Cable-Stayed Steel Bridge for Preservation of Natural Environment in Japan

Pont métallique à haubans préservant les sites naturels, Japon

Stahlschrägseilbrücke durch Umweltschutzggebiet in Japan

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The dominant part of the Yodogawa Shinkyo Bridges, which consist of many types of bridges, is a cable-stayed bridge and is under construction in the northeast of Osaka City, Japan.
The type of the bridge is a single plane cable-stayed bridge with a central span of 238 m and two side spans of 119 m each.

The bridge crosses over the Shin-Yodo River. The construction site is especially famous for its rich natural environment.
Not only very rare fishes designated by the Protection of Cultural Assets Law live here, but also Japanese-native reed plants survive here.

The followings are considered in the design and construction of the bridge.

1. The end of each side span of the cable-stayed bridge is jointed to the cantilever end of a three span continuous prestressed concrete girder bridge with a pin connection in order to avoid the construction of an end pier for protection of the natural environment mentioned above.

2. The following erection process has been selected to protect the natural environment: firstly, a central span is constructed by a staging method, secondly, the side spans are constructed by a cantilever method.

3. In view of aesthetic appearances, a single plane multi-cable system is applied to fit the site environment. Aerodynamic stability of the pylon is examined by wind tunnel tests, and air stream slits are provided on the same face of cable anchors in the center of pylons from the results of the tests.

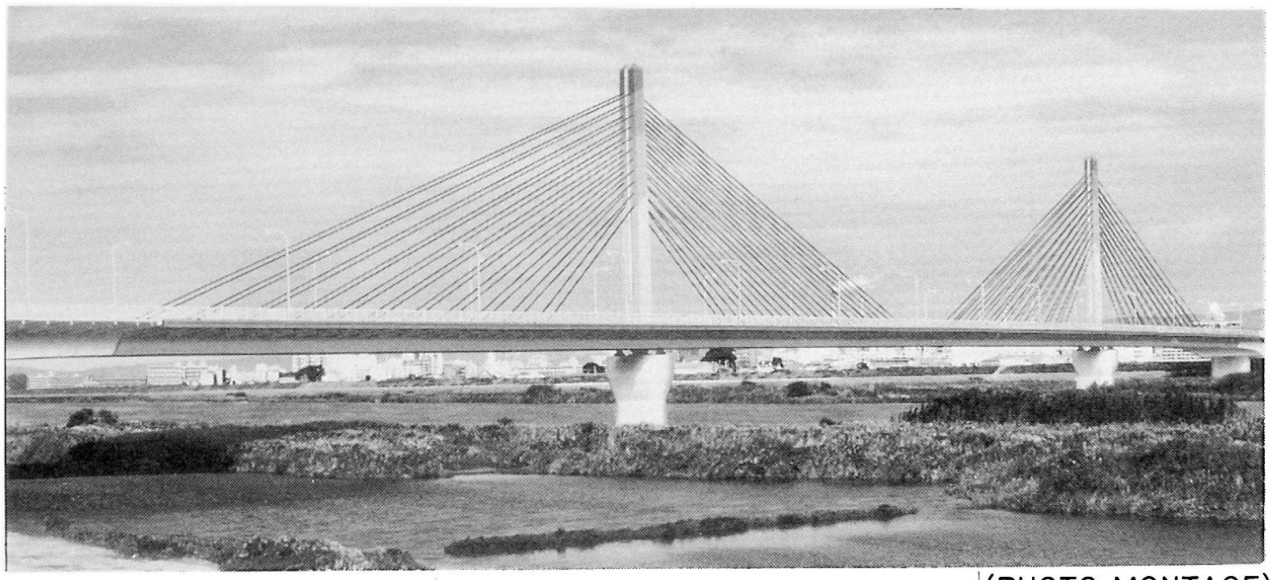
The bridge will be completed in Spring in 1989.

It would be a great privilege if this example provided useful information for bridge planning & designing in consideration of protecting natural environments.

Bridge Description

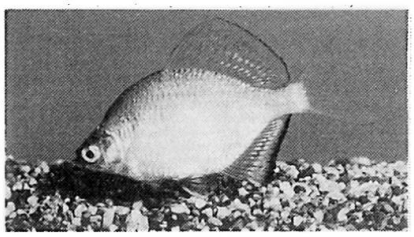
Type of Bridge	:	Cable-stayed steel bridge with a three span continuous box girder
Spans	:	119 m + 238 m + 119 m
Tower Height	:	46.4 m above bottom of box girder
Traffic Capacity	:	4 lanes roadway with 2-side walks

YODOGAWA SHINBASHI BRIDGE

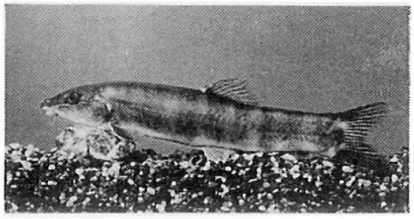


(PHOTO-MONTAGE)

RARE FISHES



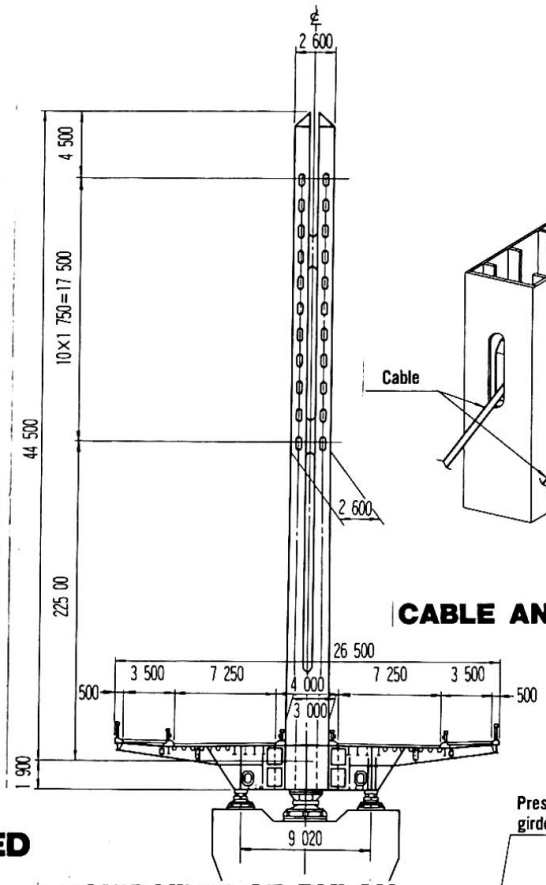
"ITASENPARA"



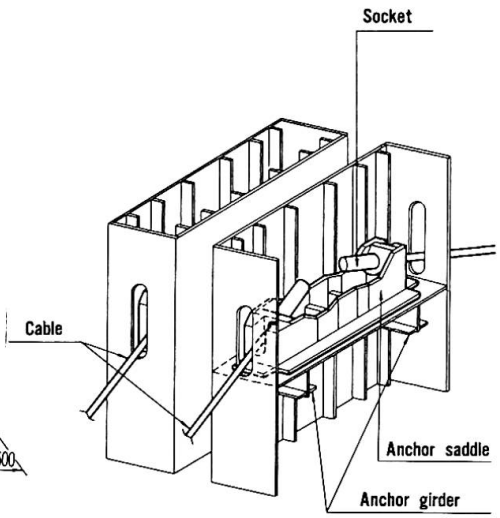
"AYUMODOKI"

JAPANESE-NATIVE REED

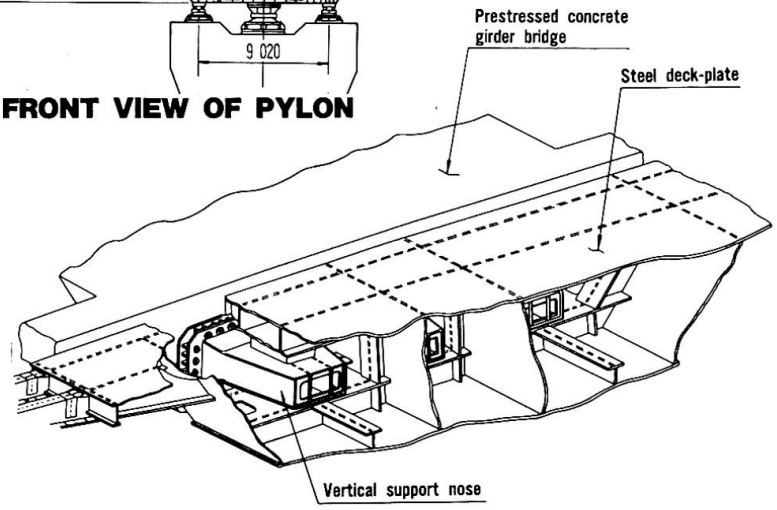
"YOSHI"



FRONT VIEW OF PYLON



CABLE ANCHORAGE IN PYLON



CONNECTION DETAIL OF GIRDERS