOTAL BRIDGE LENGTH
2,637 m

BRIDGE WIDTH
25 m - 28 m

UNDERCLEARANCE
125 m

CLEARANCE HEIGHT
48.51 m

CARRIAGEWAY WIDTH
2×7.5 m

NUMBER OF LANES
4

PYLON HEIGHT
154 m

CABLE-STAYED BRIDGE OVER THE **SHEKSNA RIVER**, **CHEREPOVETS**, RUSSIA

PROJECT DESCRIPTION

Two H-type pylon Cable-Stayed Bridge Crossing is being connected Zarechenskiy and Zashekninskiy districts on Arkhangelskaya street in Cherepovets City.

TECHNICAL FEATURES

- reinforced concrete pylons
- stays length – 5,428 m
- weight of stays – 325 t
- composite reinforced concrete superstructures
- carriageway overall dimension – 2(Г-14.25)
- sidewalks – 2x3.0 m

WORK ON THE PROJECT

- general design
- design of basic structures (bridge and approach flyovers)
- integrated design
- development of architectural solutions
- design of SAC&D and Construction Method Statement
- road design
- illumination design
- navigation signaling design
- design of aviation signaling
- landscaping design
- technical supervision

CLIENT

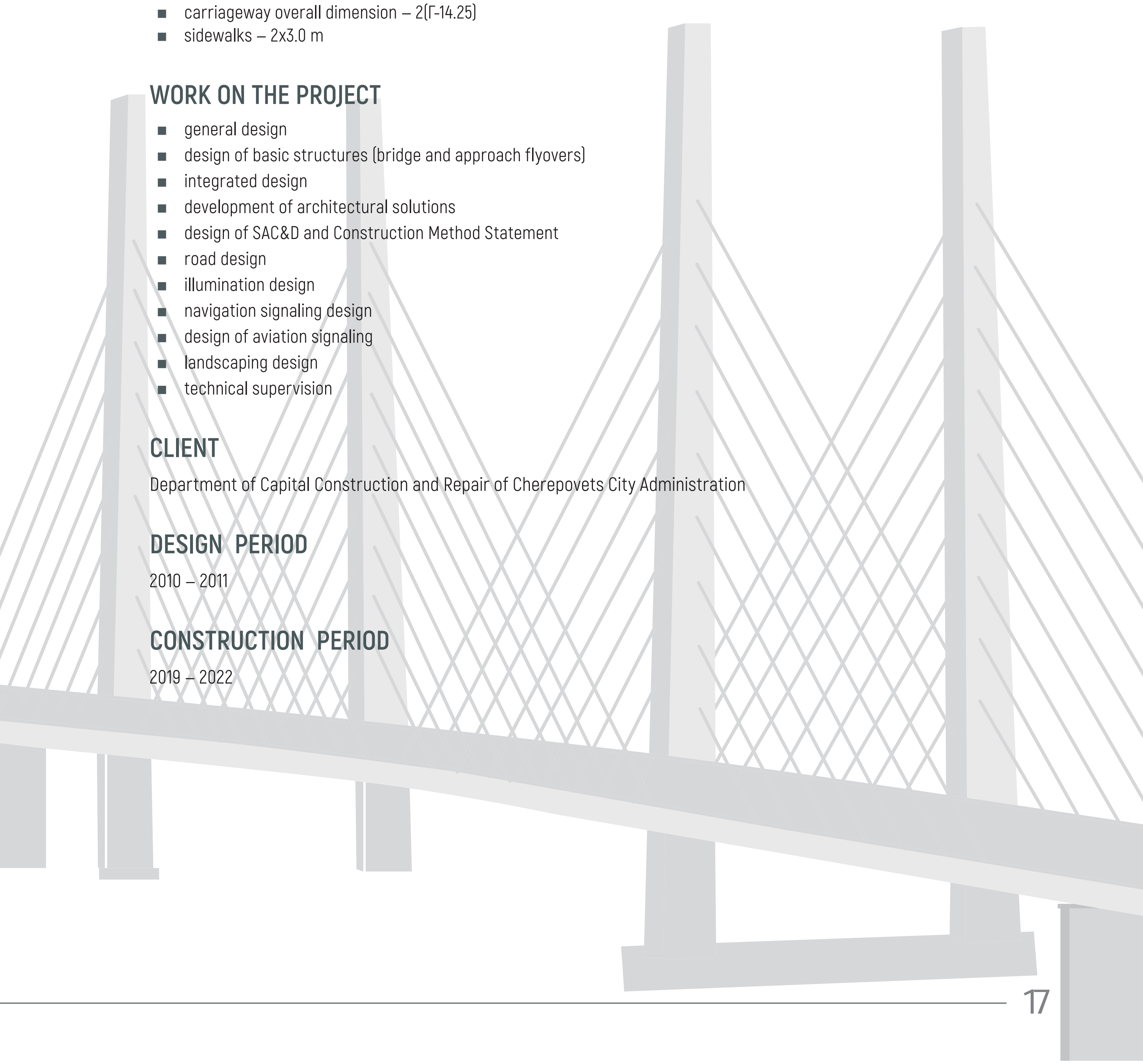
Department of Capital Construction and Repair of Cherepovets City Administration

DESIGN PERIOD

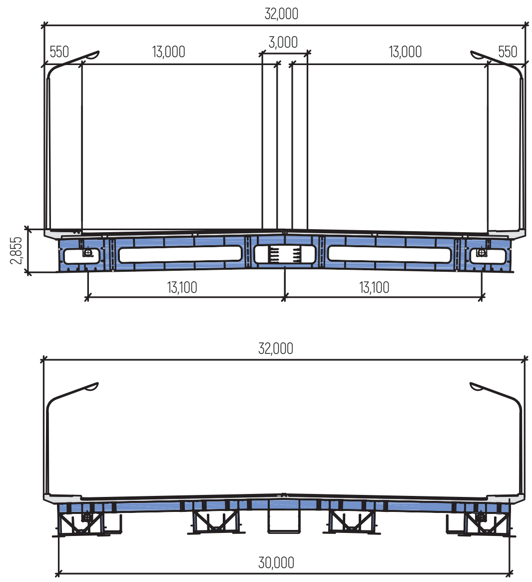
2010 – 2011

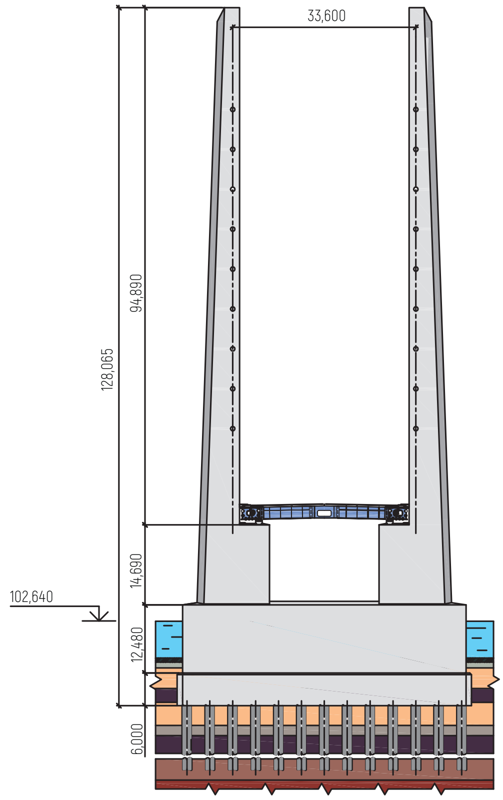
CONSTRUCTION PERIOD

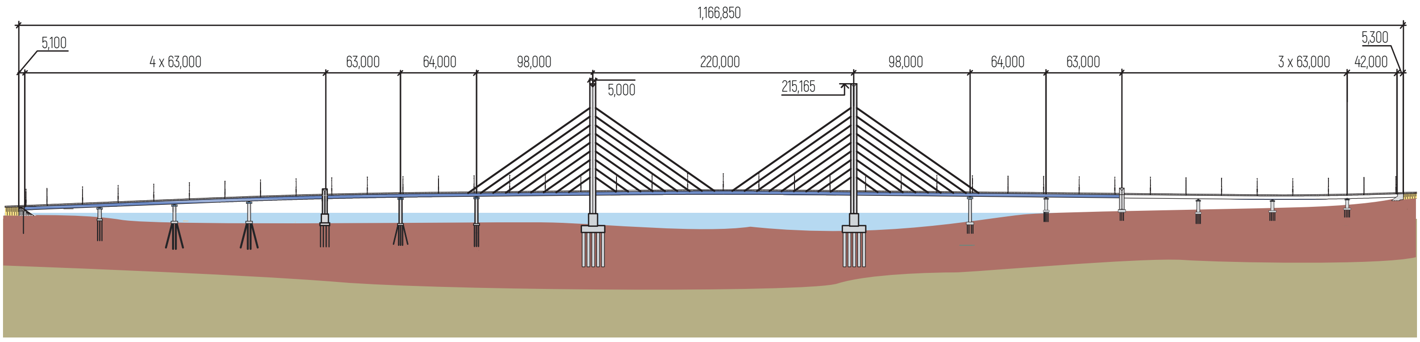
2019 – 2022



BRIDGE DIAGRAM







BRIDGE SCHEMA
4x63+63+64+98+220+98+64+63+3x63+42

TOTAL BRIDGE LENGTH
1,166,850 m

BRIDGE WIDTH
30 m

MAIN SPAN
220 m

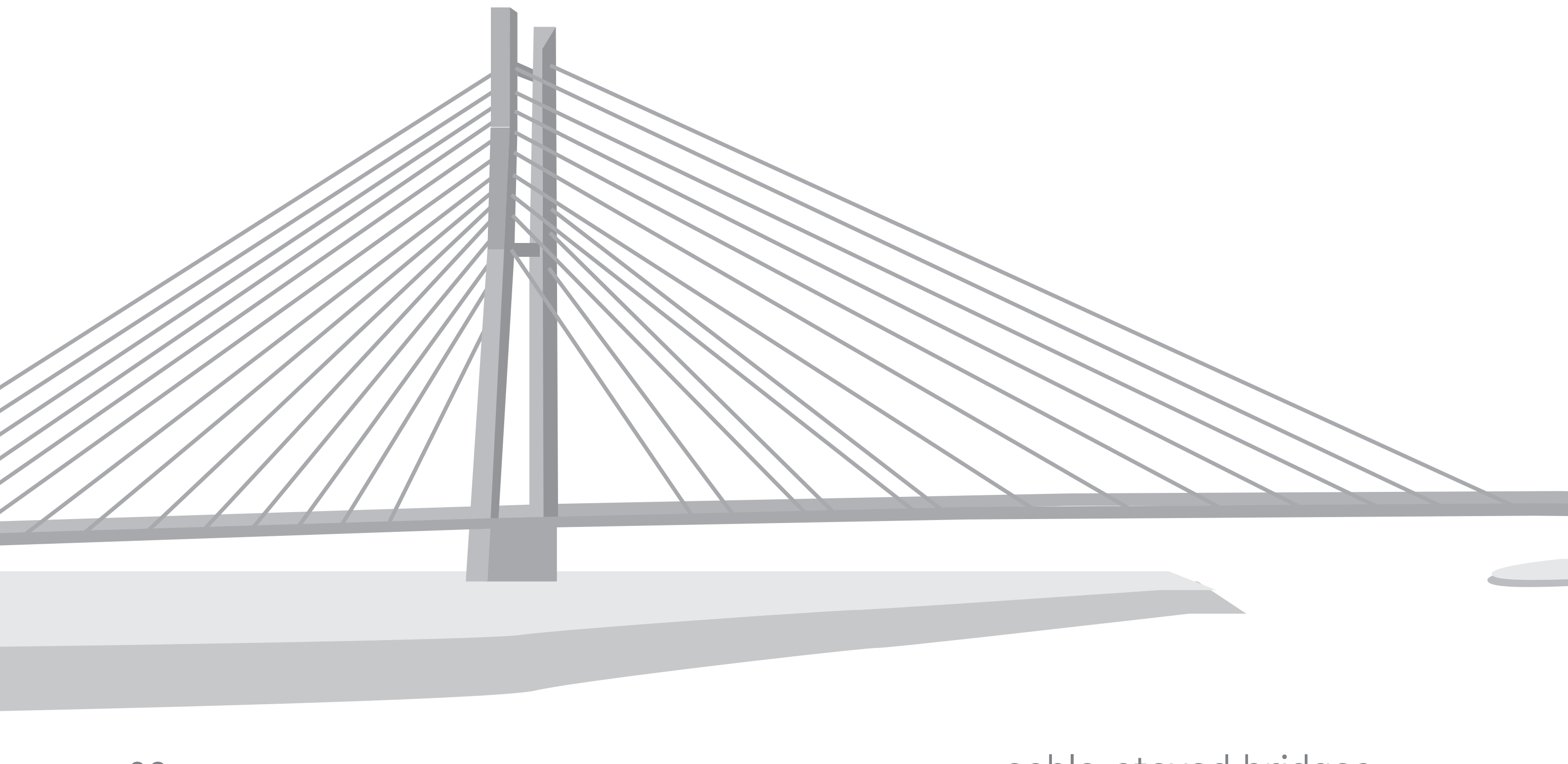
UNDERCLEARANCE
180 m

CLEARANCE HEIGHT
17 m

NUMBER OF LANES
6

PYLONS HEIGHT
128 m

NUMBER OF PYLONS
2



CABLE-STAYED BRIDGE OVER THE DAUGAVA RIVER IN JEKABPILS CITY, LATVIA

PROJECT DESCRIPTION

For Jekabpils inhabitants this bridge is the essential link of local infrastructure. In early sixties of the last century, after completion of the first bridge over the Daugava River, a decision was taken regarding unification of two towns along the river bank being named later as Jekabpils City.

As for now, in the event of second bridge crossing design realization, the city must grow into important regional transition hub. On the right bank of Daugava River new bridge approaches will be connected with the motorway Riga-Daugavpils and on the other river side with transportation interchange of Brivibis and Neretas Streets toward Lithuania. New bridge is being designed with two lanes of transportation of 8.5m width plus two pedestrian lanes. Total length of the structure should be 1.35 km with bridge span of 420 m.

WORK ON THE PROJECT

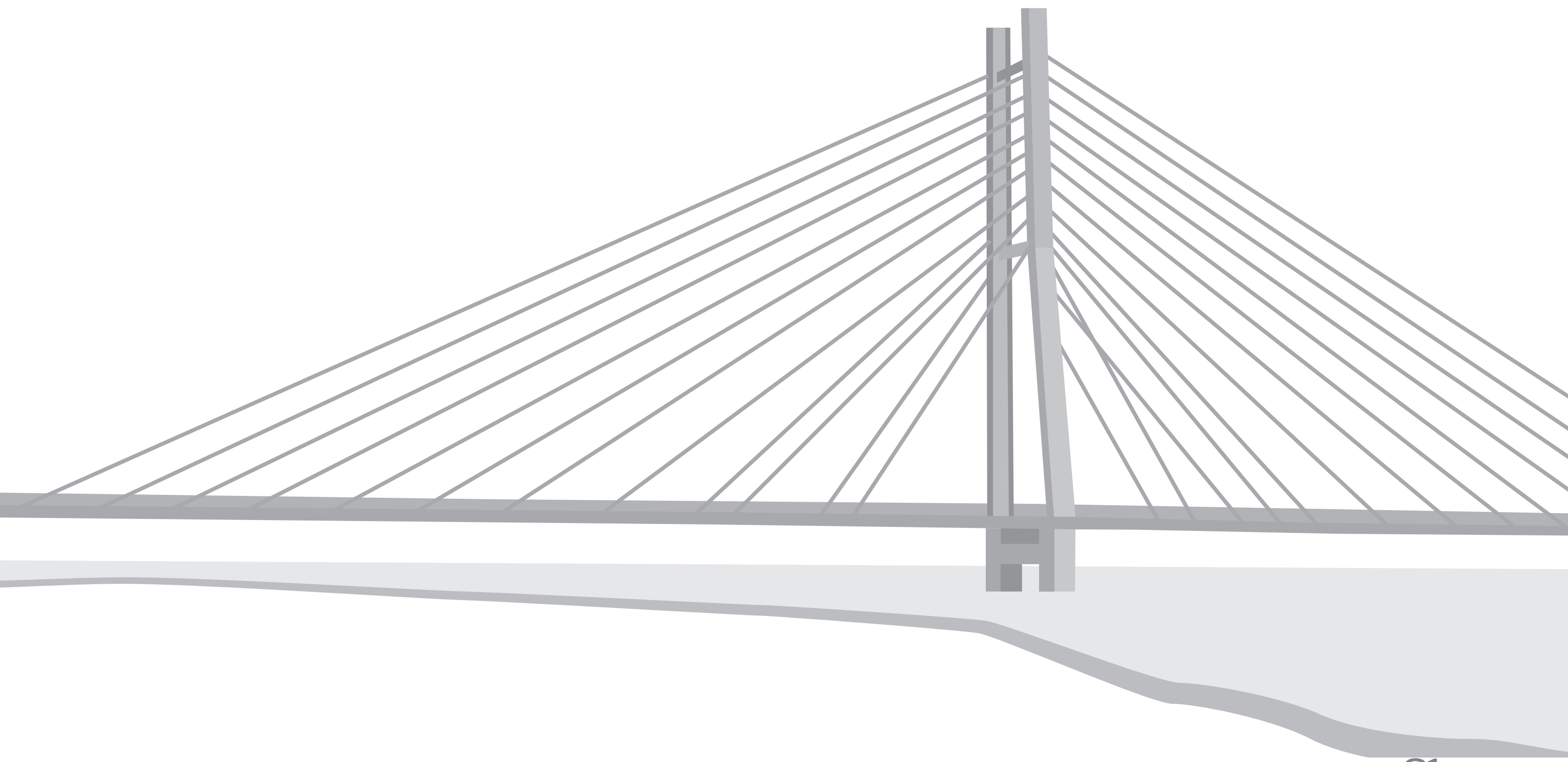
- detailed structural analytical assessment plan with afterward examination of developed solutions
- aerodynamic testing performance of bridge cross-section model with recommendation presentation concerning bridge cross-section characteristics correction
- aerodynamic testing performance of scale bridge crossing model plus recommendation presentation regarding bridge characteristics possible correction

CLIENT

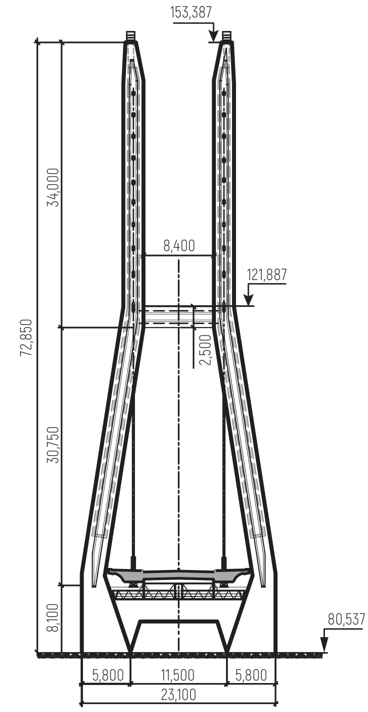
AS Ceļuprojekts

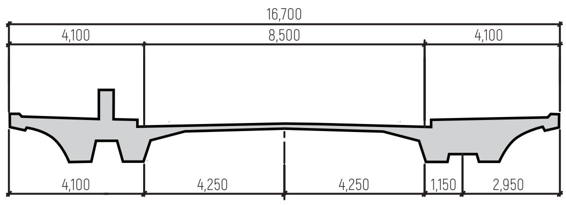
DESIGN & CONSTRUCTION PERIODS

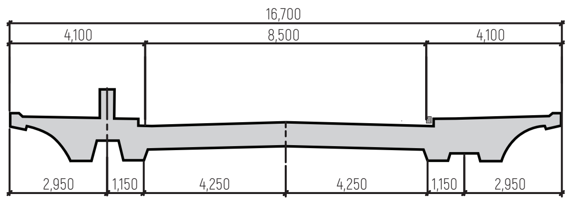
2016 - 2018

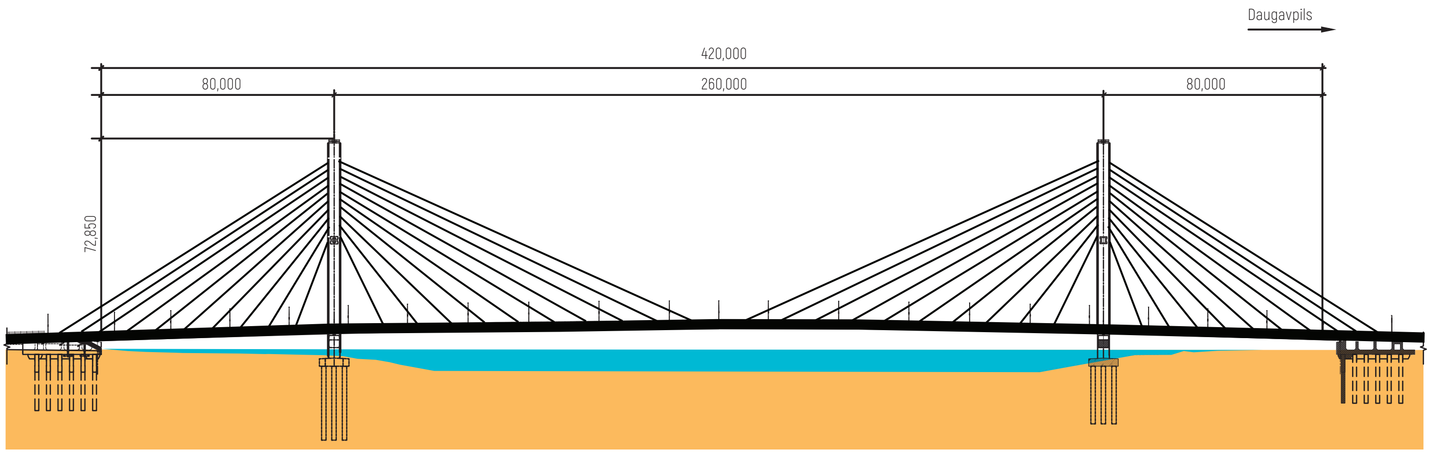


BRIDGE DIAGRAM









BRIDGE SCHEMA
80+260+80

TOTAL BRIDGE LENGTH
420 m

WIDTH OF BRIDGE
16.7 m

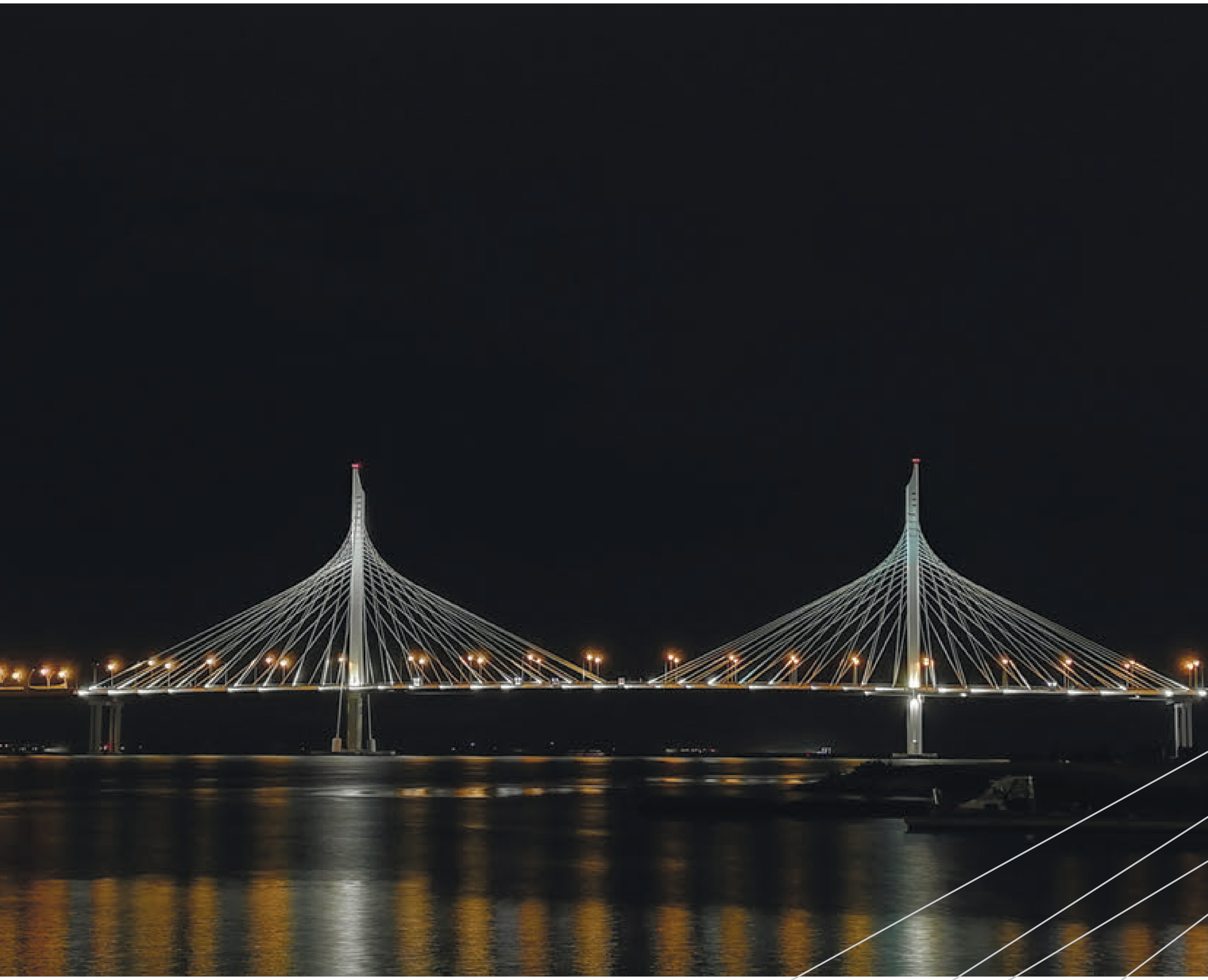
CLEARANCE HEIGHT
6 m

NUMBER OF LANES
2

PYLONS HEIGHT
73 m

NUMBER OF PYLONS
2

BRIDGE OVER THE **PETROVSKY** CHANNEL, **ST. PETERSBURG**, RF



PROJECT DESCRIPTION

The Bridge Crossing was conceived as a part of the important city Motorway Western High Speed Diameter. The structure is located on convex curve of 10,000 m. Projection of upstream clearance is 166x25 m and downstream clearance is 80x25 m.

Foundations of piers were fulfilled as bored piles Ø1,500 mm. Deck cross-section is presented as a structure of four main girders of 1.76 m height within stay cable system. Abutments composed of six box type main girders of 1.76 m height. Bridge girders were connected via beams on distance of 65 m. (3 m per edge piers).

Composite monolithic carriageway slab thickness is 220 mm. SSI2000 was an option of stay cable system with galvanized strands individually greased and coated with a high-density polyethylene sheath. The strands are used in accordance with the EN10138 standard. Total strands are seven wire 15.7mm diameter. Designated distance within stays is 13 m.

TECHNICAL FEATURES

- Carriageway clearance 2 x (Г – 17.5)
- RC pylons

WORK ON THE PROJECT

- Architectural conception design
- Main structures design
- Working Documentation per Cable Stayed Bridge
- SAC&D per the bridge structure
- MS development and issue
- Technical Supervision

CLIENT & GENERAL CONTRACTOR

JSC WHSD

CONTRACTOR

ICA Astaldi Ictas

OWNER

Northern Capital Highways, Ltd

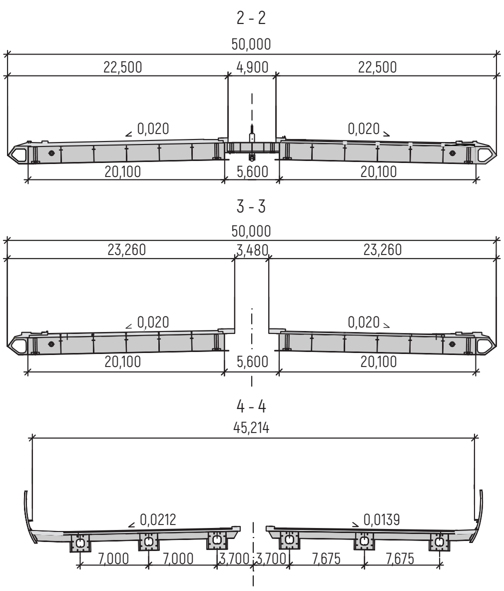
DESIGN PERIOD

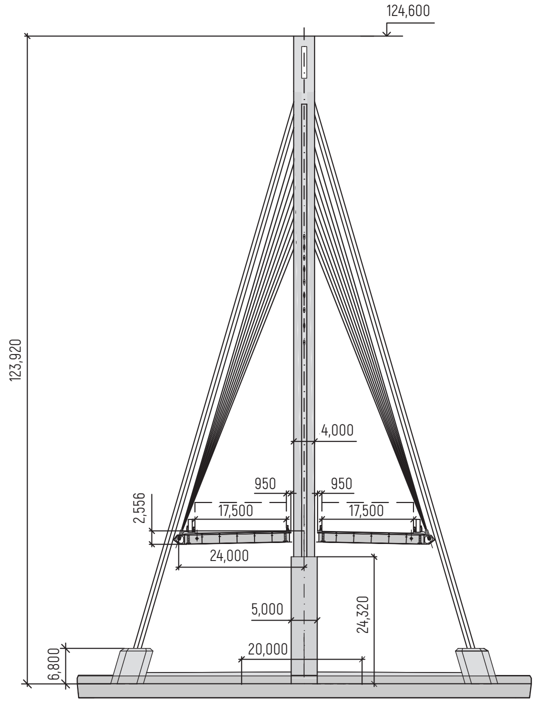
2013 – 2014

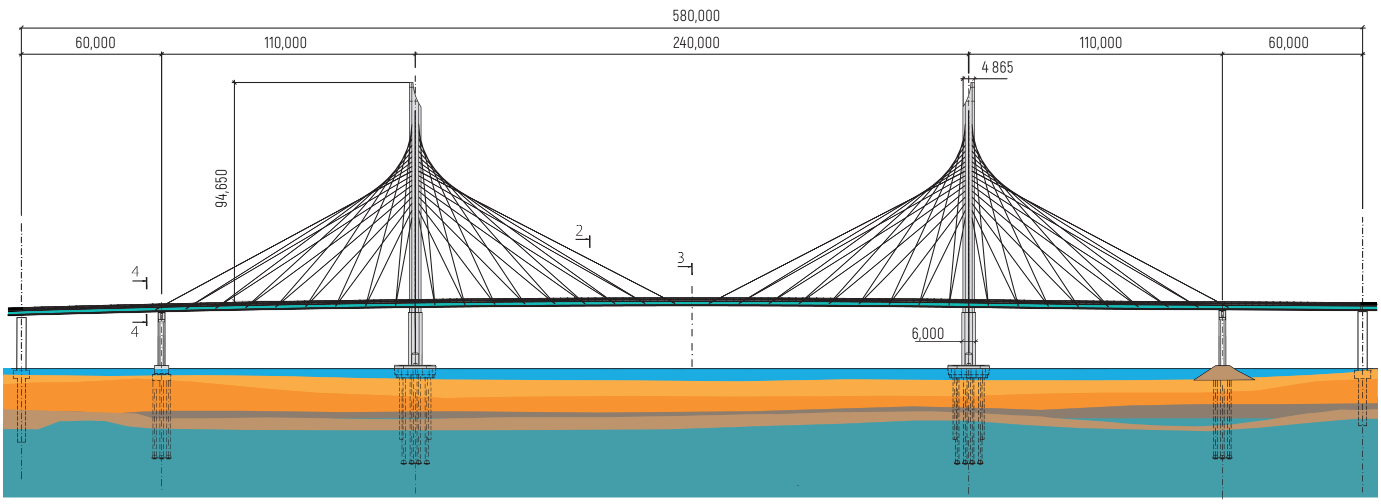
CONSTRUCTION PERIOD

2016

BRIDGE DIAGRAM







BRIDGE SCHEMA
60+110+240+110+60

BRIDGE LENGTH
580 m

MAIN SPAN
240 m

WIDTH OF BRIDGE
50 m

NUMBER OF LANES
8

UNDERCLEARANCE
166 m

CLEARANCE HEIGHT
25 m

PYLONS HEIGHT
124 m

NUMBER OF PYLONS
2

GOLDEN BRIDGE, VLADIVOSTOK, RF

PROJECT DESCRIPTION

Bridge Crossing over the Federal motorway M-60 «Ussury» Khabarovsk - Vladivostok - Russkiy Island. Crowned in city center near Gogolya and Nekrasovskaya Streets in Southern part plus Kalinina Street in Northern part of the city. Total length of bridge crossing is 2.1 km.

TECHNICAL FEATURES

- center span – steel structure
- anchor span – prestressed cast in-situ concrete
- girder width between barriers – 29.4 m
- girder height – 3.5 m
- weight of stays – 1,845 t
- overpass total area – 43,030 m^2

WORK ON THE PROJECT

Project Documentation Stage:

- fulfillment of design works as a subcontractor
- bridge construction design
- passing of Federal Expertise.

Work Documentation Stage:

- general design
- total main structures design
- SAC&D and MS development
- financial estimates
- technical supervision.

CLIENT

Primorskiy Kray Road Department

GENERAL CONTRACTOR

TMK Ltd

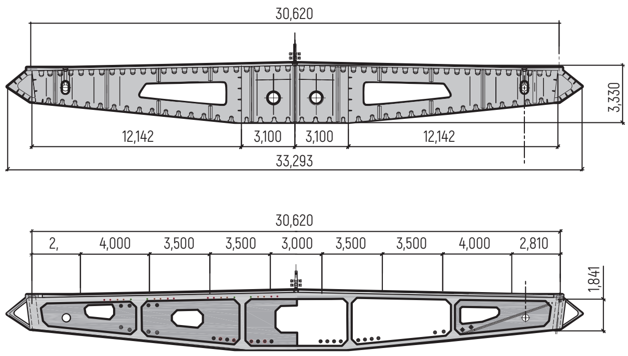
DESIGN PERIOD

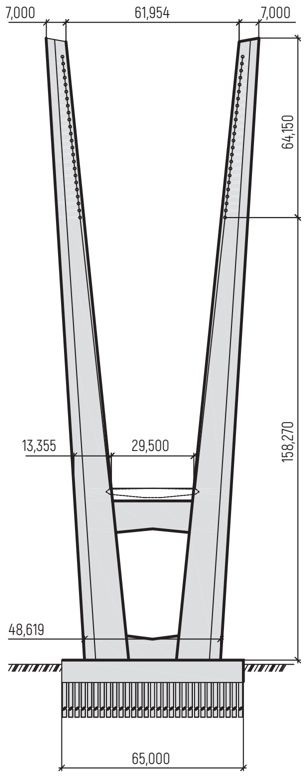
Project Documentation Stage: 2006 – 2008
Work Documentation Stage: 2008 – 2010

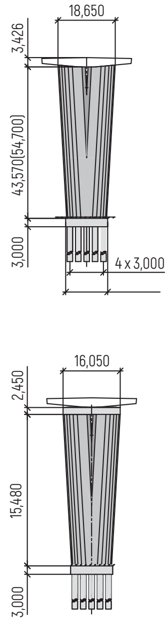
CONSTRUCTION PERIOD

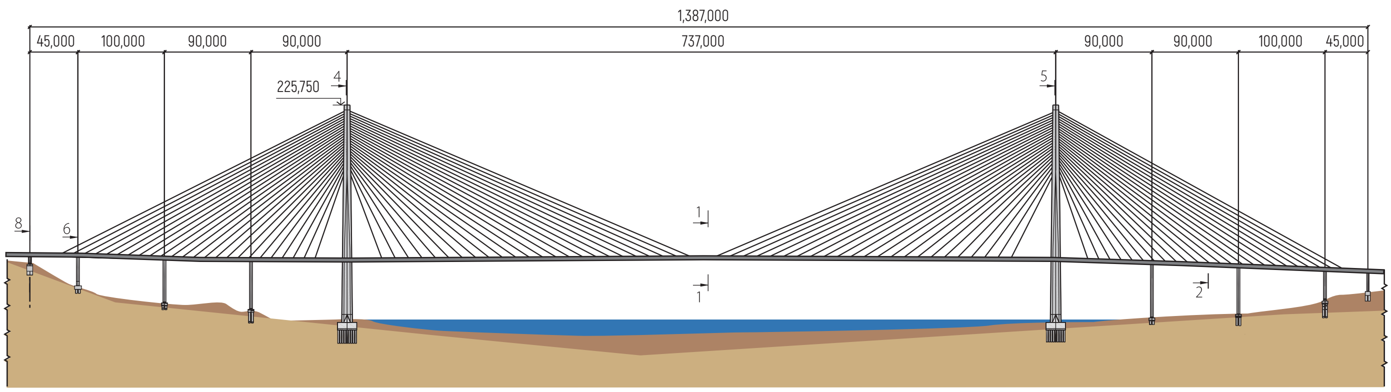
2008 – 2012

BRIDGE DIAGRAM









BRIDGE SCHEMA
45+100+2X90+737+2X90+100+45

BRIDGE LENGTH
1,387 m

MAIN SPAN
737 m

WIDTH OF BRIDGE
33 m

CLEARANCE HEIGHT
60 m

NUMBER OF LANES
4

PYLON HEIGHT
225 m

NUMBER OF PYLONS
2

CABLE-STAYED **BRIDGE RUSSKY, VLADIVOSTOK**, RUSSIA

PROJECT DESCRIPTION

Cable-stayed bridge on Russky island, Vladivostok. One of the world biggest cable-stayed crossing of 1,104 m with the highest pylons and longest stay cables ever build currently. Total length with approaches – 3,100 m.

WORK ON THE PROJECT

Project Documentation Stage:

- design of project stage
- design of SAC&D, main structures
- aerodynamic tests
- control of technical decisious
- verification analysis

CLIENT

Road Administration of Primorskiy Kray

Rosavtodor, Mostovik

GENERAL CONTRACTOR

JSC USK Most

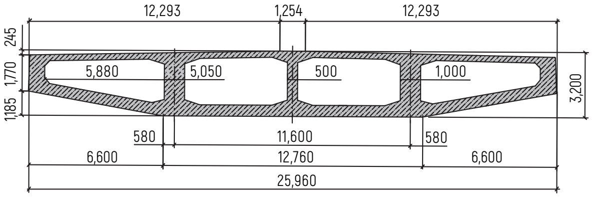
DESIGN PERIOD

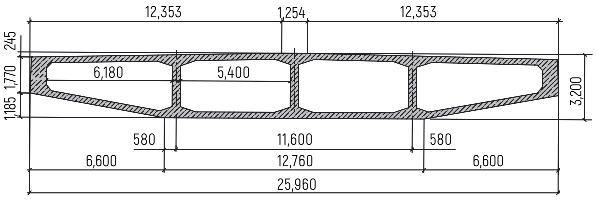
2008 – 2012

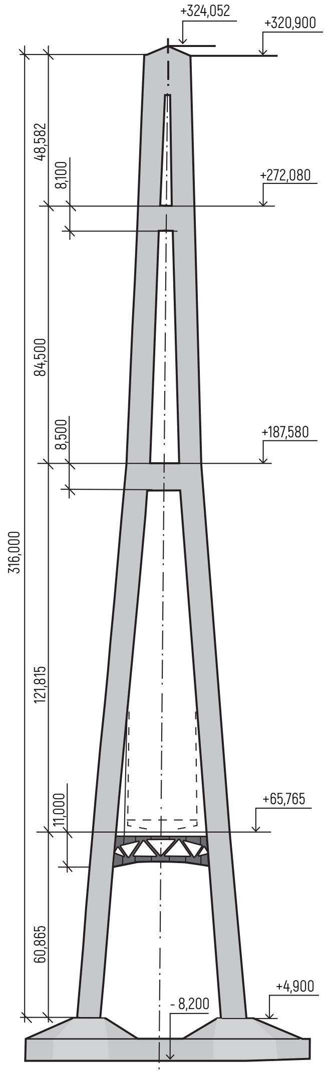
CONSTRUCTION PERIOD

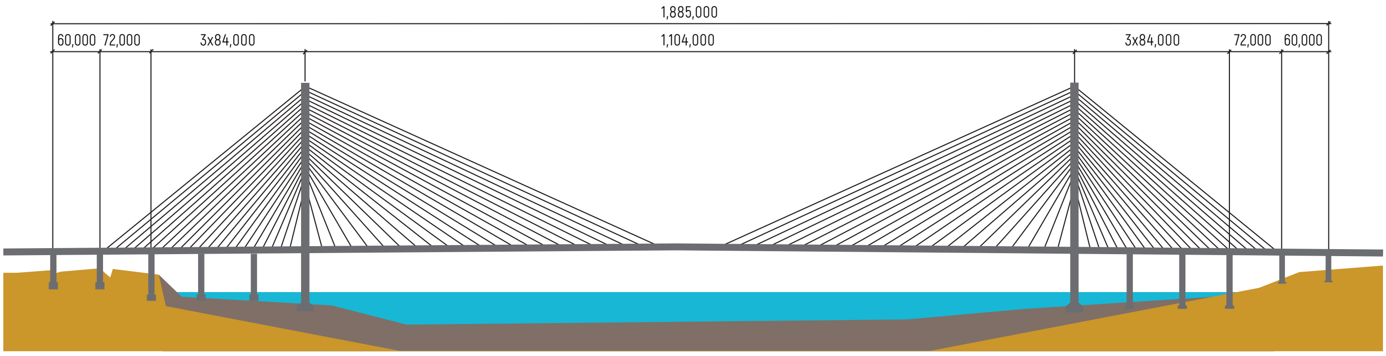
2009 – 2012

BRIDGE DIAGRAM









BRIDGE SCHEMA
60+72+3x84+1,104+3x84+72+60

MAIN SPAN
1,104 m

BRIDGE LENGTH
1,885 m

BRIDGE WIDTH
29.5 m

BRIDGE CLEARANCE
70 m

NUMBER OF LANES
4

PYLONS HEIGHT
320.9 m

NUMBER OF STAYS
168

LONGEST STAY CABLE
578.08 m

SHORTEST STAY CABLE
181.3 m

VIADUCT **ALEXANDROVSKAYA FERMA, SAINT PETERSBURG,** RUSSIA

PROJECT DESCRIPTION

Overpass over RR stations St. Petersburg – Sortirovochniy – Moskovskiy Prospekt along Alexandrovskaya Ferma.

Structure of overpass fulfilled as continuous steel span of box section with orthotropic slab, all-metal structure of middle span and back spans out of reinforced concrete. Viaduct has curved form with radius of 400 m. Cable-staed ferms are within plane along overpass axis.

WORK ON THE PROJECT

- bridge crossing conception
- design of main structures of overpass
- technology of construction
- design of SAC&D
- development of Method Statements (MS)
- structural monitoring during construction stage and service period
- field supervision

CLIENT

Road Administration of Saint Petersburg

JSC Lengiprotrans

GENERAL CONTRACTOR

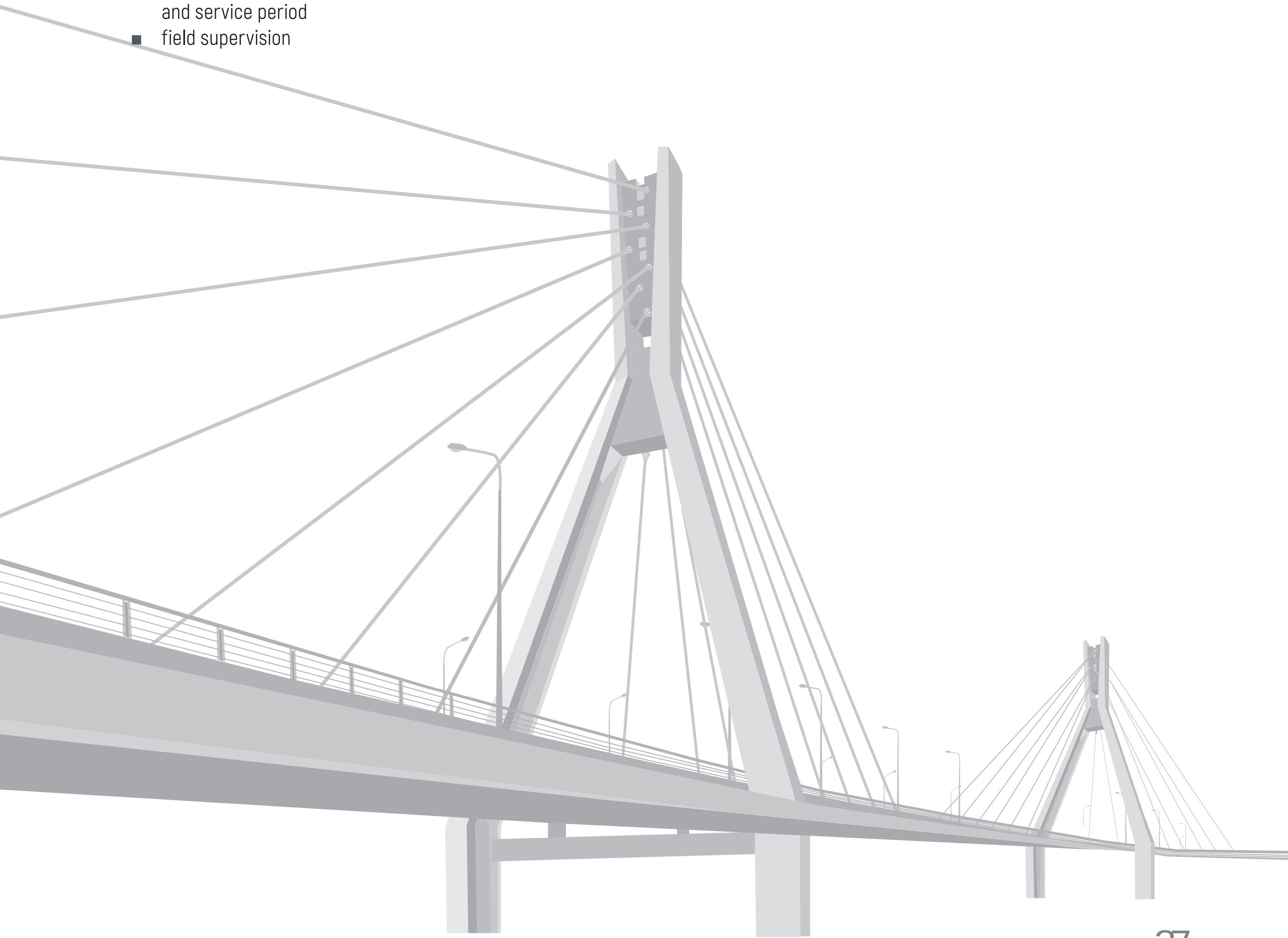
JSC Mostootryad 19

DESIGN PERIOD

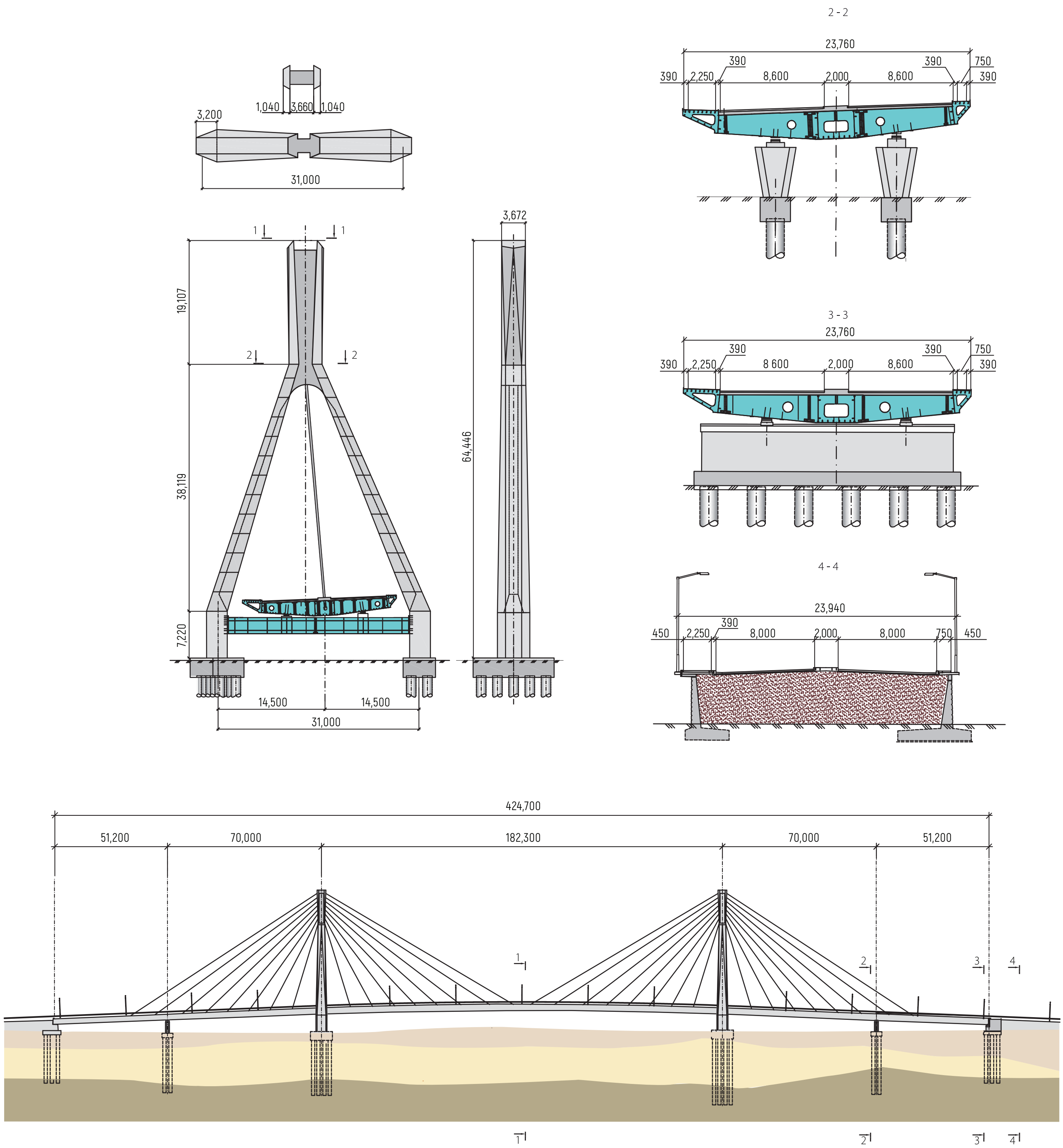
2006 - 2008

CONSTRUCTION PERIOD

2008



BRIDGE DIAGRAM



BRIDGE SCHEMA
51.2+70.0+182.3+70.0+51.2

BRIDGE WIDTH
31 m

PYLONS HEIGHT
65 m

BRIDGE LENGTH
424.7 m

NUMBER OF LANES
4

NUMBER OF PYLONS
2

BOLSHOY OBUHOVSKY
BRIDGE OVER THE NEVA RIVER, ST. PETERSBURG, RF

PROJECT DESCRIPTION

Twin bridge crossing the Neva River on ring road around St. Petersburg, on site between Priozerskoe motorway and up to Highway 'Russia'. Bolshoy Obuhovsky Cable-Stayed Bridge is the only one not fixed bridges over the Neva River, connecting Prospect Obuhovskoy Oborony with Oktyabrskaya Embankment. First bridge crossing was inaugurated on December 15th 2004 and the second one on October 19th 2007.

Four lanes of carriageway conceived as one way crossing with two technological passages for maintenance purposes (pedestrian crossing was not considered). Distance within main bridge axis is 36.4 m. Spans connected with steel pylons by height 120.5 m via stay cables. Pylon Foundation presented by bored piles with a length from 30 up to 40 m long. Total length of strands is 900 km long. VSL stay cables from parallel strand manufactured on monostrahel technology. Each stay cable is formed from series straining strand immediately during construction.

WORK ON THE PROJECT

- definition of bridge crossing conception
- structural design
- technology of construction
- design of SAC&D plus DDPE
- structural monitoring of construction and service periods
- field supervision

CLIENT

Road Administration of St. Petersburg

Institute Stroyproekt

GENERAL CONTRACTOR

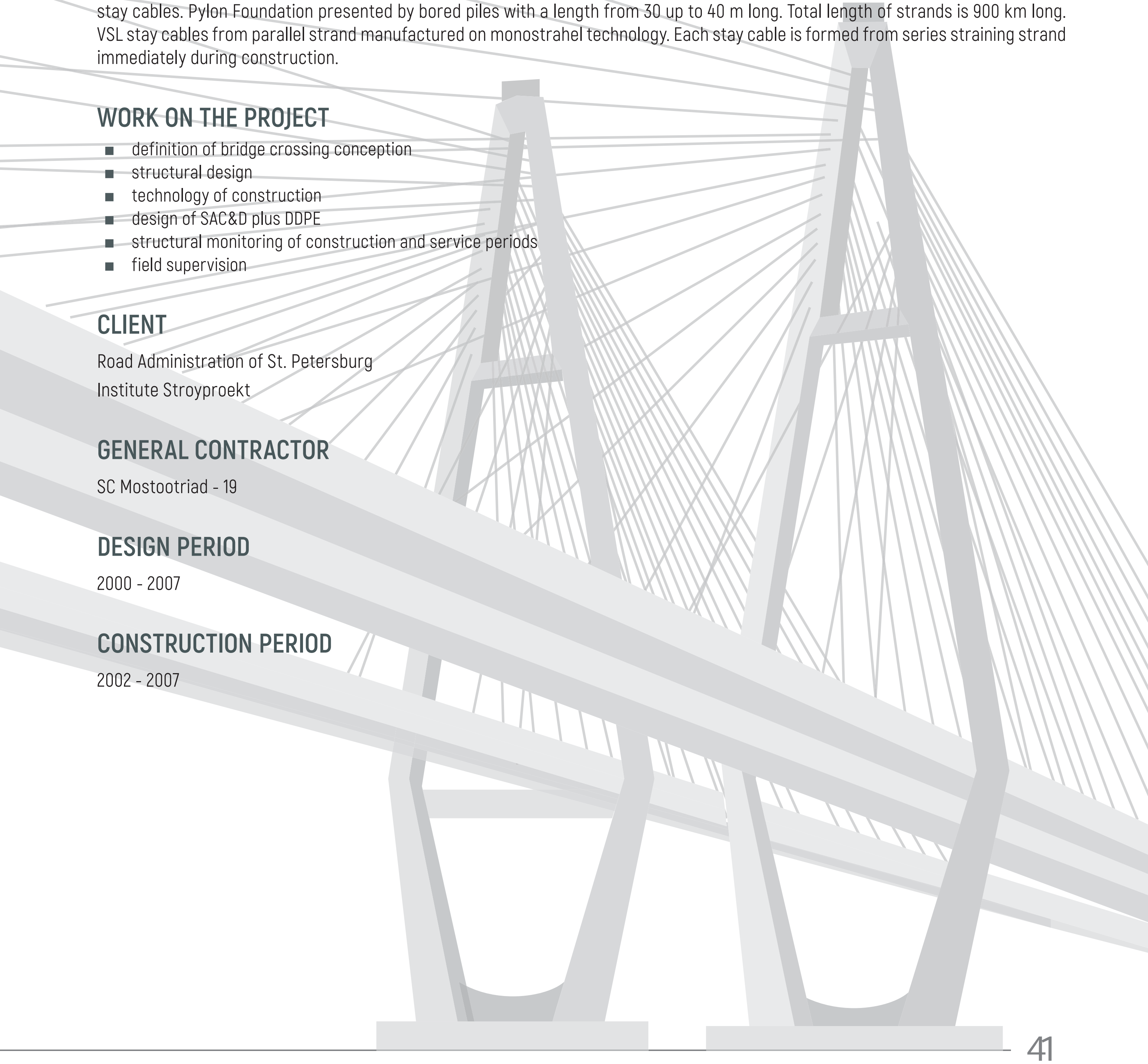
SC Mostootriad - 19

DESIGN PERIOD

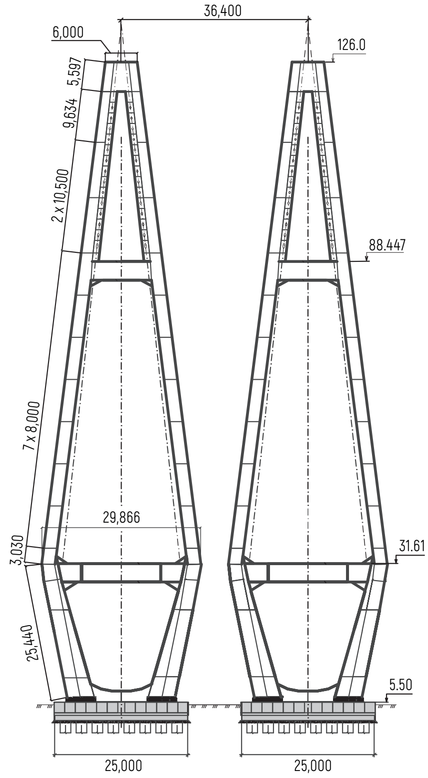
2000 - 2007

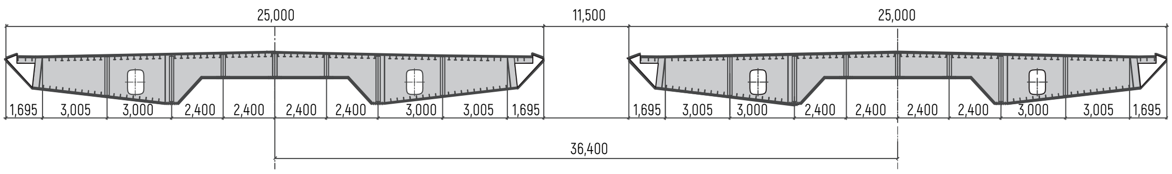
CONSTRUCTION PERIOD

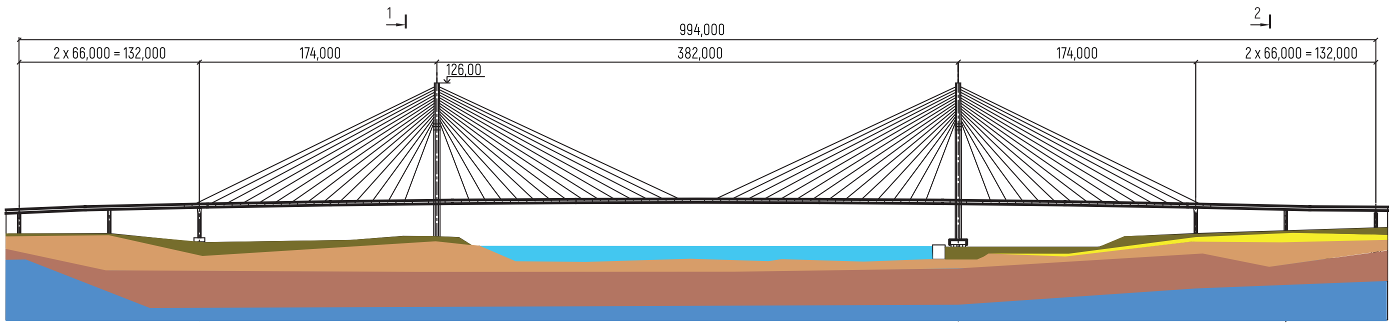
2002 - 2007



BRIDGE DIAGRAM







BRIDGE SCHEMA
2x66+174+382+174+2x66

MAIN SPAN
382 m

BRIDGE LENGTH
994 m

DECK BRIDGE
25 m

BRIDGE CLEARANCE
30 m

NUMBER OF LANES
8

PYLON HEIGHT
126 m

NUMBER OF PYLONS
4

CABLE-STAYED BRIDGE ON HIGHWAY ADLER-MOUNTAIN RESORT 'ALPICA-SERVICE', RF

PROJECT DESCRIPTION

Combined road within area of Adler – mountain resort 'Alpica – Service'. Two pylons Cable – Stayed Bridge Crossing nearby Northern part of Tunnel Complex N3. The above bridge is located on the 25th km of the combined road (motorway road and railway track) inside Adler–Alpika–Service resort.

Central axis of the route within our bridge structure is designed in plan via multidirectional circular curves. Passage clearance is 10 meters, i.e. single lane per each direction.

Main span deck girder cross-section consists of box-shaped segments of orthotropic slab with the height of 2.450 m.

Fan-shaped cable stayed system presented by two pylons with anchored cables from 70 up to 175 meters long. Each stay consists of 12 up to 127 strands with individual sheathing for the better protection purposes. Every pylon side arranged via 14 stay cables.

TECHNICAL FEATURES

- road category – III
- total weight of steel – 4,900 t
- total weight of RC– 8, 900 t
- weight of cable stays –150 t

WORK ON THE PROJECT

Project Documentation Stage

- basic calculations
- analytical assessments for wind tunnel tests
- wind tunnel tests analysis
- dynamic analysis

CLIENT

Road Administration of Sochi

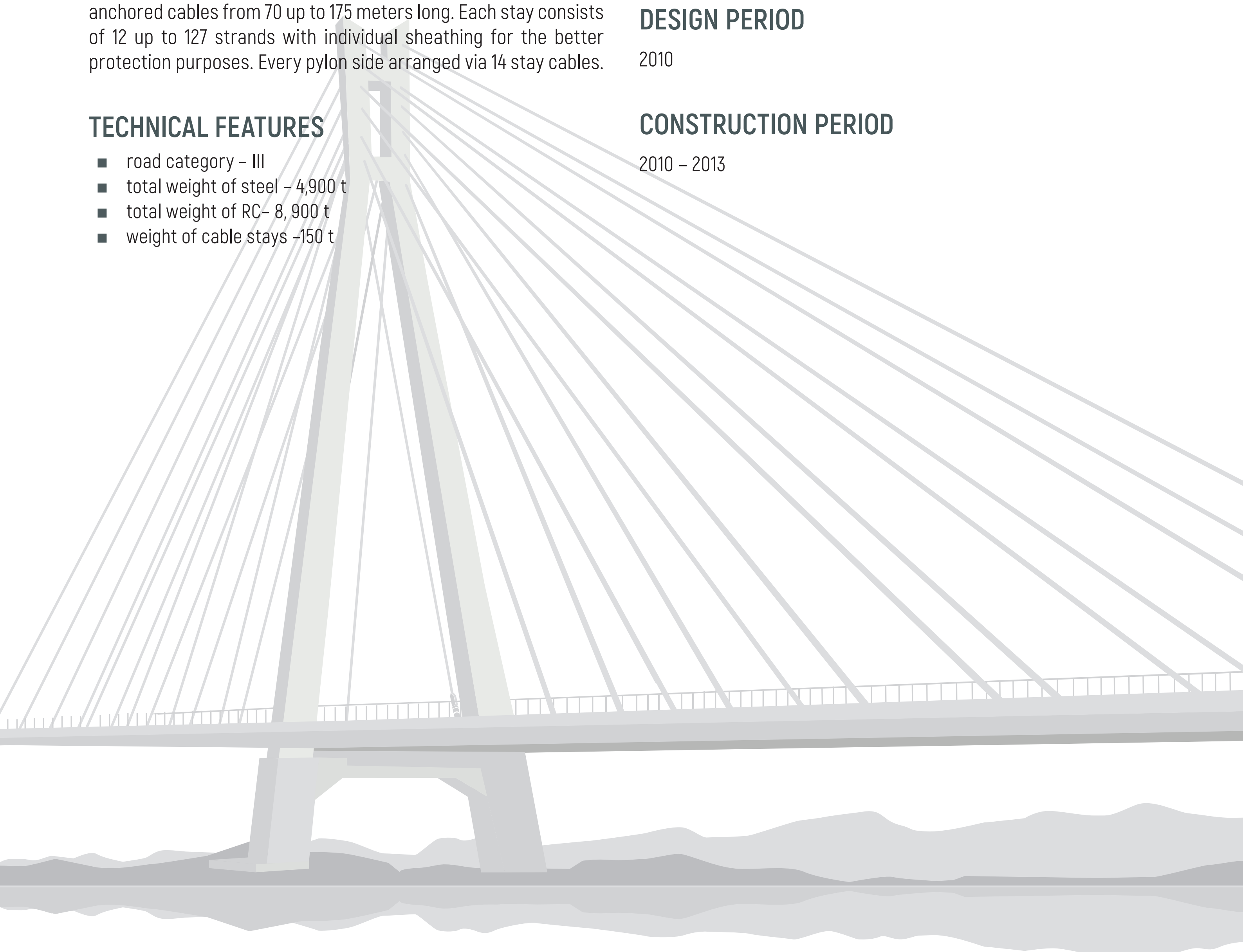
Institute Giprostroymost, Moscow

DESIGN PERIOD

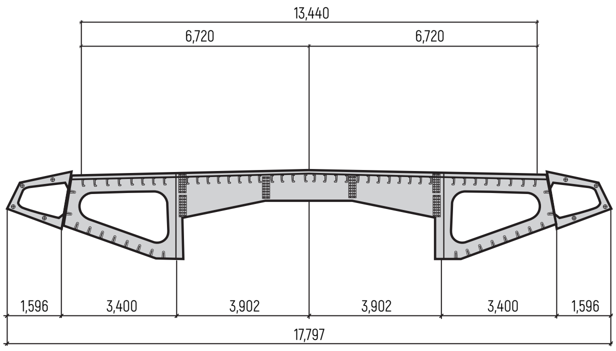
2010

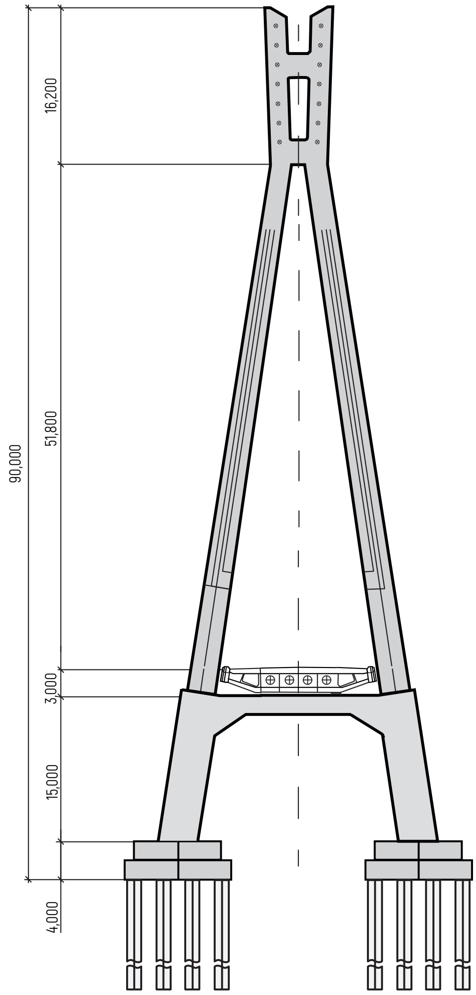
CONSTRUCTION PERIOD

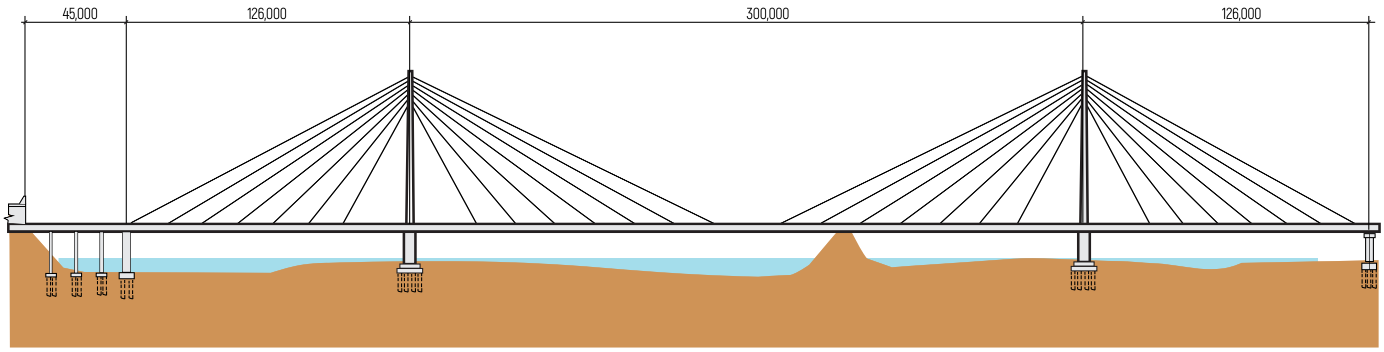
2010 – 2013



BRIDGE DIAGRAM







BRIDGE CABLE-STAYED SYSTEM SCHEMA
126+300+126

MAIN SPAN
300 m

BRIDGE LENGTH
597 m

BRIDGE WEIGHT
18 m

NUMBER OF LANES
2

PYLON HEIGHT
86 m

NUMBER OF PYLONS
2

TECHNOLOGICAL **CABLE-STAYED VIADUCT** OVER THE **DUDERGOFSKIY** CANAL IN **ST. PETERSBURG**, RF

PROJECT DESCRIPTION

Cable – Stayed Technological Viaduct with main span of 130m is being crossing Dudergofskiy Channel with sibling heating tubes of 1020 mm above with single inclined pylon. The structure of cable-stayed bridge supporting heating main has no analogues in Russia. Pylon by height 58 m is inclined to the earth is hot found in other similar projects.

TECHNICAL FEATURES

- height of pylon – 58 m
- length of span – 130 m
- technological load – Two heating tubes 1.2 m

WORK ON THE PROJECT

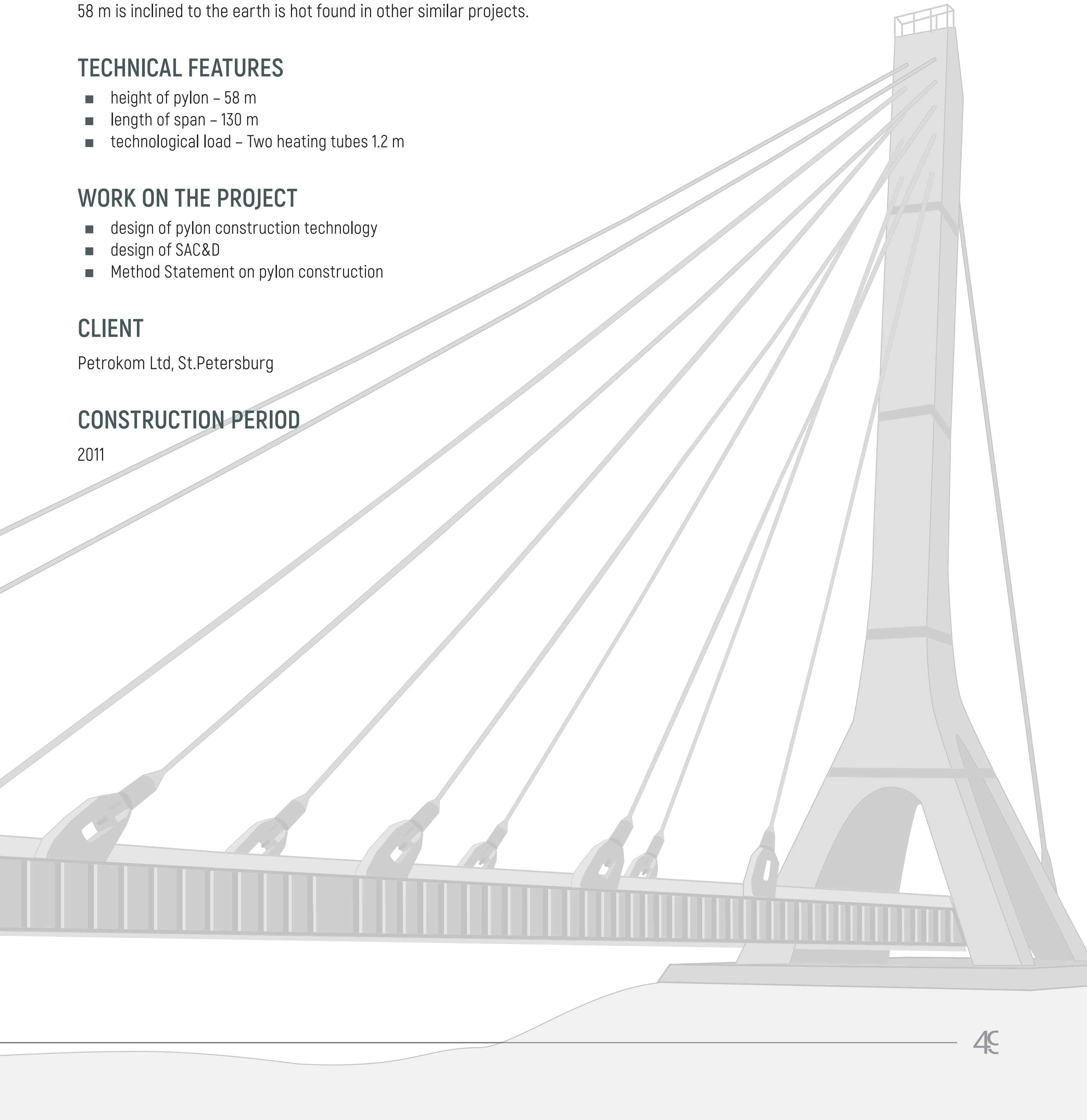
- design of pylon construction technology
- design of SAC&D
- Method Statement on pylon construction

CLIENT

Petrokom Ltd, St.Petersburg

CONSTRUCTION PERIOD

2011



CABLE-STAYED **BRIDGE SEREBRIANIY BOR**, MOSCOW, RF

BRIDGE DIAGRAM
15x25+2x105+409.5+2x105+84+82+42

BRIDGE LENGTH
1,460 m

BRIDGE WEIGHT
37 m

NUMBER OF LANES
6

ARCH PYLON
105 m

PROJECT DESCRIPTION

Bridge Crossing the Moscow River in Serebrianiy Bor nearby Krasnopresnyanskiy Prospekt from MKAD up to Prospekt Marshal Jukov. The task of picturesque bridge design was to insure comfortable and steady vehicles movement along highway with a speed of 100 km per hour.

Pylon was conceived as a huge arch structure with fan type crown of stay cables placed via sharp angle on both banks of Moscow River. The upper part of the arch has cozy ellipse shaped restaurant with amazing view.

TECHNICAL FEATURES

- boxed steel girder
- weight of stay cables – 400 t
- weight of arched pylon – 4,000 t
- weight of main girder – 12,000 t

WORK ON THE PROJECT

- initial aerodynamic analytical assessment
- analytical assessment and recommendations
- subsequent to test in aerodynamic tube
- dynamic calculation

CLIENT

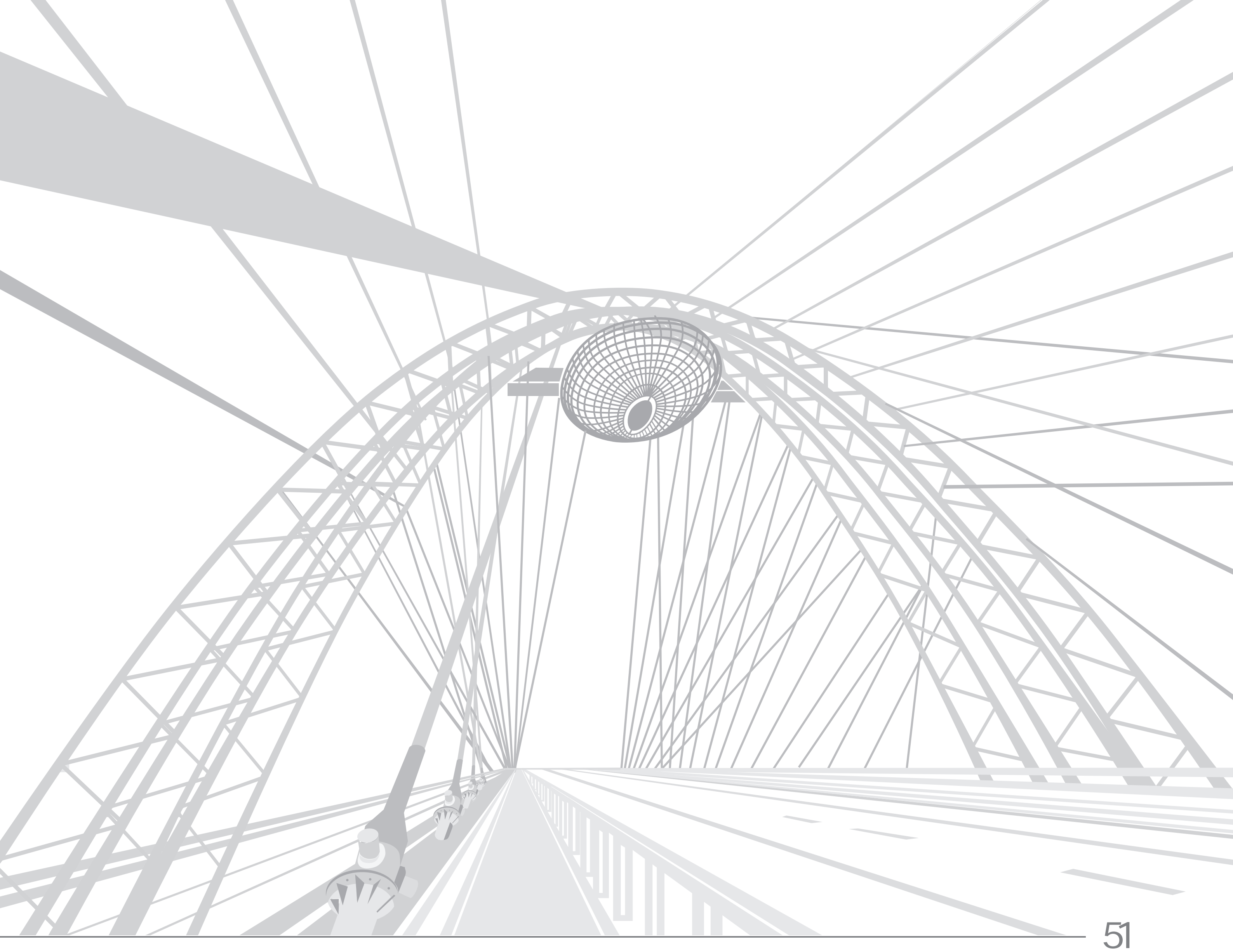
Organizator Ltd

GENERAL CONTRACTOR

JSC Metrogiprotrans; JSC Giprotransmost

DESIGN & CONSTRUCTION PERIODS

2004 – 2007



OKTYABRSKIY CABLE-STAYED **BRIDGE** OVER THE SHEKSNA RIVER**, CHEREPOVETS, RF**

BRIDGE DIAGRAM
53.0+194.25+136.5+68.65+4x68.25+52.5

BRIDGE CLEARANCE
28.4 m

A – SHAPED PYLON
83.5 m

BRIDGE LENGTH
710 m

BRIDGE WEIGHT
28.4 m

NUMBER OF LANES
6

PROJECT DESCRIPTION

City Bridge is being connected Industrial and Zasherninskiy districts of Cherepovets city. It is the first ever built cablestayed Bridge in Russian Federation. Bridge deck structure presented by steel girder structure with cable-stayed system, with five fan type RC approaches. Single A-shaped steel pylon with six pairs of stay cables, located on Pier 2 between spans of 194.2 m and 136.5 m.

TECHNICAL FEATURES

- weight of stay cables – 510 t

WORK ON THE PROJECT

- design of SAC&D
- design of work technology
- development of Method Statements (MS)
- field supervision

CLIENT

Cherepovetskiy Metallurgical Plant

GENERAL CONTRACTOR

Mostootryad 61

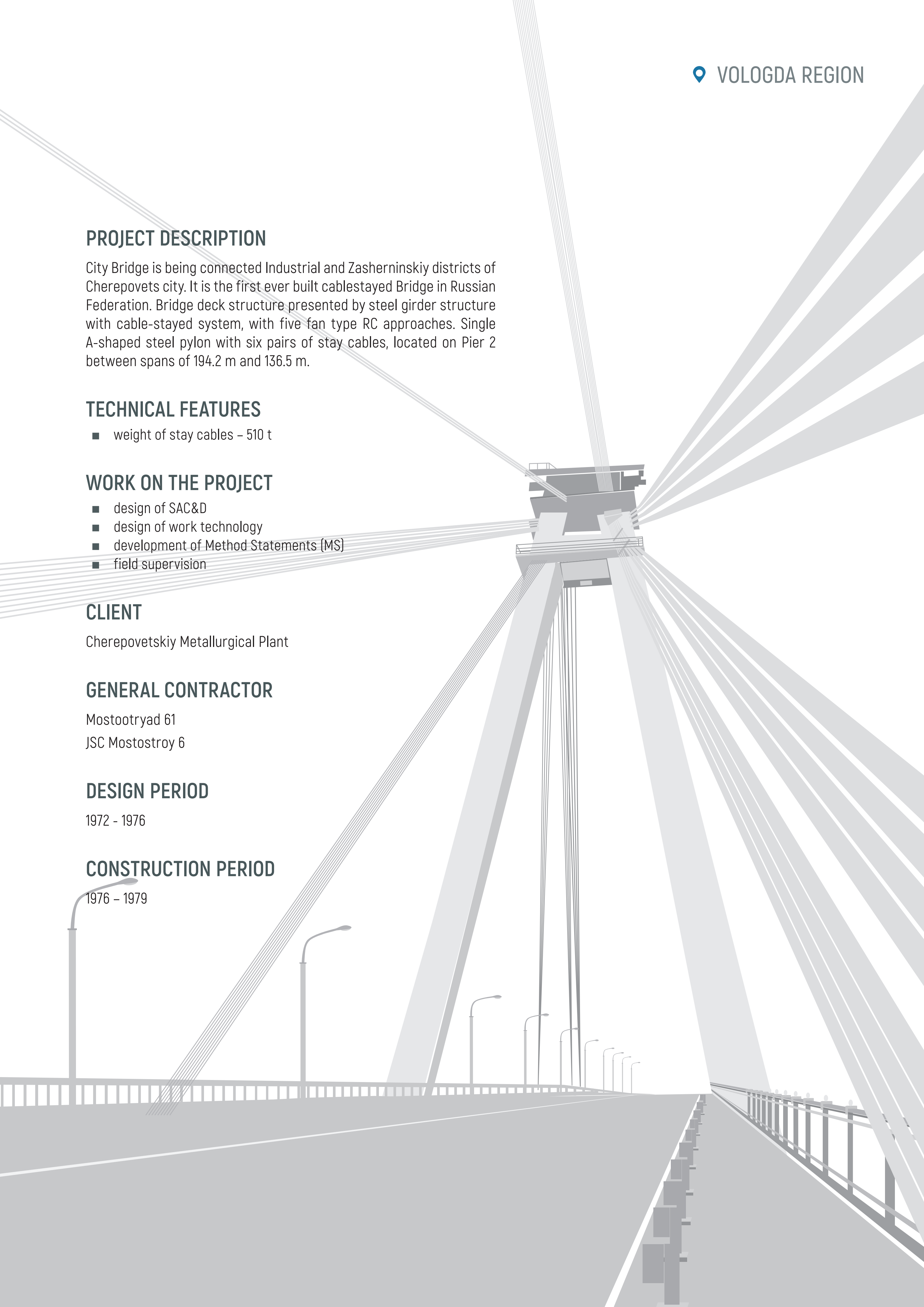
JSC Mostostroy 6

DESIGN PERIOD

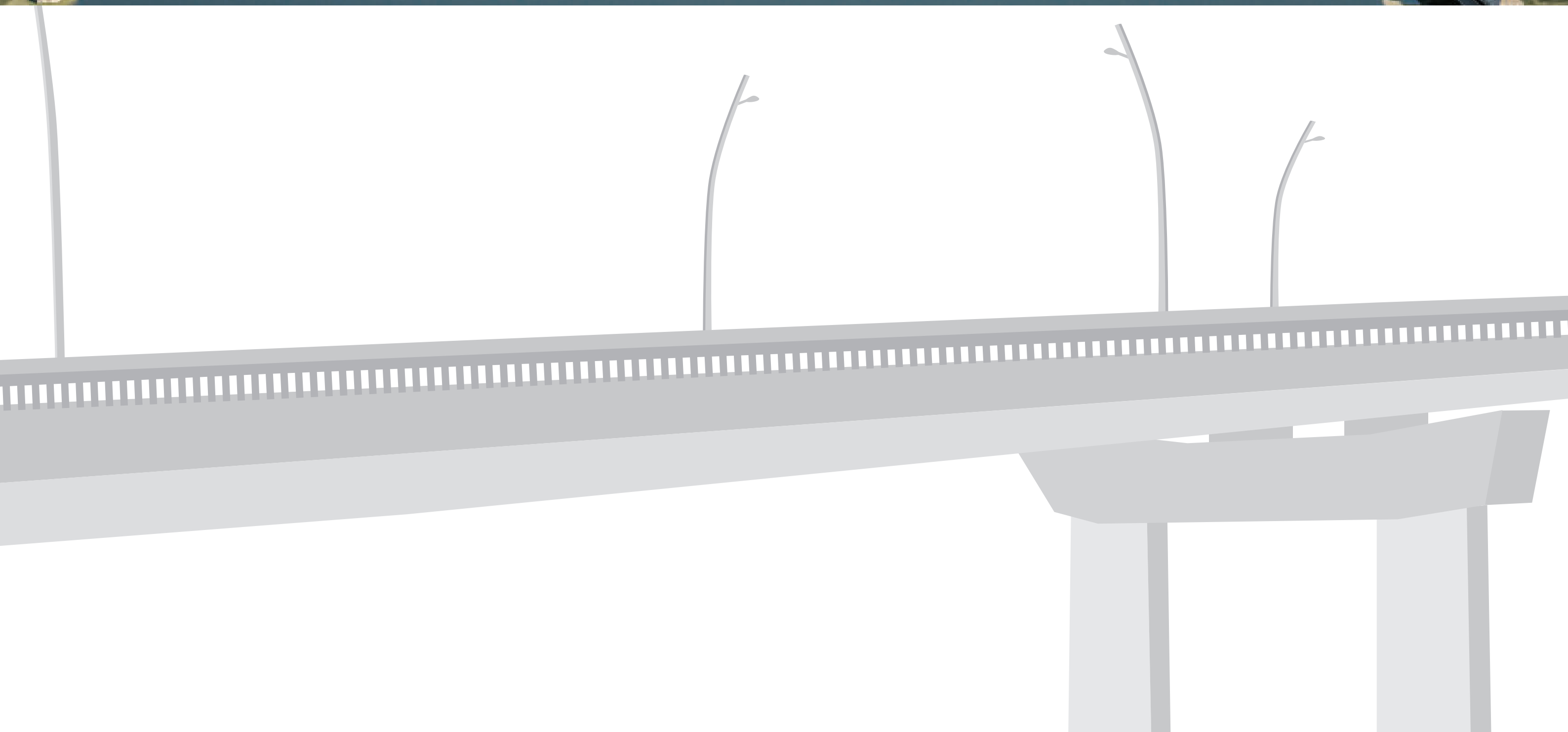
1972 - 1976

CONSTRUCTION PERIOD

1976 – 1979



CABLE STAYED **BRIDGE CROSSING** OVER THE **SEVASTOPOL** BAY, RF



PROJECT DESCRIPTION

New highway starts at the intersection of Brest Street and Heroes of Sevastopol Street. Then our road passes over the railway line of the Crimean Railway and near Apollonovskaya Cove the roadway crosses Sevastopol Bay. On the Northern shore of the above inlet, new motorway passes over the Eastern part of Pier No. 8, within the area of Squadron Street.

TECHNICAL FEATURES

- steel middle span
- abutment of steel
- girder width – 21.7 m
- girder height – 3.5 m
- total bridge area – 25, 385 m^2

WORK ON THE PROJECT

Feasibility Study:

- technological options development
- site arrangement design
- construction cost calculation
- Federal Expertise completion

CLIENT

Department of Transportation

GENERAL CONTRACTOR

Department of Transportation and Infrastructure Development

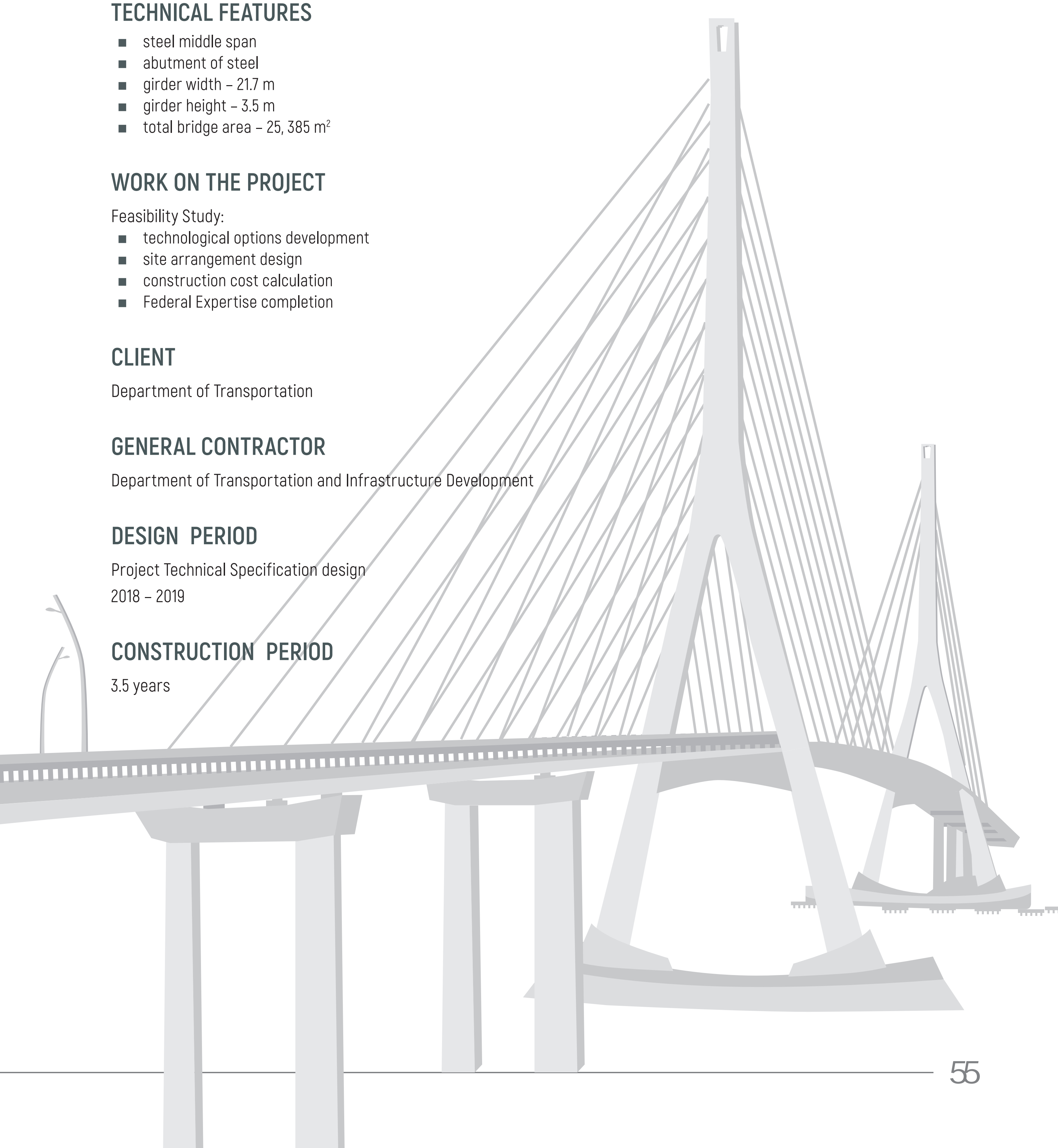
DESIGN PERIOD

Project Technical Specification design

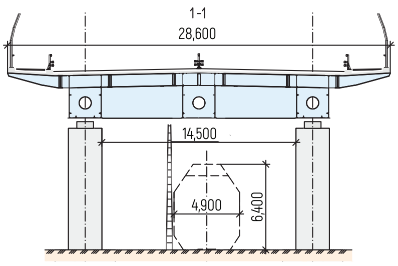
2018 – 2019

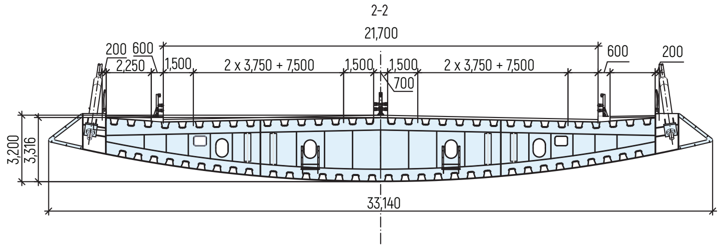
CONSTRUCTION PERIOD

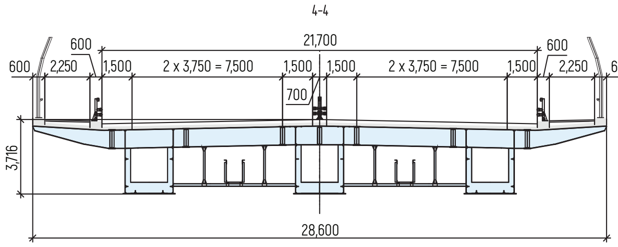
3.5 years

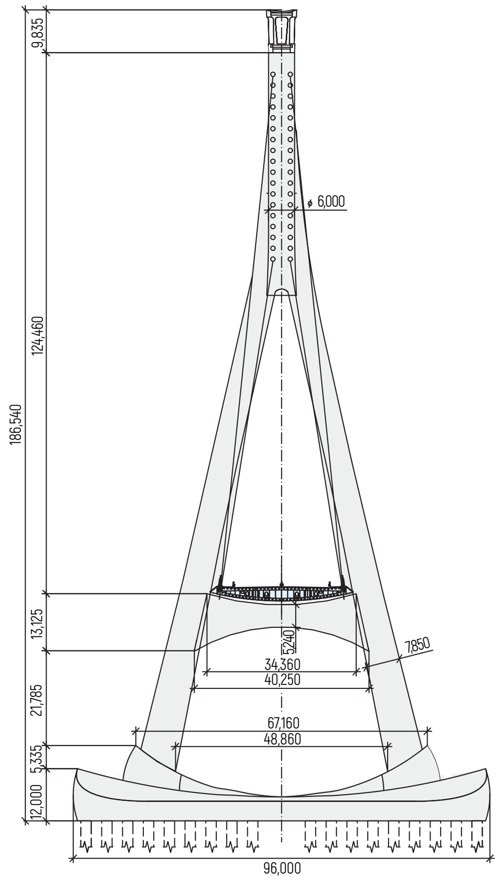


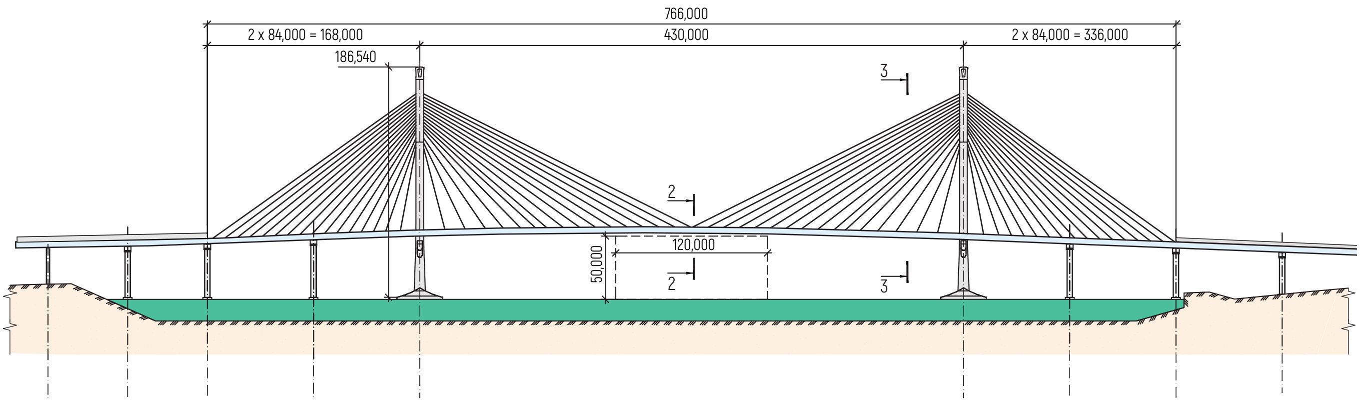
BRIDGE DIAGRAM











BRIDGE SCHEMA
2x84+430+2x84 m

TOTAL BRIDGE LENGTH
766 m

MAIN SPAN
430 m

WIDTH OF BRIDGE
33 m

NUMBER OF LANES
4

UNDERCLEARANCE
120 m

CLEARANCE HEIGHT
50 m

PYLONS HEIGHT
186.54 m

NUMBER OF PYLONS
2

BRIDGE OVER THE **KAMA RIVER, NIZHNEKAMSK**

PROJECT DESCRIPTION

Essential idea concerning the being designed motorway is to redirect the transit of those vehicles from the Western regions of the Russian Federation, traveling through Kazan along the M–7 Volga Highway, on the way to the cities of Nizhnekamsk, Zainsk, Naberezhnye Chelny and then towards Ufa along the new high-speedy roadway, evading the passage through the Nizhnekamsk hydroelectric dam being heavy loaded with transportation. First Stage of this project includes the bridge crossing construction over the Kama River in republic of Tatarstan, Mamadishskiy and Niznekamsky Districts.

TECHNICAL FEATURES

- bridge schema: 73+225+525+225+73 m
- girder structure: RC
- pylons (Piers 11, 12): RC, solid A-shape

WHAT MAKES IT UNIQUE

Within areas of probable water freezing, the bodies of the pylons are being filled with polyurethane foam of a closed porous structure. Monostrand Type Technology is our option regarding the stay cable system. For the purpose of stay cables protection in the event of icing factor, special movable cleaning devices above those cable sheathing are being arranged.

WORK ON THE PROJECT

- Project Technical Specification design
- DD development for the Kama River Bridge cable-stayed span

CLIENT

Federal Enterprise Volgo-Vyatskupravdor

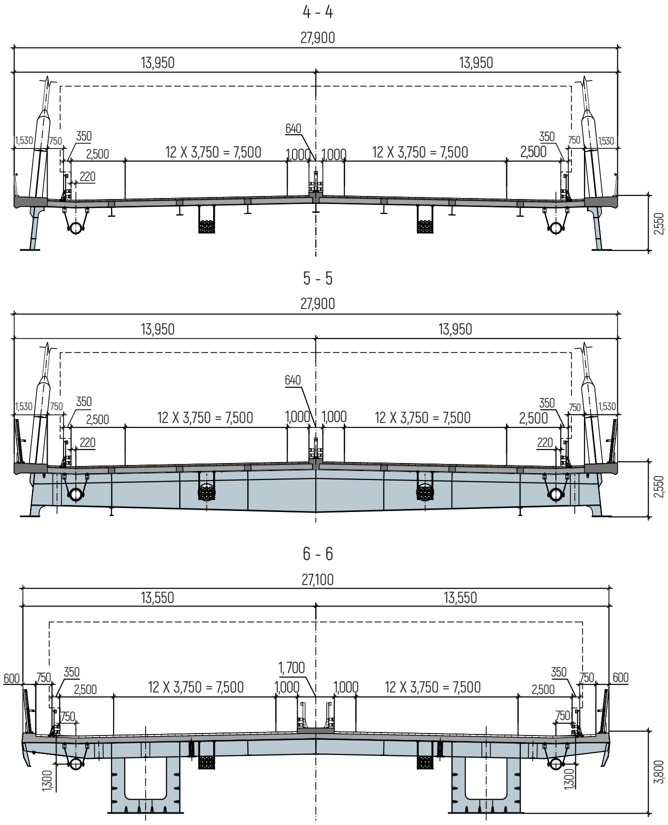
DESIGN PERIOD

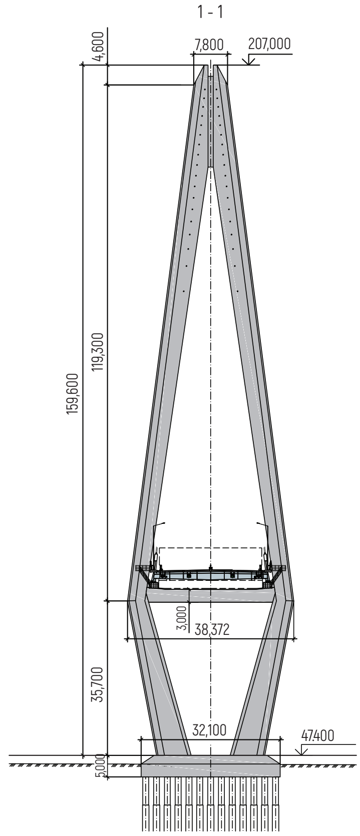
2020 – 2021

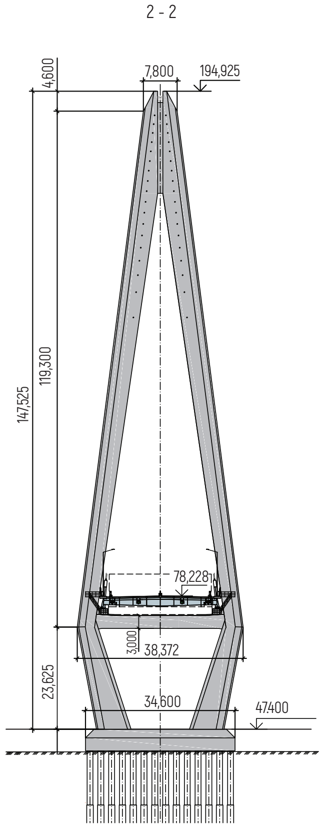
CONSTRUCTION PERIOD

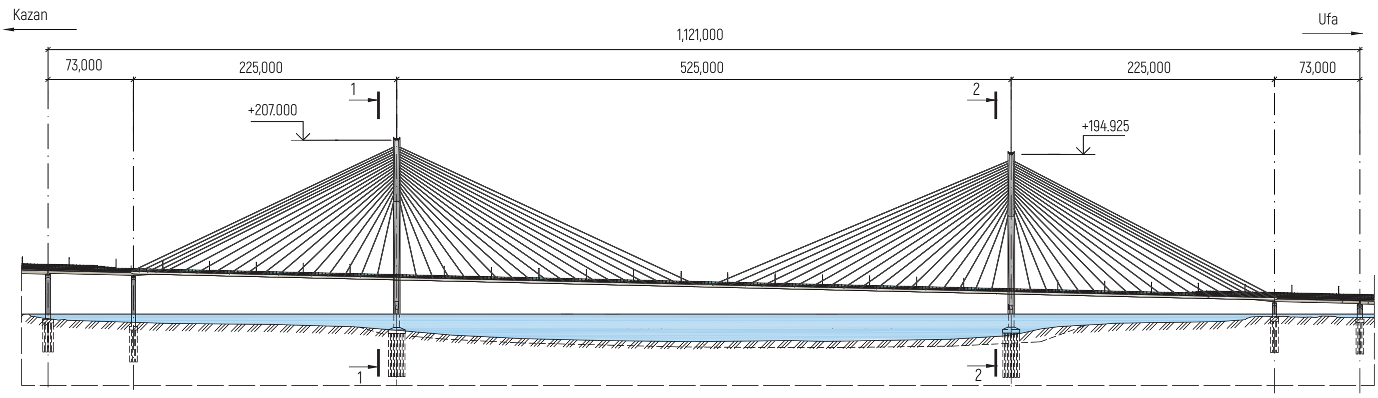
3.5 years

BRIDGE DIAGRAM









BRIDGE SCHEMA
73+225+525+225+73

BRIDGE LENGTH
1,121 m

BRIDGE WIDTH
27 m

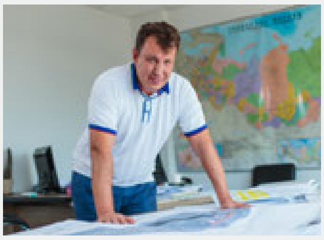
UNDERCLEARANCE
2x140 m
CLEARANCE HEIGHT
17 m

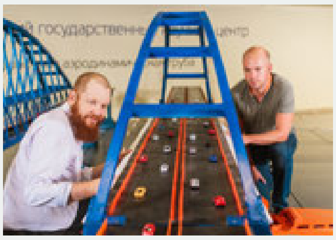
NUMBER OF LANES
4

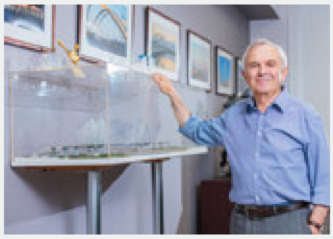
PYLONS HEIGHT
159.6 m
147.5 m

NUMBER OF PYLONS
2

OUR EXPERTISE







DESIGN

- highway bridges
- railway bridges
- combined bridges
- highways & streets
- road interchanges
- viaducts & flyovers
- footbridges
- transportation tunnels
- underground structures
- embankments & mooring berths
- retaining walls
- reinforced mounds
- buildings & structures of different heights
- sophisticated floors of buildings and structures
- foundations in complex environment status

FULFILLMENT

- general design
- sophisticated engineering analysis
- aerodynamic analysis
- financial estimates completion
- engineering supervision
- protection of intellectual property
- engineering geodetic, geological, meteorological, environment survey
- economic survey
- implementation of research on the construction, repair and maintenance of highways
- design and survey works in concerning of reconstruction and maintenance of any engineering networks and communications
- transportation status modeling
- optimization of public passenger transportation route networks
- macroeconomic analysis for large interregional transport projects
- technological and price audit of DD
- estimation of capital and operating costs for transport facilities
- diagnostics and assessment of the technical condition of roads as well as artificial structures
- certification and inventory of highways
- planning and distribution of needed materials, technical and financial costs for the repair and maintenance of motorways by means of cutting edge automated customized software systems

DEVELOPMENT

- architectural concepts of construction and improvement of embankments, industrial and residential buildings, sports, scientific, concert complexes;
- construction technology of bridge crossings and transportation structures
- projects regarding special auxiliary construction and devices (SAC&D)
- method statements (MS)
- construction method statements (CMS)
- projects for structural renovation, bridge maintenance and transport structures
- traffic management projects
- road maintenance projects
- design of monitoring systems for civil engineering structures
- technical and economic feasibility study
- design and proof of nuclear defense measures
- measures relating environment safety
- measures regarding fire safety
- measures concerning civil defense in case of force majeure
- measures regarding transportation safety
- measures to improve road safety
- strategies, concepts and programs for the development of transportation infrastructure
- integrated traffic management schemes
- concepts of toll collection system for toll roads and development of tariff policies in transport
- financial and economic models

PREPARATION

- tender documentation
- methodological guidelines, recommendations, regulatory and technical documentation
- technological solutions for the protection of nuclear and energy facilities