震災から復旧までの歩み
The Road to Full Restoration

余震による2次災害防止のための応急補強と撤去時の特殊工法
Emergency strengthening for the prevention of aftershock-induced secondary disasters, and removal work using special technologies

余震による2次災害防止のための応急補強

損傷の著しい構造物に対して、余震による崩壊・落橋等の2次災害を防止するため、緊急ベント（桁受け・橋脚はり受け）および緊急橋脚補強工事を実施しました。

Emergency strengthening for the prevention of aftershock-induced secondary disasters

For seriously damaged structures, temporary bents were installed to support the girders and pier beams, and emergency strengthening was carried out on the piers so that aftershocks would not cause any further damage such as collapse or falling of a bridge.

RC橋脚の2次災害防止のための応急補強
Emergency strengthening on a reinforced concrete pier for secondary disaster prevention

鋼製橋脚の2次災害防止のための応急補強
Emergency strengthening on a steel pier for secondary disaster prevention

撤去時の特殊工法

損傷した構造物を狭隘な空間などの制約条件の下で効率的に撤去するために各種の最新工法が採用されました。

Removal work using special technologies

Cutting-edge technologies were used to achieve faster removal of damaged structures in confined spaces with various restrictions.

ワイヤーソー工法

撤去する橋脚の柱やはりを、ダイヤモンドワイヤーを回転させて切断する工法。

Wire sawing

Pier columns and beams to be removed were cut into blocks with a rotary diamond wire saw.

自走台車工法

橋脚のはりを大ブロックのままで自走台車で運び出して撤去する工法。

Self-powered carriers

A large self-powered carrier was used to remove pier beams in large blocks.

RC橋脚の再構築の施工手順
Procedure of reconstructing reinforced concrete piers

RC橋脚の再構築の例として、RC柱ー鋼製はり複合橋脚の施工手順を紹介します。

As an example of the reconstruction of reinforced concrete piers, the following steps show the procedure of reconstructing a composite pier which consists of a reinforced concrete column and a steel beam.

STEP 1

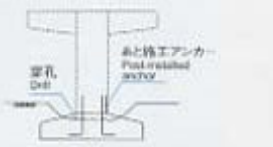
損傷したはり・柱部のコンクリート解体

Remove the concrete of the damaged beam and column.

STEP 2

増し厚部主鉄筋のための穿孔、あと施工アンカーの設置

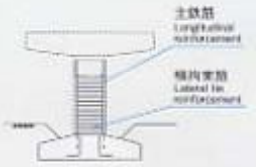
Drill the concrete for the additional longitudinal reinforcement for the thickness to be added, and install post-installed anchors.



STEP 3

柱部主鉄筋、横拘束筋の配筋

Install the column longitudinal reinforcement and lateral tie reinforcement.



STEP 4

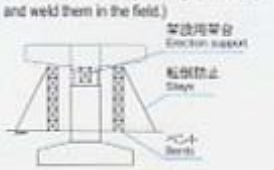
柱部型枠取付け、コンクリート打設、養生

Install column forms, place the concrete, and allow the concrete to cure.

STEP 5

鋼製はり架設用架台、ベント設置
（鋼製はり地組、高力ボルト本締め、現場溶接）

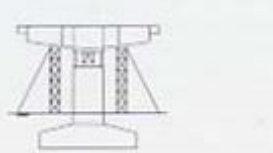
Install the steel beam erection support and the bents.
(Test assemble the steel beam on the ground, tighten the high strength bolts fully, and weld them in the field.)



STEP 6

鋼製はり架設、調整

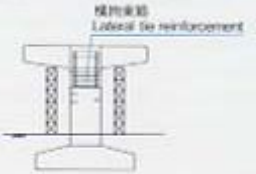
Erect the steel beam, and make adjustments.



STEP 7

隅角部の鉄筋組立て、柱上部の型枠取付け

Assemble the reinforcement of the junction, and install the upper column forms.



STEP 8

隅角部のコンクリート打設、養生

Place the concrete in the junction, and allow the concrete to cure.