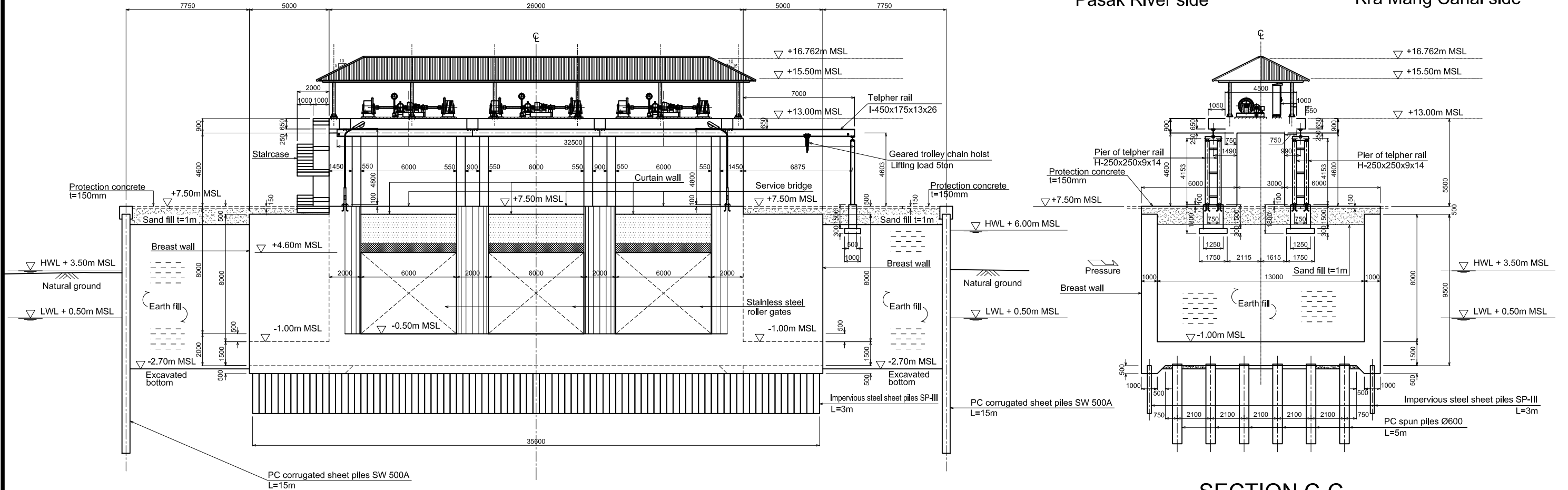


Right Bank of Canal

Left Bank of Canal

Pasak River side

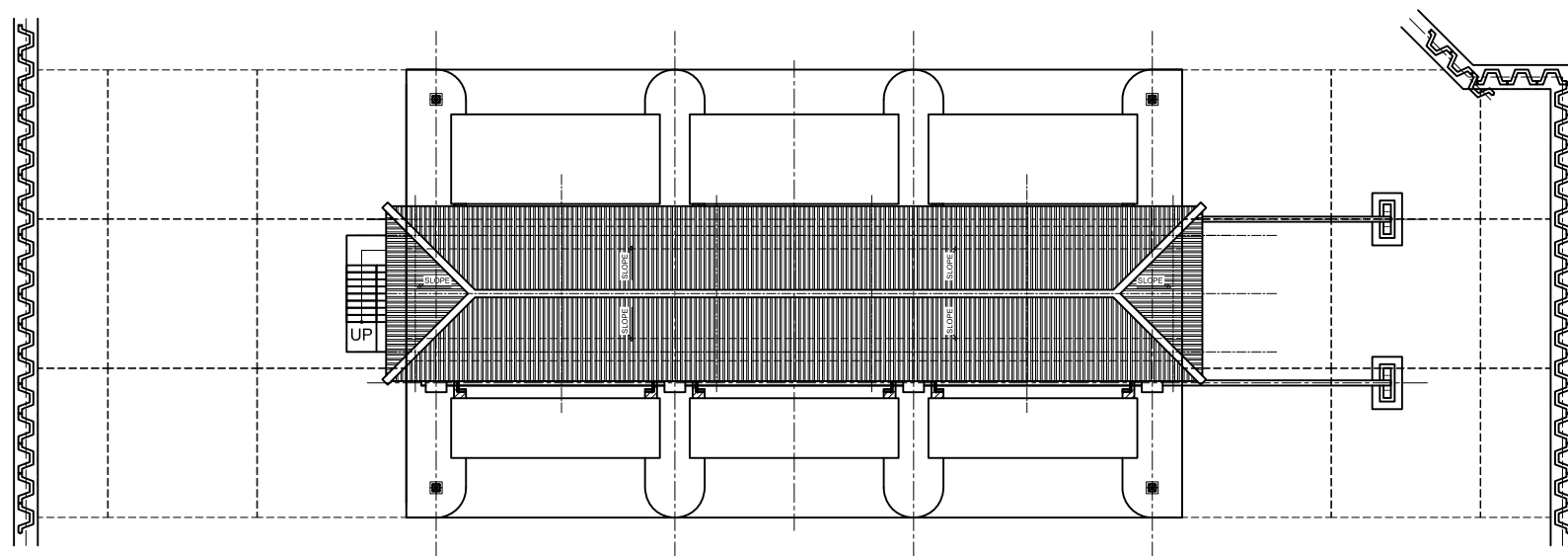
Kra Mang Canal side



SECTION A-A

SECTION C-C

Kra Mang Canal side



Pasak River side

MAIN STRUCTURE OF KRA MANG FLOODGATE

A8-32

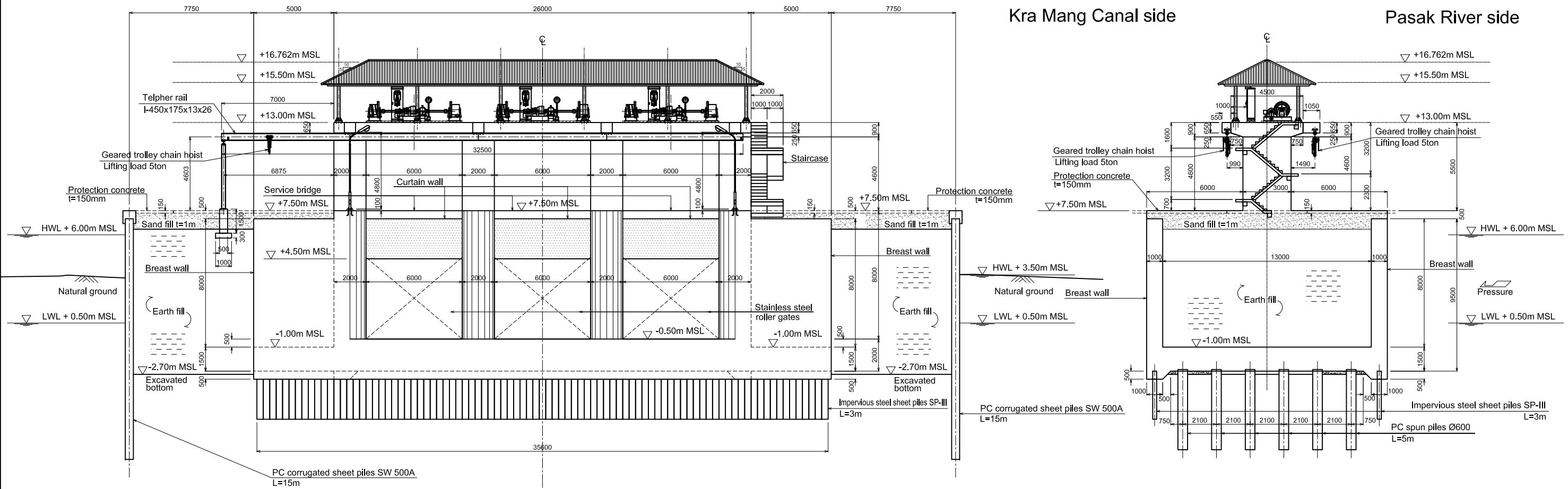
REV. NO.	DESCRIPTION	CONSULTANT CHECKED	DATE	RID CHECKED	DATE	REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT	SHEET CONTENTS	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
									(CIVIL WORKS) KRA MANG FLOODGATE MAIN STRUCTURE PLAN AND SECTIONS	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand		ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012 DWG. NO. KM-FG-002	SHEET NO.

Left Bank of Canal

Right Bank of Canal

Kra Mang Canal side

Pasak River side



SECTION B-B

SECTION D-D

MAIN STRUCTURE OF
KRA MANG FLOODGATE

A8-33

REV. NO.	DESCRIPTION	CONSULTANT CHECKED	RID DATE	REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE
						(CIVIL WORKS) HAN TRA FLOODGATE MAIN STRUCTURE SECTIONS	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012	SHEET NO.
											DWG. NO. KM-FG-003	



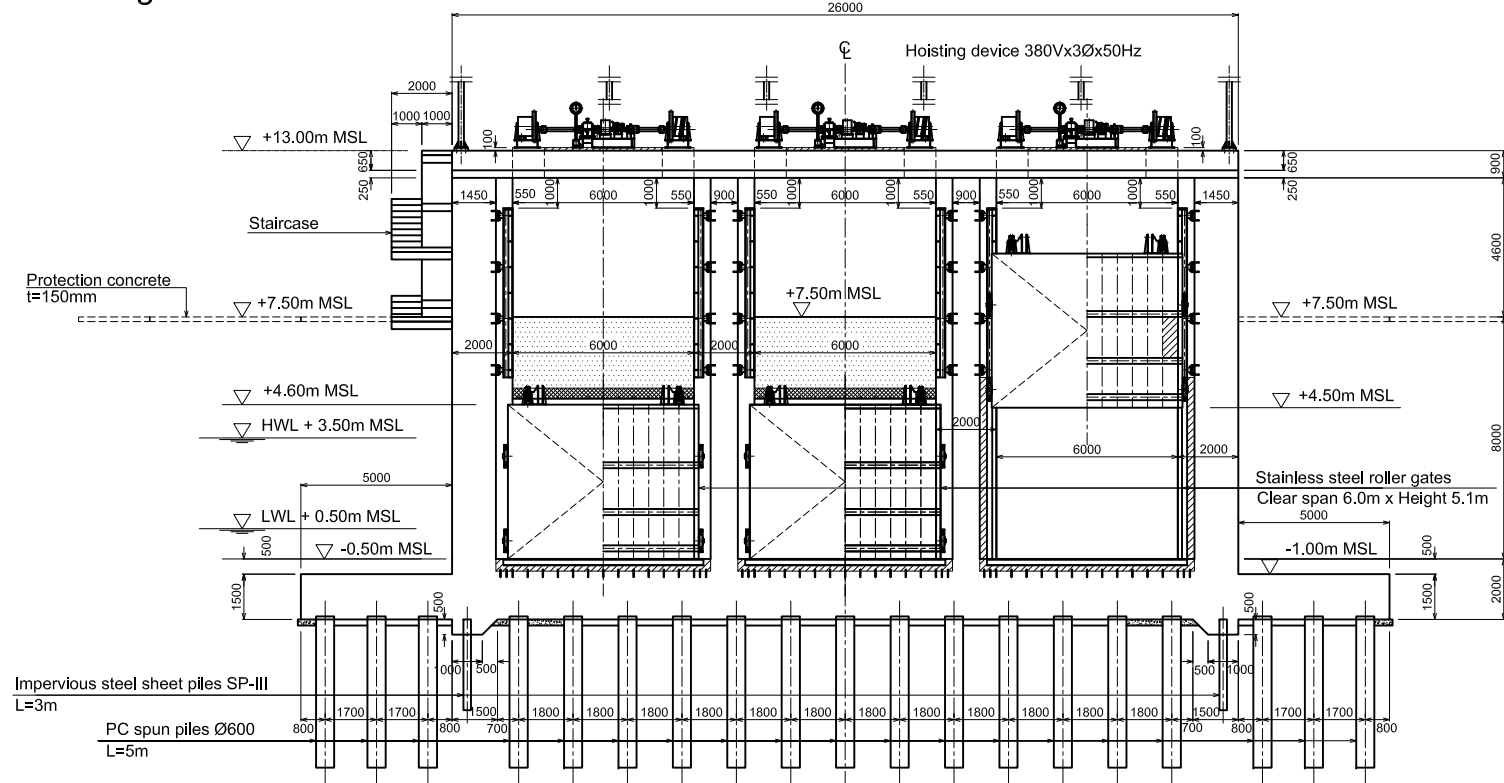
KINGDOM OF THAILAND
MINISTRY OF AGRICULTURE AND COOPERATIVES
ROYAL IRRIGATION DEPARTMENT

CTI ENGINEERING INTERNATIONAL CO., LTD.
ORIENTAL CONSULTANTS CO., LTD.
NIPPON KOEI CO., LTD.
CTI ENGINEERING CO., LTD.

DESIGNED BY
CHECKED BY
DATE :
AUGUST 2012
DWG. NO.
KM-FG-003
SCALE :

Right Bank of Canal

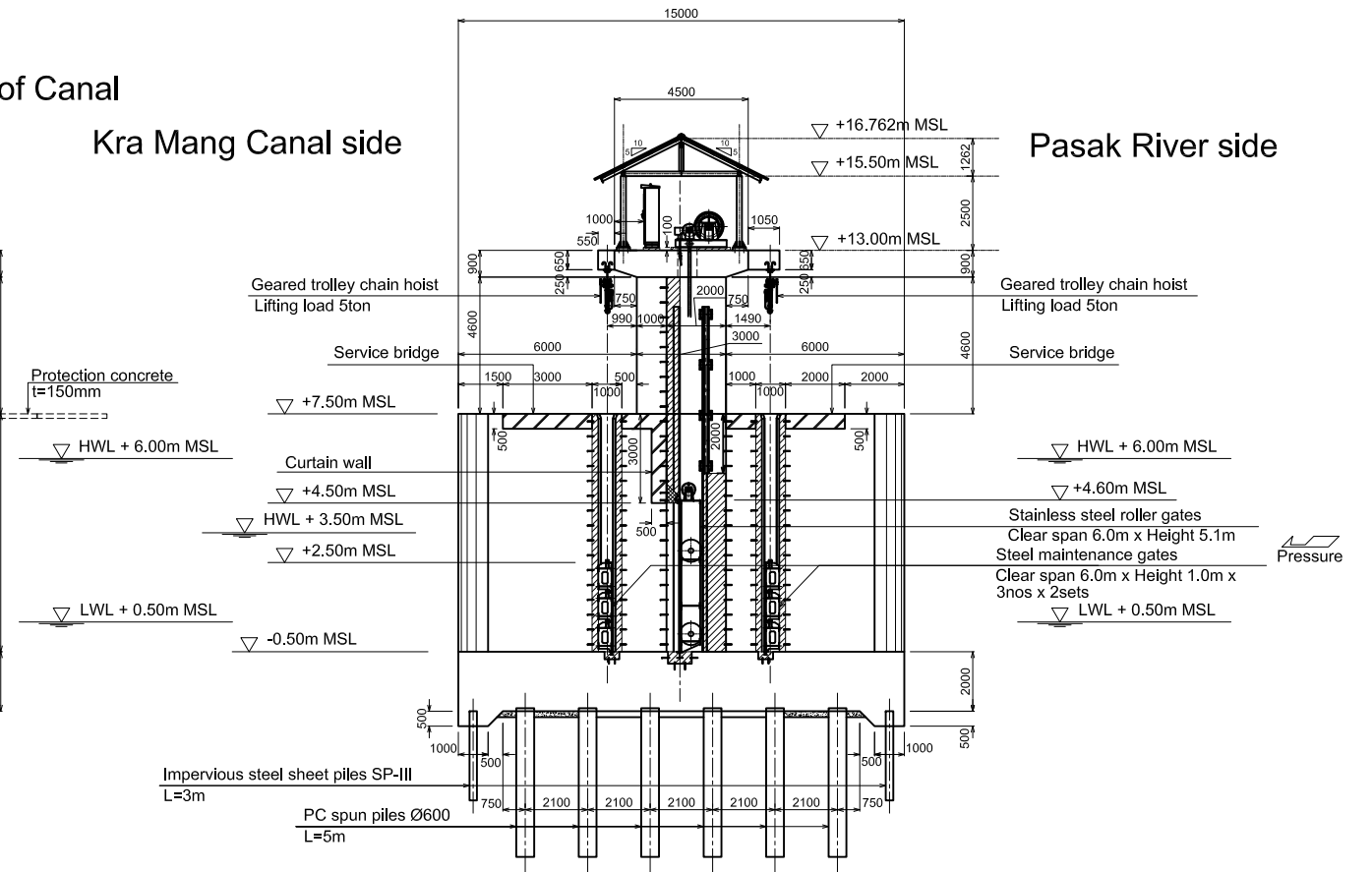
Left Bank of Canal



SECTION G-G

Kra Mang Canal side

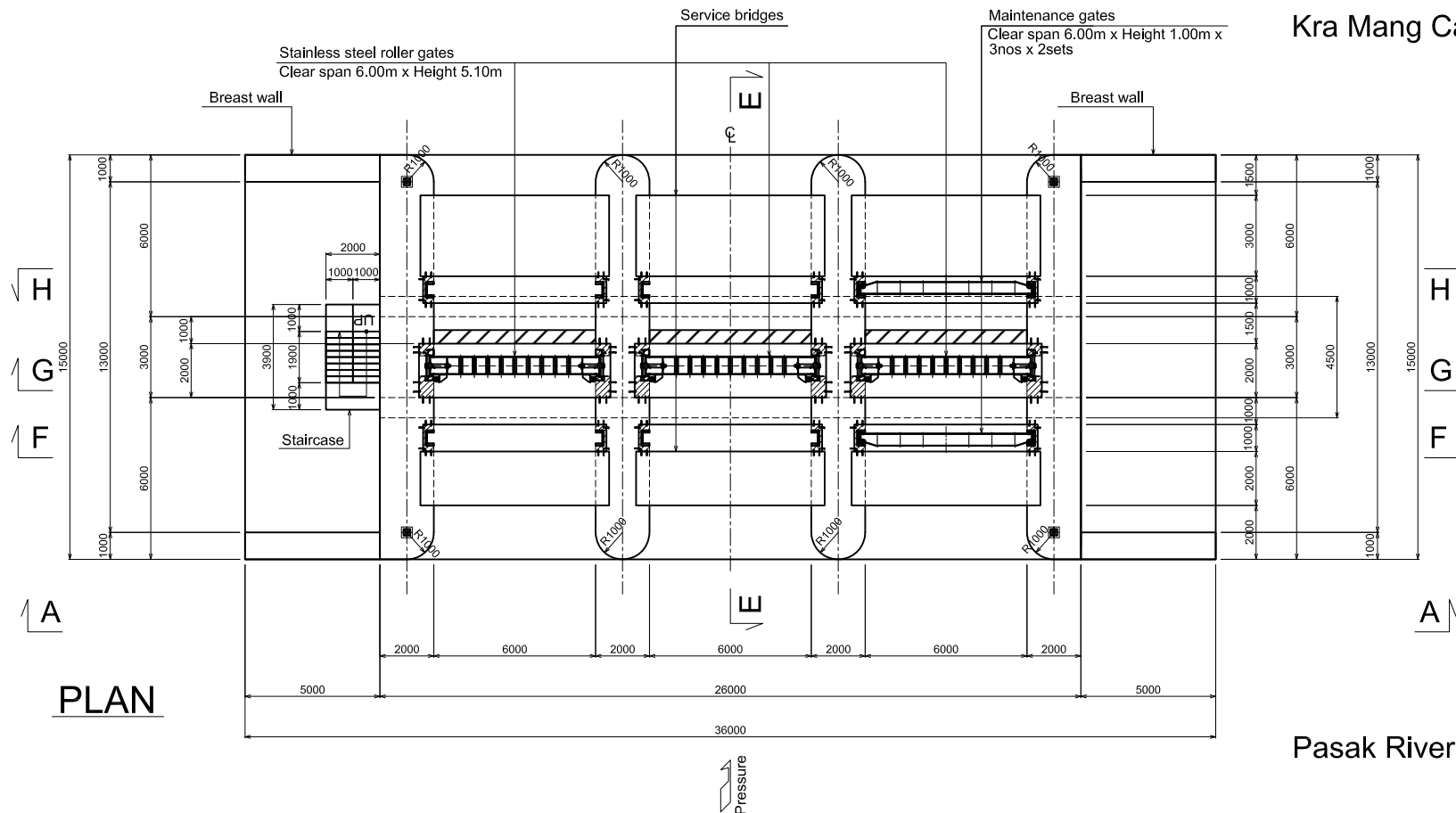
Pasak River side



SECTION E-E

Kra Mang Canal side

Pasak River side



PLAN

MAIN STRUCTURE OF KRA MANG FLOODGATE

A8-34

REV. NO.	DESCRIPTION	CONSULTANT CHECKED	DATE	RID CHECKED	DATE	REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE
								(CIVIL WORKS) HAN TRA FLOODGATE MAIN STRUCTURE PLAN AND SECTIONS	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012	SHEET NO.
													DWG. NO. KM-FG-004	



KINGDOM OF THAILAND
MINISTRY OF AGRICULTURE AND COOPERATIVES
ROYAL IRRIGATION DEPARTMENT

SHEET CONTENTS

OWNER

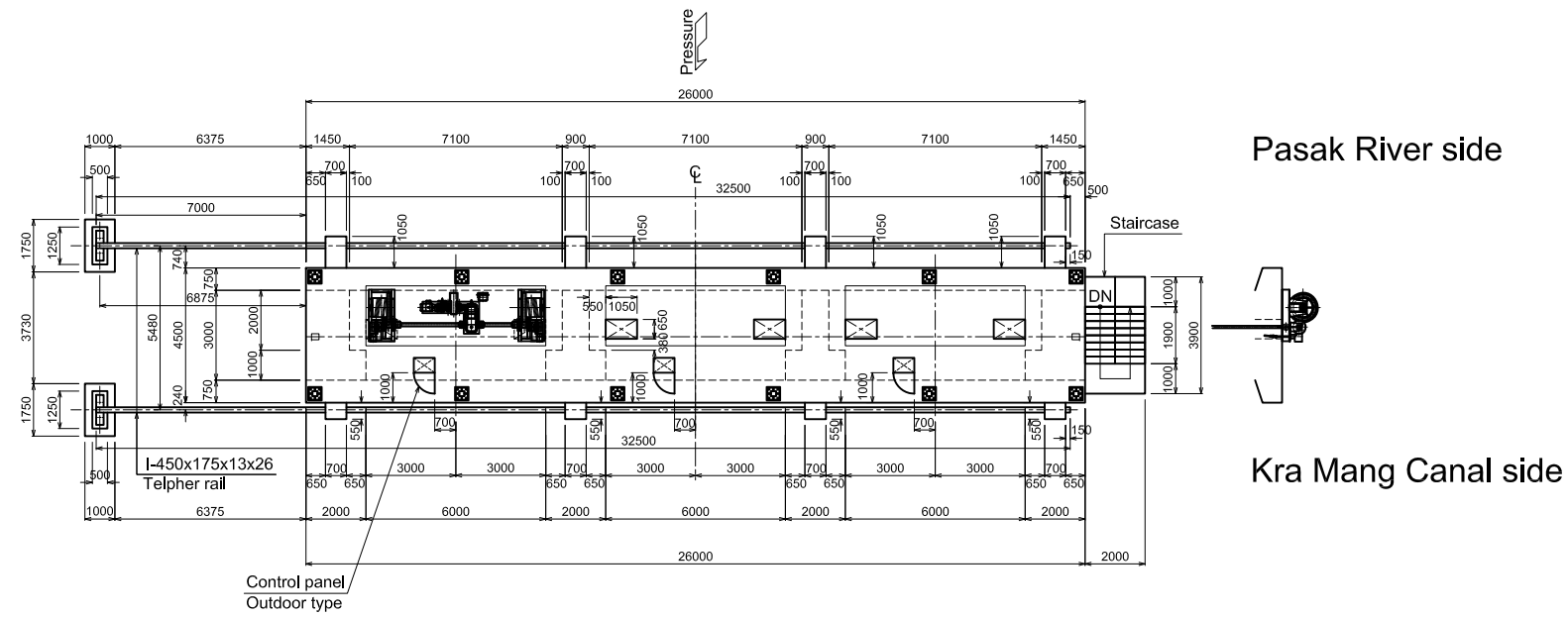
PROJECT TITLE

CTI ENGINEERING INTERNATIONAL CO., LTD.
ORIENTAL CONSULTANTS CO., LTD.
NIPPON KOEI CO., LTD.
CTI ENGINEERING CO., LTD.

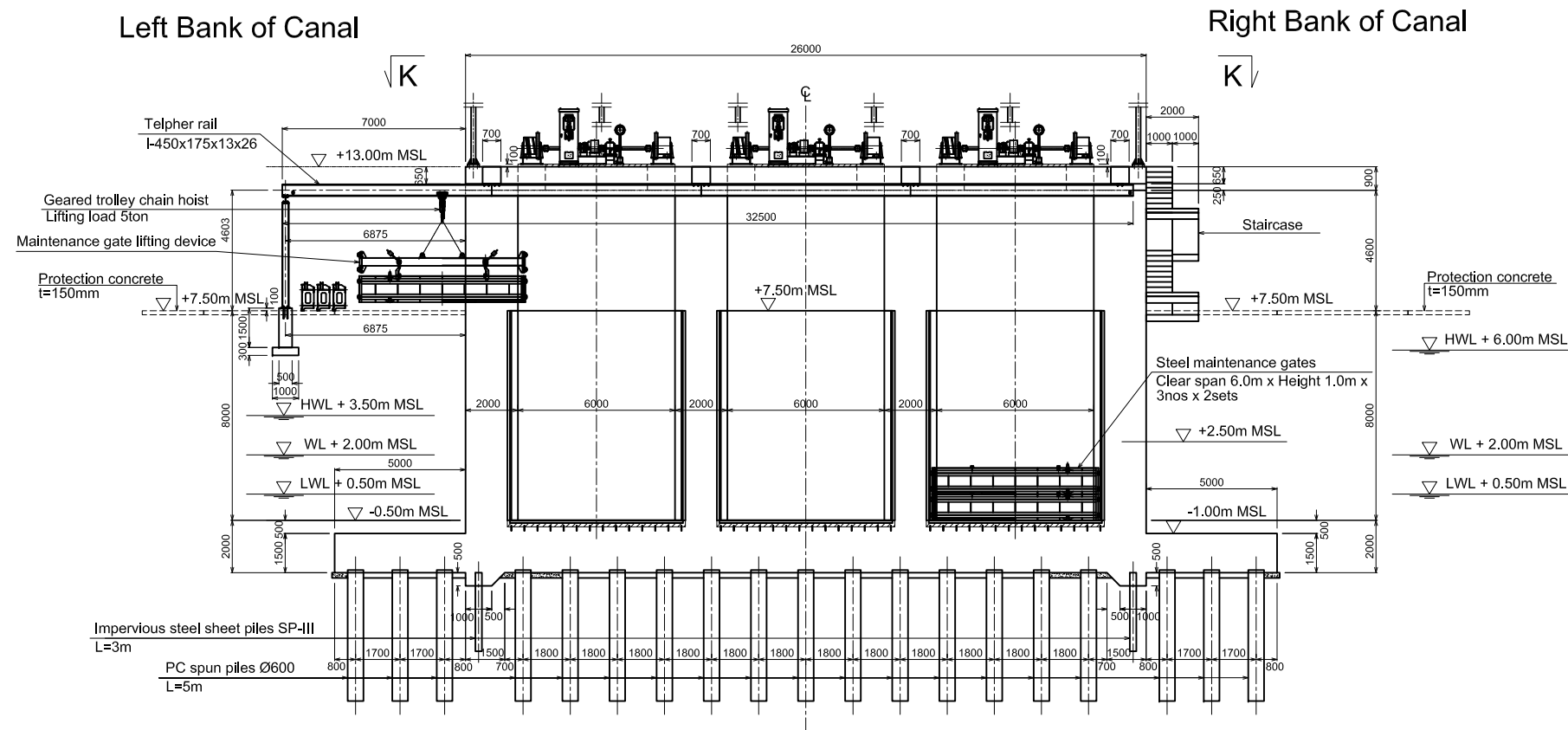
DESIGNED BY
CHECKED BY

DATE
AUGUST 2012
DWG. NO.
KM-FG-004

SCALE
SHEET NO.



SECTION K-K



SECTION H-H

MAIN STRUCTURE OF KRA MANG FLOODGATE

REV. NO.	DESCRIPTION	CONSULTANT CHECKED DATE	RID CHECKED DATE	REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE
						(CIVIL WORKS) HAN TRA FLOODGATE MAIN STRUCTURE SECTIONS	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012	SHEET NO.
											DWG. NO. KM-FG-006	

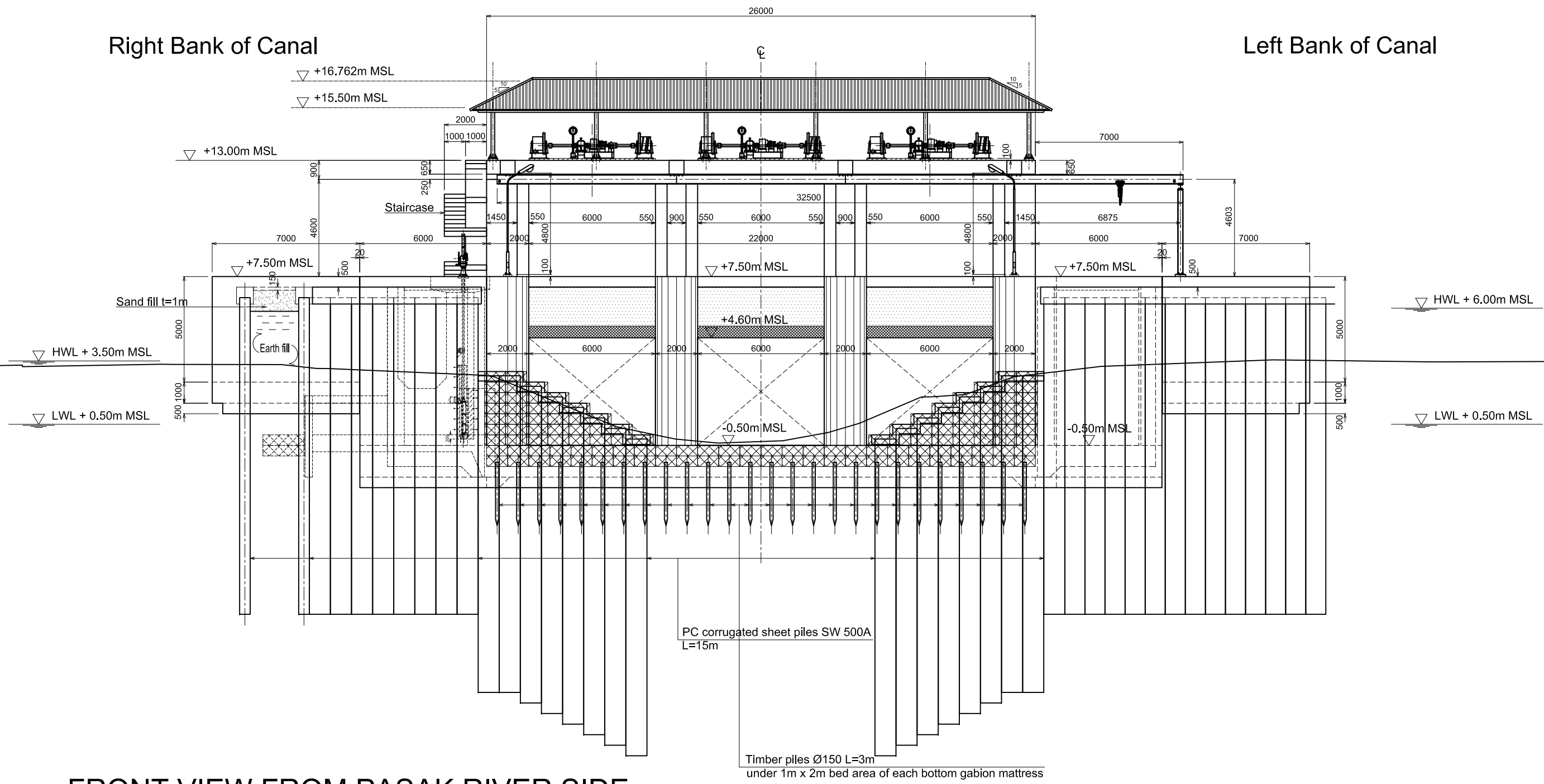


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ROYAL IRRIGATION DEPARTMENT

CTI ENGINEERING INTERNATIONAL CO., LTD.
ORIENTAL CONSULTANTS CO., LTD.
NIPPON KOEI CO., LTD.
CTI ENGINEERING CO., LTD.






Right Bank of Canal

Left Bank of Canal



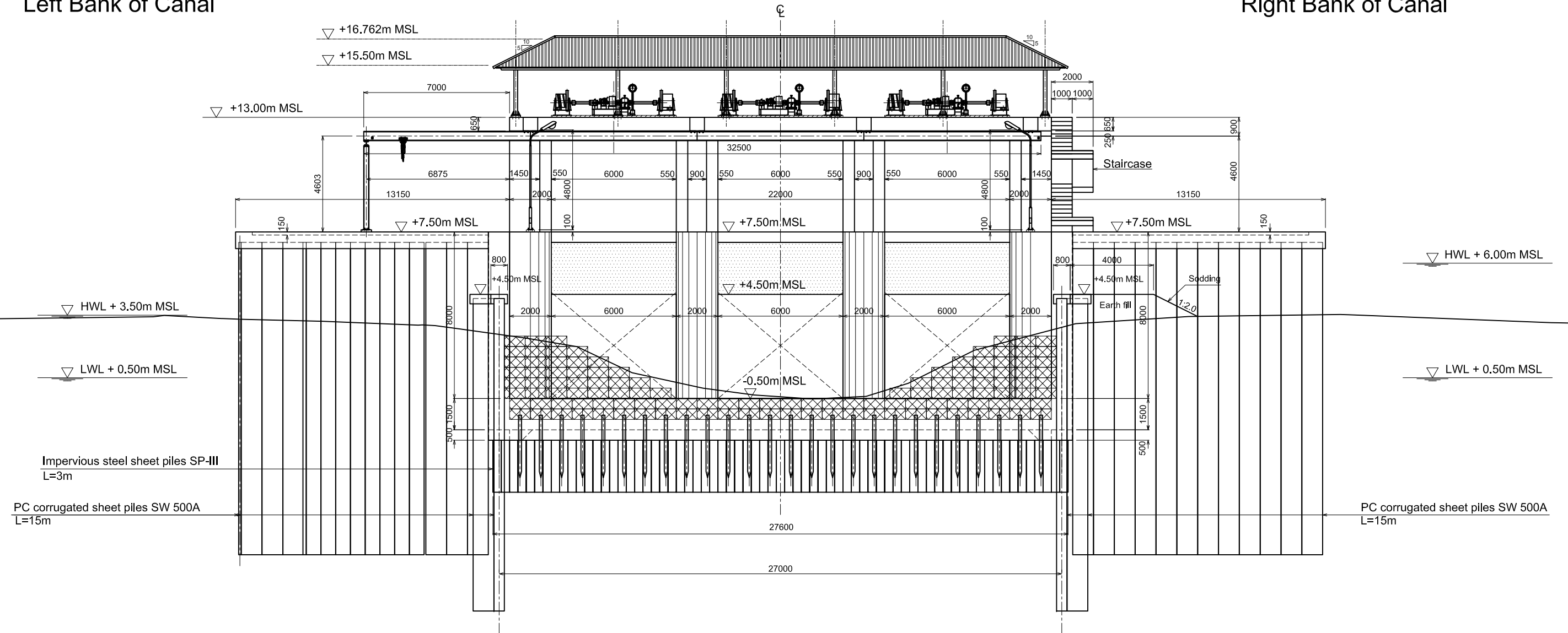
FRONT VIEW FROM PASAK RIVER SIDE

A8-37

REV. NO.	DESCRIPTION	CONSULTANT CHECKED DATE	RID CHECKED DATE	REV. NO.	APPROVED BY	 KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT	SHEET CONTENTS	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD.  ORIENTAL CONSULTANTS CO., LTD.  NIPPON KOEI CO., LTD.  CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
							(CIVIL WORKS) KRA MANG FLOODGATE FRONT VIEW	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand		ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012 DWG. NO. KM-FG-007	SHEET NO.

Left Bank of Canal

Right Bank of Canal



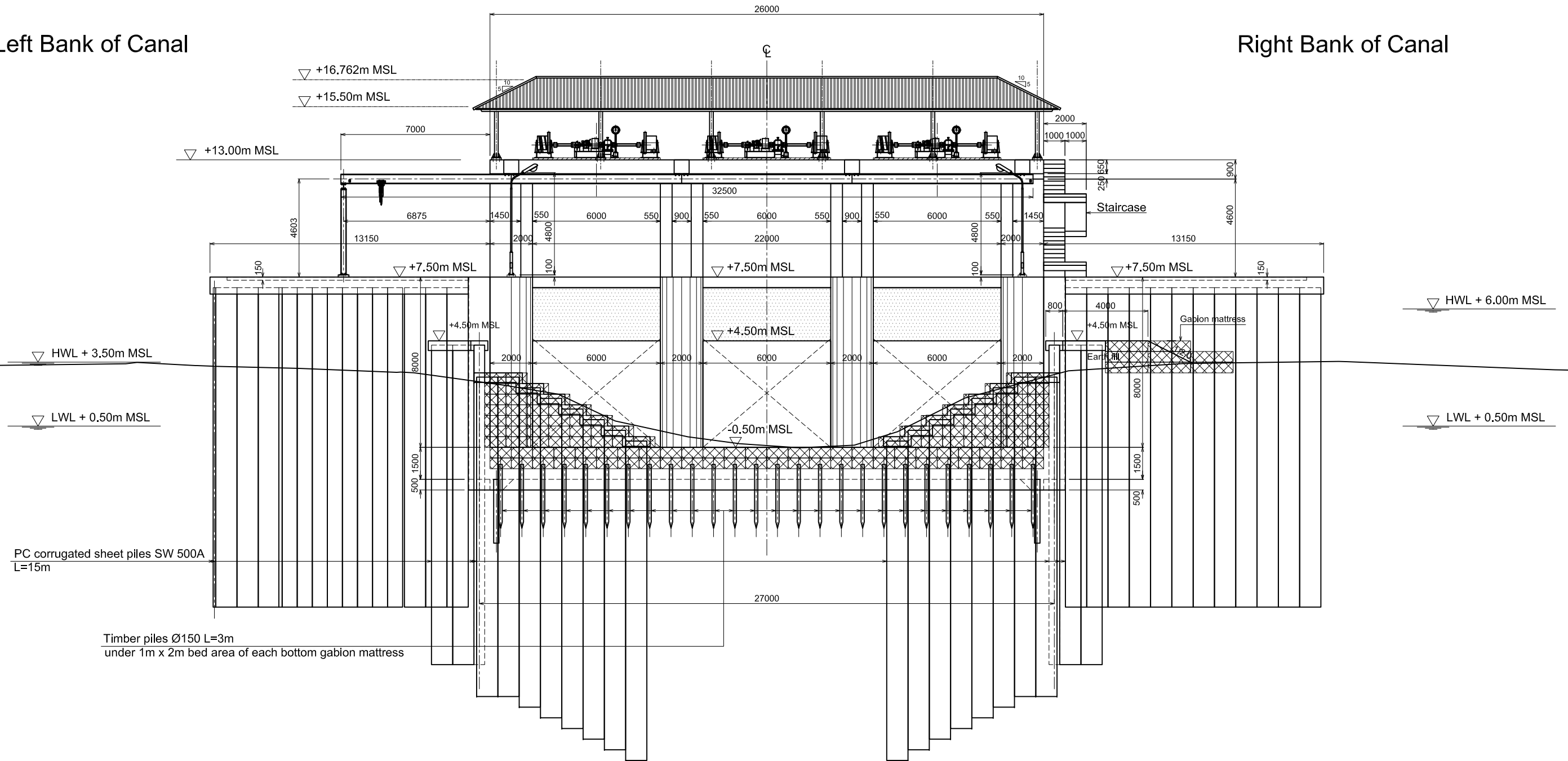
FRONT VIEW FROM REVETMENT OF KRA MANG CANAL SIDE

REV. NO.	DESCRIPTION	CONSULTANT		RID		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT	SHEET CONTENTS (CIVIL WORKS) KRA MANG FLOODGATE FRONT VIEW	OWNER Royal Irrigation Department Ministry of Agriculture and Cooperatives	PROJECT TITLE Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE:	SCALE:
													ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012	
															DWG. NO. KM-FG-008	SHEET NO.

A8-38

Left Bank of Canal

Right Bank of Canal

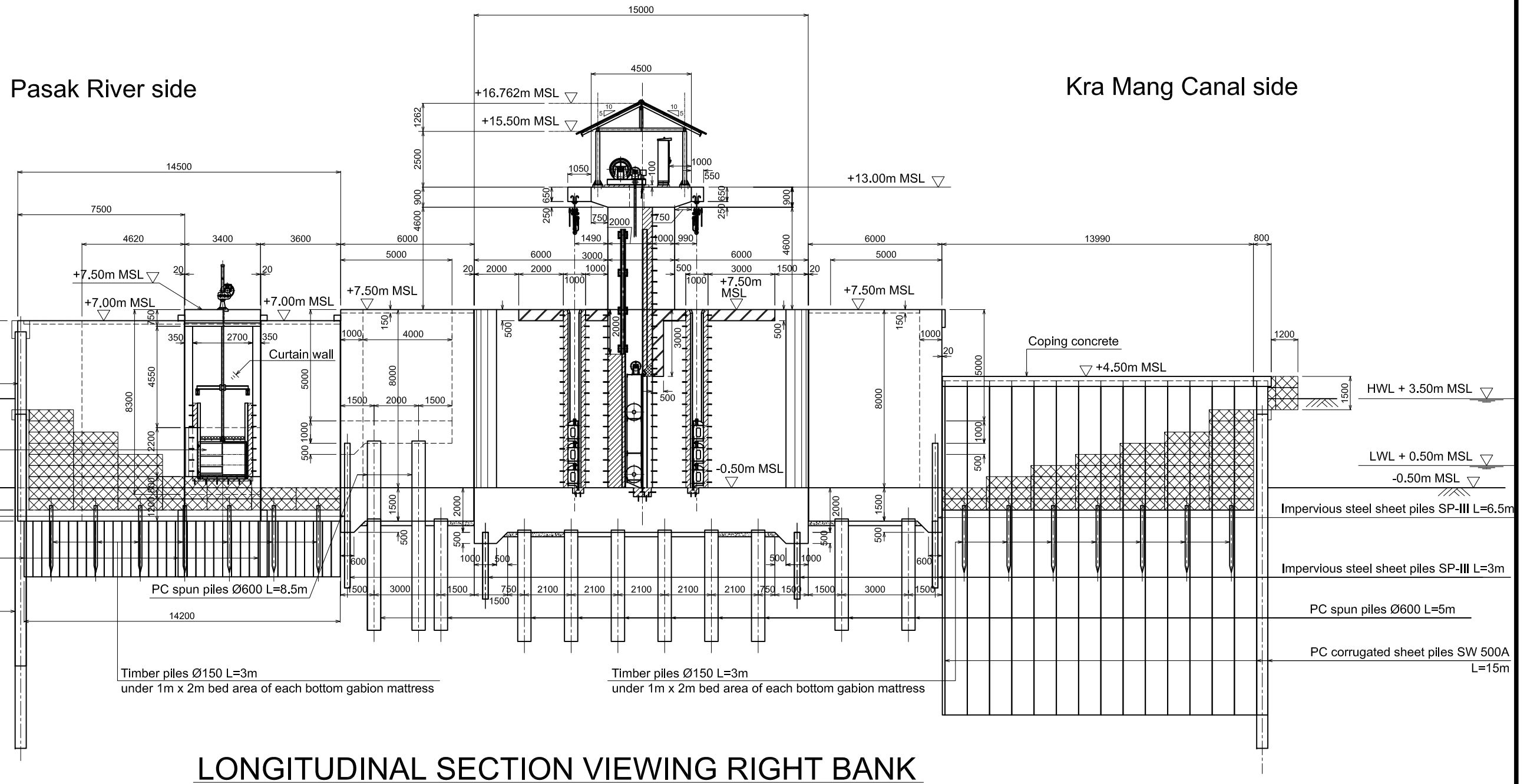


FRONT VIEW FROM KRA MANG CANAL SIDE

A8-39

REV. NO.	DESCRIPTION	CONSULTANT		RID		REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE	
		CHECKED	DATE	CHECKED	DATE										
								KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012 DWG. NO. KM-FG-009	SHEET NO.

A8-40



REV. NO.	DESCRIPTION	CONSULTANT		RID		REV. NO.	APPROVED BY
		CHECKED	DATE	CHECKED	DATE		



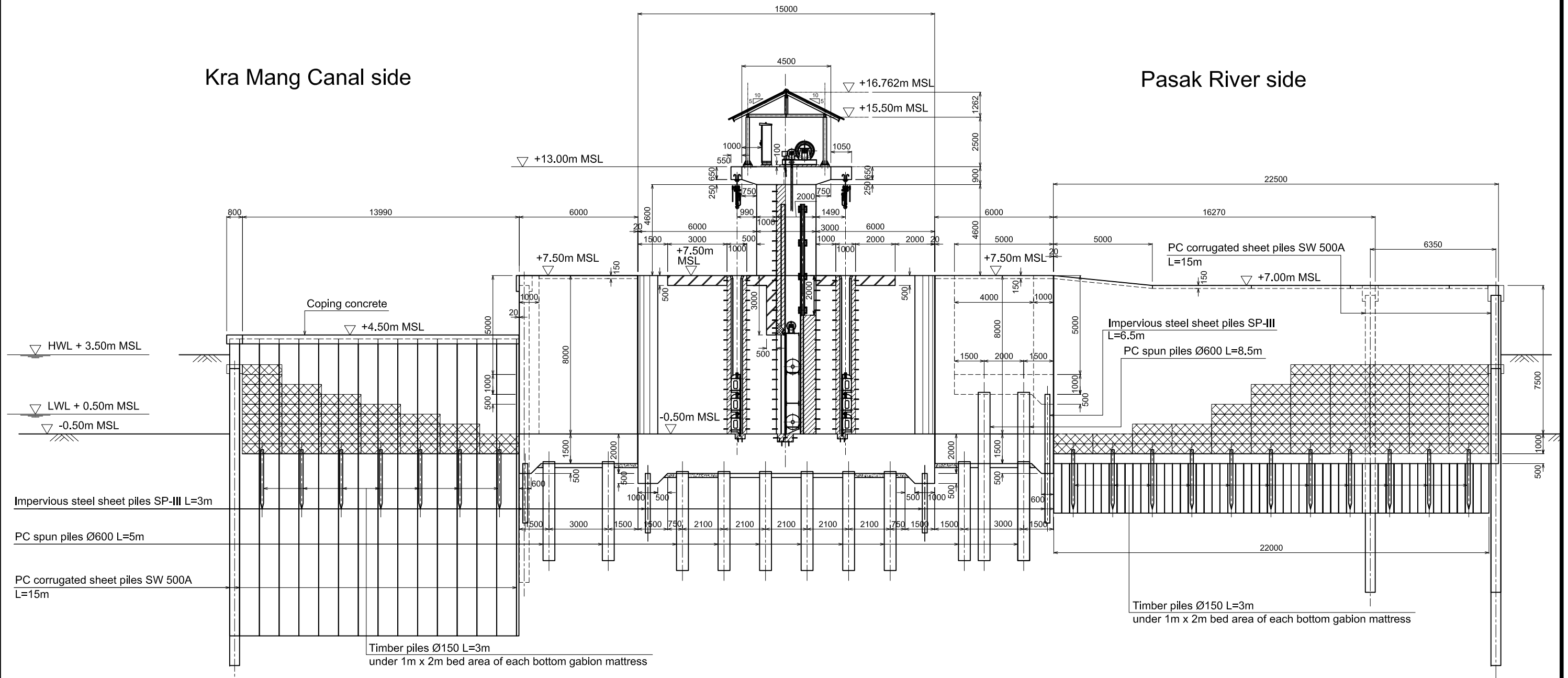
KINGDOM OF THAILAND
 MINISTRY OF AGRICULTURE AND COOPERATIVES
 ROYAL IRRIGATION DEPARTMENT

SHEET CONTENTS	OWNER	PROJECT TITLE
(CIVIL WORKS) KRA MANG FLOODGATE LONGITUDINAL SECTION	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand

CTI ENGINEERING INTERNATIONAL CO., LTD.	DESIGNED BY	CHECKED BY	DATE:	SCALE:
ORIENTAL CONSULTANTS CO., LTD.	ISHII Masaki	MISHINA Takahiro	AUGUST 2012	
NIPPON KOEI CO., LTD.	STRUCTURAL ENGINEER	TEAM LEADER	DWG. NO.	SHEET NO.
CTI ENGINEERING CO., LTD.			KM-FG-010	

Kra Mang Canal side

Pasak River side



LONGITUDINAL SECTION VIEWING LEFT BANK

A8-41

REV. NO.	DESCRIPTION	CONSULTANT CHECKED DATE	RID CHECKED DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT</p>	SHEET CONTENTS (CIVIL WORKS) KRA MANG FLOODGATE LONGITUDINAL SECTION	OWNER Royal Irrigation Department Ministry of Agriculture and Cooperatives	PROJECT TITLE Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand		DESIGNED BY ISHII Masaki STRUCTURAL ENGINEER	CHECKED BY MISHINA Takahiro TEAM LEADER	DATE: AUGUST 2012	SCALE:
													DWG. NO. KM-FG-011	SHEET NO.

Left Bank of Canal

Pasak River side

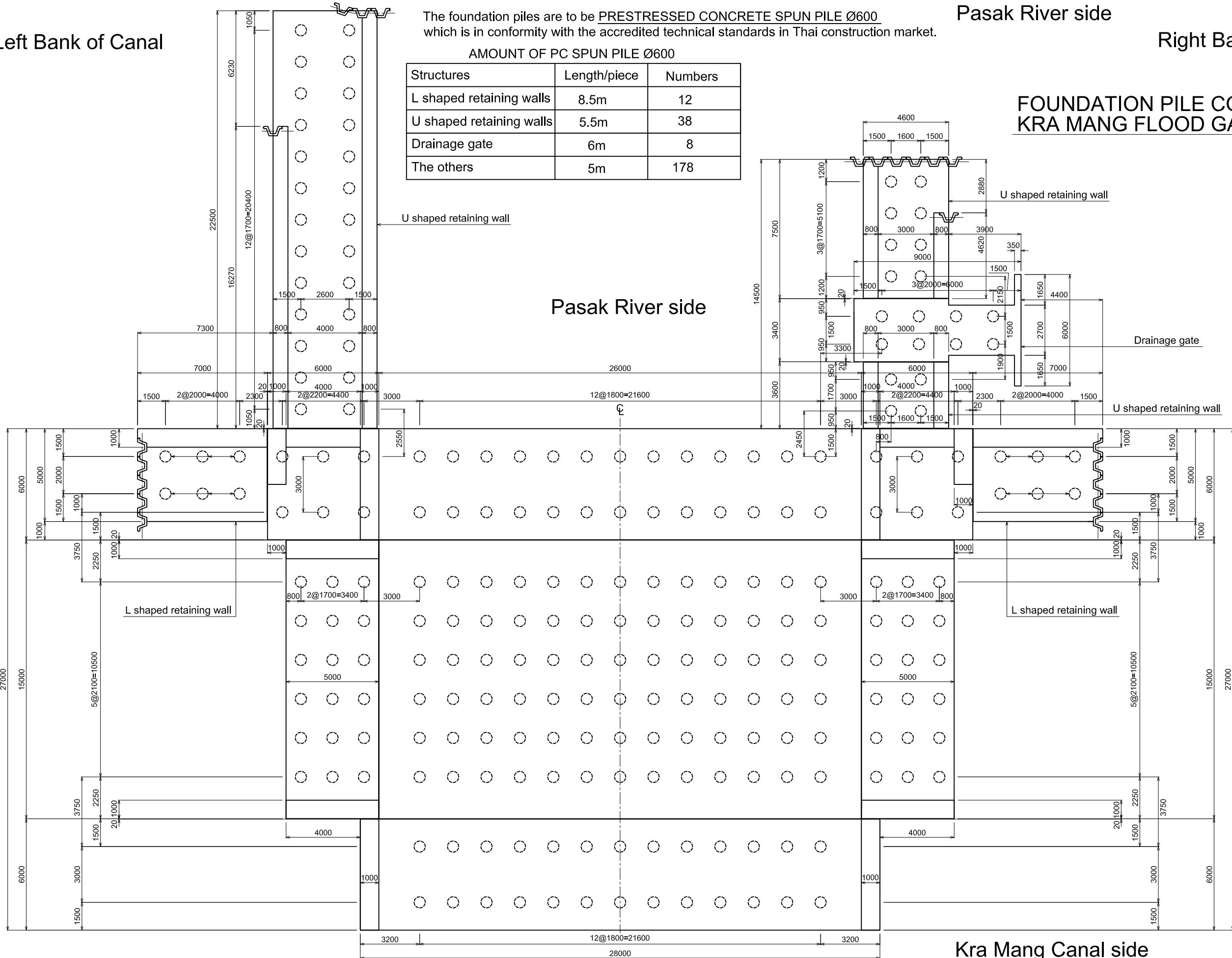
Right Bank of Canal

The foundation piles are to be PRESTRESSED CONCRETE SPUN PILE Ø600 which is in conformity with the accredited technical standards in Thai construction market.

AMOUNT OF PC SPUN PILE Ø600

Structures	Length/piece	Numbers
L shaped retaining walls	8.5m	12
U shaped retaining walls	5.5m	38
Drainage gate	6m	8
The others	5m	178

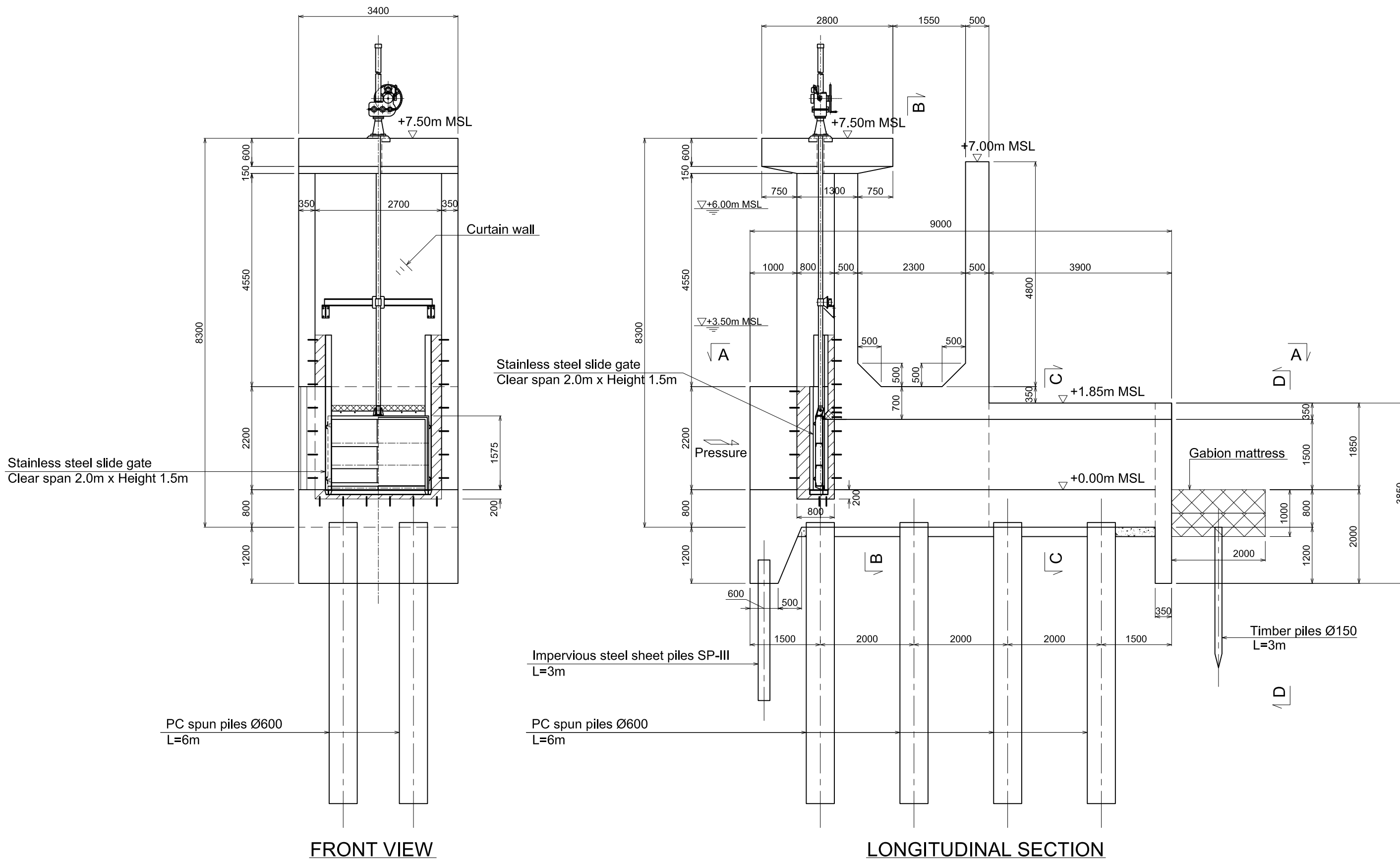
FOUNDATION PILE CONFIGURATION OF KRA MANG FLOOD GATE



A8-42

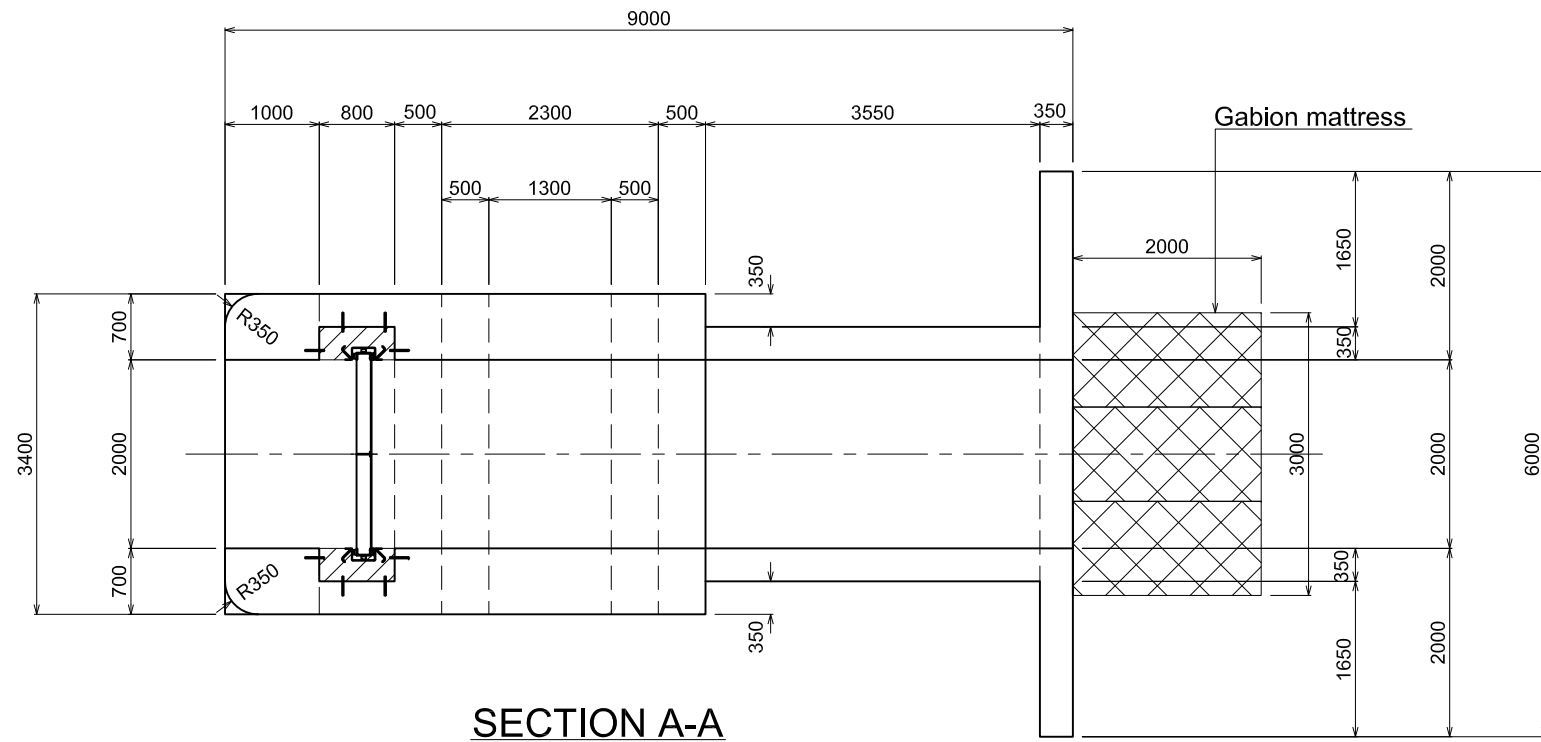
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														DWG. NO. KM-FG-012

DRAINAGE GATE

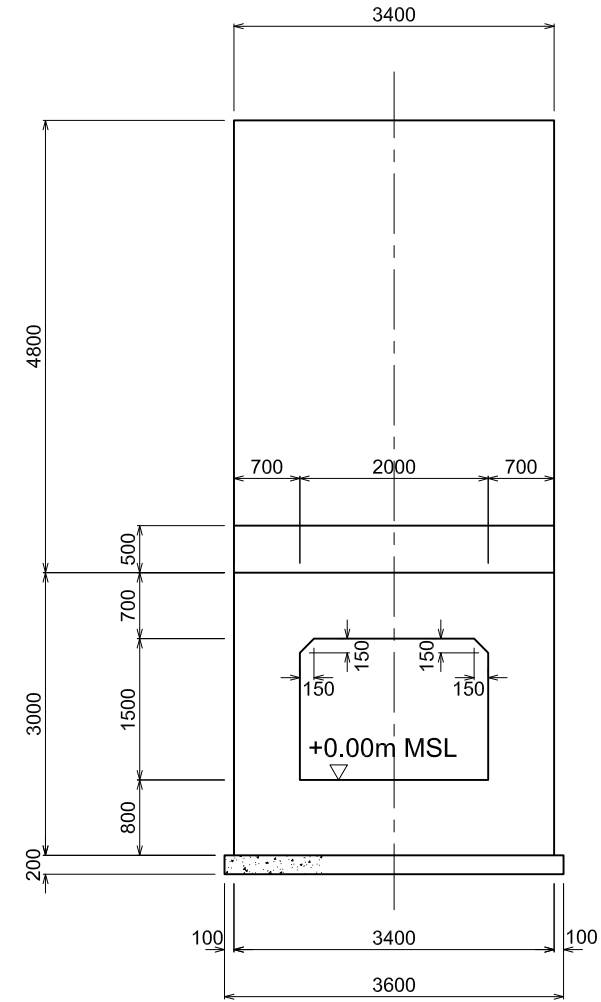


A8-43

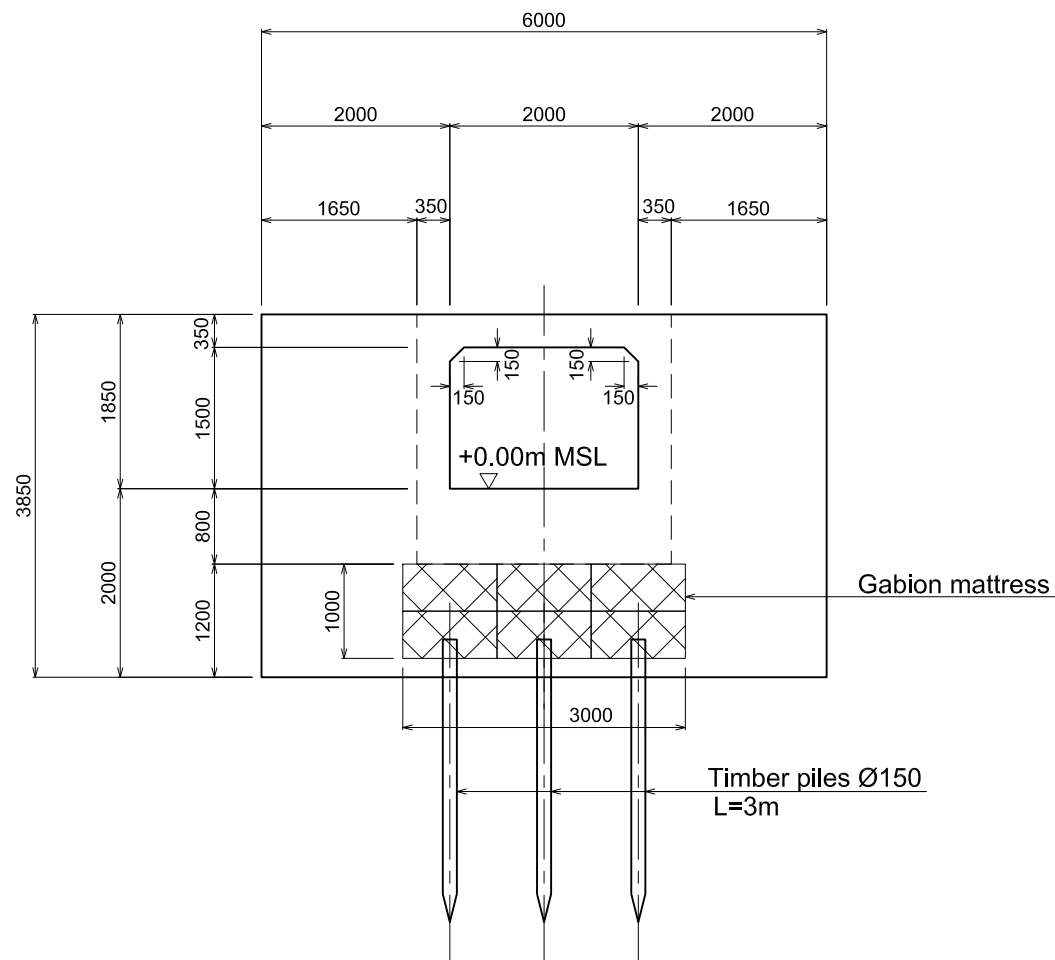
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						(CIVIL WORKS) KRA MANG FLOODGATE DRAINAGE GATE (1/3)	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012	SHEET NO.
											DWG. NO. KM-FG-013	



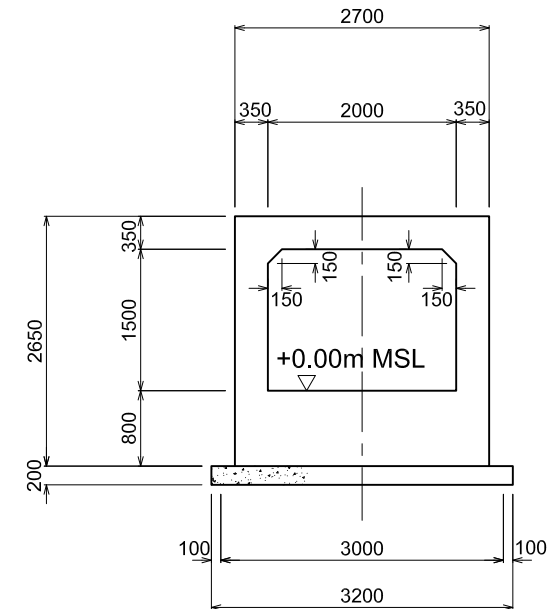
SECTION A-A



SECTION B-B



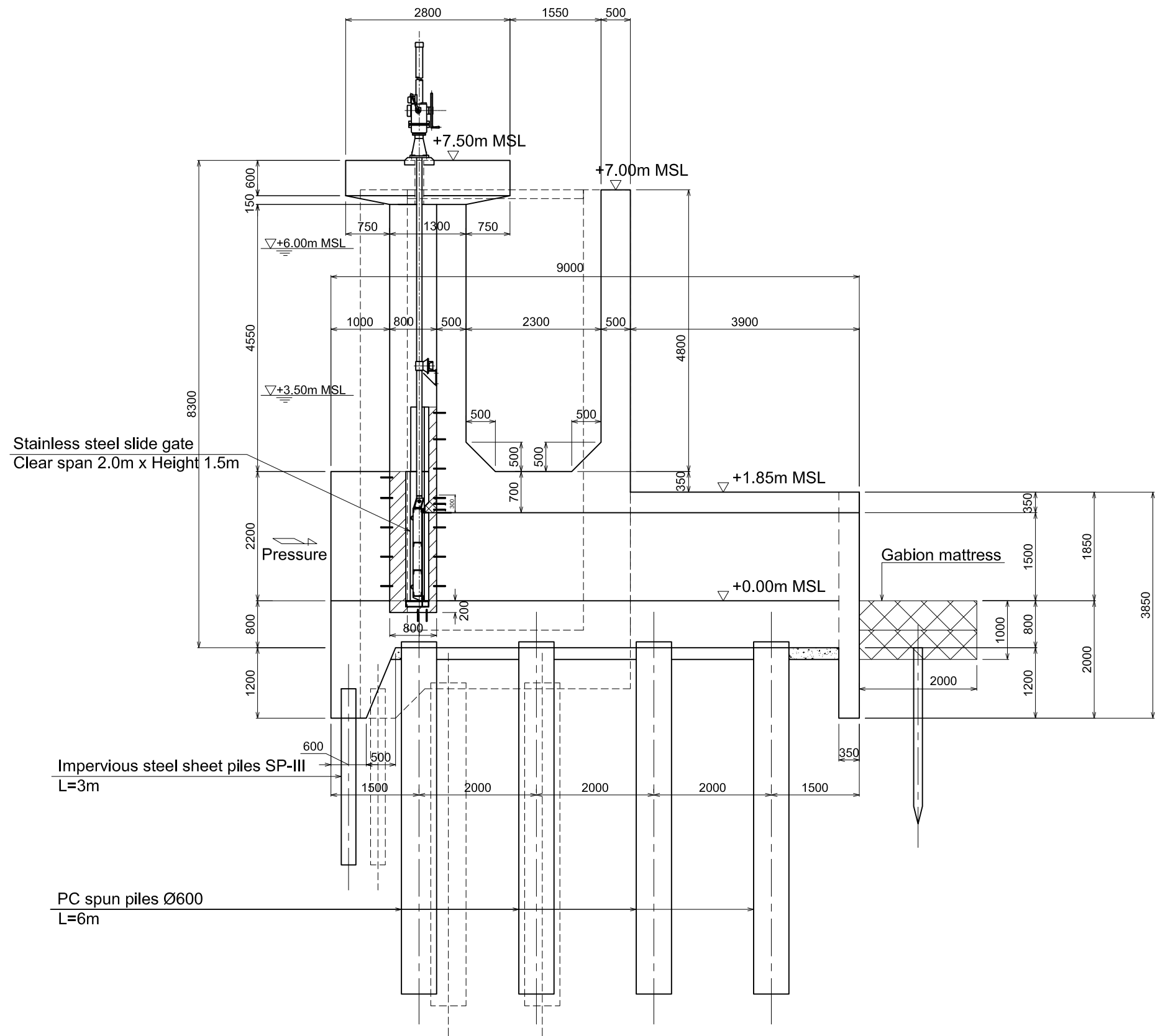
SECTION D-D



SECTION C-C

A8-44

REV. NO.	DESCRIPTION	CONSULTANT		RID		REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE	
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LONGITUDINAL SECTION

REV. NO.	DESCRIPTION	CONSULTANT		RID		REV. NO.	APPROVED BY	SHEET CONTENTS	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE	
		CHECKED	DATE	CHECKED	DATE										
								KINGDOM OF THAILAND MINISTRY OF AGRICULTURE AND COOPERATIVES ROYAL IRRIGATION DEPARTMENT	Royal Irrigation Department Ministry of Agriculture and Cooperatives	Preparatory Survey on the Flood Prevention Project of East Side of the Pasak River in Ayutthaya in the Kingdom of Thailand	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	ISHII Masaki STRUCTURAL ENGINEER	MISHINA Takahiro TEAM LEADER	AUGUST 2012 KM-FG-015	SHEET NO.