Field Survey on Disaster at the Tachikawa Bridge of Kochi Expressway

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1. Introduction

The heavy rain in July 2018 caused enormous damage mainly in the western part of Japan.　At the Tachikawa Bridge of the Kochi Expressway (upbound), landslide from the slope above the bridge occurred before dawn on July 7 due to the record breaking heavy rain, which had been continuing since July 3, and runoff of the bridge superstructure due to the landslide was also confirmed. On July 20, the NILIM conducted a field survey to grasp the situation of disaster with the Public Works Research Institute.

2. Outline of the survey

The bridge at issue is a PRC 3-span continuous slab girder bridge, 63.5 m long, located in the steep valley of Otoyo-cho, Kochi. The substructure of the bridge is based on wall-type abutment and wall-type pier, and the foundation is coupled-pike caisson type pile foundation. As a result of the field survey, loss of concrete was found in part of the bridge seat at the bridge pier and abutment but no serious damage, such as inclination, crack, etc., was found in the substructure frame in the visible range. Damage to the superstructure of the bridge could not be confirmed since it was run off along the valley slope together with the landslide.

It is considered from the aforementioned situation of damage that the effect of large-scale collapse acted on the superstructure and caused run-off.

We advised the personnel on the site that they needed to check soundness of the substructure by removing the sediment deposited on the slope and to consider measures for training of the space under the bridge girder for recovery.

3. Technical support for recovery

After the field survey, we participated as a member in the Technical Review Committee on Kochi Expressway Disaster Restoration, which consists of road administrators, and advised, based on the results of field survey, evaluation of the soundness of structures and restoration method.

As of February 2019, based on the results of discussion in the Committee, road administrators are conducting permanent measures for the landslide sites, including grating crib works, and restoration works for the superstructure, etc.

Disaster situation (source: West Nippon Expressway Company Limited)

Superstructure run-off

Field survey

☞See the following for details.

1) MLIT Road Bureau's website "Results of the Technical Review Committee on Kochi Expressway Disaster Restoration and Outlook for the Time of 4 Lane Restoration."
http://www.mlit.go.jp/report/press/road01_hh_001093.html