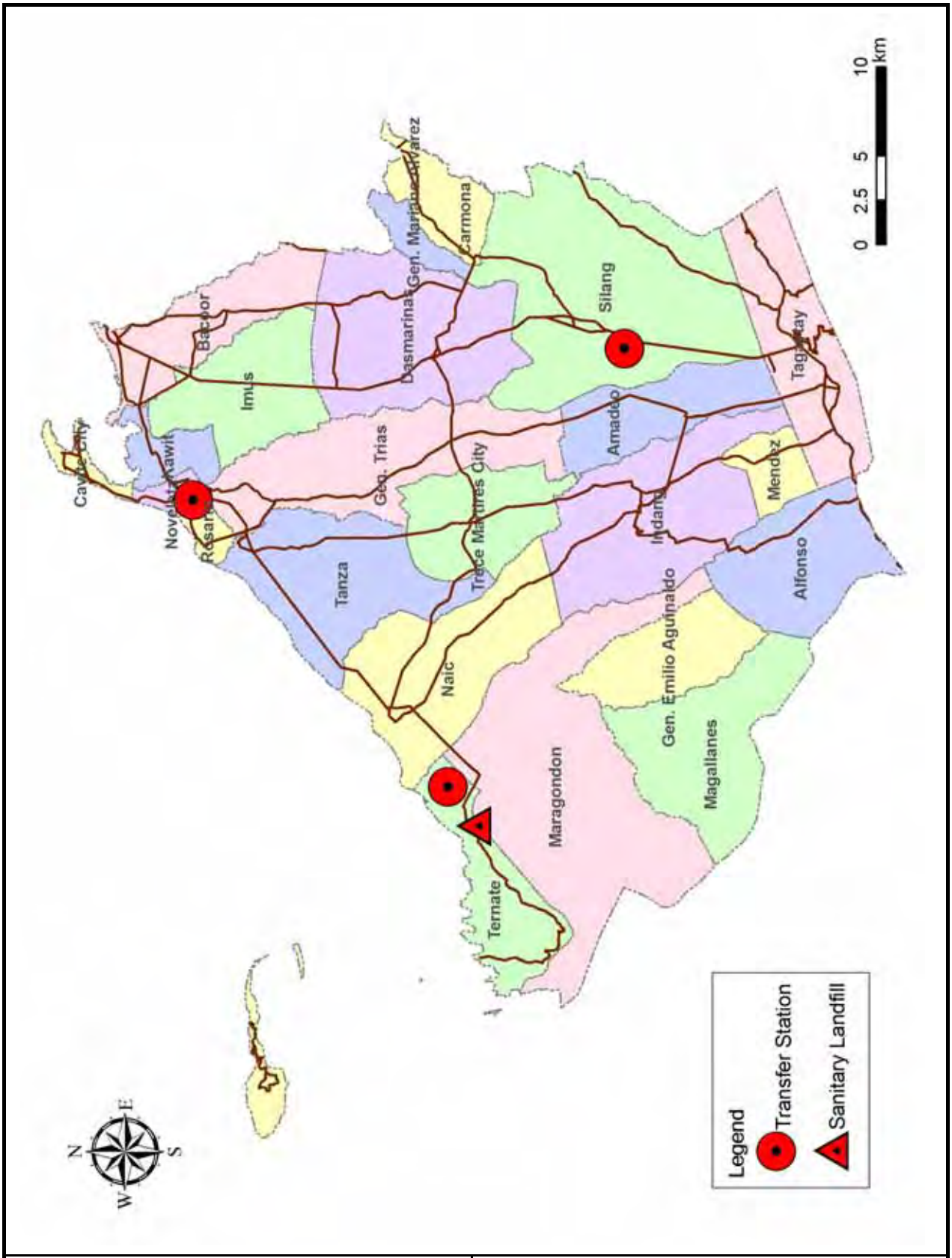
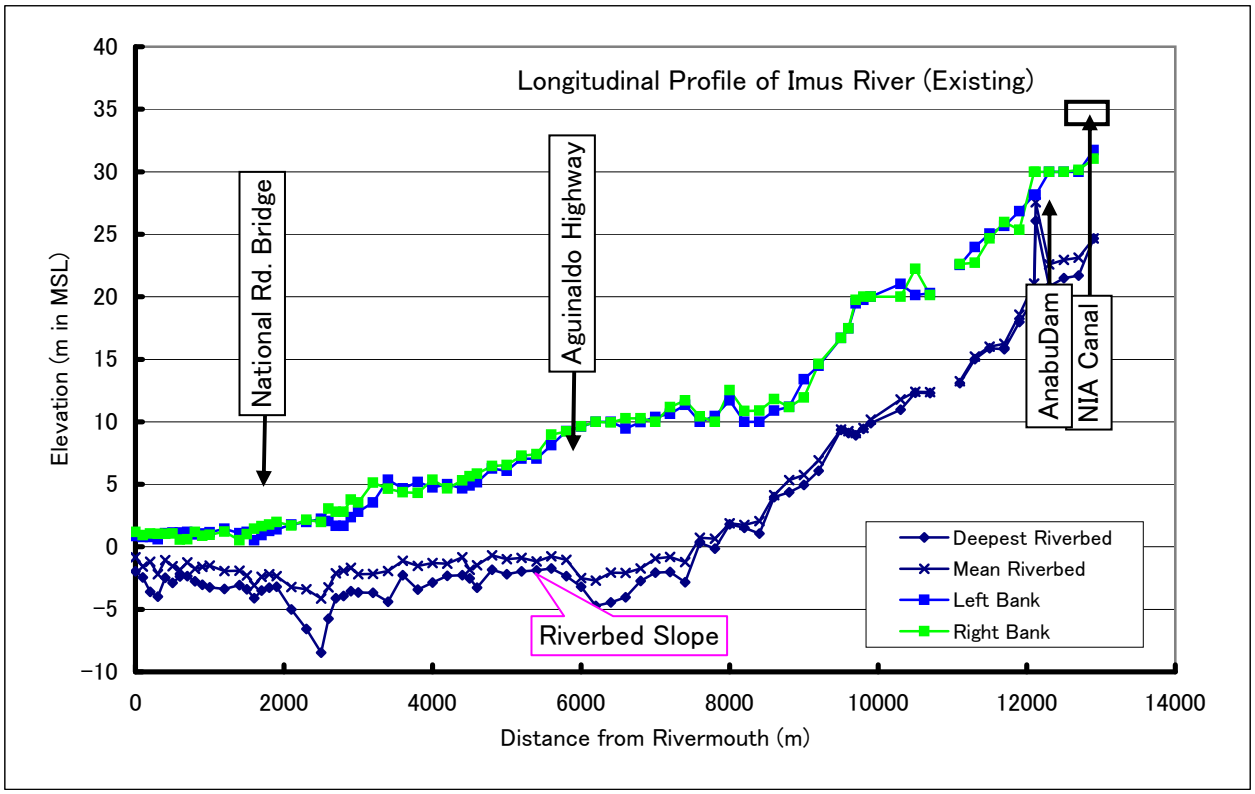
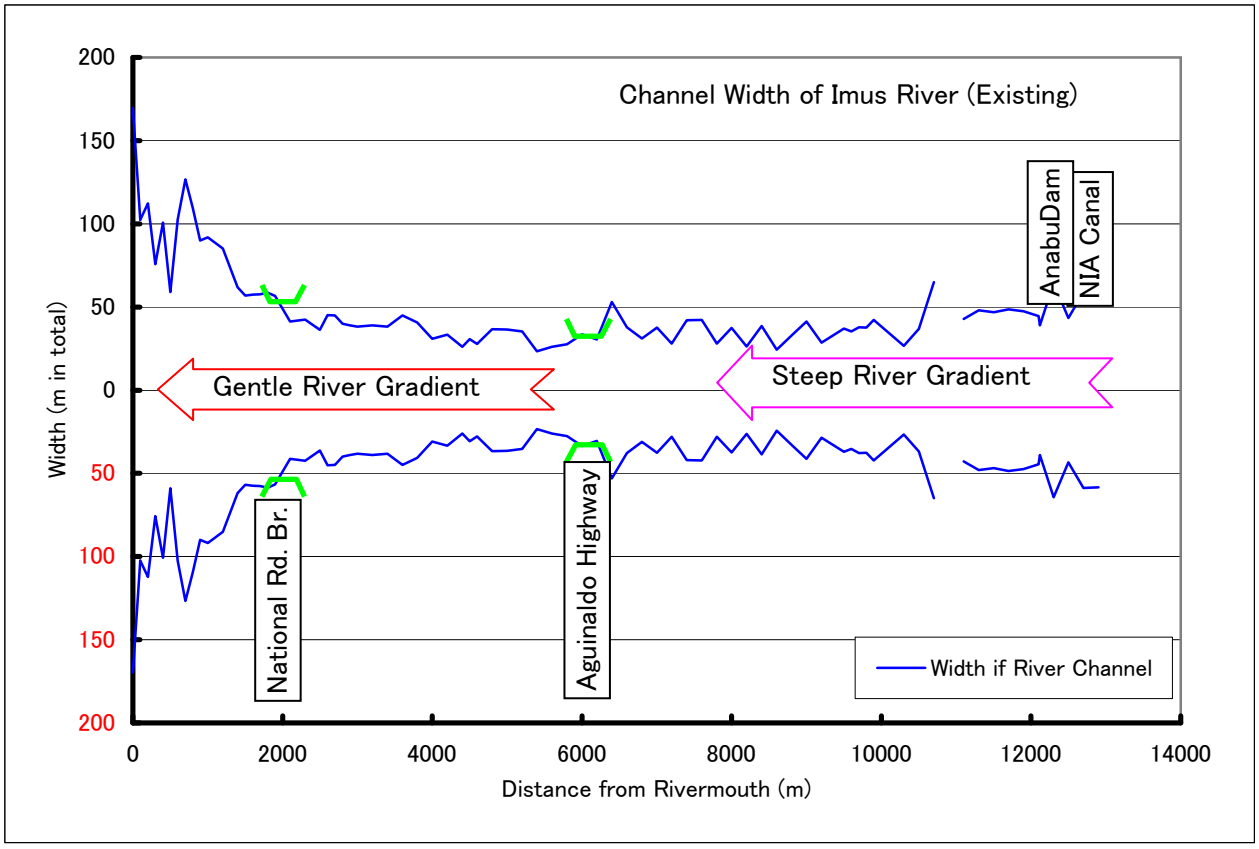
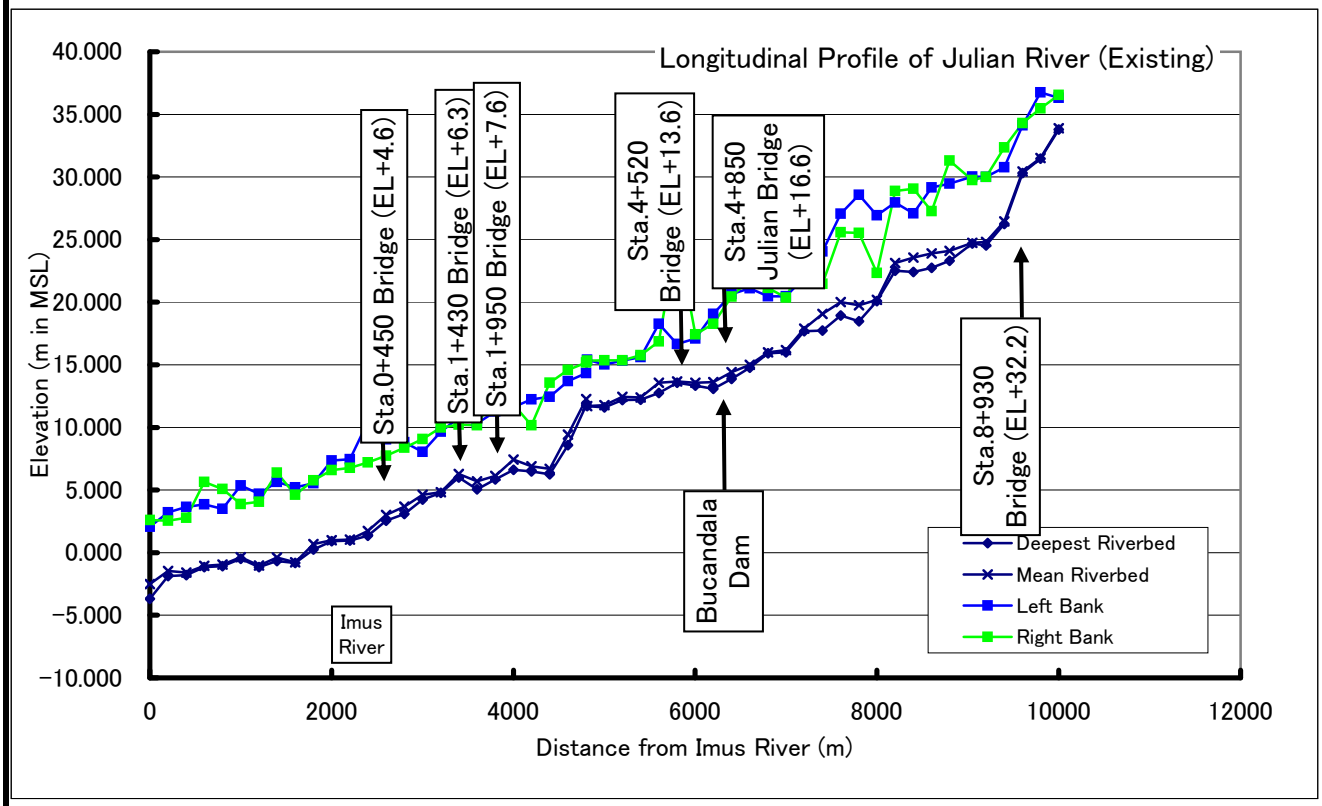


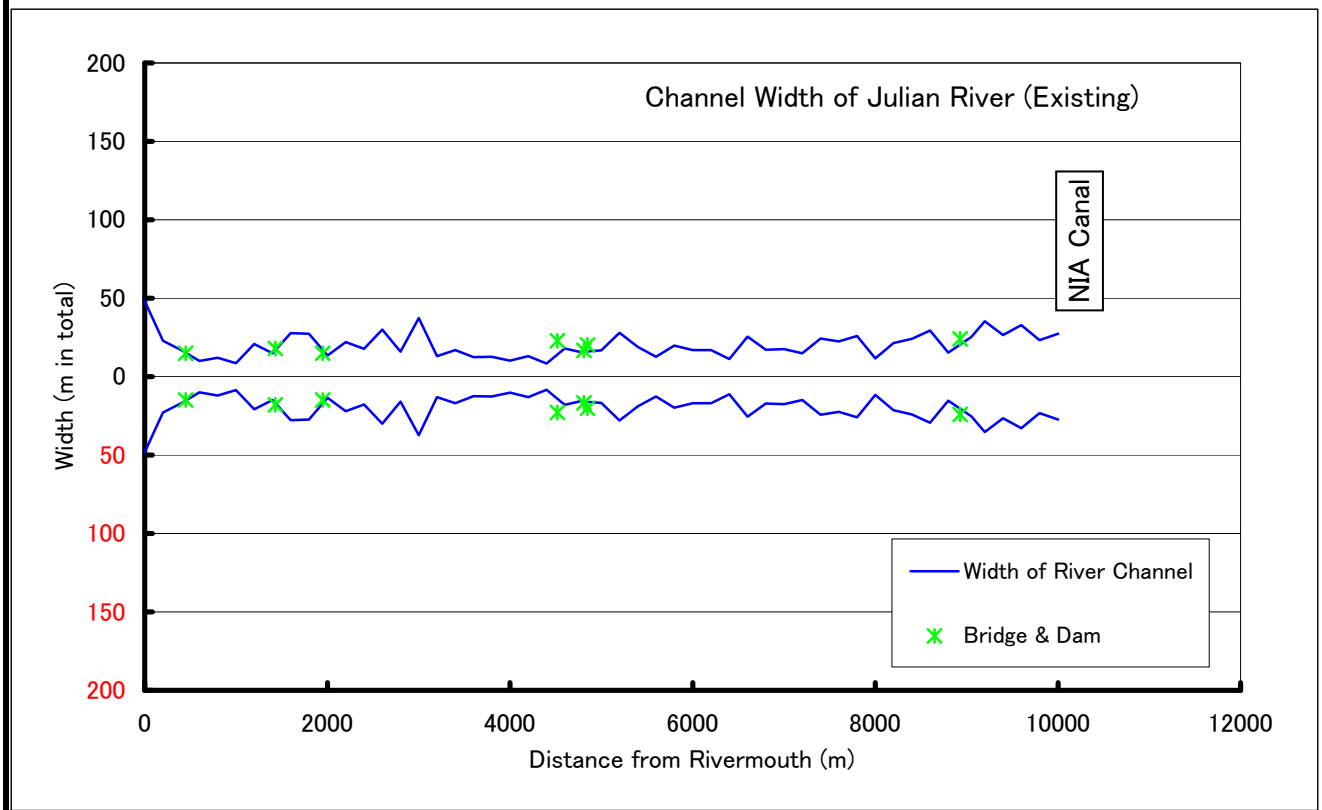
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 6.1 Location of Transfer Station and Sanitary Landfill Sites for New Solid Waste Management System in Cavite Province
CTI Engineering Internationa Co., Ltd. Nippon Koei Co., Ltd	



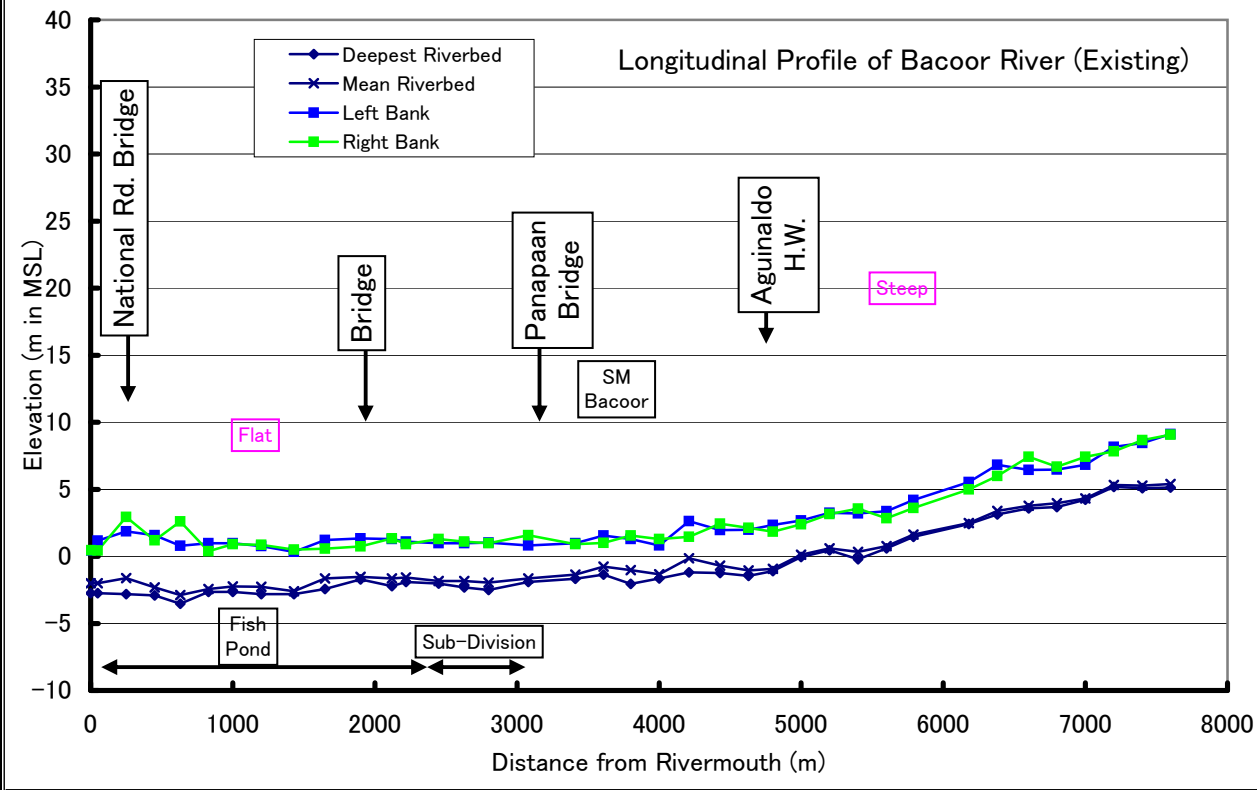


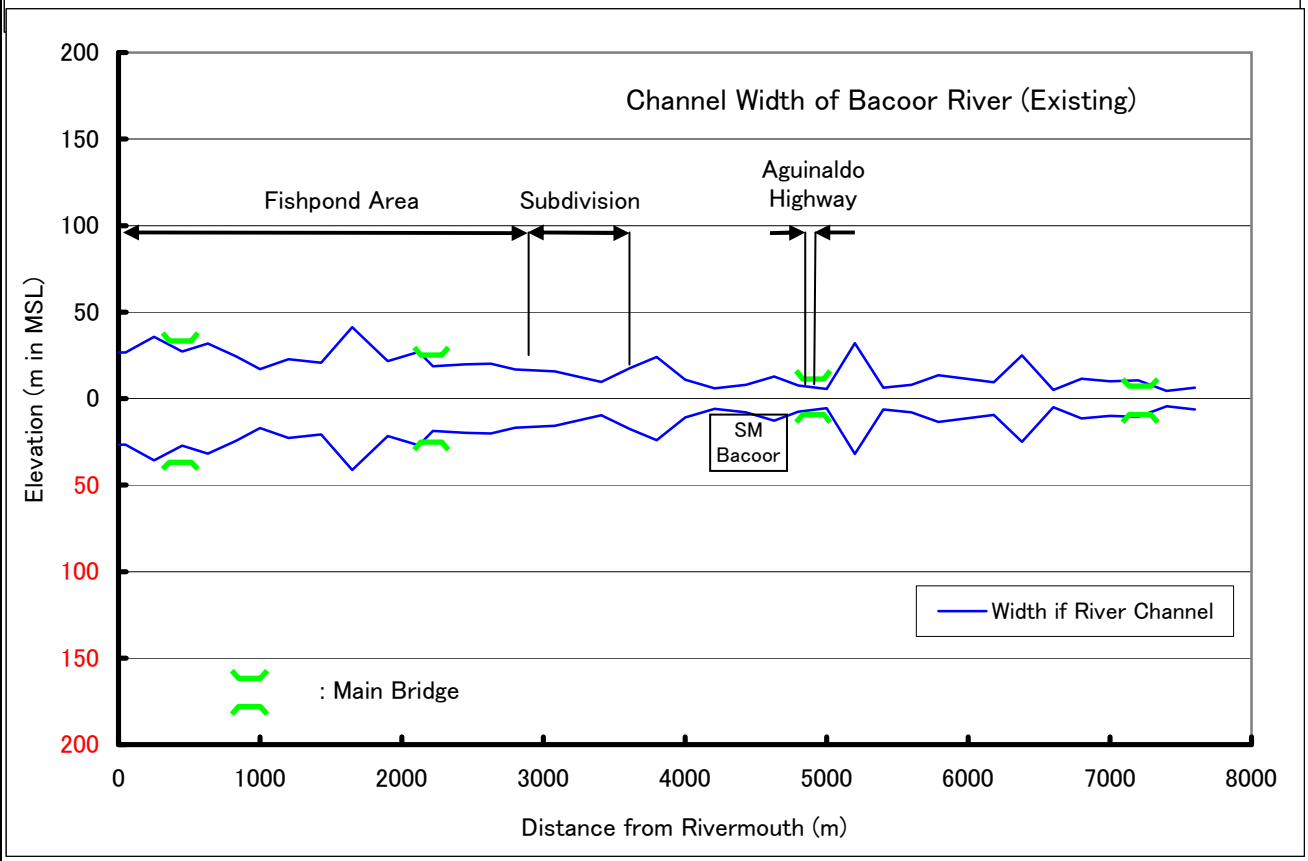
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.1 Longitudinal Profile and Channel Width of Imus River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	



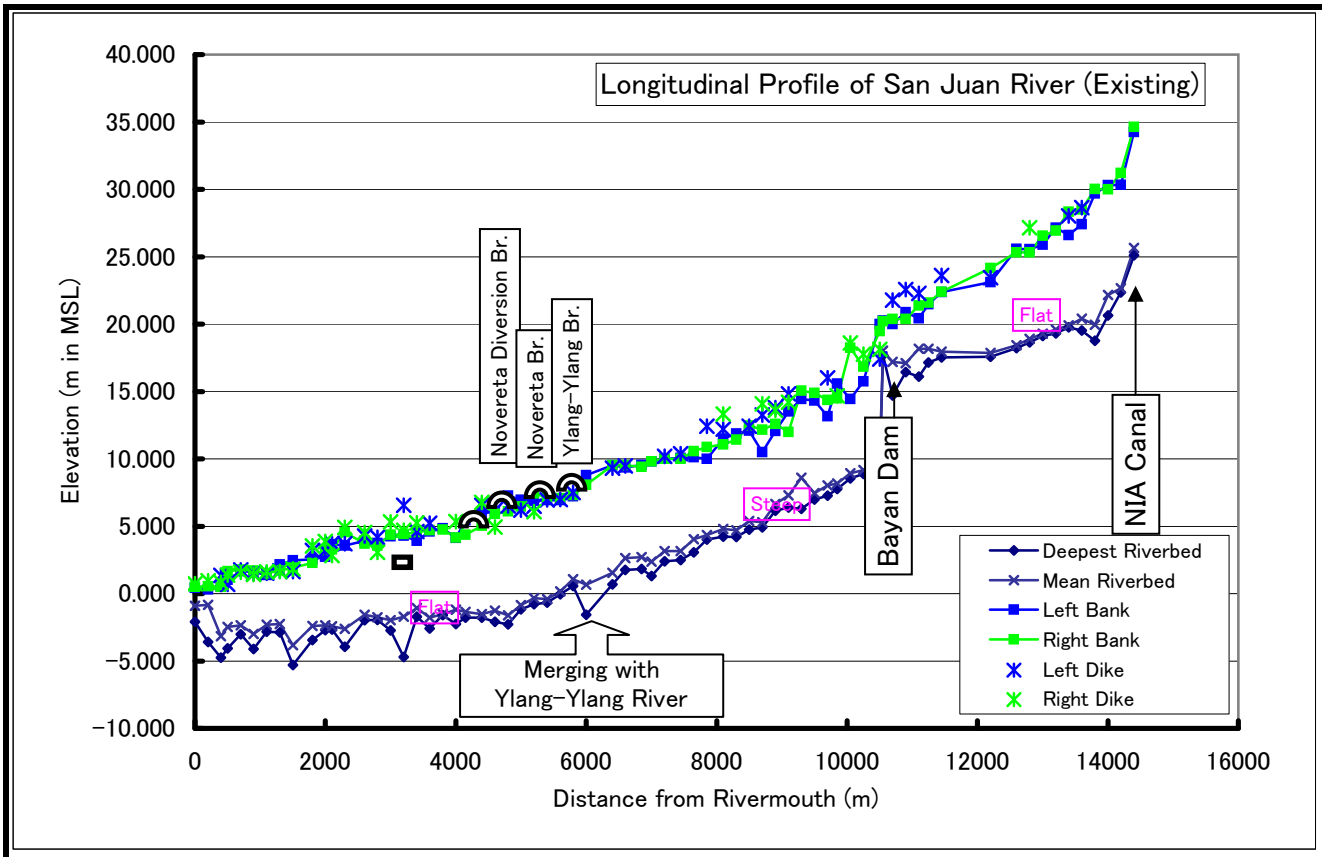


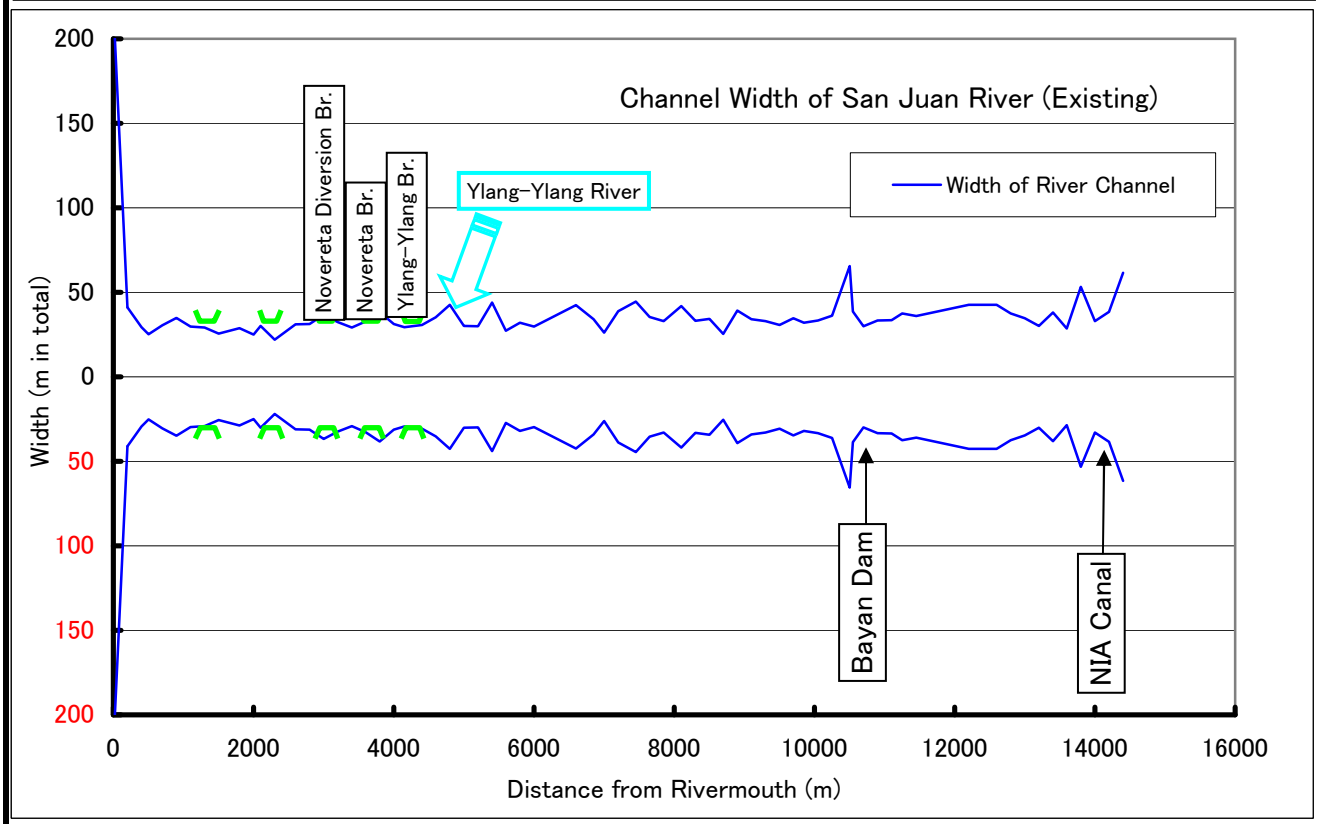
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.2 Longitudinal Profile and Channel Width of Julian River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	



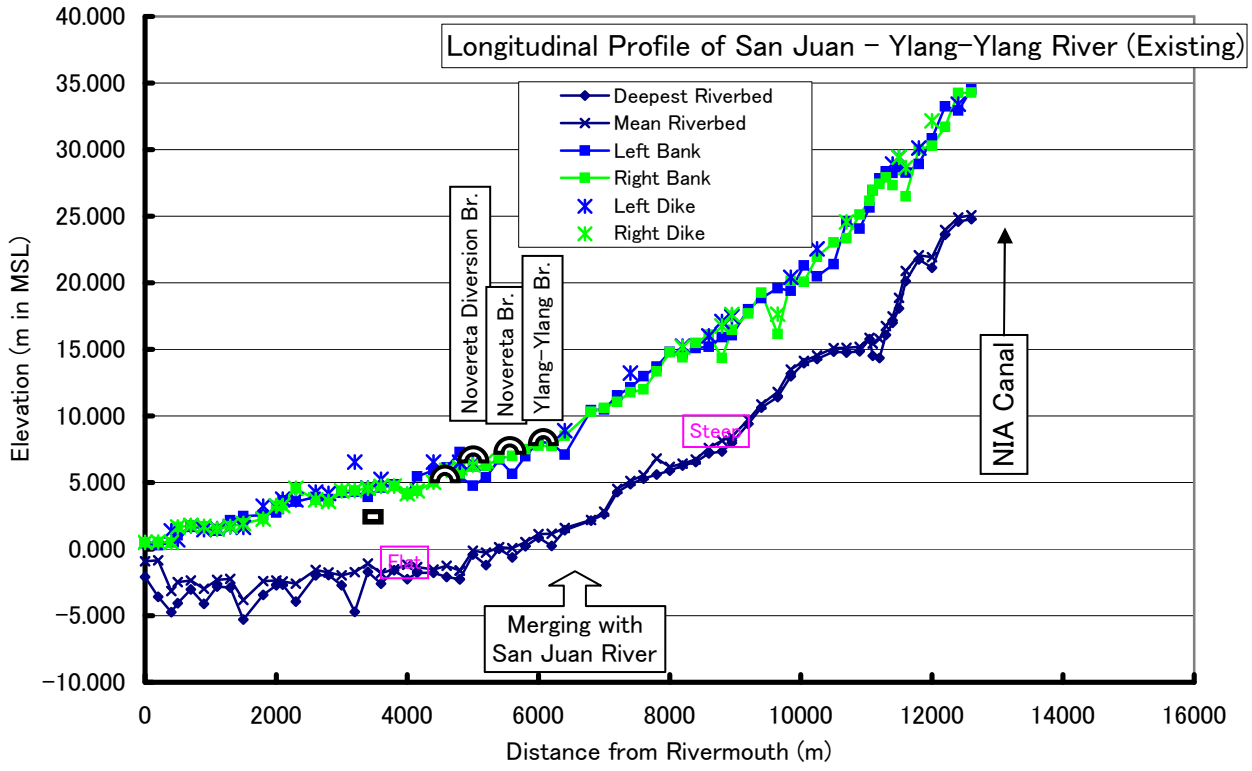


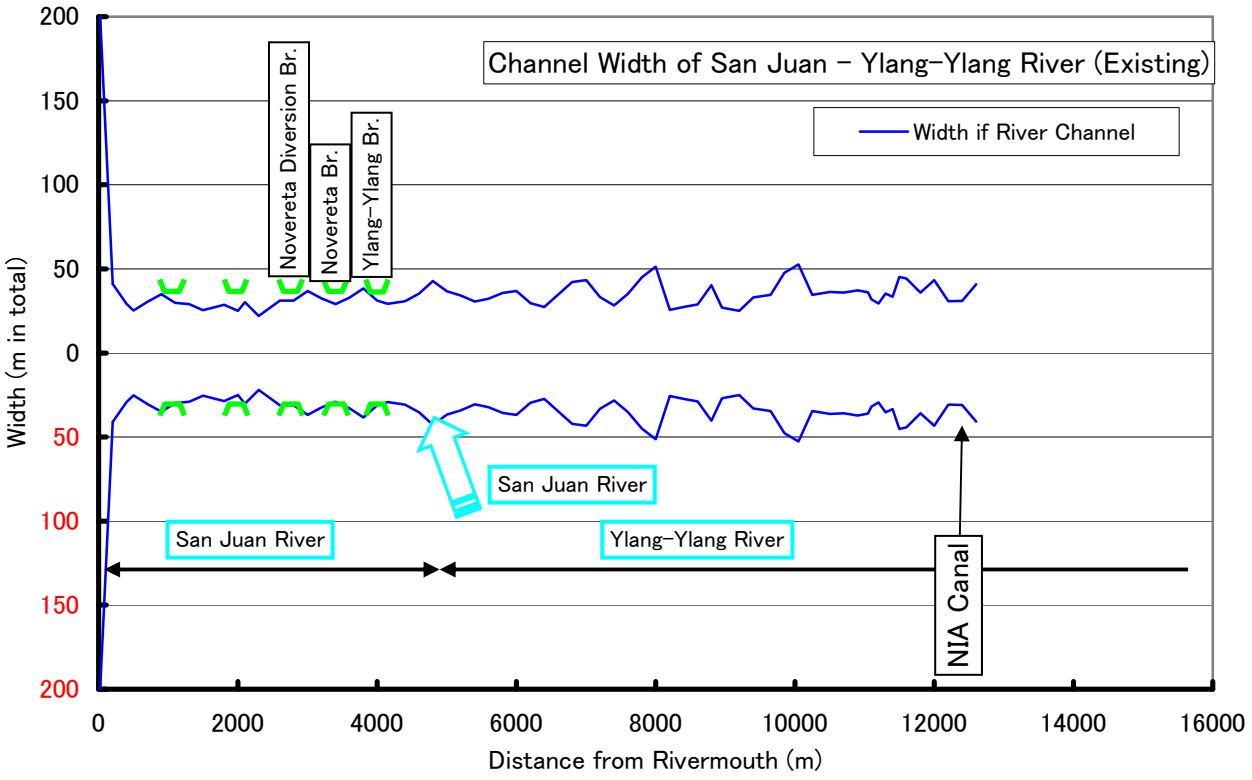
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.3 Longitudinal Profile and Channel Width of Bacoor River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	



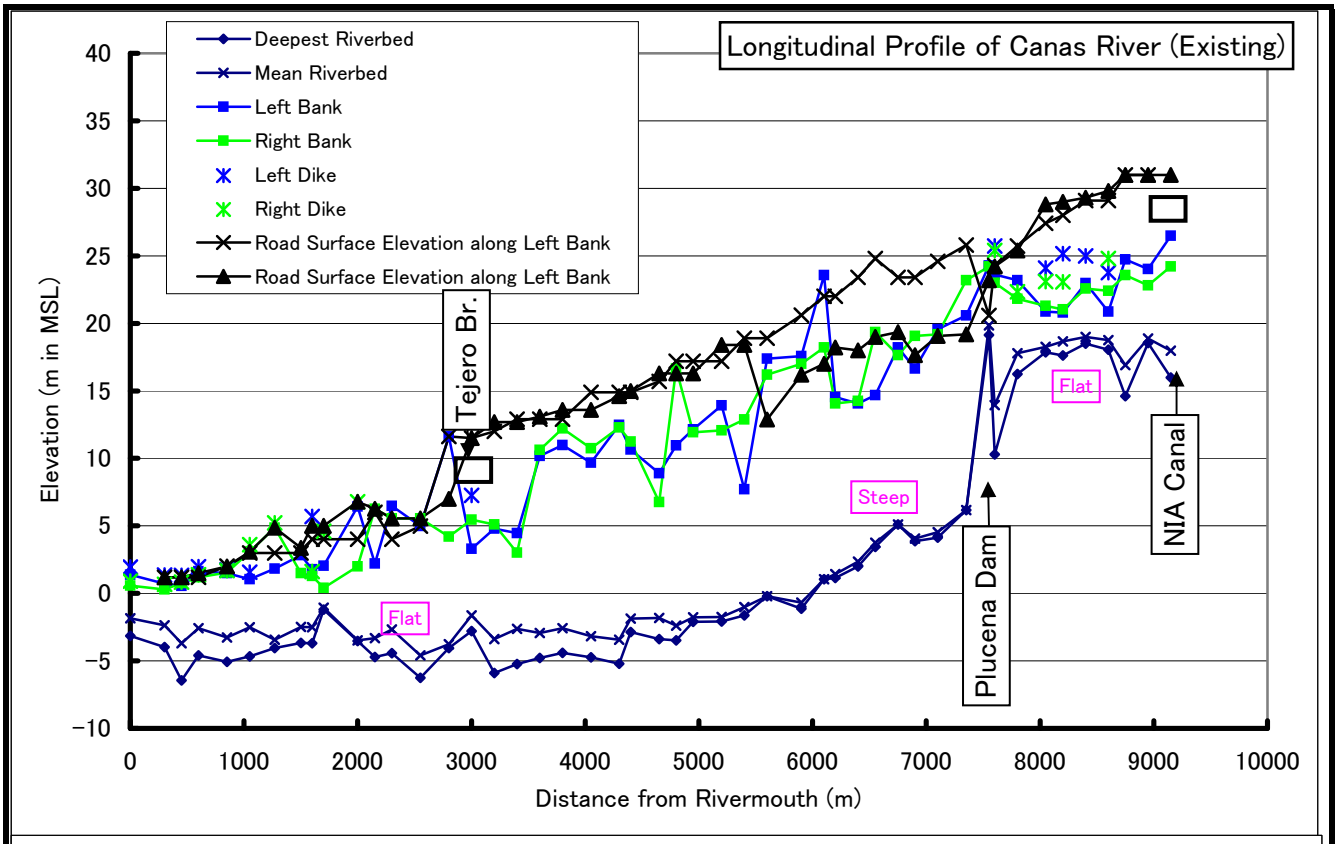


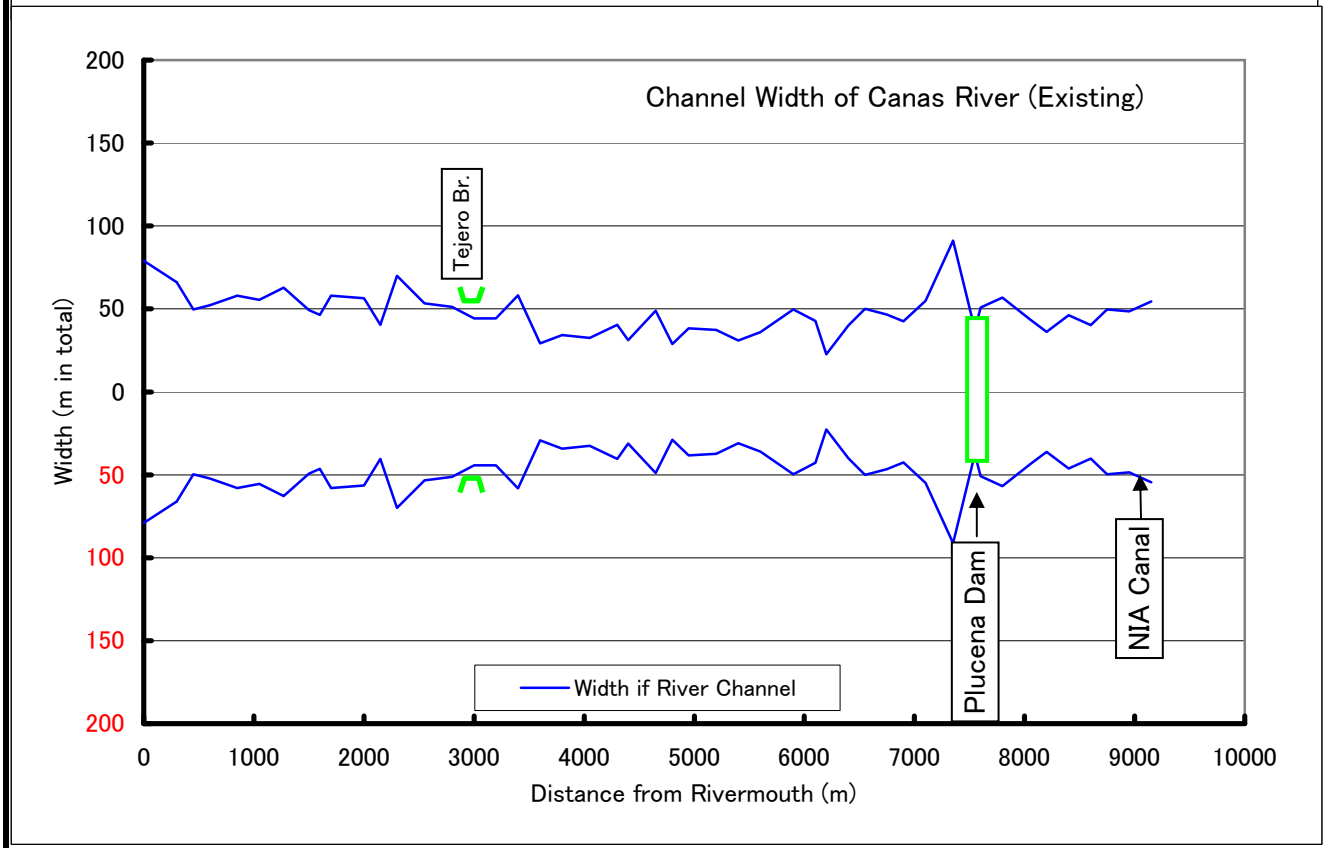
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.4 Longitudinal Profile and Channel Width of San Juan River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	



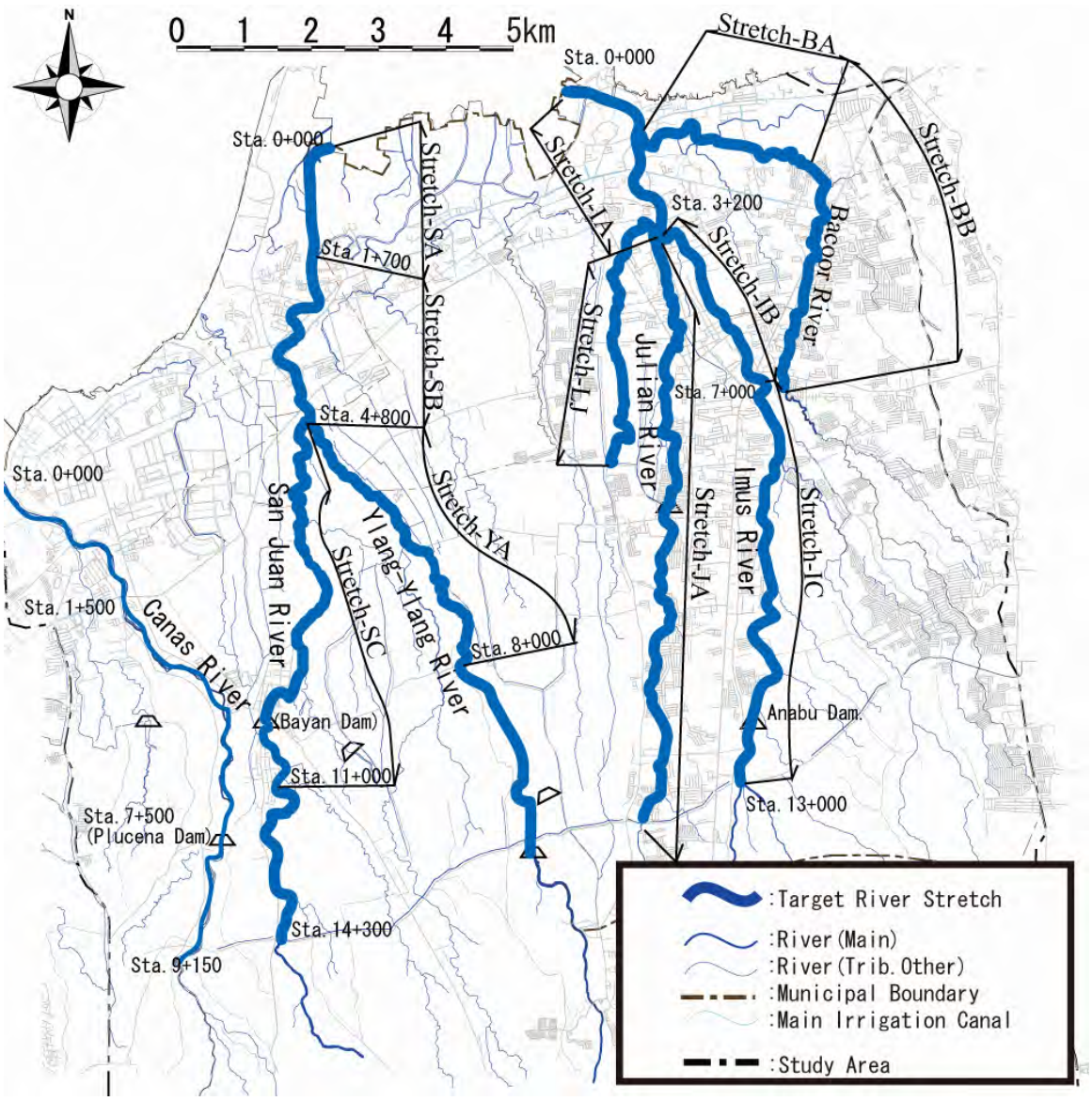


THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.5 Longitudinal Profile and Channel Width of Ylang-Ylang River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	





THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.6 Longitudinal Profile and Channel Width of Canas River (Present Condition)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	

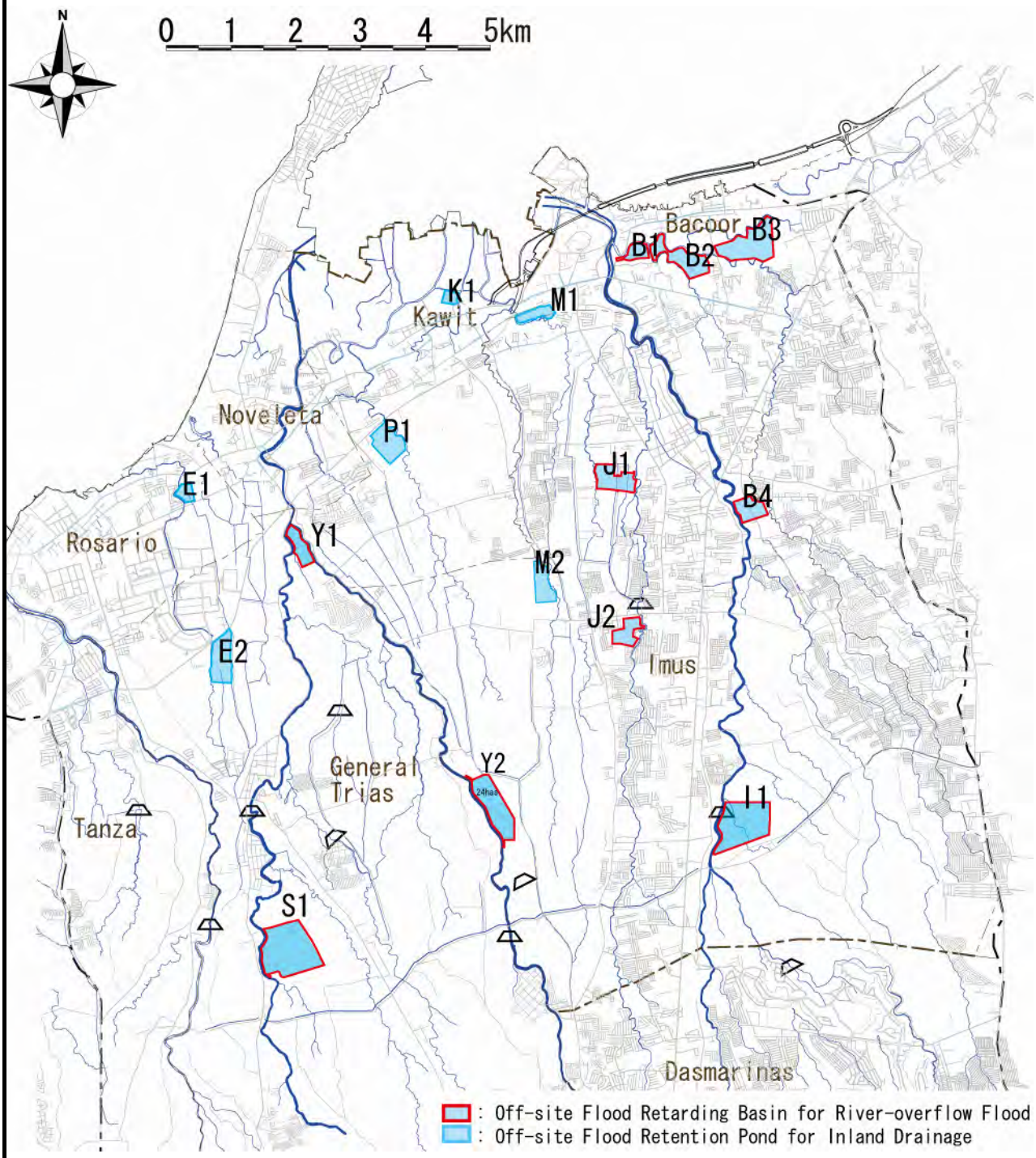


River Basin	River	Code of Stretch*	Extent	Distance (km)
Imus	Imus	IA	From river mouth to Coastal National Road Bridge (Sta. 2+000)	2.0km
	Imus	IB	From Coastal National Road Bridge (Sta. 2+000) to confluence point with Julian River (Sta. 3+400)	1.4km
	Imus	IC	From confluence point with Julian River (Sta. 3+400) to NIA Cala Canal (Sta. 13+000)	9.6km
	Bacoor	BA	From confluence with Imus River to upstream end of fishpond (Sta. 3+000)	3.0km
	Bacoor	BB	From upstream end of fishpond (Sta. 3+000) to Sta. 7+000	4.0km
	Julian	JA	Whole river stretch	10.0km
	Left Tributary	LJ	Whole river stretch	4.5km
San Juan	San Juan	SA	From river mouth to Sta. 1+700 upstream	1.7km
	San Juan	SB	From Sta. 1+700 to merging point of San Juan and Ylang-Ylang (Sta. 4+800)	3.1km
	San Juan	SC	From Sta. 4+800 to upstream of Bayan Dam (Sta. 11+000)	6.2km
	Ylang-Ylang	YA	From Sta. 4+800 to Sta. 8+000	3.2km

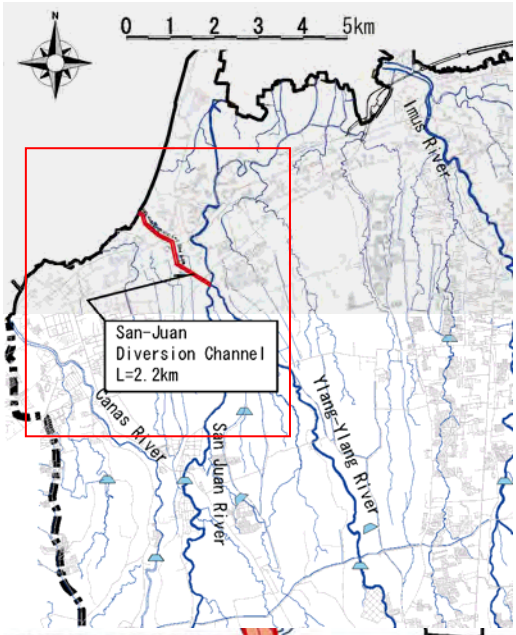
THE STUDY ON
COMPREHENSIVE FLOOD MITIGATION
FOR CAVITE LOWLAND AREA

CTI Engineering International Co., Ltd.
Nippon Koei Co., Ltd

Fig. 8.7
Targeted River Stretch for River Channel Improvement for 20-year Return Period Flood

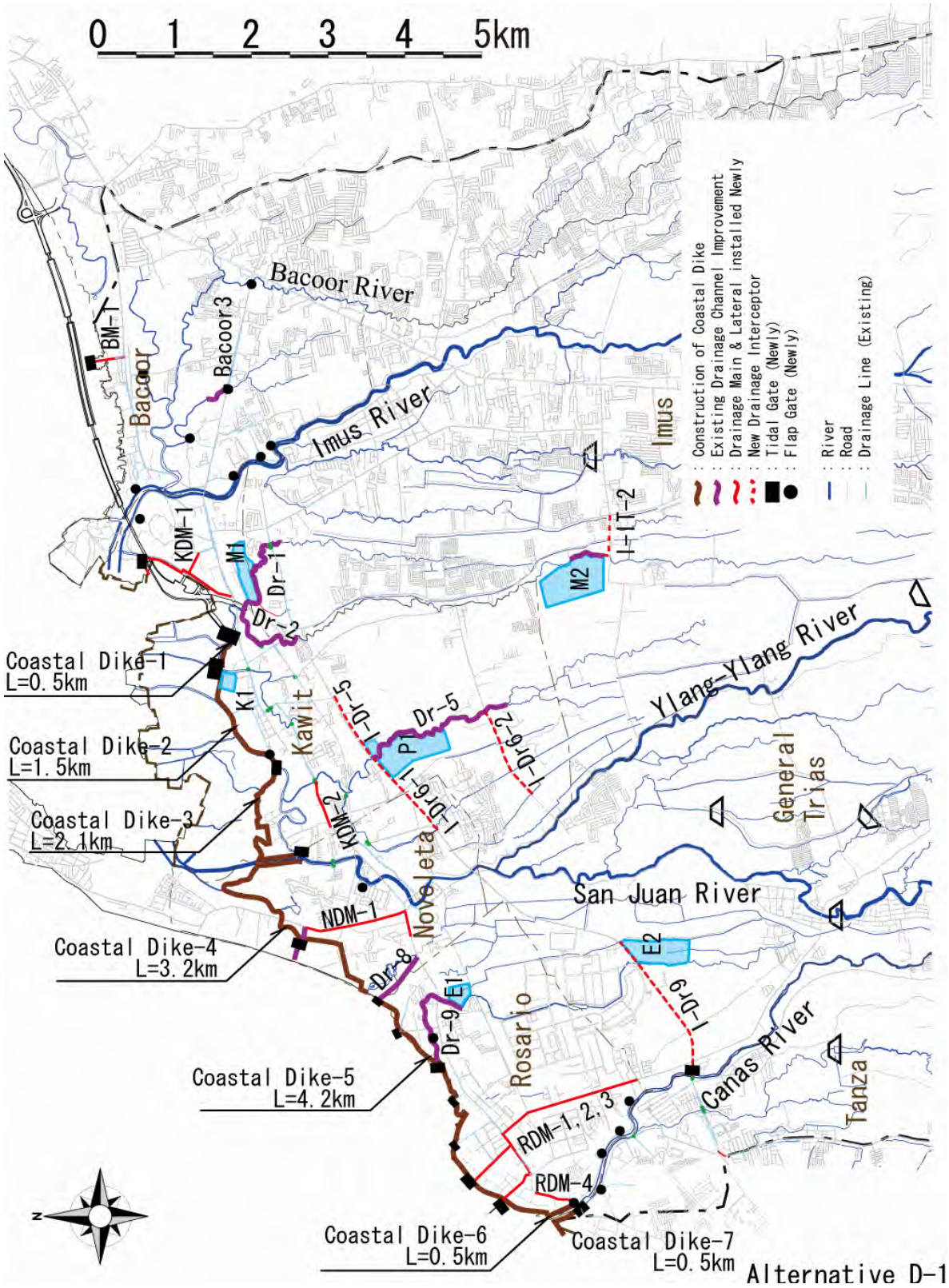


THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.8
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	Proposed Sites for Off-site Flood Retarding Basins and On-site Retention Ponds

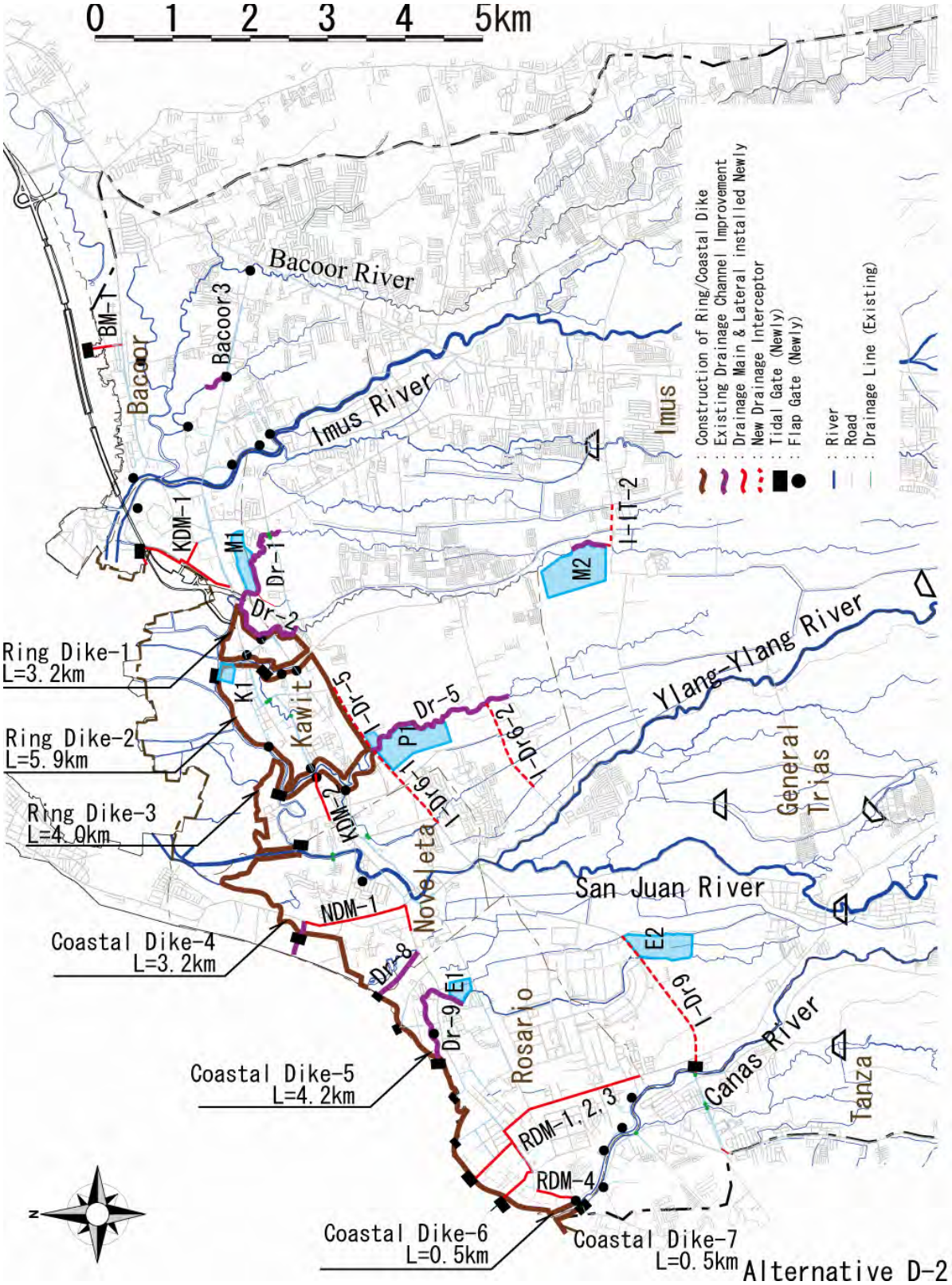


	Design Discharge (m^3/s)	
	w/ on-site	w/o on-site
2-year	0	60
5-year	200	270
10-year	430	480
20-year	670	700

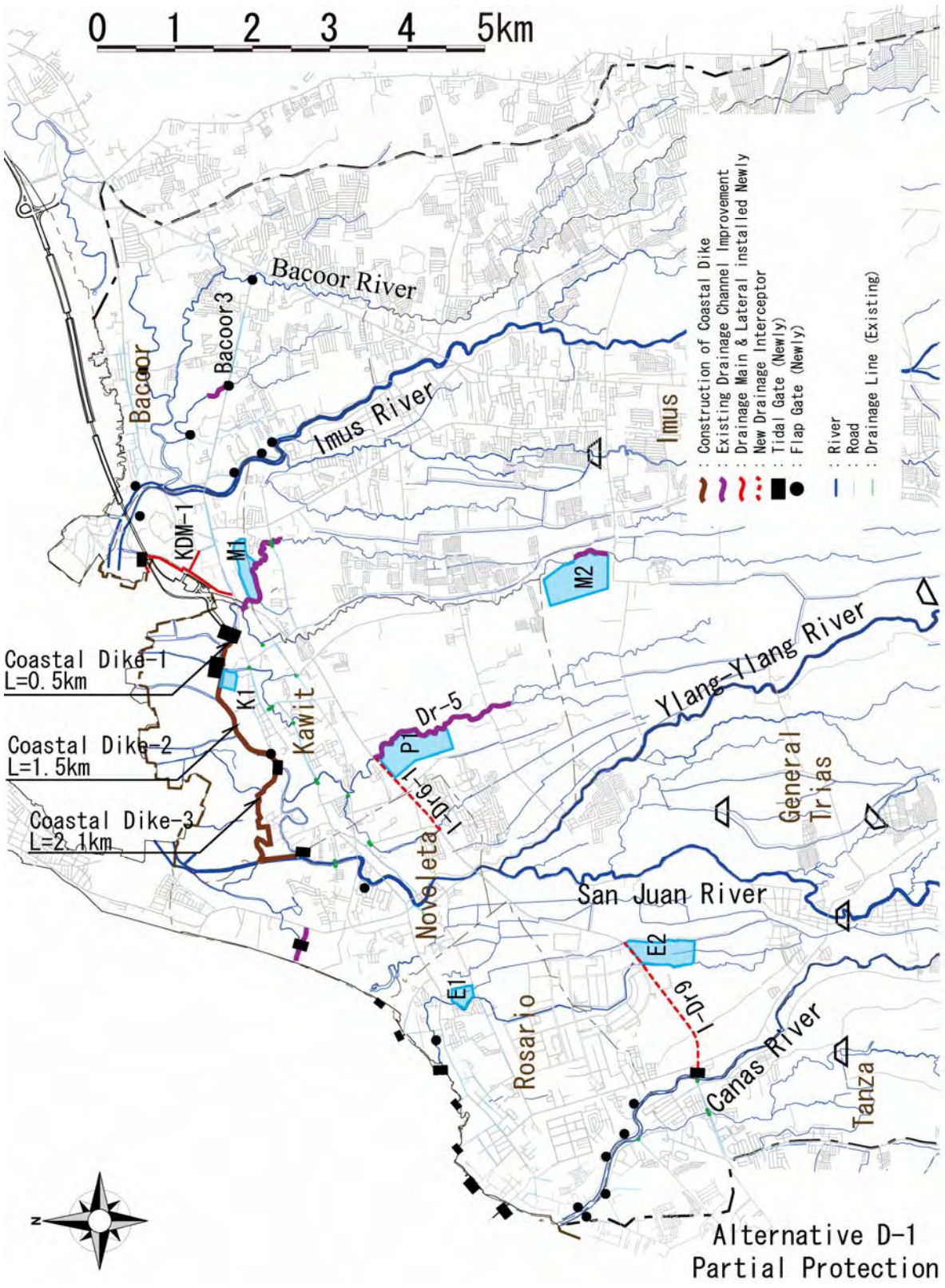
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.9
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	Proposed Alignment of San Juan Diversion Channel



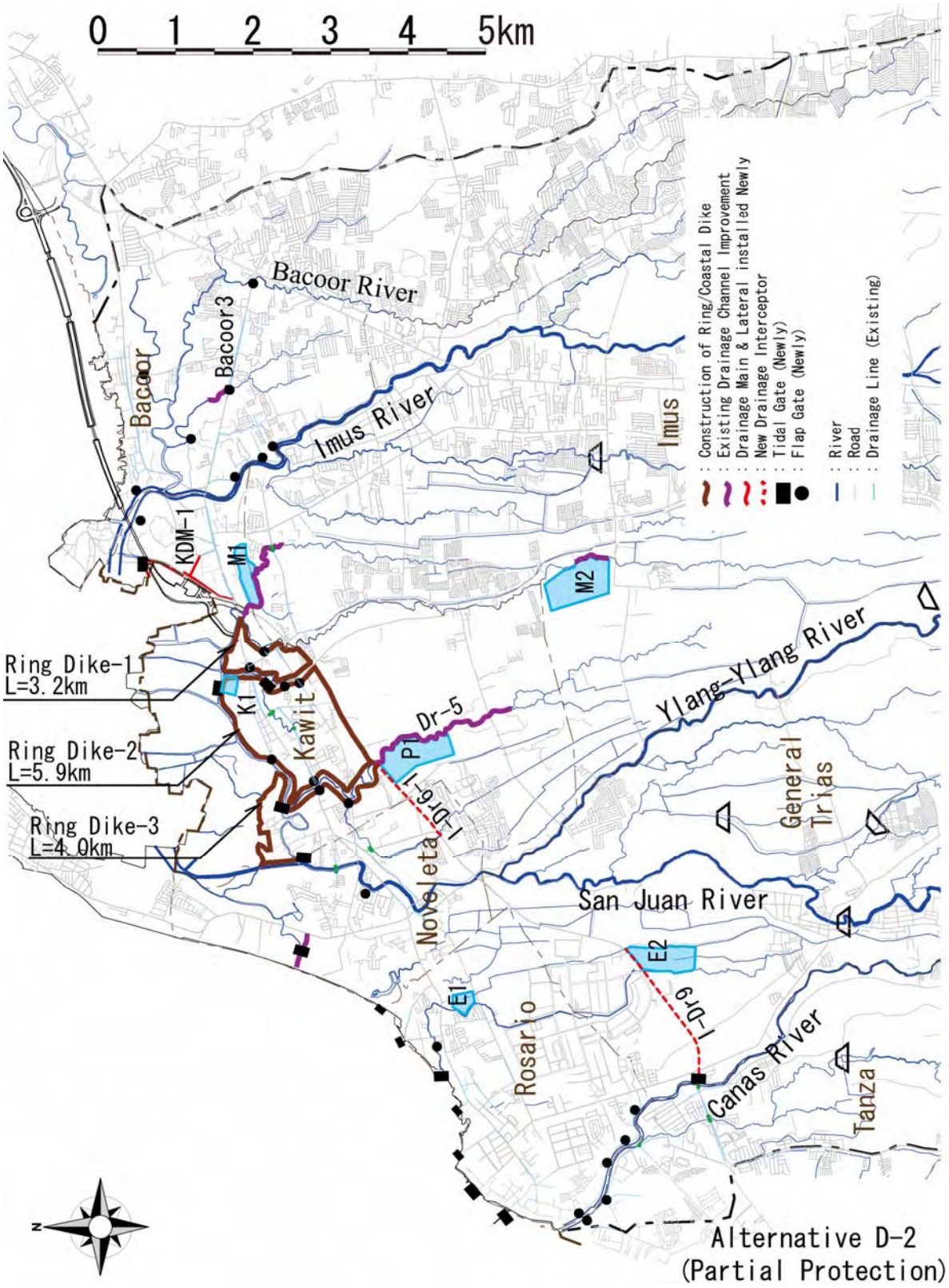
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.10 Conceived Structural Measures against Inland Flood based on Coastal Dike with Tidal Gates (Alternative D-1 : Full Protection)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	



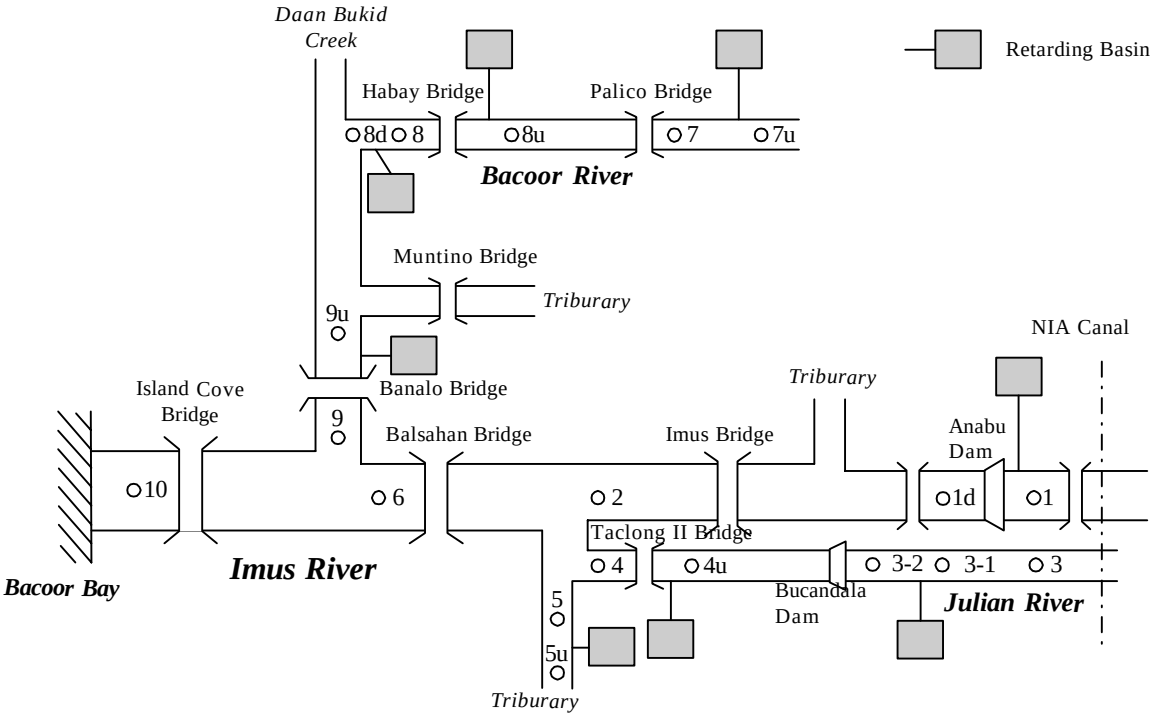
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.11 Conceived Structural Measures against Inland Flood based on Ring Dike System (Alternative D-2 : Full Protection)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	



THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.12 Conceived Structural Measures against Inland Flood based on Coastal Dike with Tidal Gates (Alternative D-1 : Partial Protection)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	

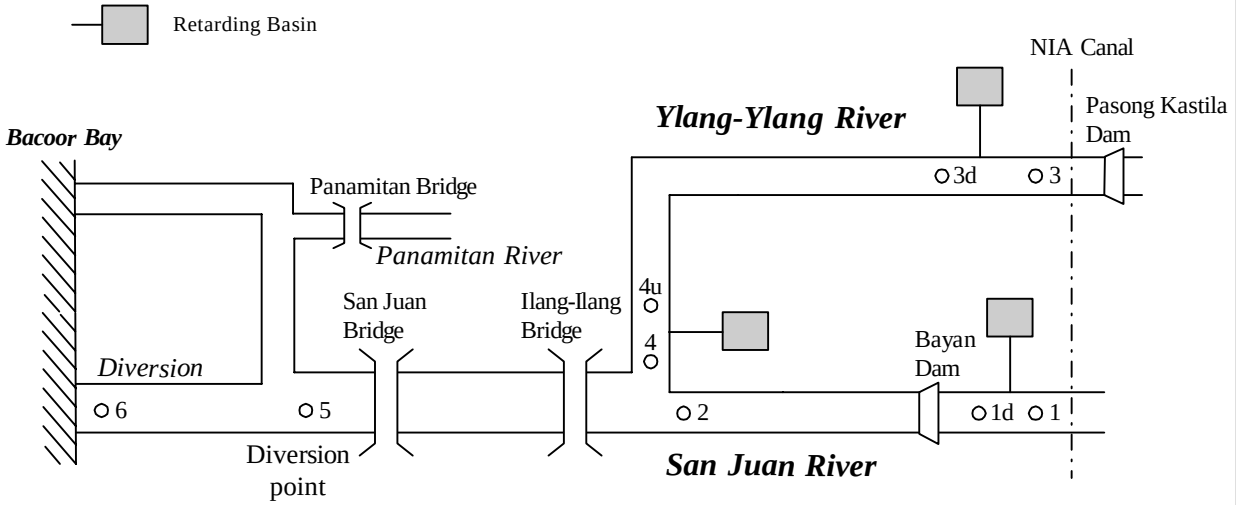


THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.13 Conceived Structural Measures against Inland Flood based on Ring Dike System (Alternative D-2 : Partial Protection)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	



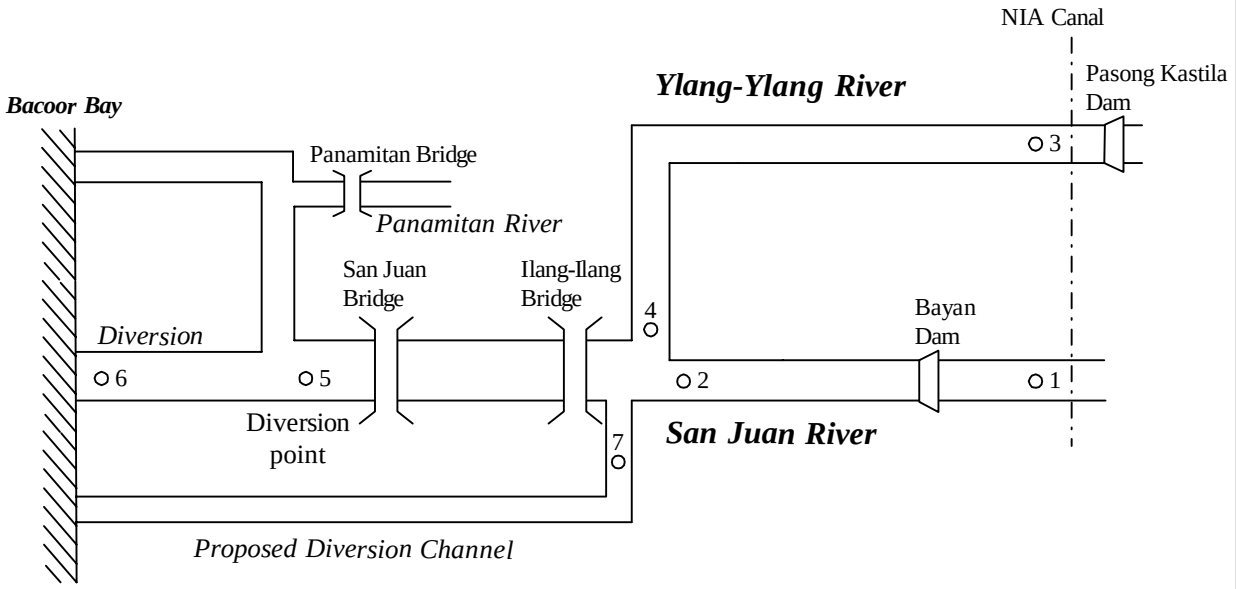
Point No.	Peak Discharge for Each Return Period (m3/s)							
	without On-Site				with On-Site			
	F_I.2				F_I.3			
	2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year
1	310	430	500	600	250	350	430	550
1d	190	250	280	350	160	210	250	300
2	280	380	440	520	230	320	390	470
3	130	160	170	190	90	120	140	160
3-1	170	180	180	180	150	180	180	180
3-2	100	130	140	140	70	110	130	140
4u	110	130	140	150	70	110	130	140
4	85	120	130	130	55	95	120	130
5u	30	35	35	35	25	35	35	35
5	15	15	15	15	15	15	15	15
6	350	450	520	540	290	400	470	530
7u	80	100	110	130	70	90	100	120
7	25	45	55	60	20	40	50	60
8u	75	75	75	75	70	75	75	75
8	50	50	50	50	50	50	50	50
8d	35	45	55	60	35	45	50	55
9u	65	65	65	75	65	65	65	70
9	50	75	95	110	50	70	80	100
10	370	450	520	560	320	400	470	550

THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.14 Design Discharge Distribution of Imus River Basin
CTI Engineering International Co.,Ltd. Nippon Koei Co., Ltd	



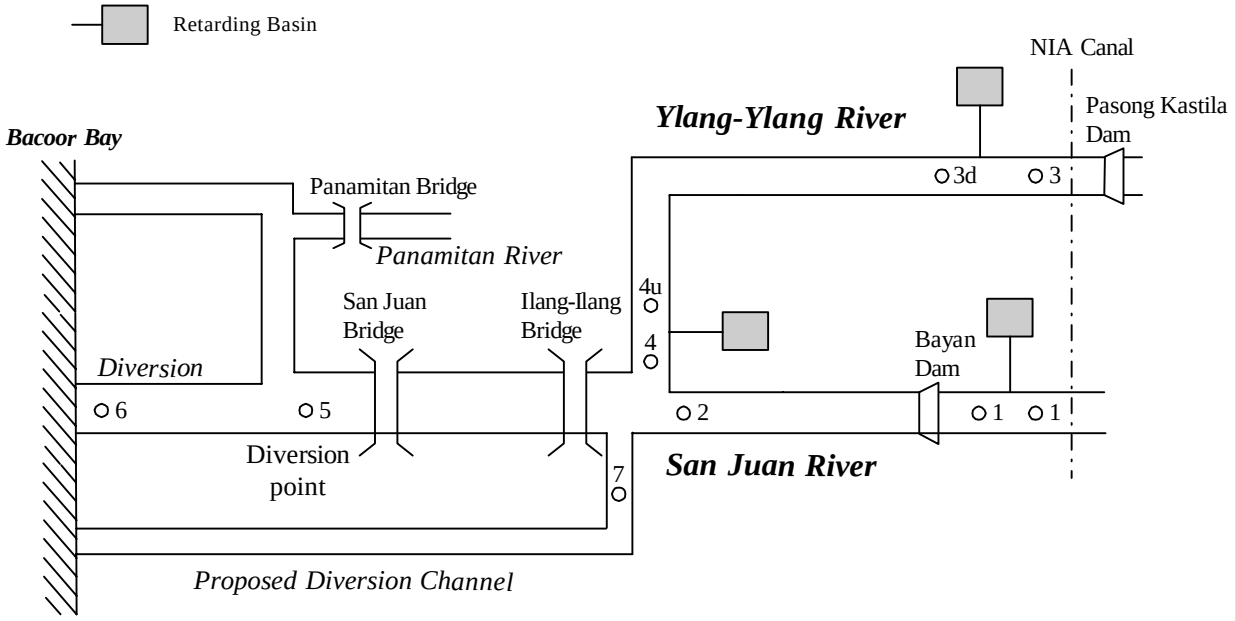
Point No.	Peak Discharge for Each Return Period (m3/s)							
	without On-Site				with On-Site			
	F_S.2				F_S.5R			
	2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year
1	160	230	350	470	130	220	340	460
1d	120	130	140	160	120	130	140	160
2	180	240	270	300	170	230	260	290
3	270	370	490	620	220	300	430	580
3d	200	220	250	320	190	210	240	300
4u	220	260	290	350	200	240	280	330
4	170	210	260	350	170	200	240	330
5	330	420	485	610	310	410	460	580
6	330	420	485	610	310	410	460	580

THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.15 Design Discharge Distribution of San Juan River Basin
CTI Engineering International Co.,Ltd. Nippon Koei Co., Ltd	



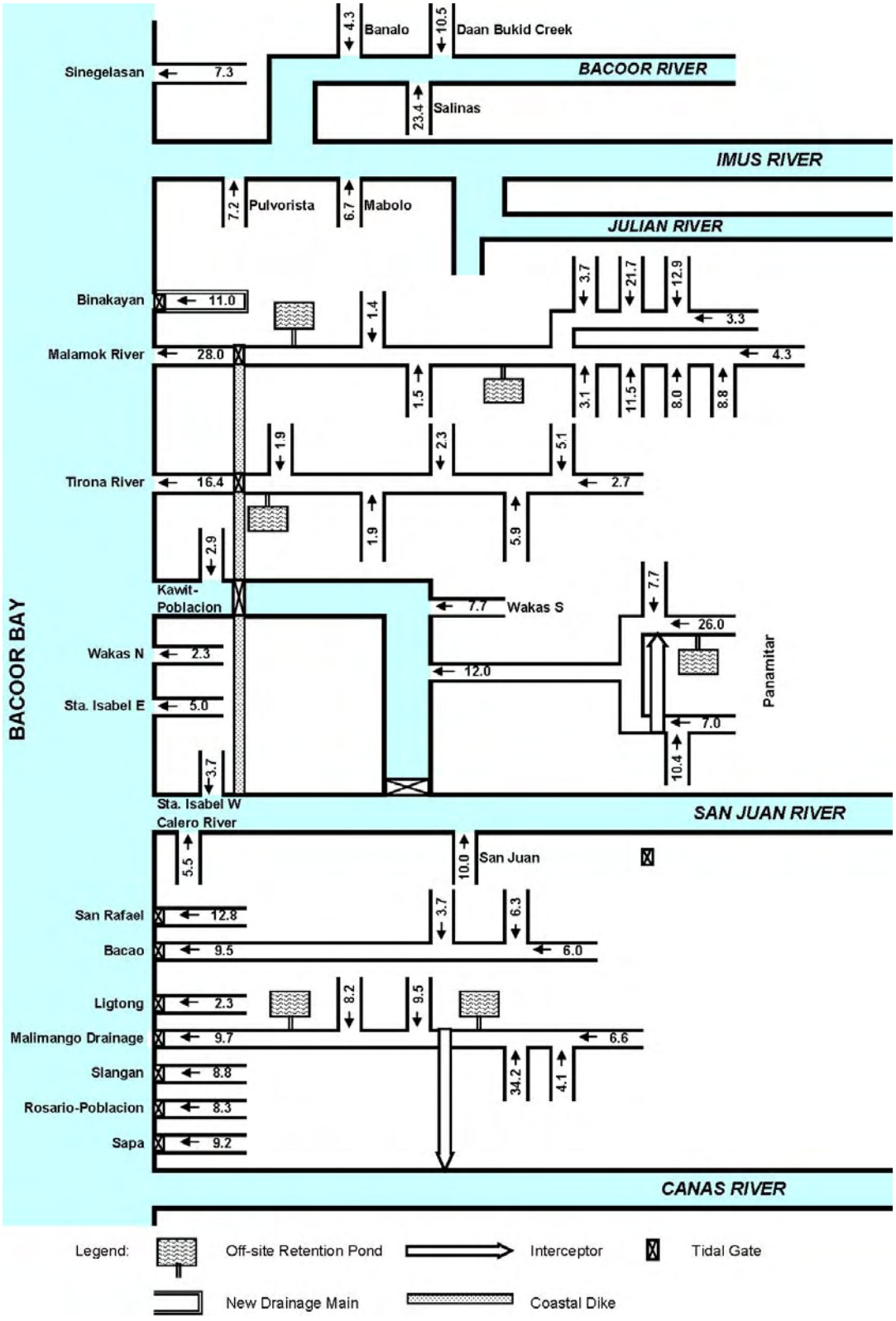
Point No.	Peak Discharge for Each Return Period (m3/s)							
	without On-Site				with On-Site			
	F_S.3				F_S.5D			
	2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year
1	160	230	350	470	130	220	340	460
2	220	340	460	600	190	320	450	580
3	270	370	490	620	220	300	430	580
4	280	390	510	640	220	330	460	600
5	350	400	400	400	340	400	400	400
6	350	400	400	400	340	400	400	400
7	60	270	480	700	0	200	430	670

THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.16 Design Discharge Distribution of San Juan River Basin
CTI Engineering International Co.,Ltd. Nippon Koei Co., Ltd	

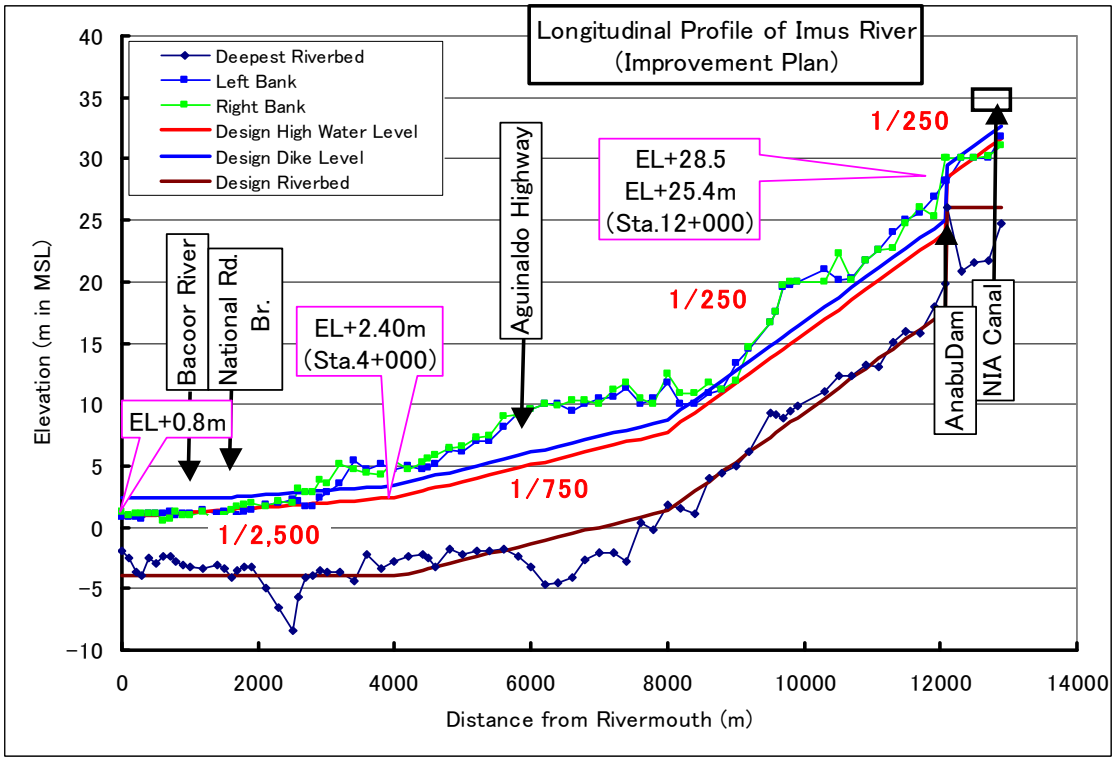


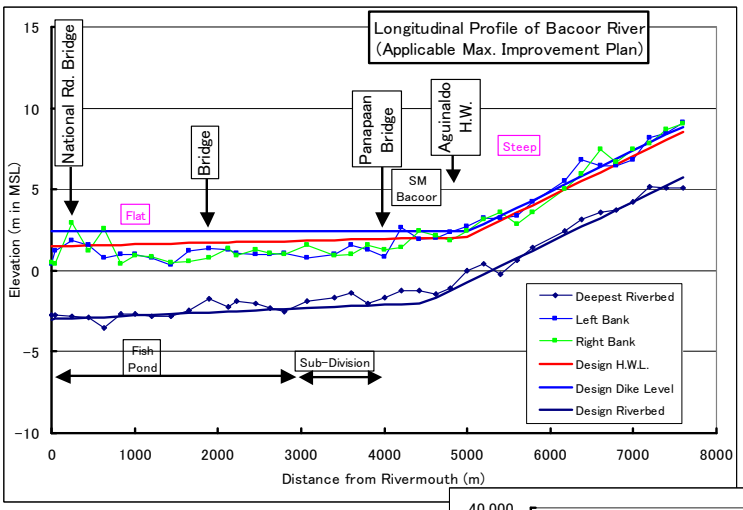
Point No.	Peak Discharge for Each Return Period (m3/s)							
	without On-Site				with On-Site			
	F_S.4wo				F_S.4with			
	2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year
1	160	230	350	470	130	220	340	460
1d	150	210	250	270	120	190	240	260
2	170	320	370	390	170	290	370	390
3	270	370	490	620	220	300	430	580
3d	260	350	410	450	190	290	380	440
4u	270	370	440	480	200	320	400	470
4	260	330	390	420	190	280	360	410
5	350	400	400	400	320	400	400	400
6	350	400	400	400	320	400	400	400
7	40	200	250	300	0	150	250	300

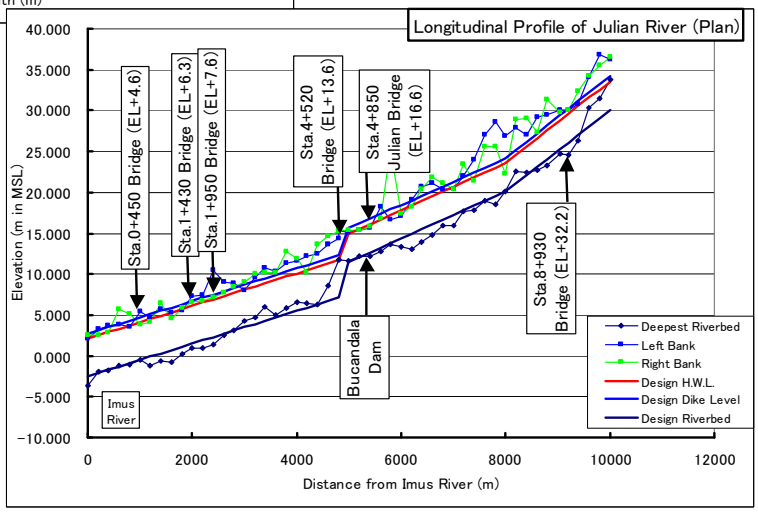
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.17 Design Discharge Distribution of San Juan River Basin
CTI Engineering International Co.,Ltd. Nippon Koei Co., Ltd	



THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.18 Design Discharge Distribution for Inland Drainage Channel (with On-site Retention Pond)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	

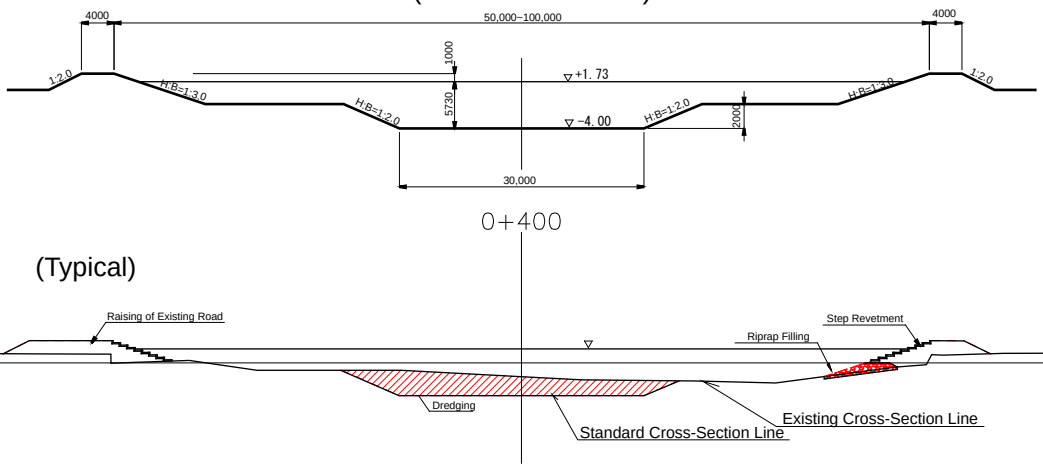






THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.19 Design Longitudinal Profile of Imus and Bacoor/Julian River
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	

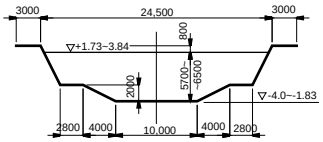
Standard Cross Section (Sta.0+000~Sta.2+000:Rivermouth to Binakayan Bridge):400m^3/s
(For All Alternatives)

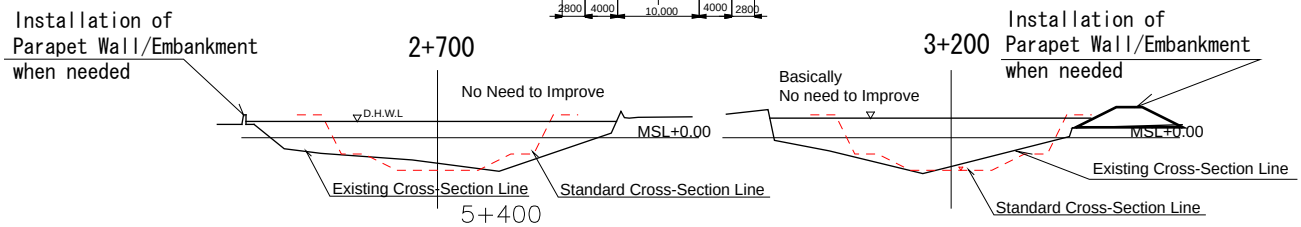


(Typical)

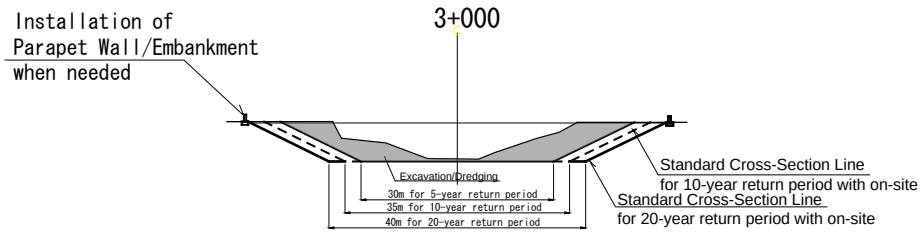
Standard Cross Section (Sta.2+000~Sta.3+200:Binakayan Bridge to Merging with Julian R.):400m^3/s
(For Partial Improvement: F_I.2 and F.I.3)

(Typical)



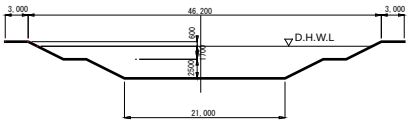


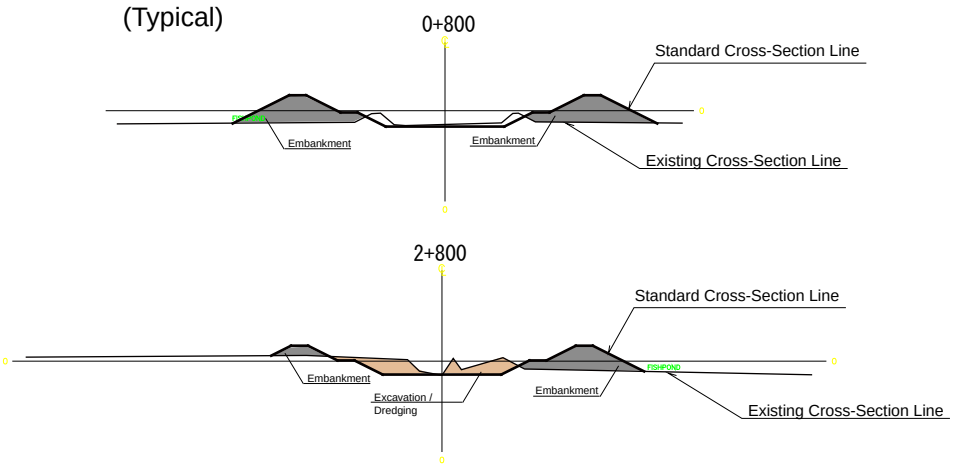
Typical Cross Section for Full-Scaled Improvement : 660, 810 and 970m^3/s
(For Partial Improvement: F_I.2 and F.I.3)



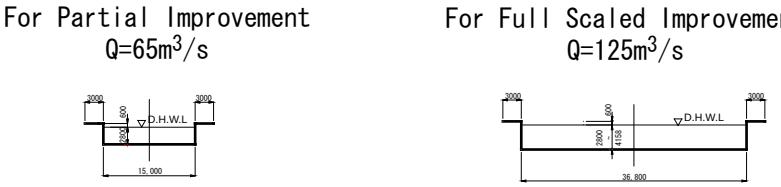
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.20 Typical River Channel Improvement Plan of Imus River
CTI Engineering International Co., Ltd Nippon Koei Co., Ltd	

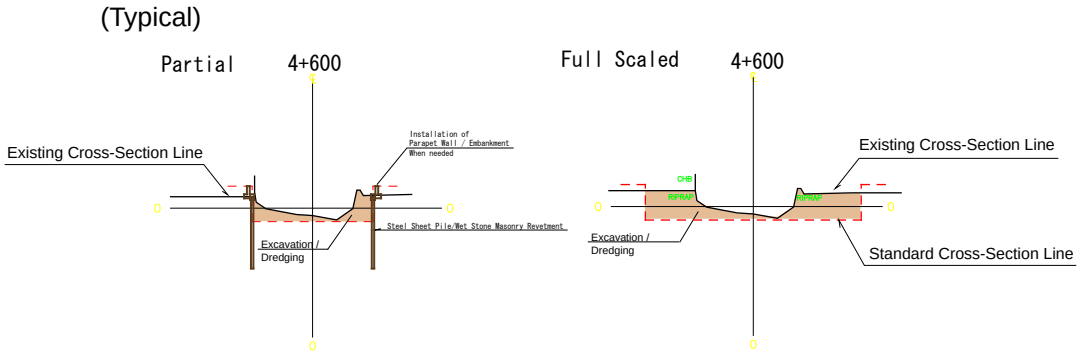
Standard Cross Section (Sta.0+000~Sta.3+000:Rivermouth to Fishpond Area: 100~135m^3/s)





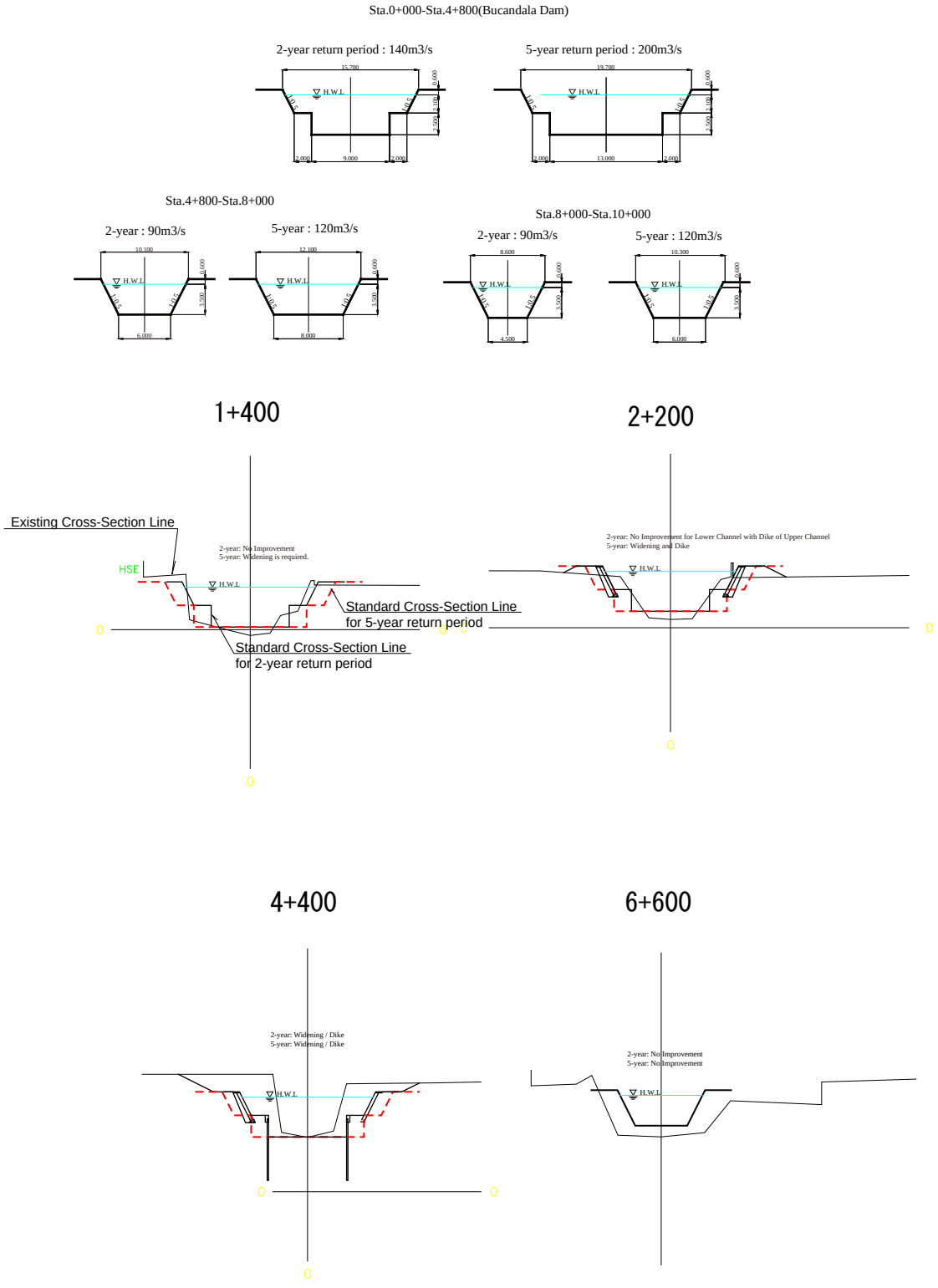
Standard Cross Section (Sta.4+000~Sta.5+000:SM Bacoor to Aguinaldo H.W.)



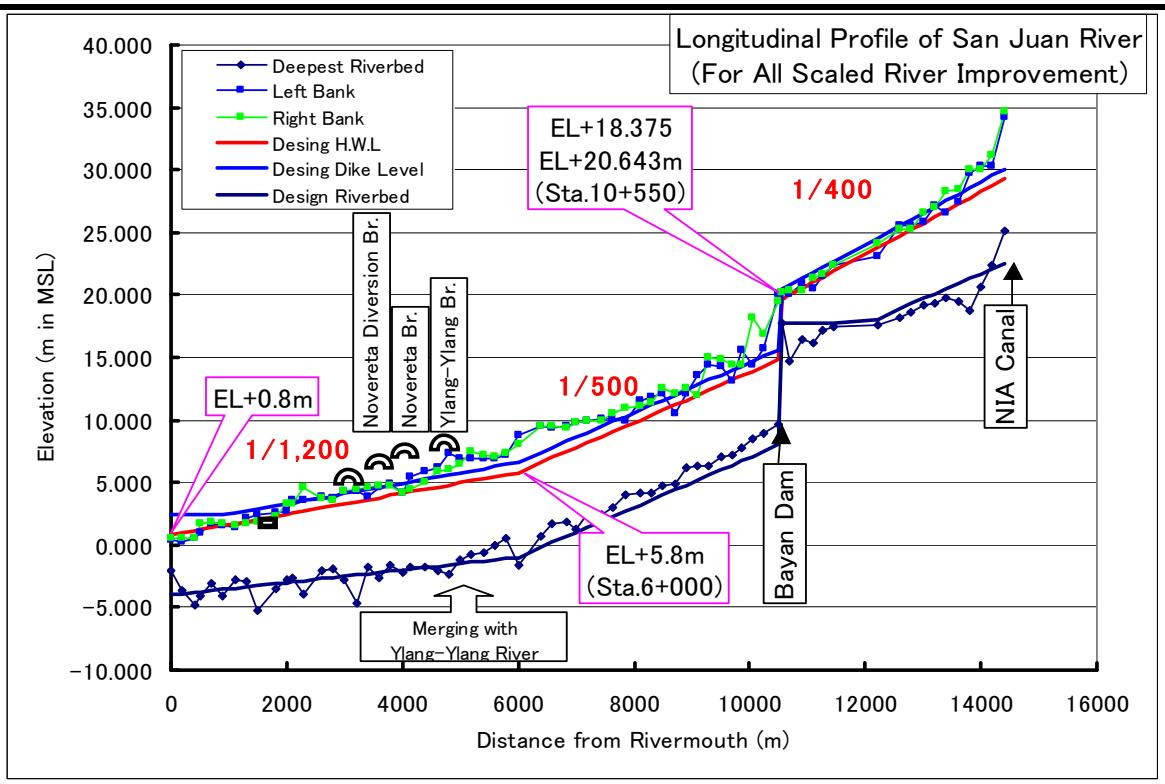


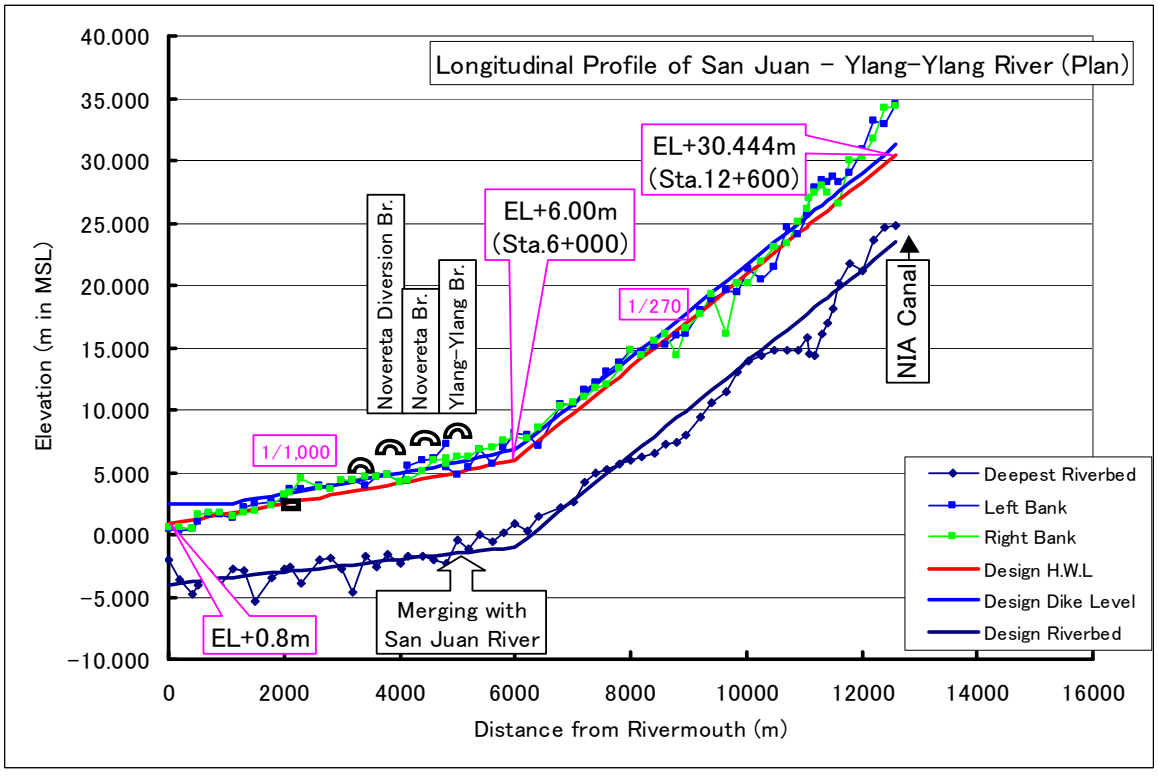
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.21 Typical River Channel Improvement Plan of Bacoor River
CTI Engineering International Co., Ltd Nippon Koei Co., Ltd	

Standard Cross Section of Julian River
: 2-year (140m^3/s) (Partial) and 5-year return period (200m^3/s) (Full Scaled)



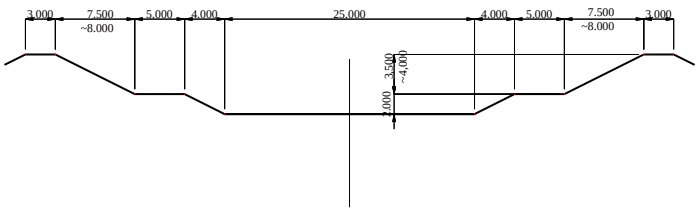
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.22 Typical River Channel Improvement Plan of Julian River
CTI Engineering International Co., Ltd Nippon Koei Co., Ltd	

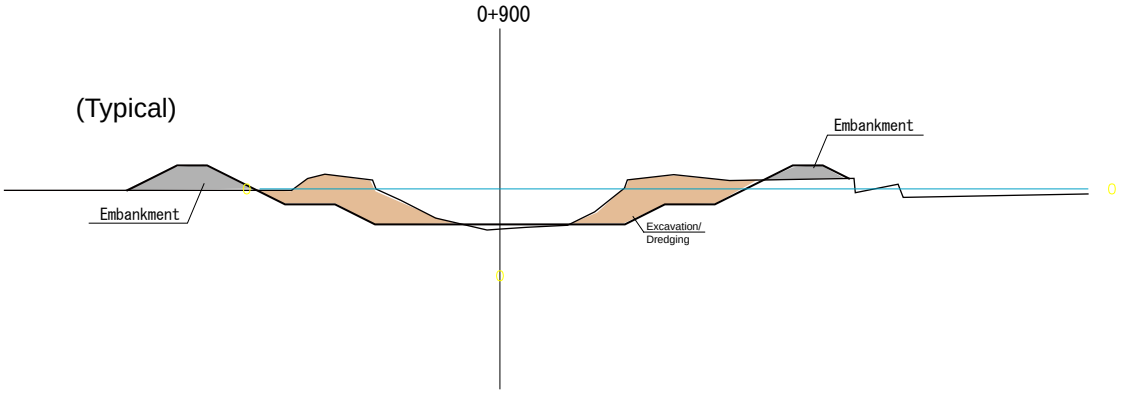




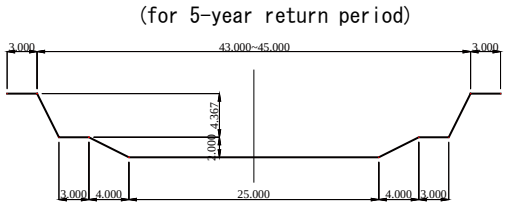
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.23 Design Longitudinal Profile of San Juan and Ylang-Ylang River
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd.	

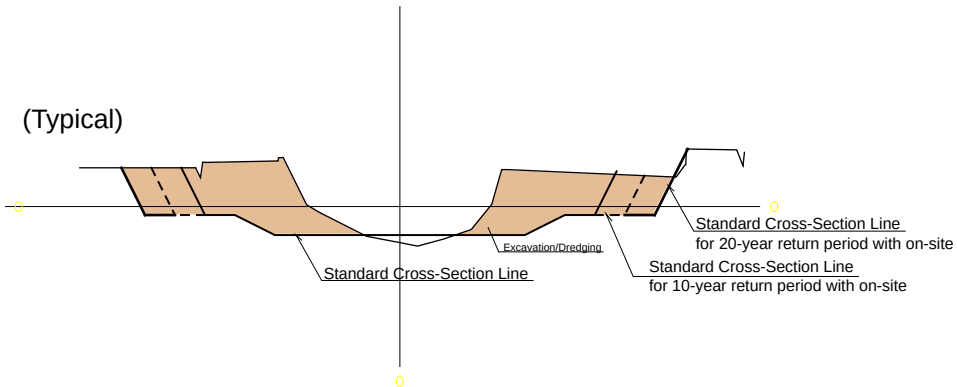
Standard Cross Section (Sta.0+000~Sta.1+700:Rivermouth Area : 400m^3/s)
(For All Alternatives)



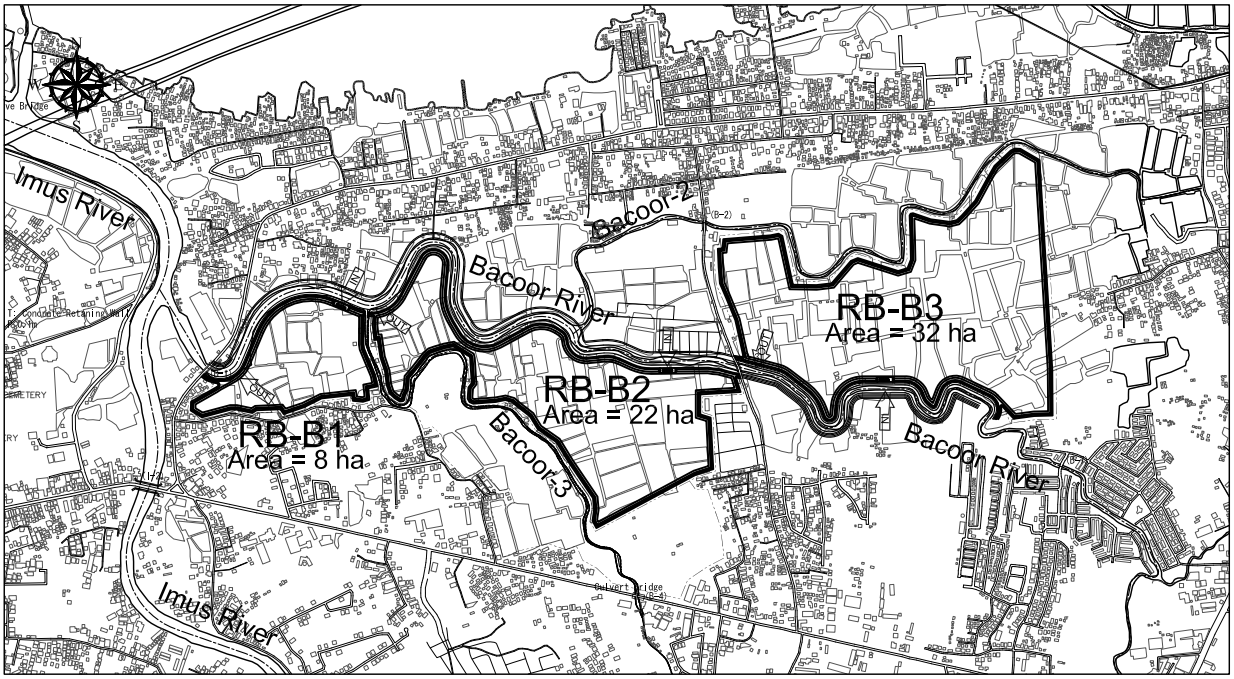


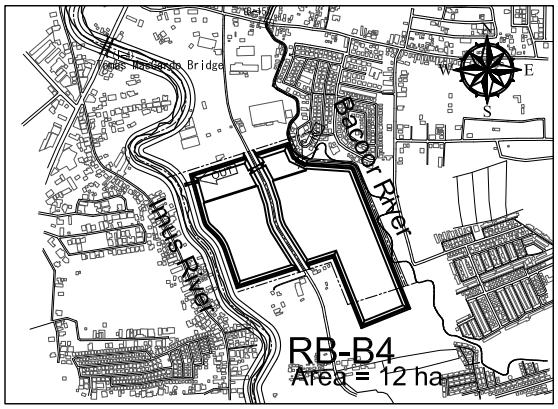
Standard Cross Section (Sta.1+700~Sta.4+800:Brgy. Sta. Isabel~Merging P.) : 600, 810 and 1050m^3/s
(For : Full Scaled Improvement)





THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.24 Typical River Channel Improvement Plan of San Juan River
CTI Engineering International Co., Ltd Nippon Koei Co., Ltd	

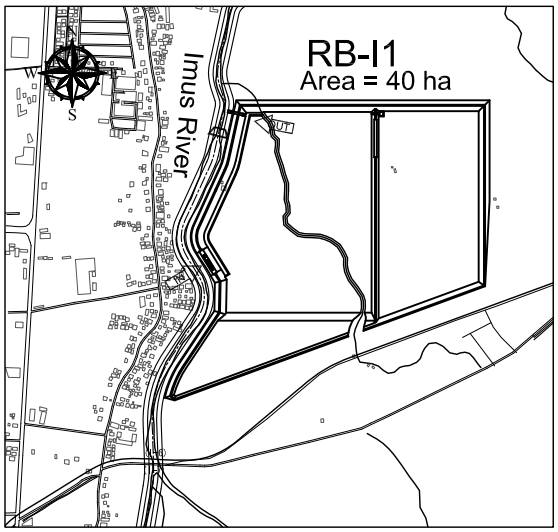


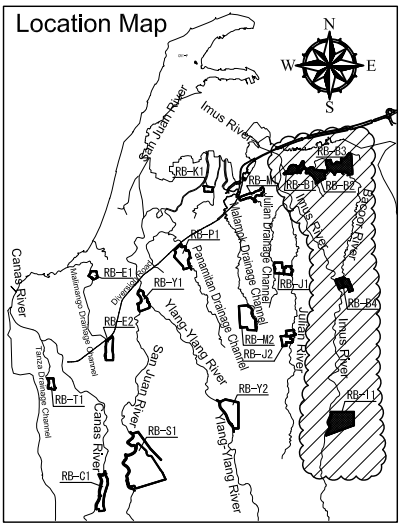


RB-I1, RB-B1, RB-B2, RB-B3, RB-B4

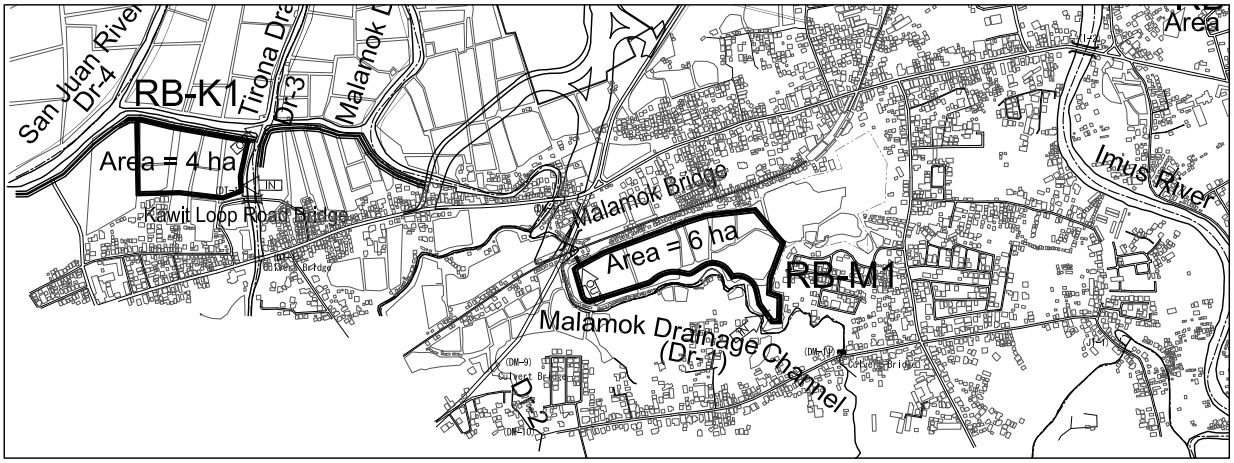
0 200 400 600 800 1000m

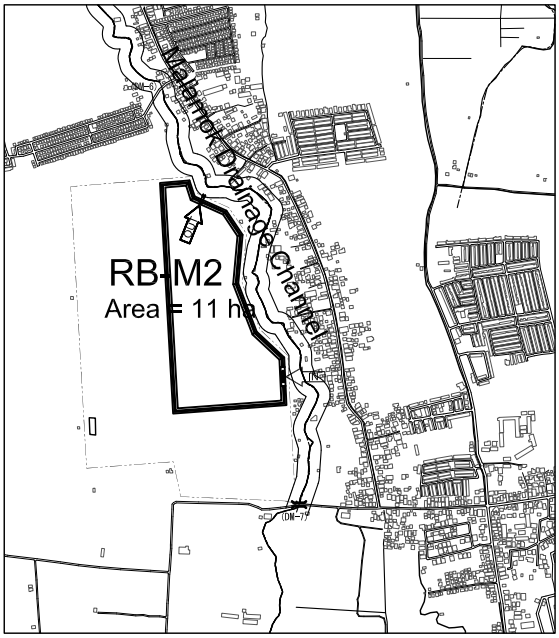
SCALE 1 : 20,000

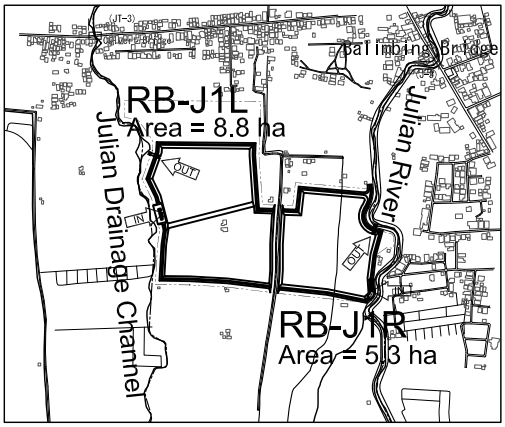


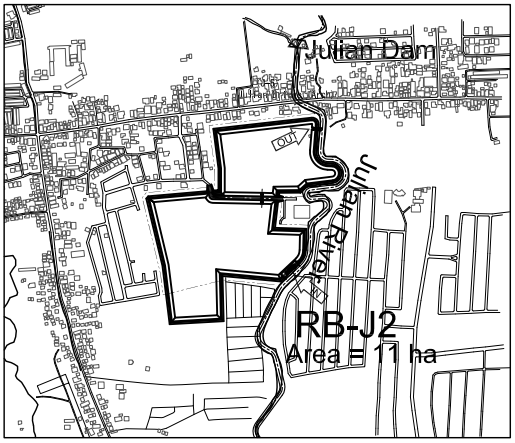


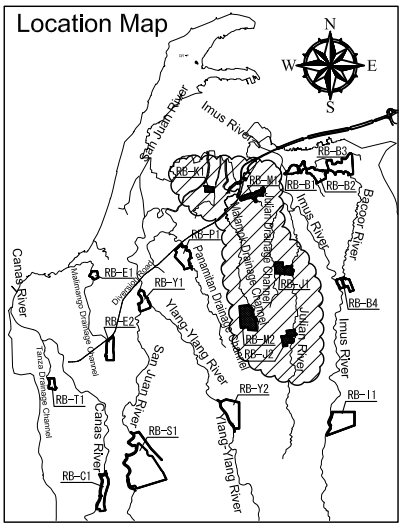
THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.25 Layout Plan of Retarding Basin and Retention Pond (1/4) - in Imus River Basin (In Case of 10-year return period for River 2-year return period for Inland with On-site)
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	











RB-J1, RB-J2, RB-K1, RB-M1, RB-M2

0 200 400 600 800 1000m

SCALE 1 : 20,000

THE STUDY ON COMPREHENSIVE FLOOD MITIGATION FOR CAVITE LOWLAND AREA	Fig. 8.26
CTI Engineering International Co., Ltd. Nippon Koei Co., Ltd	Layout Plan of Retarding Basin and Retention Pond (2/4) - in/around Imus River Basin (In Case of 2-year return period with On-site)