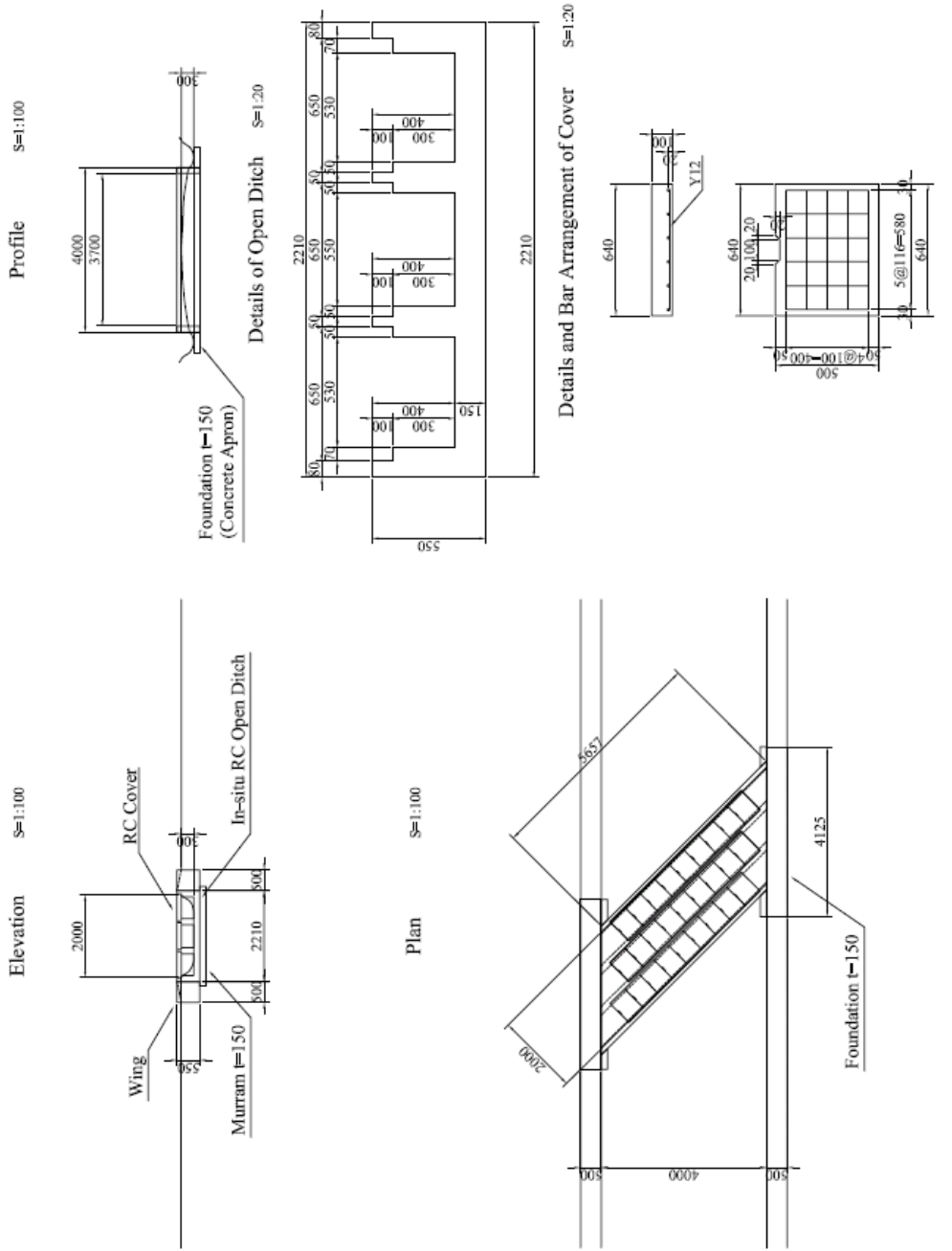


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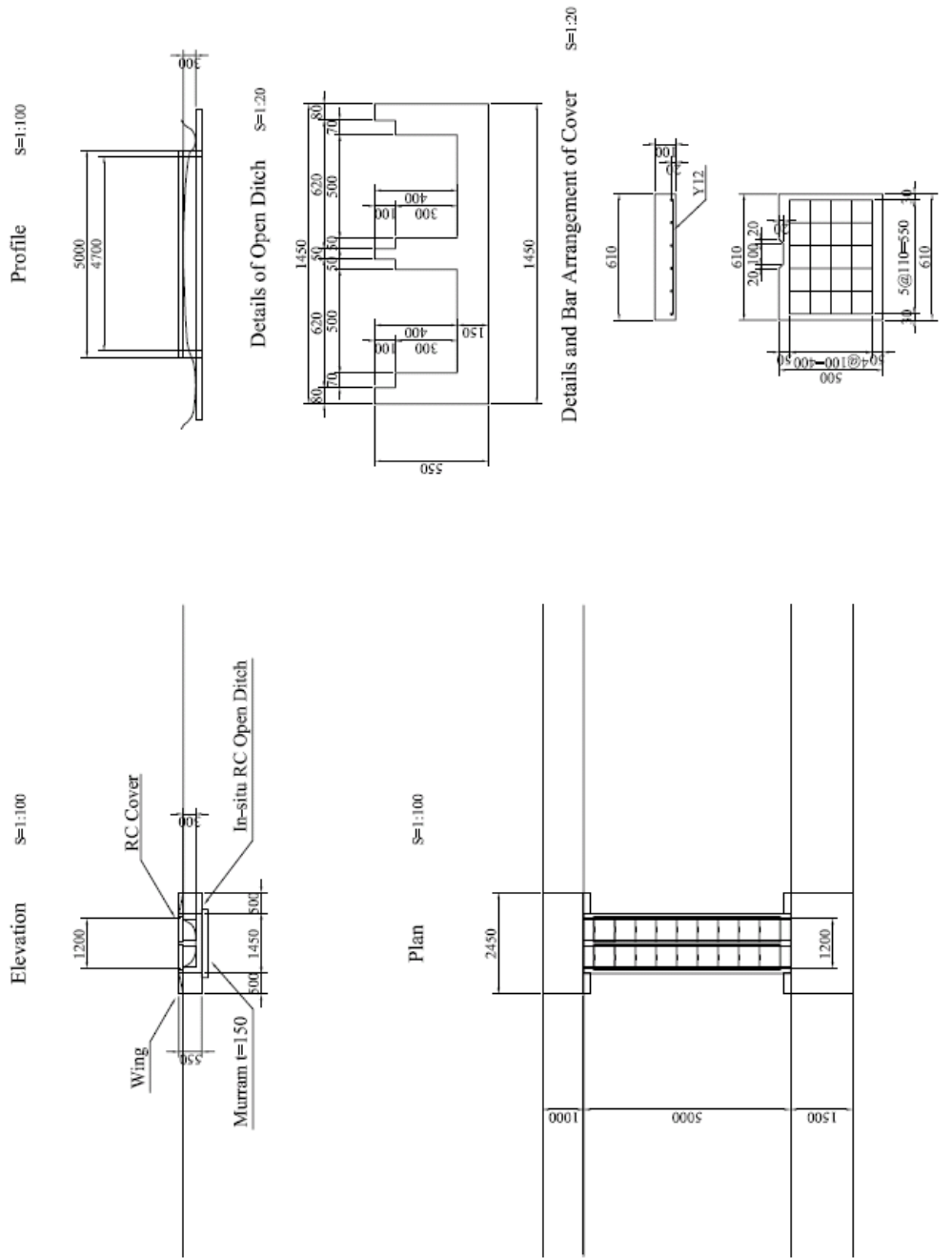
CULVERT (1)



JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY	NOTE: KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN DWG. TITLE: CULVERT (1)	
	PREPARED BY A. MORIOKA	CHECKED BY T. HAYAKAWA	APPROVED BY M. TOKURA	GENERAL
SIGNATURE DATE	/ / 2009	/ / 2009	SCALE 1:100	REV. NO. 01/01

Figure 3.1 Rae Kanyaika: Culvert (1)

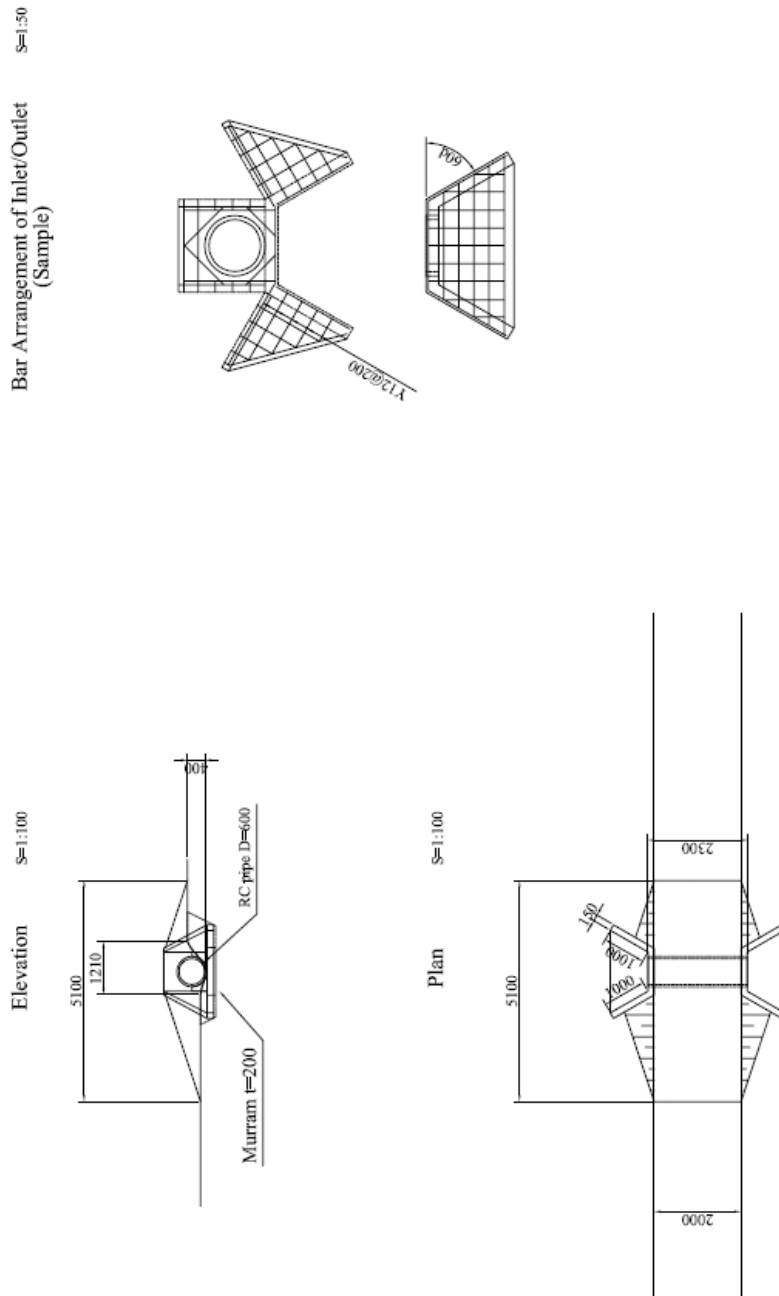
CULVERT (2)



<p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NOTE: KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN DWG. TITLE: CULVERT (2)</p>	
<p>PREPARED BY A. MORIOKA</p>	<p>CHECKED BY T. HAYAKAWA</p>	<p>APPROVED BY M. TOKURA</p>	<p>SCALE 1:100</p>	<p>SHEET NO. 01/02</p>	<p>REV. NO.</p>
<p>DATE / / 2009</p>	<p>/ / 2009</p>	<p>/ / 2009</p>	<p>1:100</p>	<p>01/02</p>	<p>GENERAL</p>

Figure 3.2 Rae Kanyaika: Culvert (2)

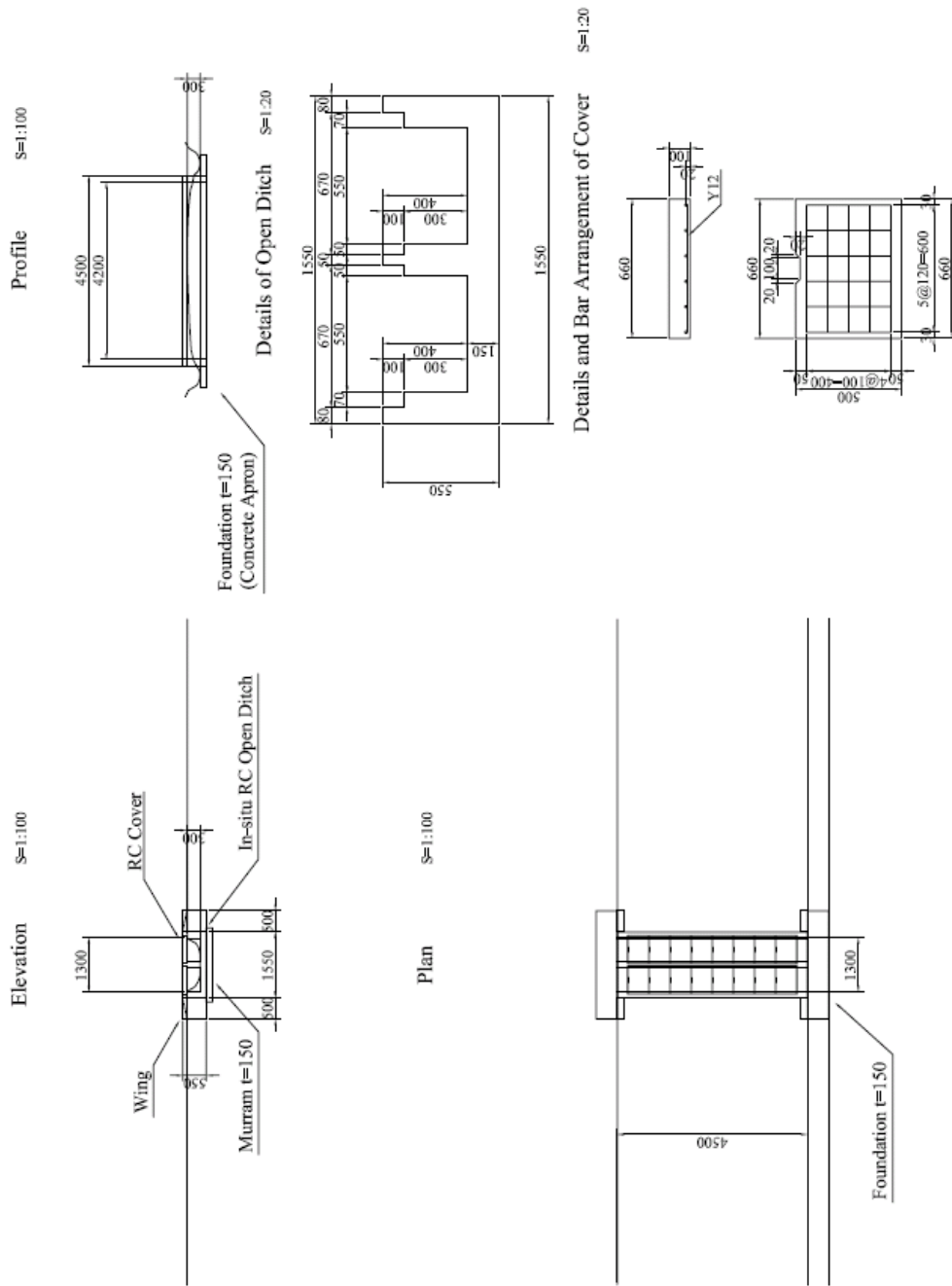
CULVERT (3)



JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY	NOTE: KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN DWG. TITLE: CULVERT (3)			
	PREPARED BY A. MOROKA	CHECKED BY T. HAYAKAWA	APPROVED BY M. TOKURA	SCALE 1:100	SHEET NO. 01/03	REV. NO.
DATE / /	/ /	/ /	/ /	/ /	/ /	

Figure 3.3 Rae Kanyaika: Culvert (3)

CULVERT (4)



JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY		NOTE: KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE		TIME OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN NIPPON KOEI CO., LTD DWG. TITLE: CULVERT (4)	
NAME	A. MORIOKA	CHECKED BY	T. HAYAKAWA	APPROVED BY	M. TOKURA
SIGNATURE		DATE	/ / 2009	SCALE	1:100
				SHEET NO.	01/04
				REV. NO.	

Figure 3.4 Rae Kanyaika: Culvert (4)

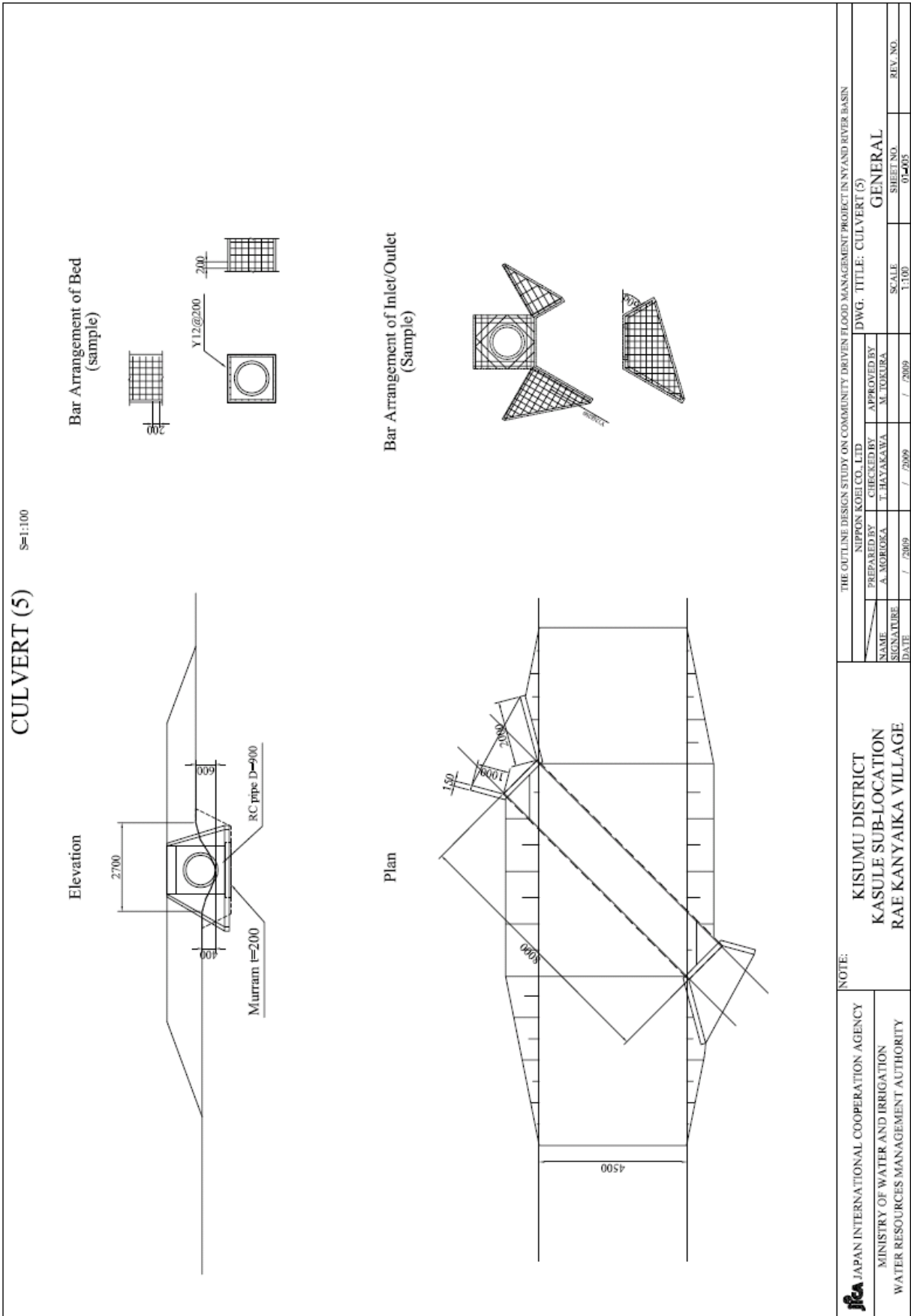
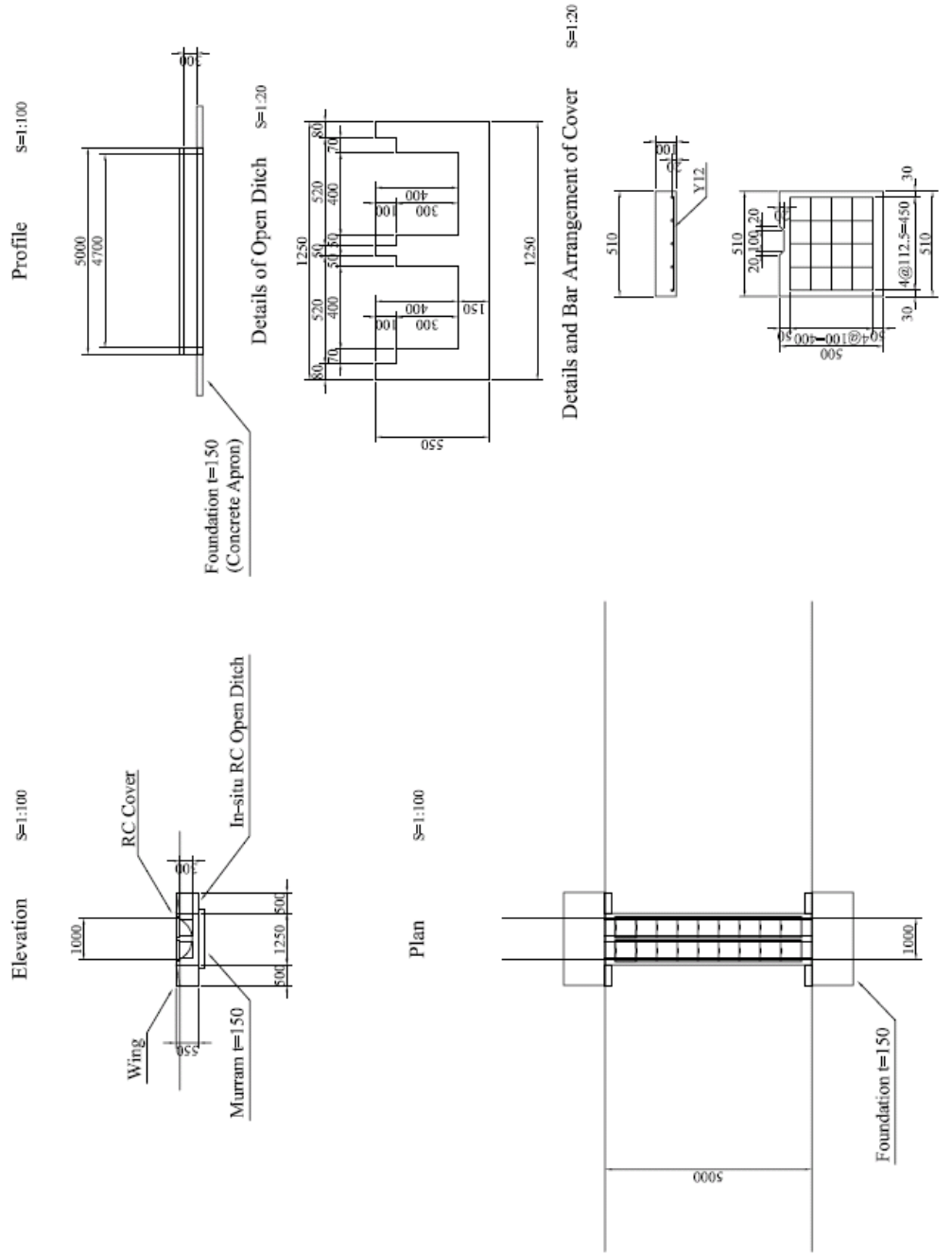


Figure 3.5 Rae Kanyaika: Culvert (5)

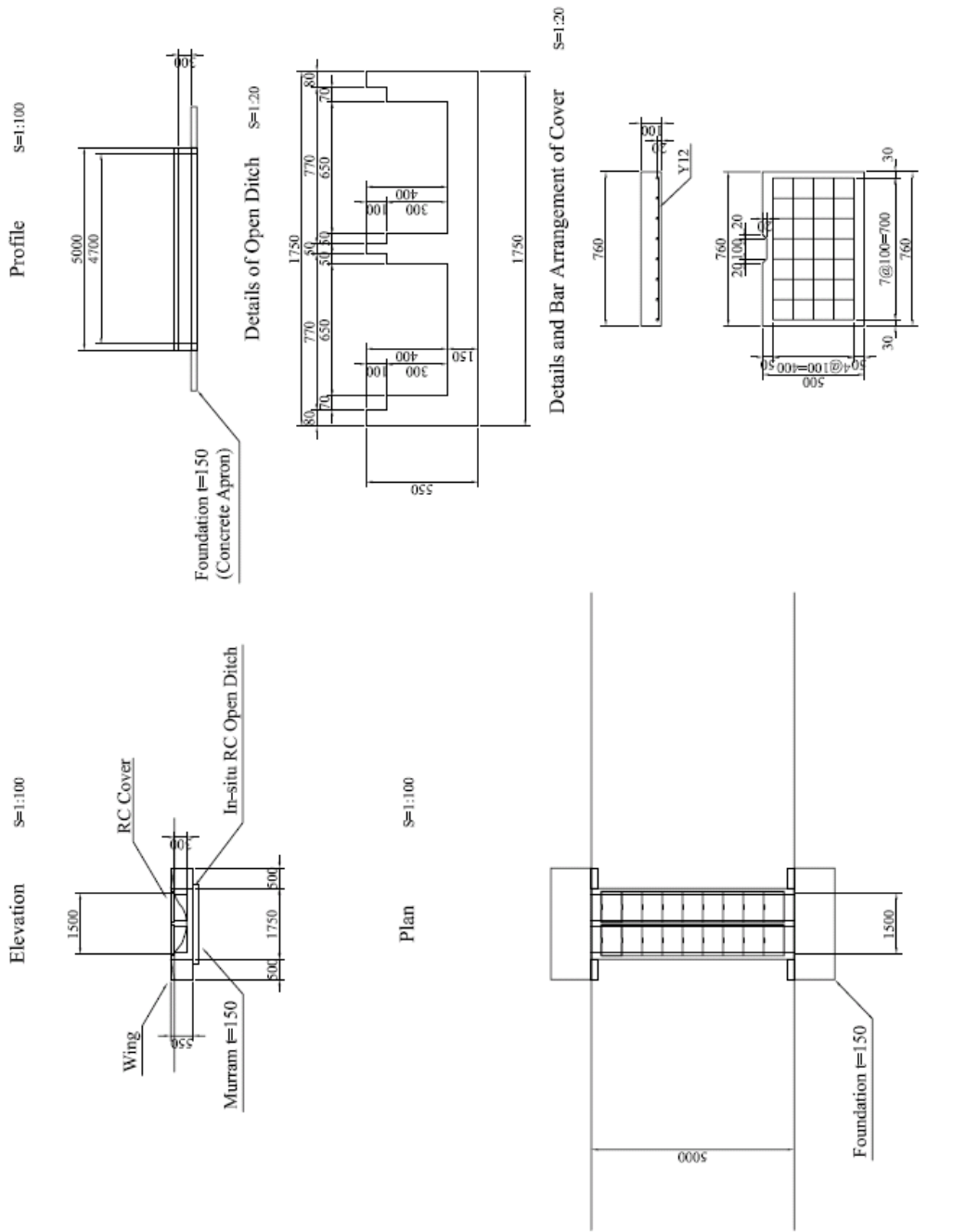
CULVERT (6)



<p>NOTE:</p> <p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN NIPPON KOEI CO., LTD DWG. TITLE: CULVERT (6)</p>	
NAME	CHECKED BY	APPROVED BY	SCALE	SHEET NO.	REV. NO.
SIGNATURE	T. HAYAKAWA	M. TOKURA	1:100	01-006	
DATE	/ / 2009	/ / 2009			

Figure 3.6 Rae Kanyaika: Culvert (6)

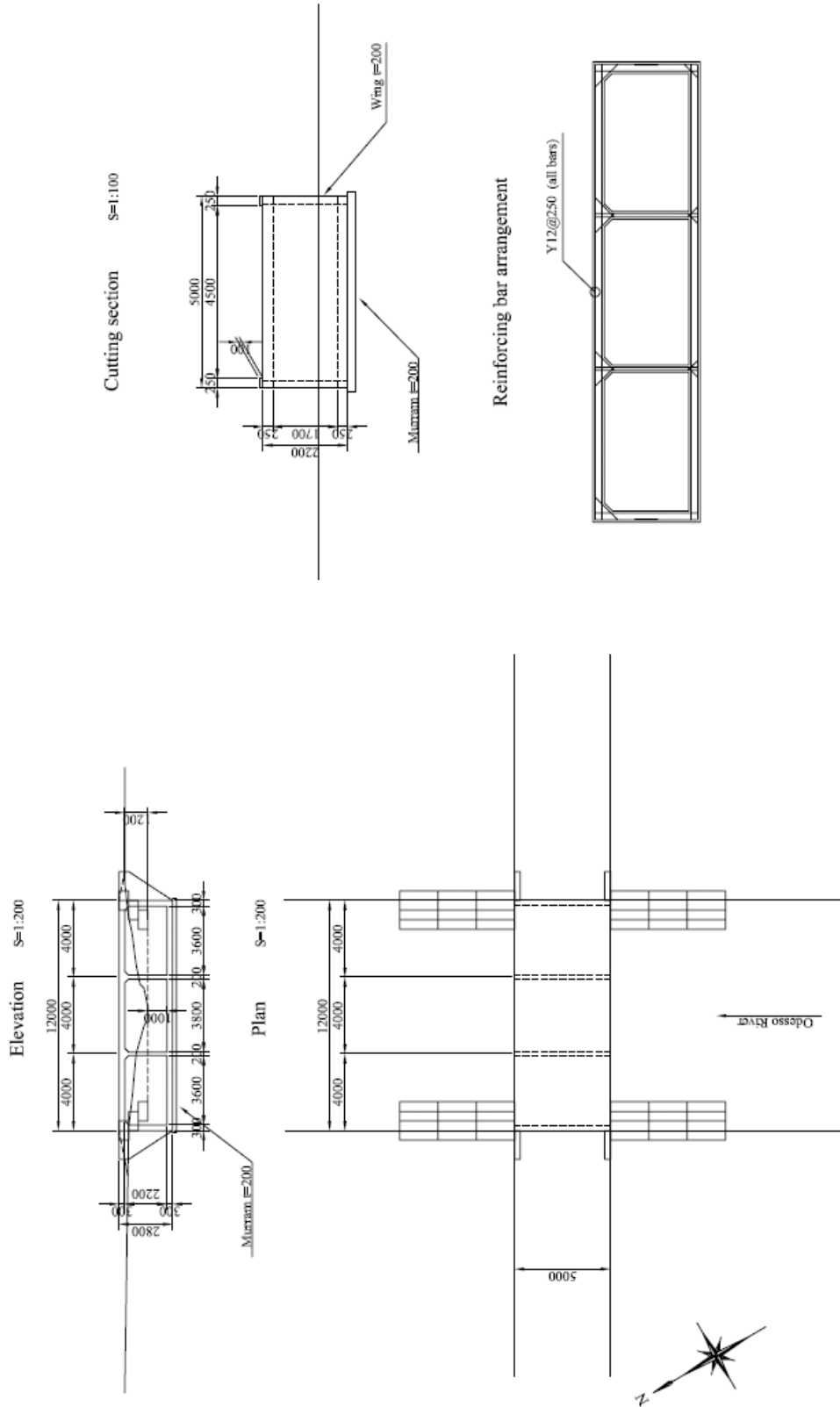
CULVERT (7)



<p>ifca JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NOTE:</p>		<p>KISUMU DISTRICT KASULE SUB-LOCATION RAE KANYAIKA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p>	
		<p>PREPARED BY A. MORIOKA</p>	<p>CHECKED BY T. HAYAKAWA</p>	<p>APPROVED BY M. TOKURA</p>	<p>DWG. TITLE: CULVERT (7)</p>	<p>GENERAL</p>	<p>SCALE 1:100</p>

Figure 3.7 Rae Kanyaika: Culvert (7)

CULVERT (1)



<p>NOTE:</p> <p>KISUMU DISTRICT KASULE SUB-LOCATION BWANDA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p> <p>NIPPON KOGI CO. LTD</p>		<p>DWG. TITLE: CULVERT (1)</p>	
NAME	A. MURIKWA	CHECKED BY	T. HAYAKAWA	APPROVED BY	M. USUKA
SIGNATURE		DATE	/ / 2009		
			/ / 2009	SCALE	1:200
				SHEET NO.	05/001
				REV. NO.	

Figure 3.8 Bwanda: Culvert (1)

CULVERT (2)

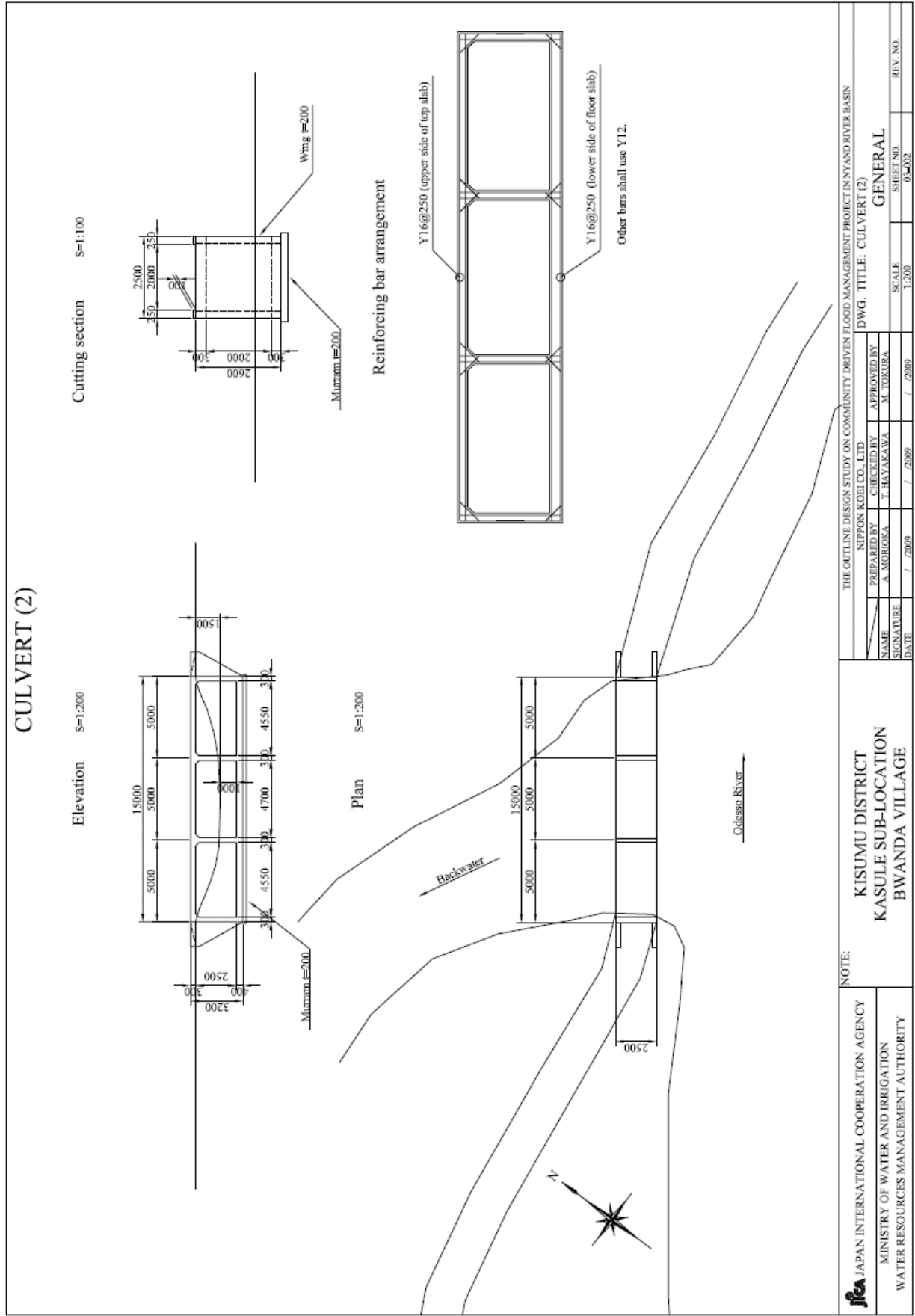
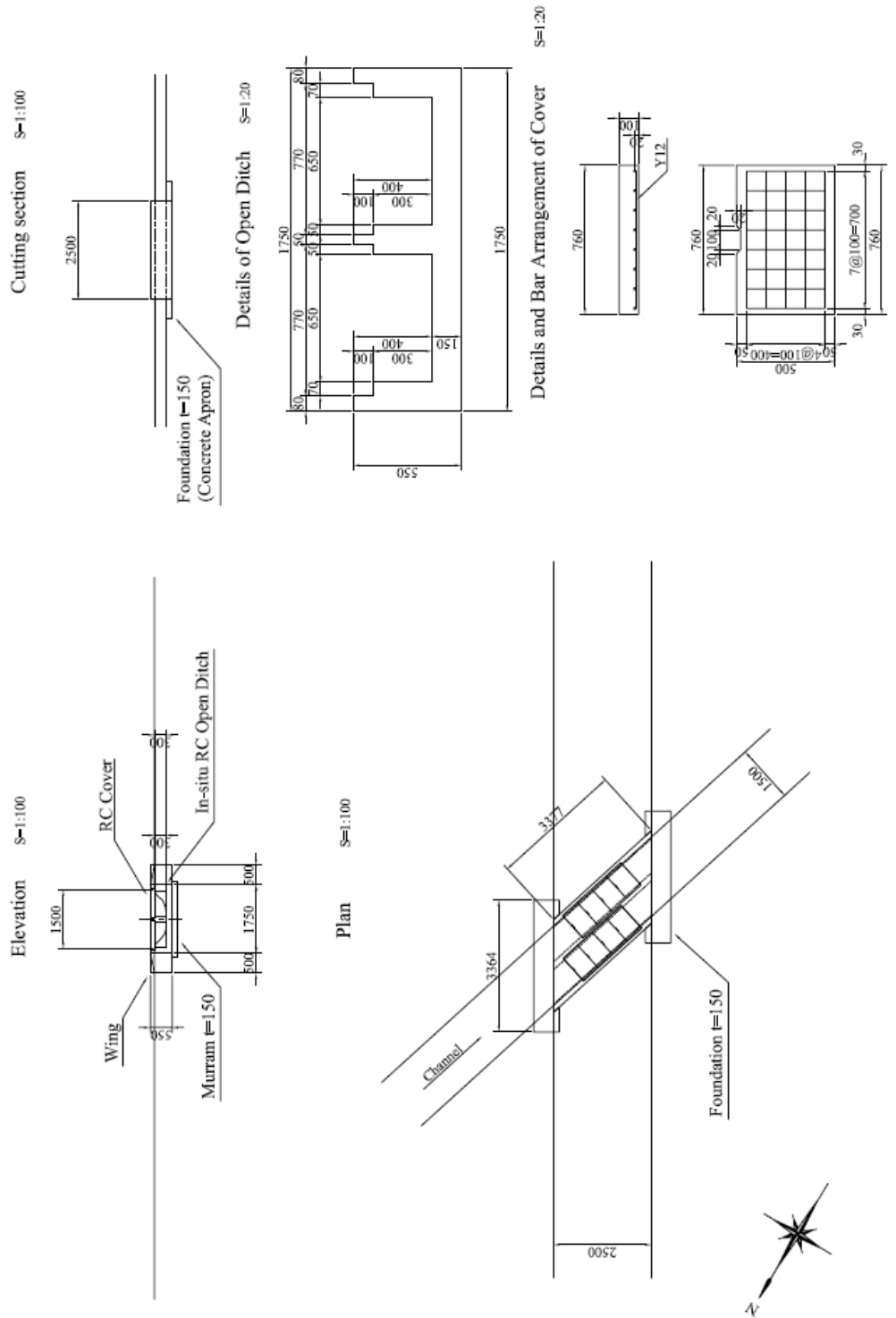


Figure 3.9 Bwanda: Culvert (2)

CULVERT (3)



JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY		NOTE: KISUMU DISTRICT KASULE SUB-LOCATION BWANDA VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN YAND RIVER BASIN NIPPON KOEI CO., LTD. DWG. TITLE: CULVERT (3)	
PREPARED BY A. MOROGA	CHECKED BY T. HAYAKAWA	APPROVED BY M. TOKURA	SCALE 1:100	SHEET NO. 05/03	REV. NO.
SIGNATURE DATE	/ / 2009	/ / 2009	/ / 2009	/ / 2009	/ / 2009

Figure 3.10 Bwanda: Culvert (3)

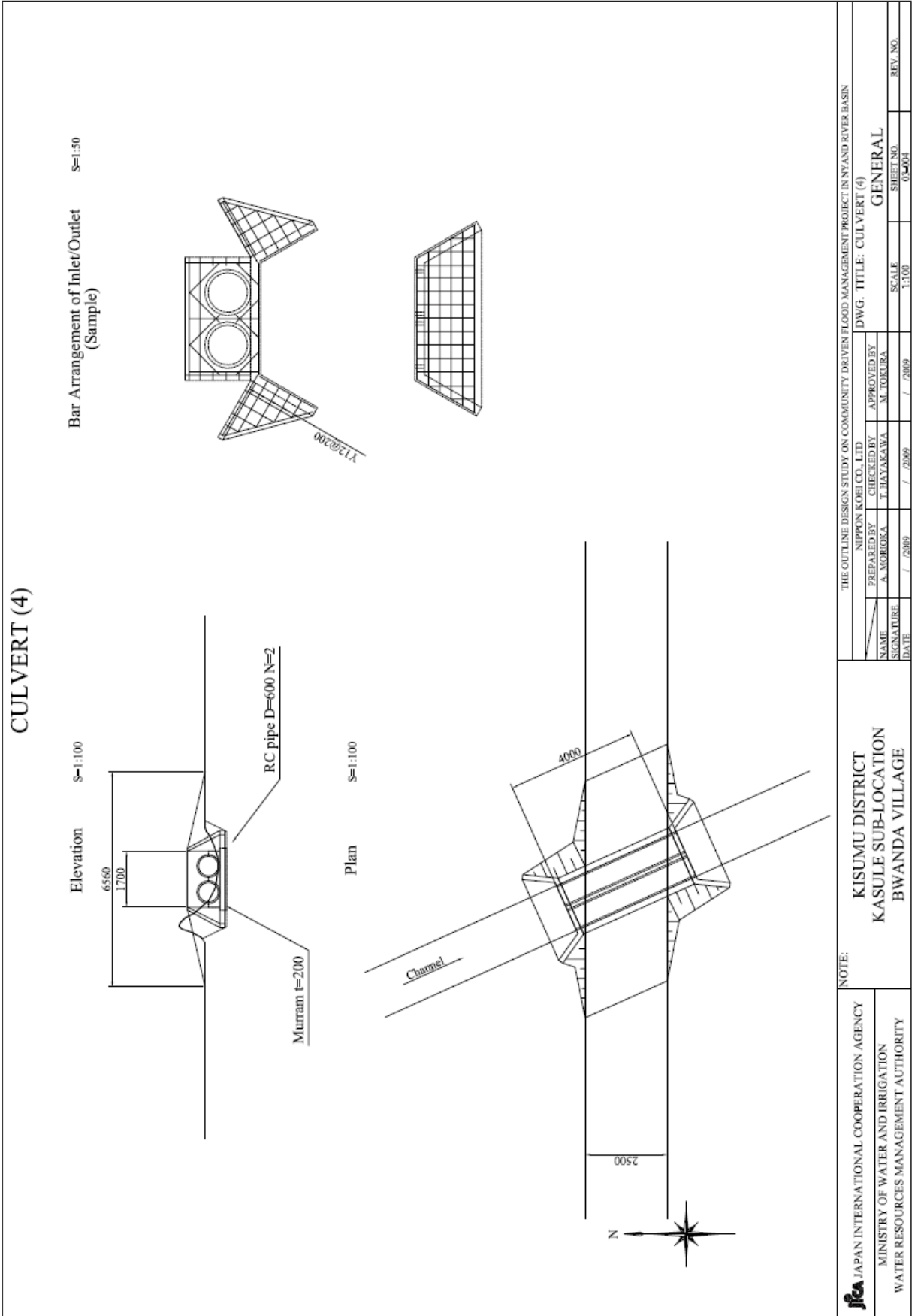
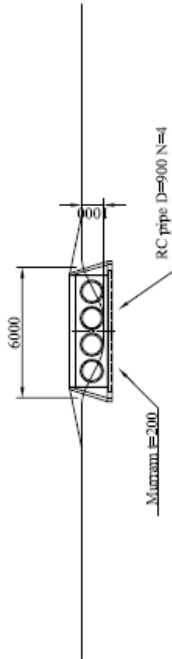


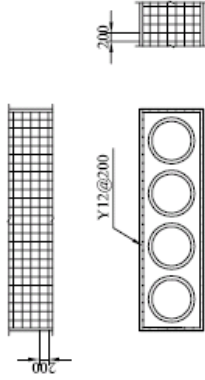
Figure 3.11 Bwanda: Culvert (4)

CULVERT (1)

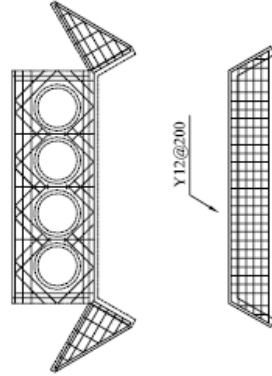
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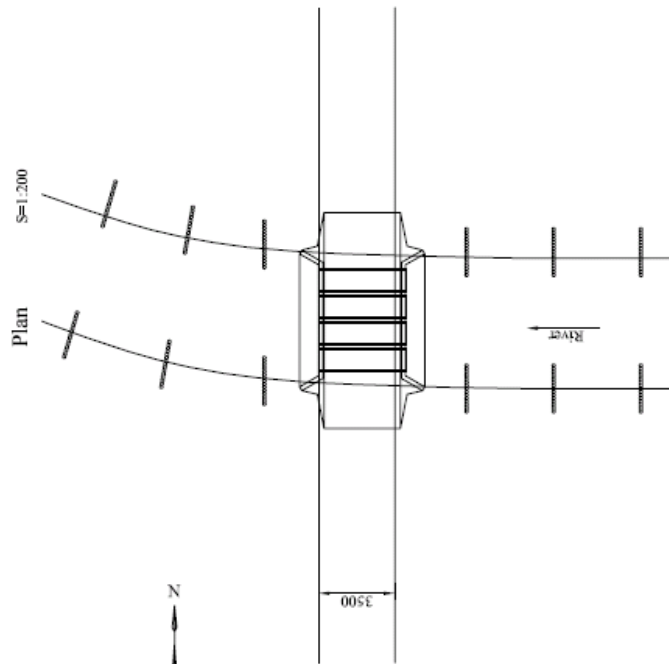
Bar Arrangement of Bed (sample)



Bar Arrangement of Wing (sample)



Plan S=1:200



NOTE:

ifa JAPAN INTERNATIONAL COOPERATION AGENCY
 MINISTRY OF WATER AND IRRIGATION
 WATER RESOURCES MANAGEMENT AUTHORITY

KISUMU DISTRICT
 NYALUNYA SUB-LOCATION
 OTERA VILLAGE

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

NIPPON KOEI CO., LTD
 DWG. TITLE: CULVERT (1)

PREPARED BY: A. MORIOKA
 CHECKED BY: T. HAYAKAWA
 APPROVED BY: M. TOKURA

NAME: A. MORIOKA
 SIGNATURE: T. HAYAKAWA
 DATE: / / 2009

SCALE: 1:200
 SHEET NO.: 04-001
 REV. NO.:

GENERAL

Figure 3.13 Otera: Culvert (1)

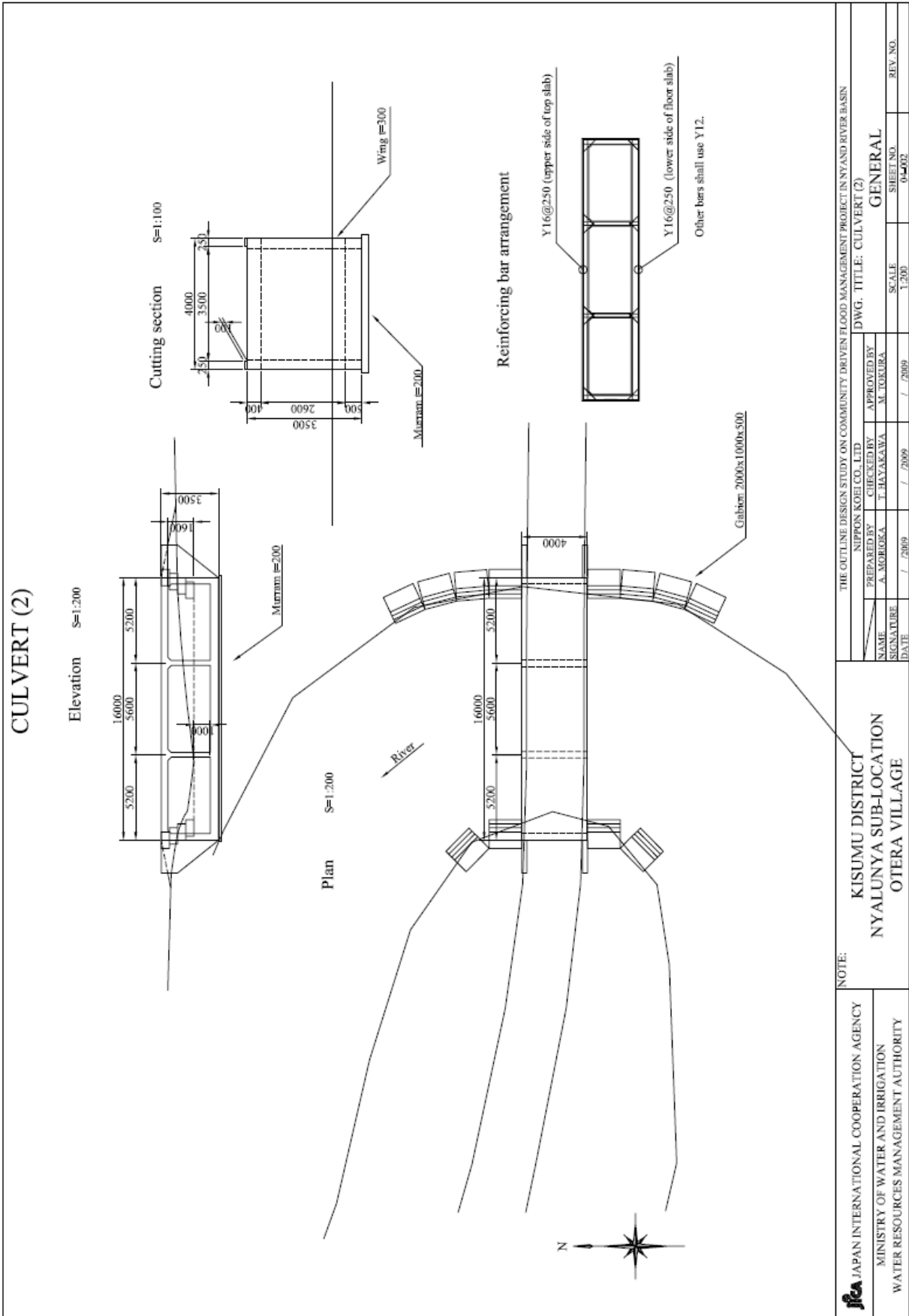


Figure 3.14 Otera: Culvert (2)

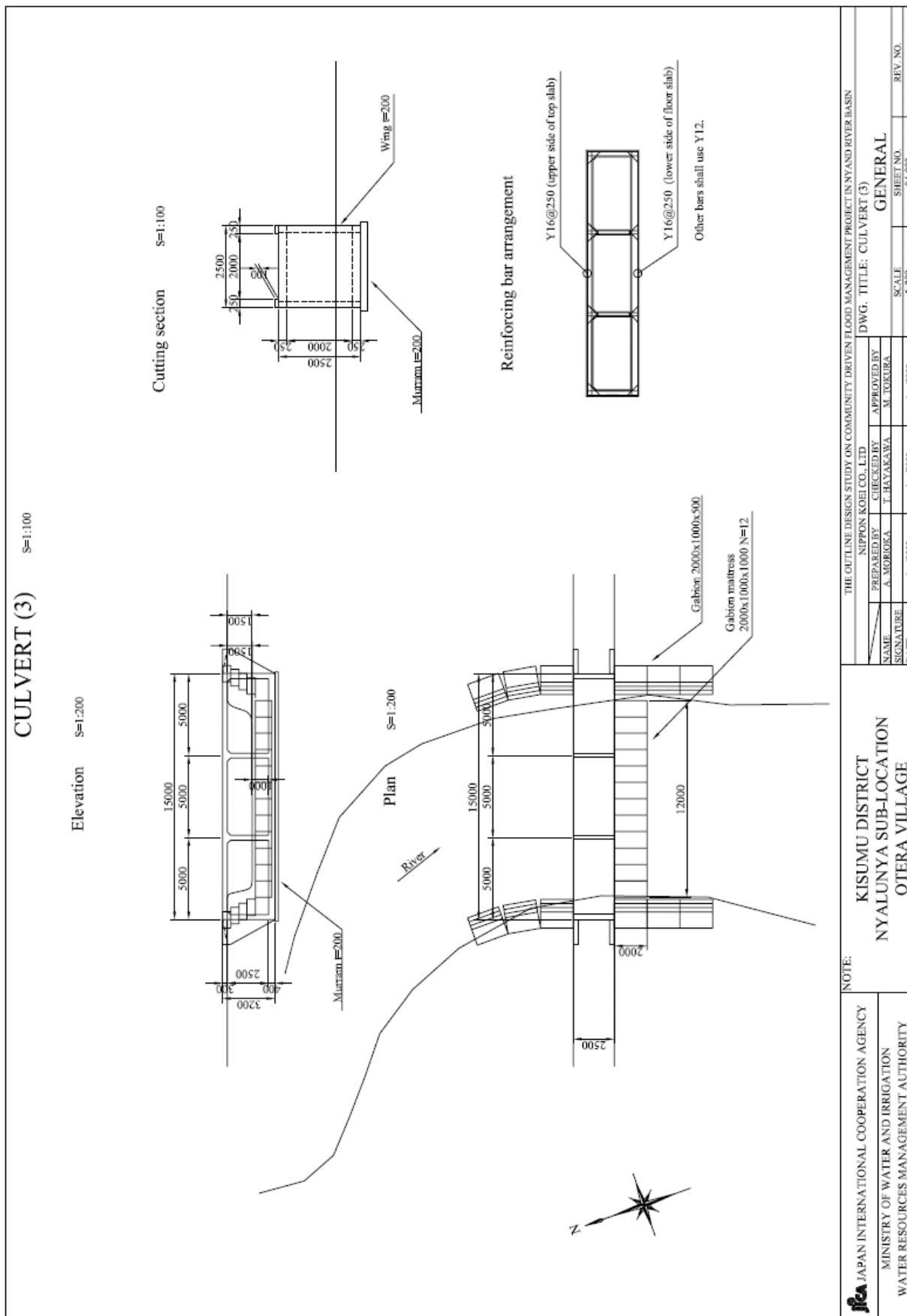
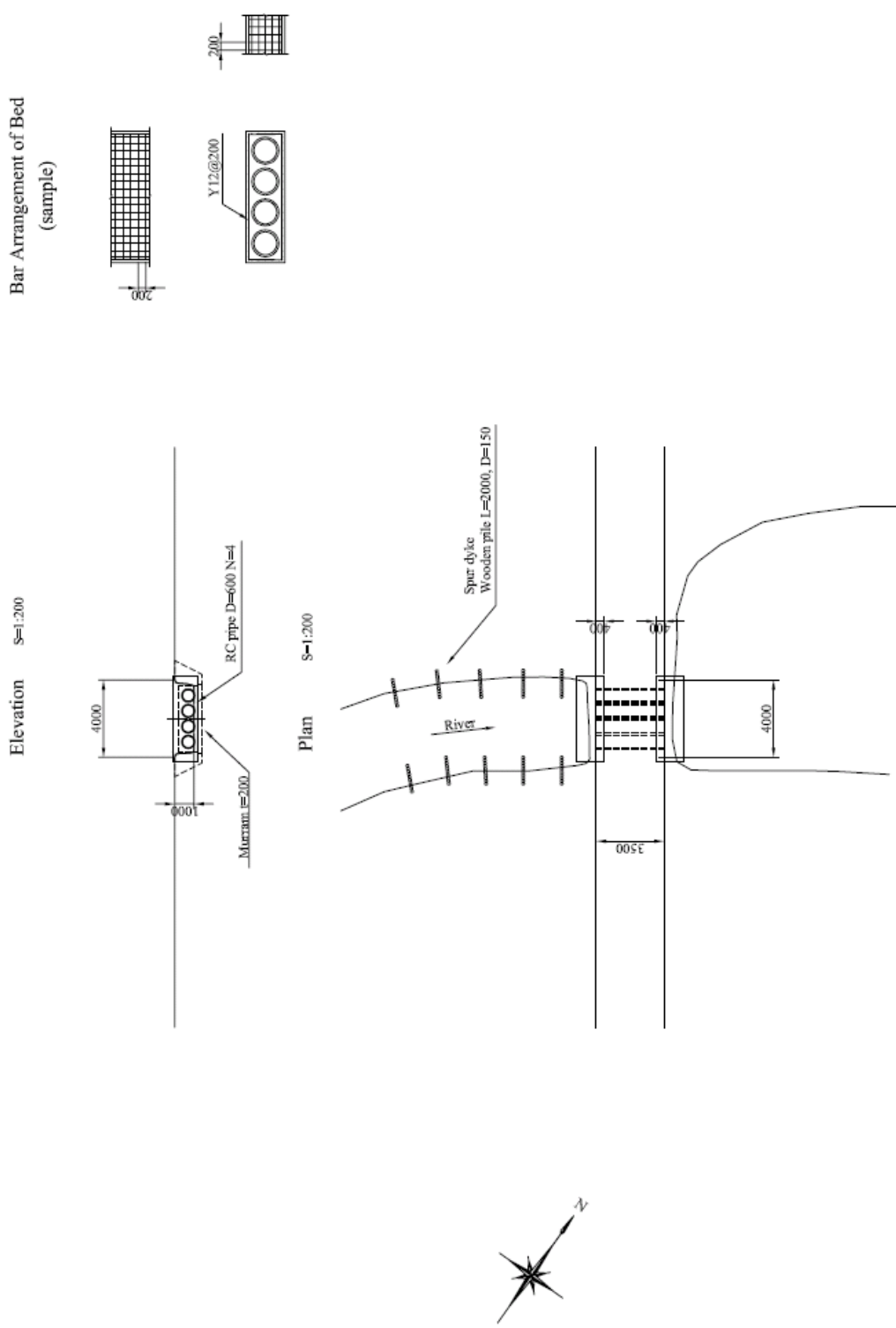


Figure 3.15 Otera: Culvert (3)

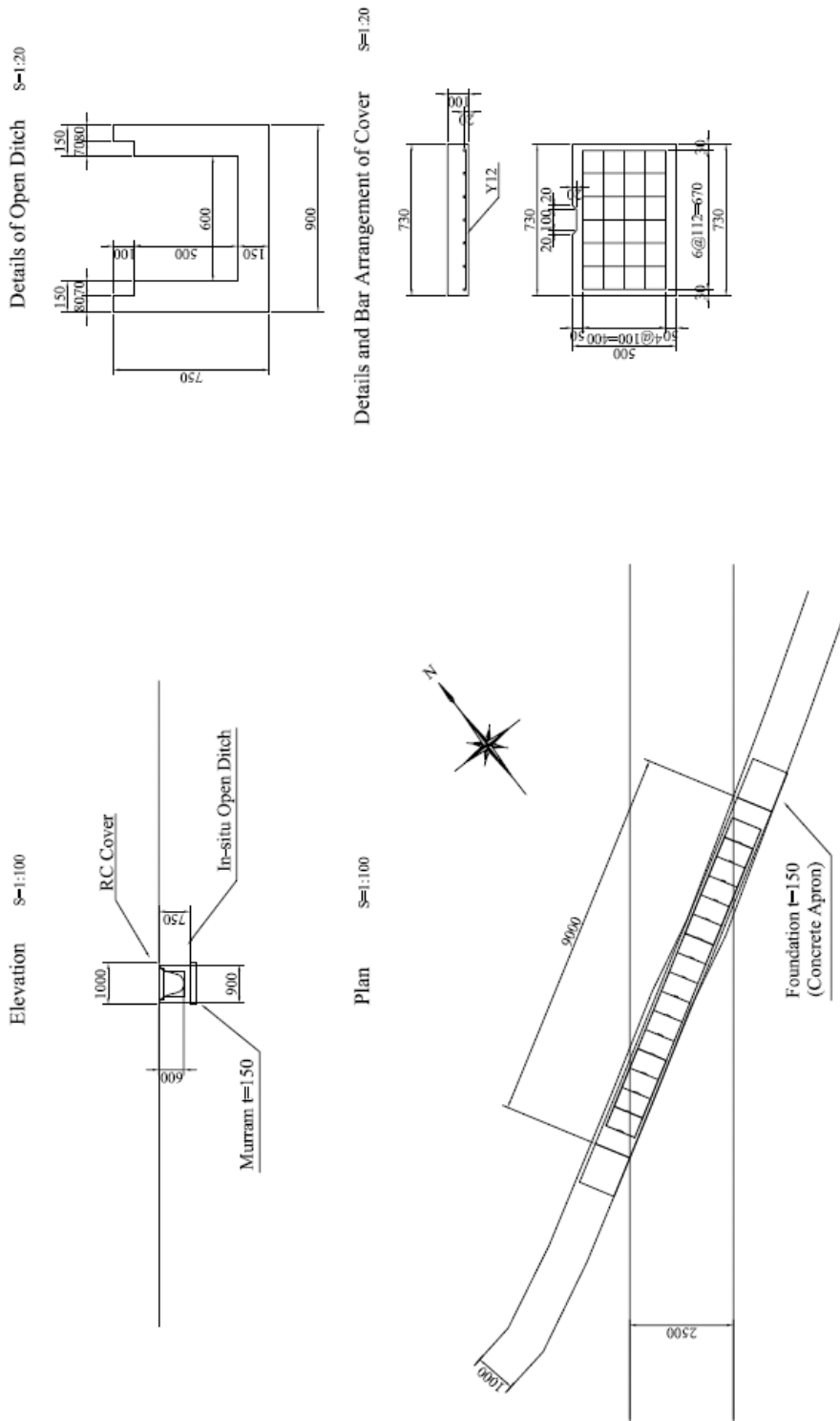
CULVERT (4)



JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY		NOTE: KISUMU DISTRICT NYALUNYA SUB-LOCATION OTERA VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN NIPPON KOGI CO. LTD. PREPARED BY: A. MORIOKA CHECKED BY: T. HAYAKAWA APPROVED BY: M. TOKURA DWG. TITLE: CULVERT (4) GENERAL SCALE: 1:200 SHEET NO: 04-004 REV. NO.	
NAME	DATE	DATE	DATE	DATE	DATE
SIGNATURE	DATE	DATE	DATE	DATE	DATE

Figure 3.16 Otera: Culvert (4)

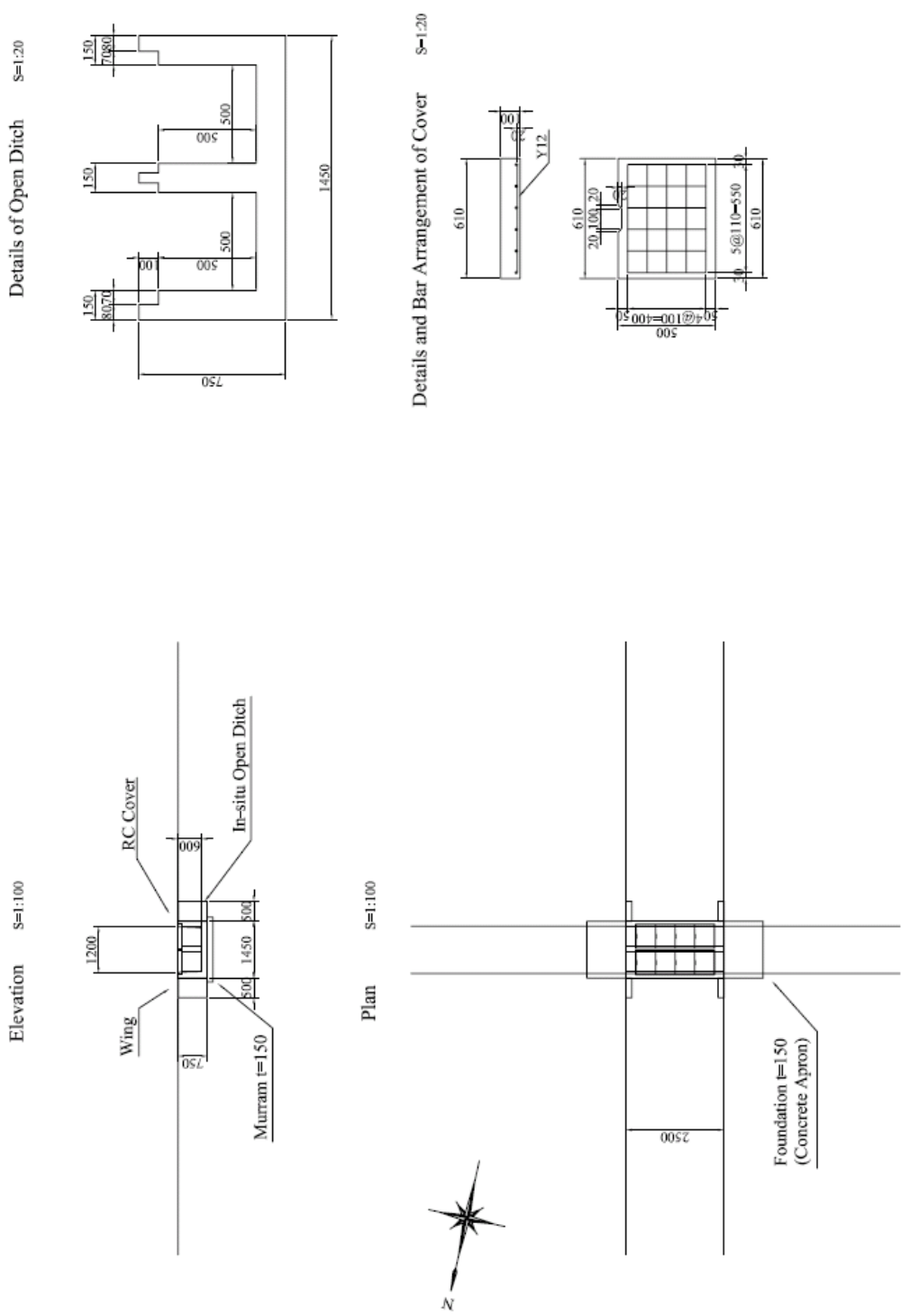
CULVERT (5)



JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY		NOTE: KISUMU DISTRICT NYALUNYA SUB-LOCATION OTERA VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN DWG. TITLE: CULVERT (5)	
PREPARED BY	A. MOROKA	CHECKED BY	T. HAYAKAWA	APPROVED BY	M. TOKURA
NAME	A. MOROKA	SIGNATURE	T. HAYAKAWA	SCALE	1:100
DATE	/ 2009		/ 2009	SHEET NO.	05005
				REV. NO.	

Figure 3.17 Otera: Culvert (5)

CULVERT



ifca JAPAN INTERNATIONAL COOPERATION AGENCY		NOTE:		KISUMU DISTRICT		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN	
MINISTRY OF WATER AND IRRIGATION		NYALUNYA SUB-LOCATION		NIPPON KOEI CO., LTD		DWG. TITLE: CULVERT	
WATER RESOURCES MANAGEMENT AUTHORITY		KAMUGA VILLAGE		PREPARED BY		APPROVED BY	
				A. MORIOKA		T. HAYAKAWA	
				/ 2009		M. TOKURA	
				/ 2009		SCALE	
				/ 2009		1:100	
				/ 2009		SHEET NO.	
				/ 2009		05002	
				/ 2009		REV. NO.	
				/ 2009			

Figure 3.18 Kamuga: Culvert

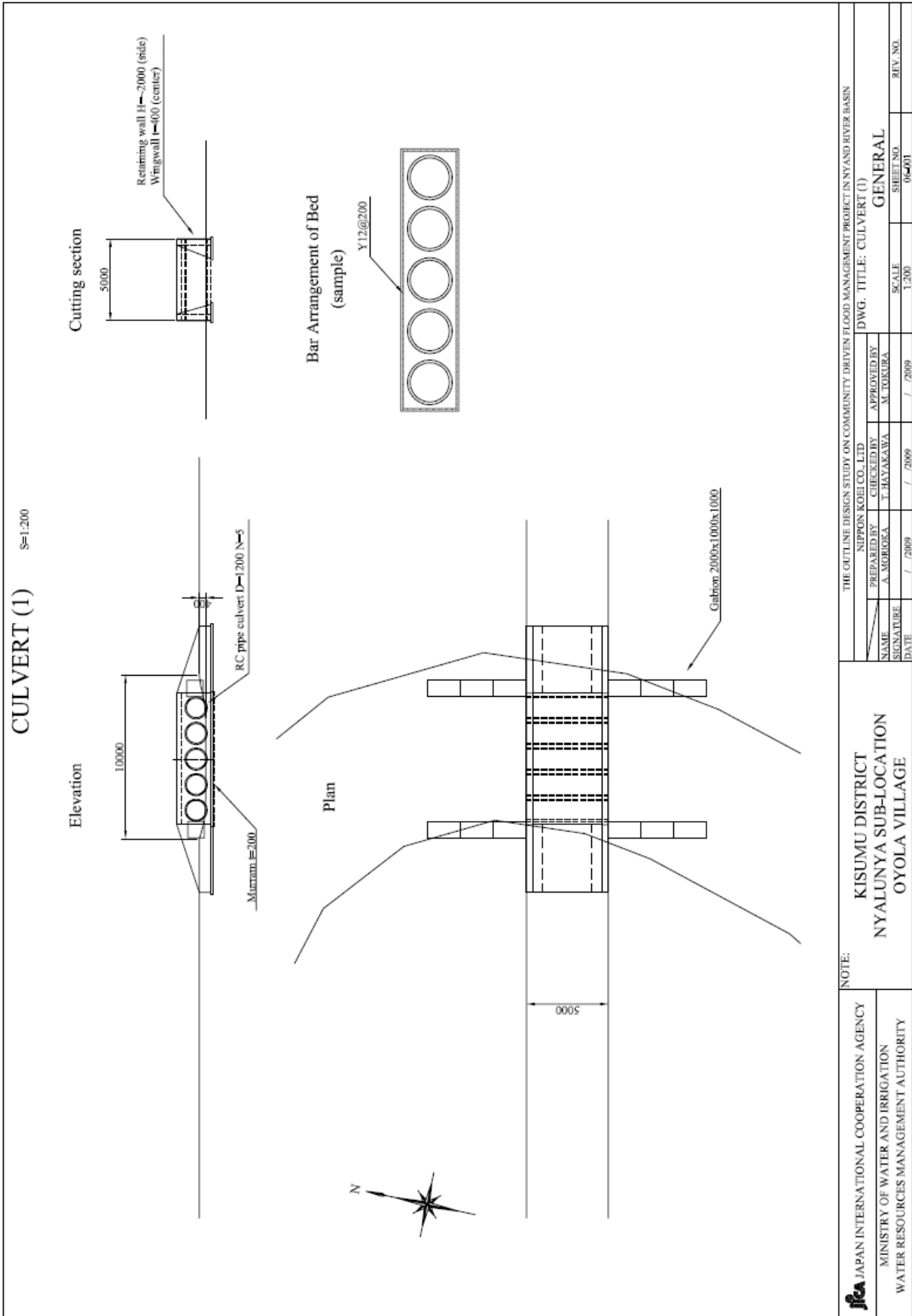


Figure 3.19 Oyola: Culvert (1)

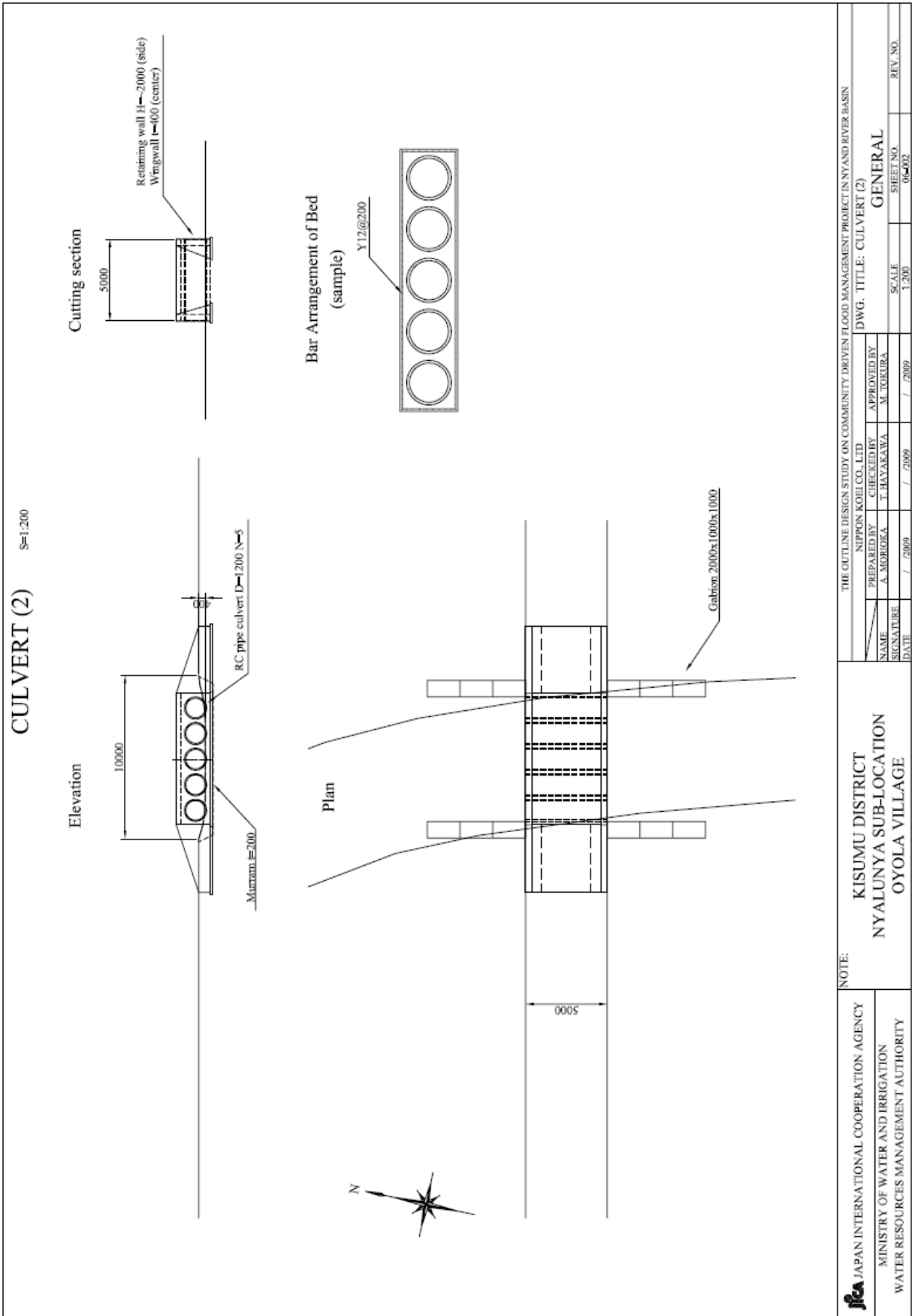
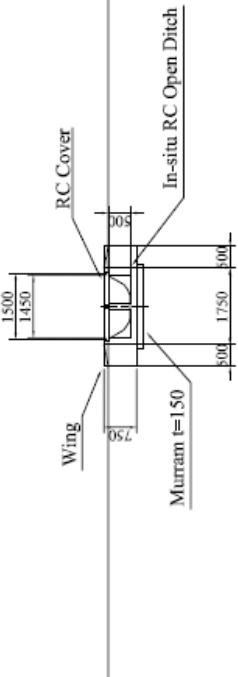


Figure 3.20 Oyola: Culvert (2)

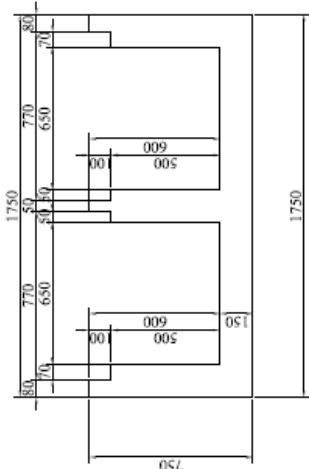
CULVERT (3)

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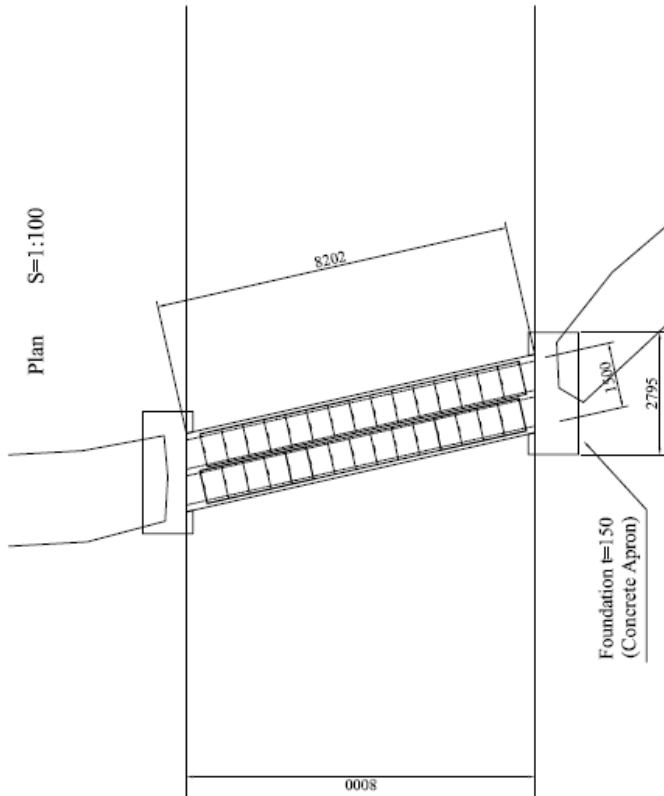
Elevation S=1:100



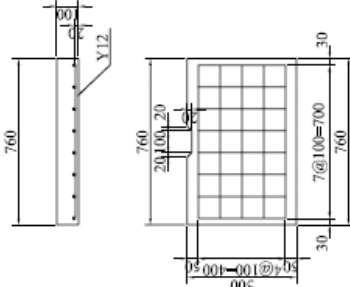
Details of Open Ditch S=1:20



Plan S=1:100



Details and Bar Arrangement of Cover S=1:20



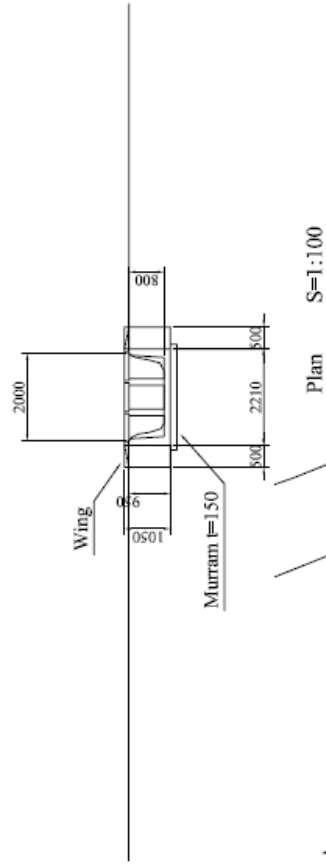
<p>ifca JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NOTE: KISUMU DISTRICT NYALUNYA SUB-LOCATION OYOLA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN NIPPON KOKI CO. LTD PREPARED BY: A. MORIOKA / 2009 CHECKED BY: T. HAYAKAWA / 2009 APPROVED BY: M. TOGURA / 2009</p>		<p>DWG. TITLE: CULVERT (3) GENERAL SCALE: 1:100 SHEET NO. 06403 REV. NO.</p>	
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Figure 3.21 Oyola: Culvert (3)

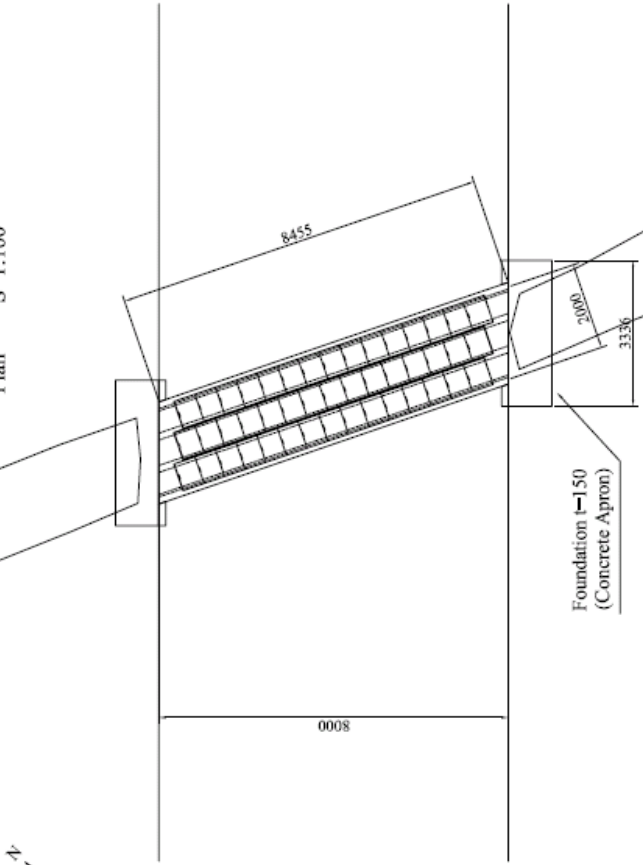
CULVERT (4)

S=1:100

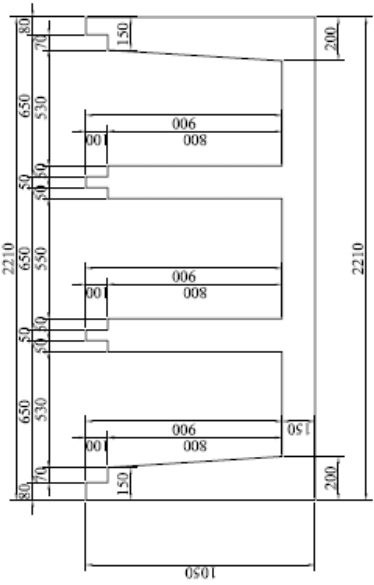
Elevation S=1:100



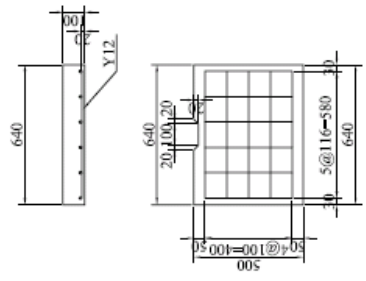
Plan S=1:100



Details of Open Ditch S=1:20



Details and Bar Arrangement of Cover S=1:20



<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p>		<p>NIPPON KOBEL CO. LTD.</p>		<p>DWG. TITLE: CULVERT (4)</p>	
<p>PREPARED BY</p>	<p>A. MORIOKA</p>	<p>CHECKED BY</p>	<p>T. HAYAKAWA</p>	<p>APPROVED BY</p>	<p>M. TOKURA</p>
<p>SIGNATURE</p>	<p>DATE</p>	<p>SCALE</p>	<p>SHEET NO.</p>	<p>REV. NO.</p>	<p>REV. NO.</p>
<p>DATE</p>	<p>1/2009</p>	<p>1/2009</p>	<p>1/2009</p>	<p>06-004</p>	<p>1:100</p>
<p>NOTE:</p>			<p>KISUMU DISTRICT NYALUNYA SUB-LOCATION OYOLA VILLAGE</p>		
<p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>			<p>GENERAL</p>		

Figure 3.22 Oyola: Culvert (4)

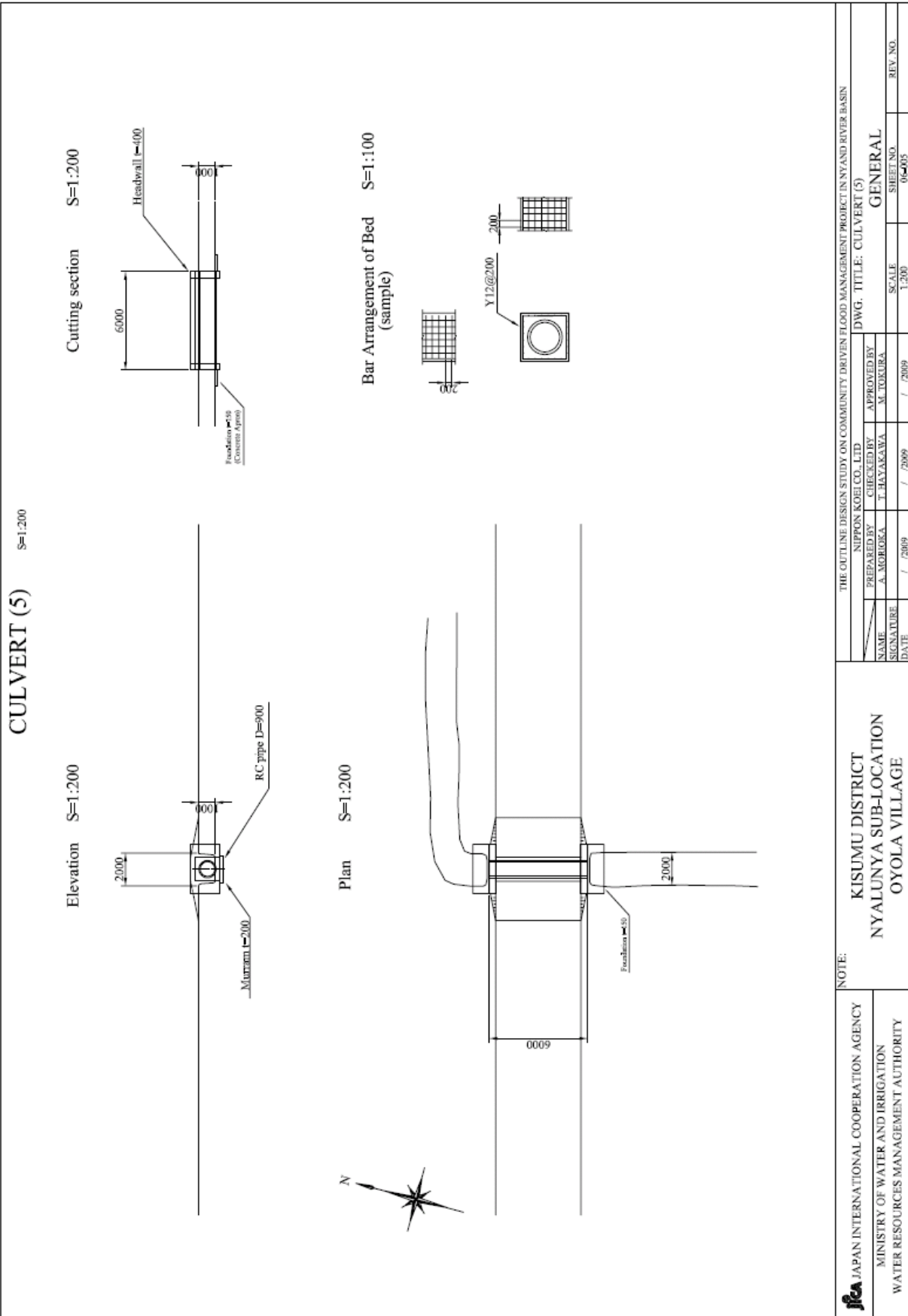


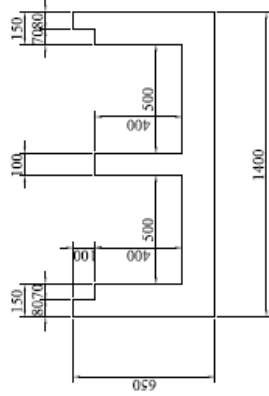
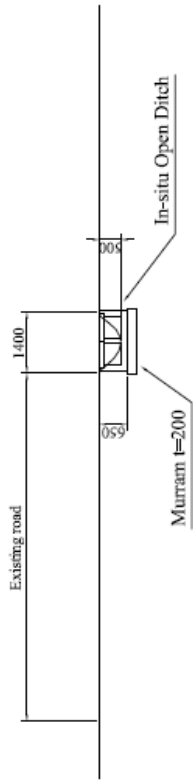
Figure 3.23 Oyola: Culvert (5)

CULVERT (6)

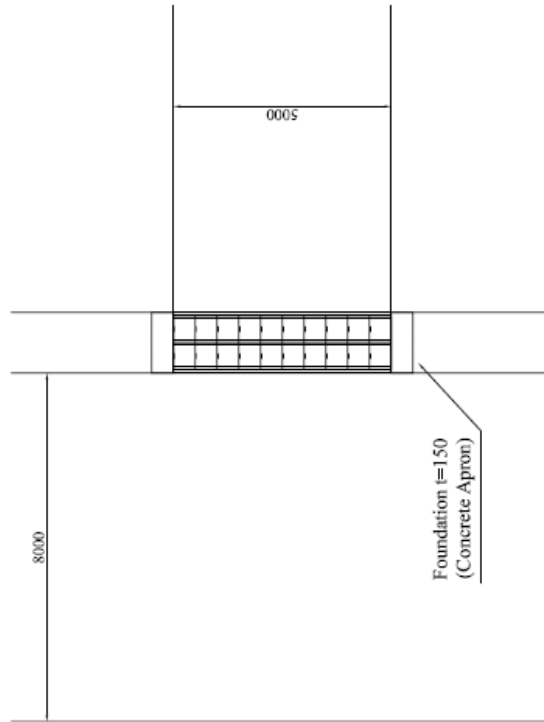
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Elevation S=1:100

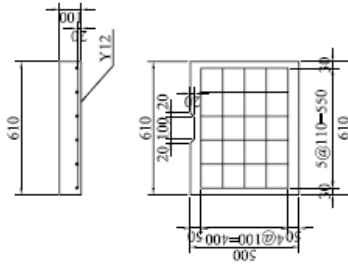
Details of Open Ditch S=1:20



Plan S=1:100



Details and Bar Arrangement of Cover S=1:20



NOTE: JICA JAPAN INTERNATIONAL COOPERATION AGENCY
MINISTRY OF WATER AND IRRIGATION
WATER RESOURCES MANAGEMENT AUTHORITY

KISUMU DISTRICT
NYALUNYA SUB-LOCATION
OYOLA VILLAGE

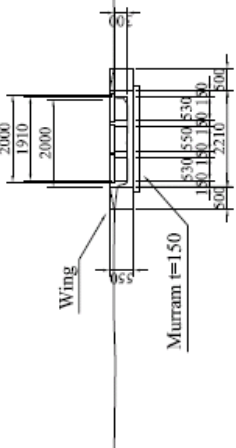
PREPARED BY A. MURIOKA		CHECKED BY T. HAYAKAWA		APPROVED BY M. TOKURA	
DATE / / 2009		/ / 2009		/ / 2009	
DWG. TITLE: CULVERT (6)				GENERAL	
SCALE				SHEET NO. 05/06	
1:100				REV. NO.	

Figure 3.24 Oyola: Culvert (6)

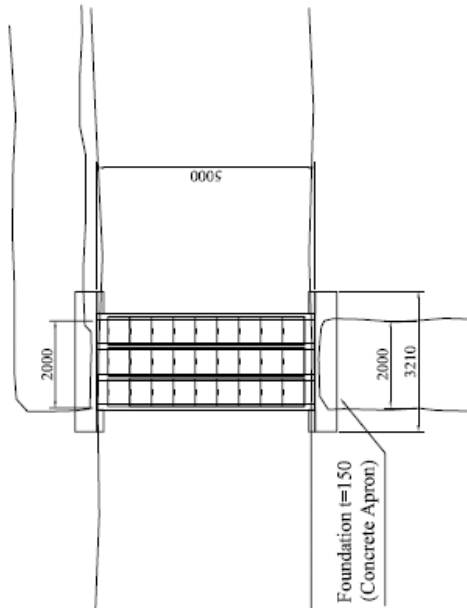
CULVERT (1)

S=1:100

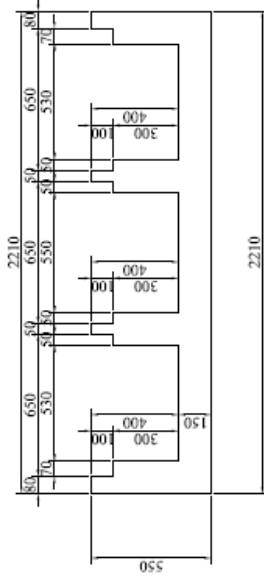
Elevation S=1:100



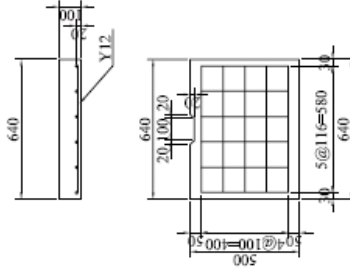
Plan S=1:100



Details of Open Ditch S=1:20



Details and Bar Arrangement of Cover S=1:20



NOTE:

KISUMU DISTRICT
UPPER BWANDA SUB-LOCATION
KANYANGO VILLAGE

ifca JAPAN INTERNATIONAL COOPERATION AGENCY
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WATER RESOURCES MANAGEMENT AUTHORITY

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

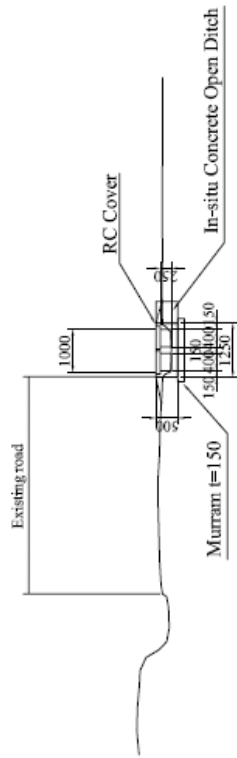
NIPPON KOKI CO., LTD.		DWG. TITLE: CULVERT (1)	
PREPARED BY	CHECKED BY	APPROVED BY	GENERAL
A. MURUGA	T. HAYAKAWA	M. TORIURA	
DATE	/ 2009	/ 2009	SHEET NO. 01/401
		SCALE	REF. NO.
		1:100	

Figure 3.25 Kanyango: Culvert (1)

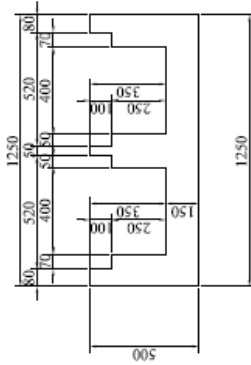
CULVERT (2)

S=1:100

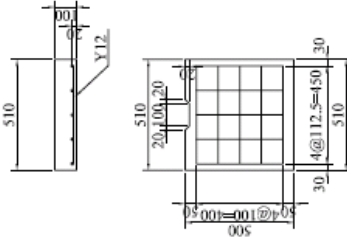
Elevation S=1:100



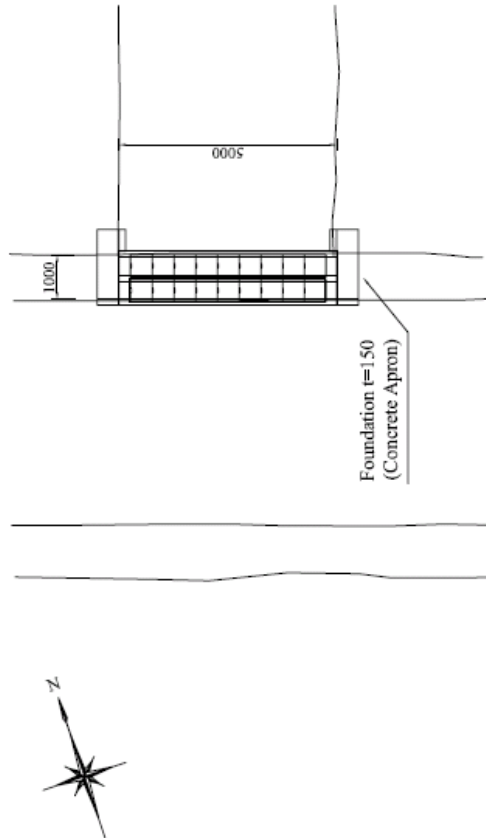
Details of Open Ditch S=1:20



Details and Bar Arrangement of Cover S=1:20



Plan S=1:100



NOTE:

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 WATER RESOURCES MANAGEMENT AUTHORITY

KISUMU DISTRICT
 UPPER BWANDA SUB-LOCATION
 KANYANGO VILLAGE

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

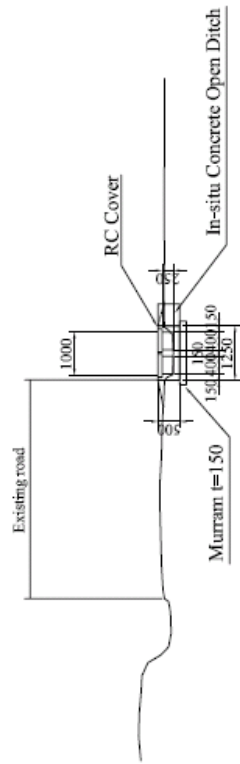
PREPARED BY A. MORIOKA		CHECKED BY T. HAYAKAWA		APPROVED BY M. TOKURA	
NAME	SIGNATURE	DATE	SCALE	SHEET NO.	REV. NO.
		/ / 2009	1:100	02/02	
DWG. TITLE: CULVERT (2)			GENERAL		

Figure 3.26 Kanyango: Culvert (2)

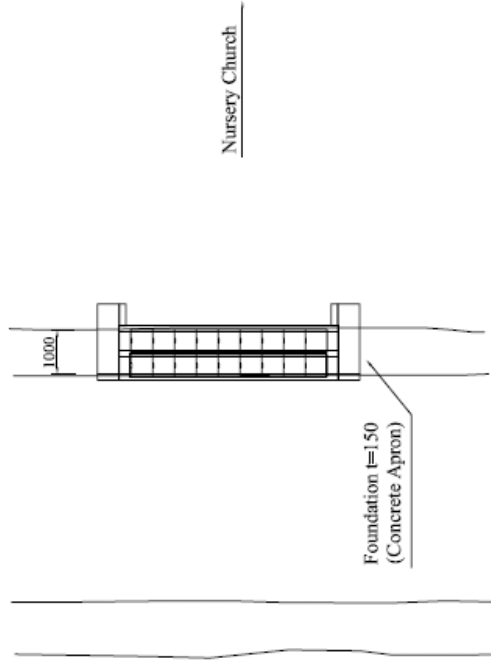
CULVERT (3)

S=1:100

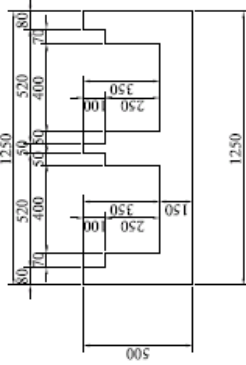
Elevation S=1:100



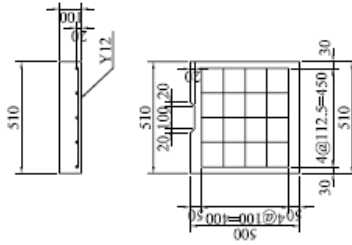
Plan S=1:100



Details of Open Ditch S=1:20



Details and Bar Arrangement of Cover S=1:20

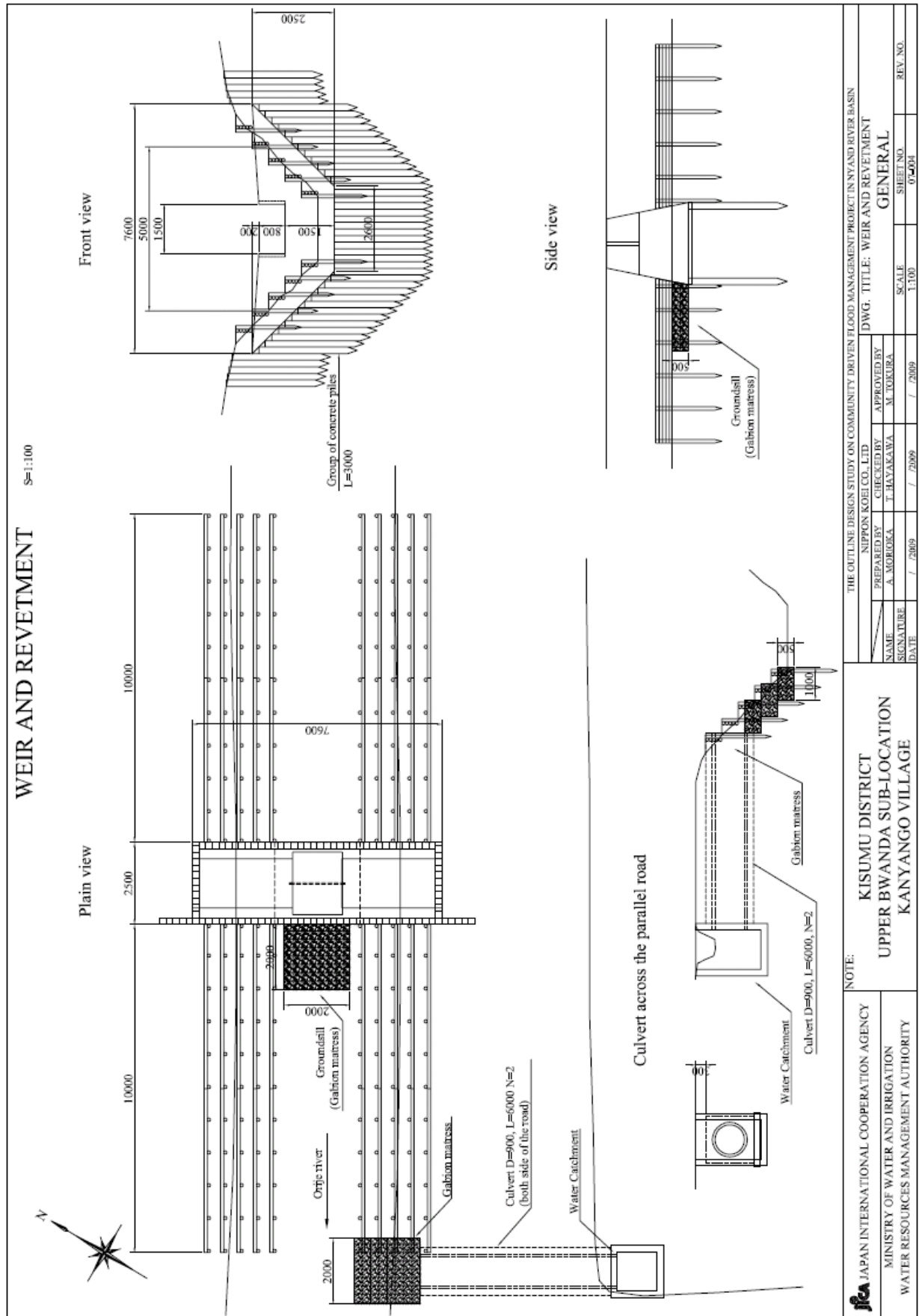


JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY		NOTE: KISUMU DISTRICT UPPER BWANDA SUB-LOCATION KANYANGO VILLAGE		THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN NIPPON KOGI CO. LTD. PREPARED BY: A. MORIOKA / 2009 / 2009 / 2009 CHECKED BY: T. HAYAKAWA APPROVED BY: M. TOKURA DWG. TITLE: CULVERT (3)	
SCALE: 1:100 SHEET NO. 07-403		GENERAL		REV. NO.	

Figure 3.27 Kanyango: Culvert (3)

WEIR AND REVETMENT

S=1:100



<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p>		<p>NIPPON KOEI CO. LTD.</p>		<p>DWG. TITLE: WEIR AND REVETMENT</p>	
<p>PREPARED BY</p>	<p>CHECKED BY</p>	<p>APPROVED BY</p>	<p>GENERAL</p>		
<p>A. MORIOKA</p>	<p>T. HATAKAWA</p>	<p>M. TOKURA</p>	<p>SCALE</p>	<p>1:100</p>	<p>REV. NO.</p>
<p>DATE</p>	<p>DATE</p>	<p>DATE</p>	<p>SHEET NO.</p>	<p>07-004</p>	<p>REV. NO.</p>
<p>1/2009</p>	<p>1/2009</p>	<p>1/2009</p>	<p>1:100</p>	<p>07-004</p>	<p>REV. NO.</p>

Figure 3.28 Kanyango: Weir

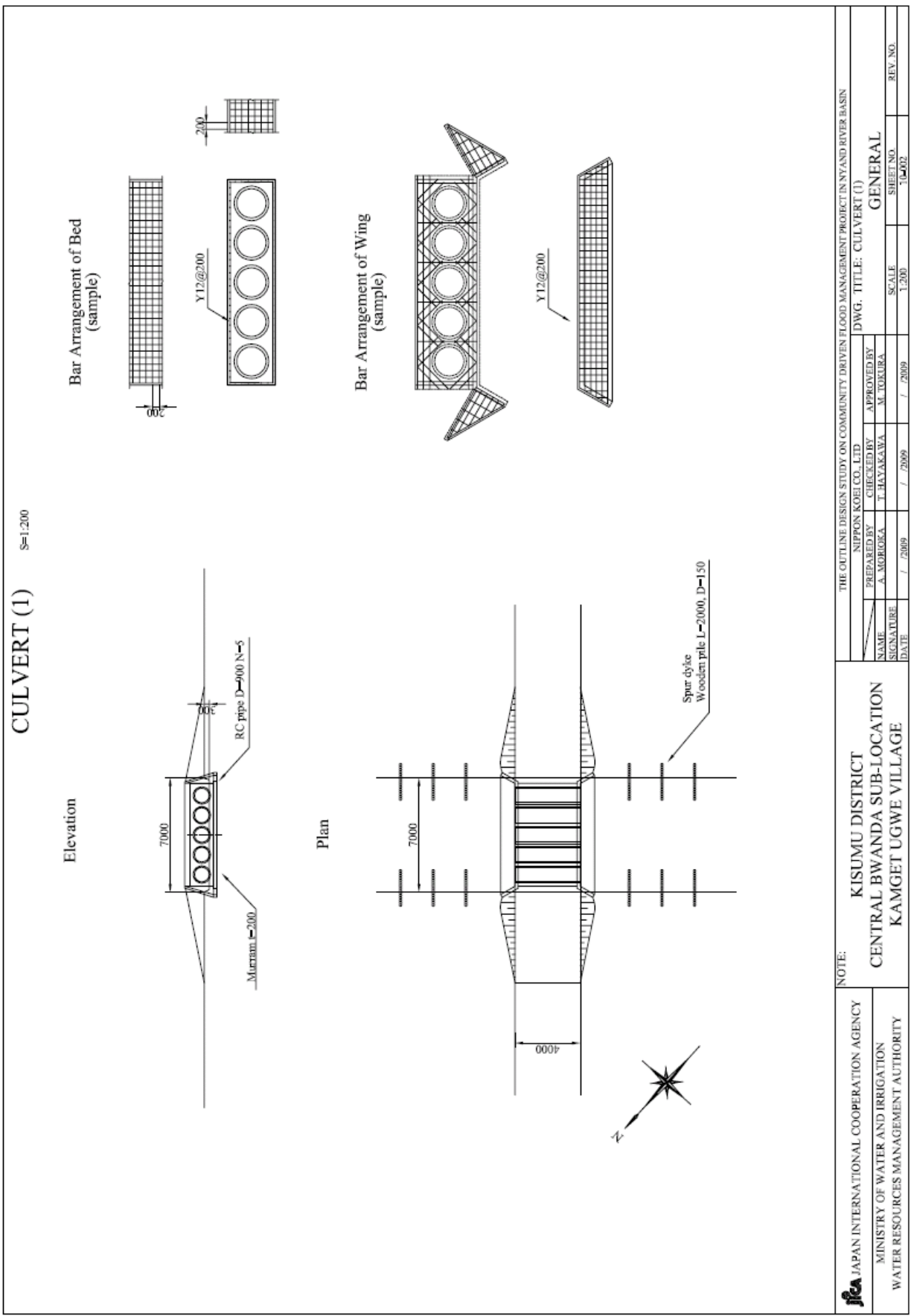
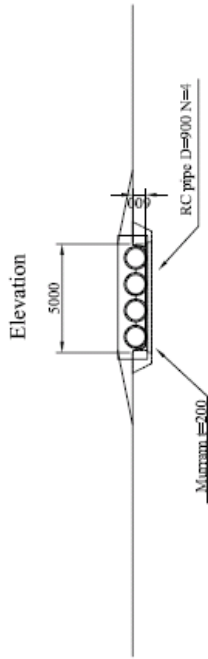


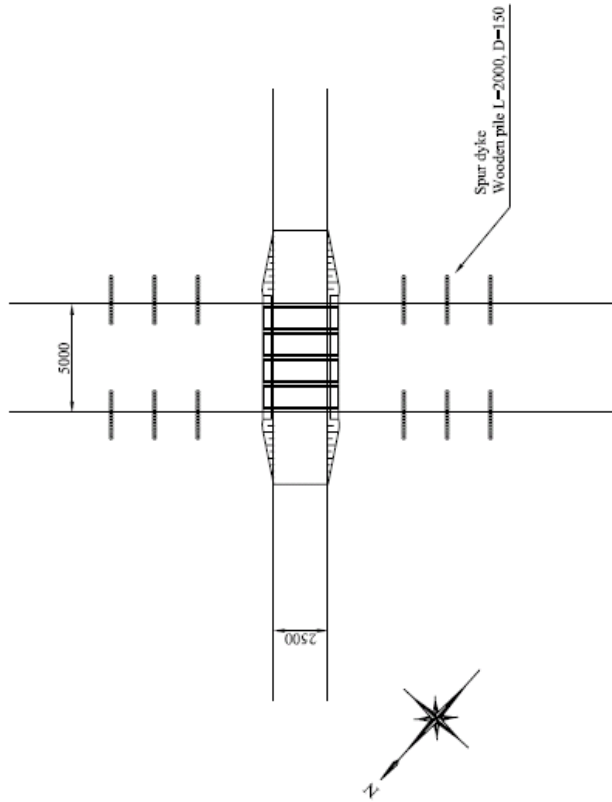
Figure 3.30 Kamget Ugwe: Culvert (1)

CULVERT (2)

S=1:200



Plan



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 MINISTRY OF WATER AND IRRIGATION
 WATER RESOURCES MANAGEMENT AUTHORITY

NOTE:
 KISUMU DISTRICT
 CENTRAL BWANDA SUB-LOCATION
 KAMGET UGWE VILLAGE

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN
 NIPPON KOEI CO., LTD
 DWG. TITLE: CULVERT (2)
 PREPARED BY: T. HAYAKAWA
 CHECKED BY: M. TOKURA
 APPROVED BY: GENERAL
 NAME: A. MORIOKA
 SIGNATURE: M. TOKURA
 DATE: / / 2009
 SCALE: 1:200
 SHEET NO.: 1/003
 REV. NO.:

Figure 3.31 Kamget Ugwe: Culvert (2)

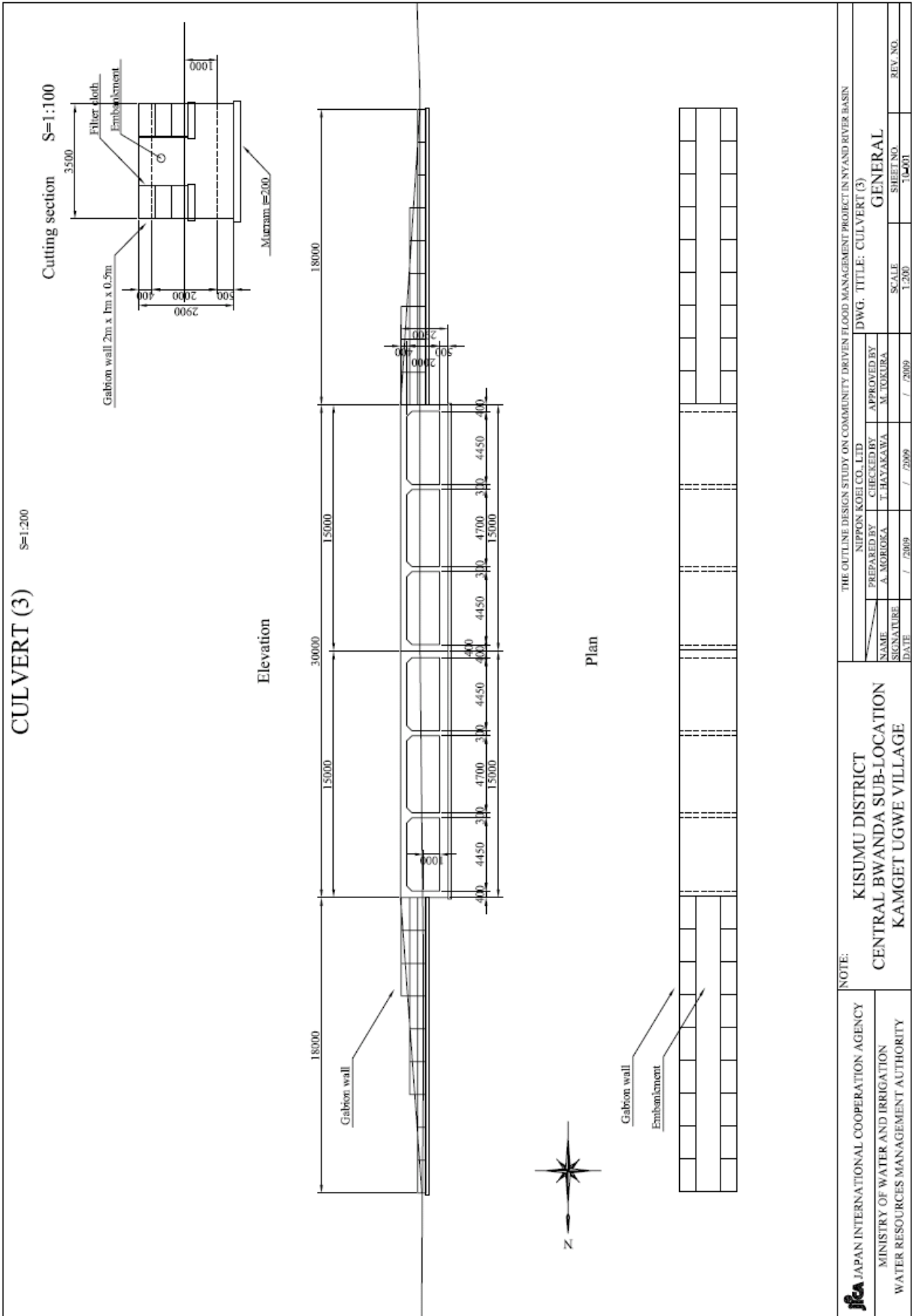


Figure 3.32 Kamget Ugwe: Culvert (3)

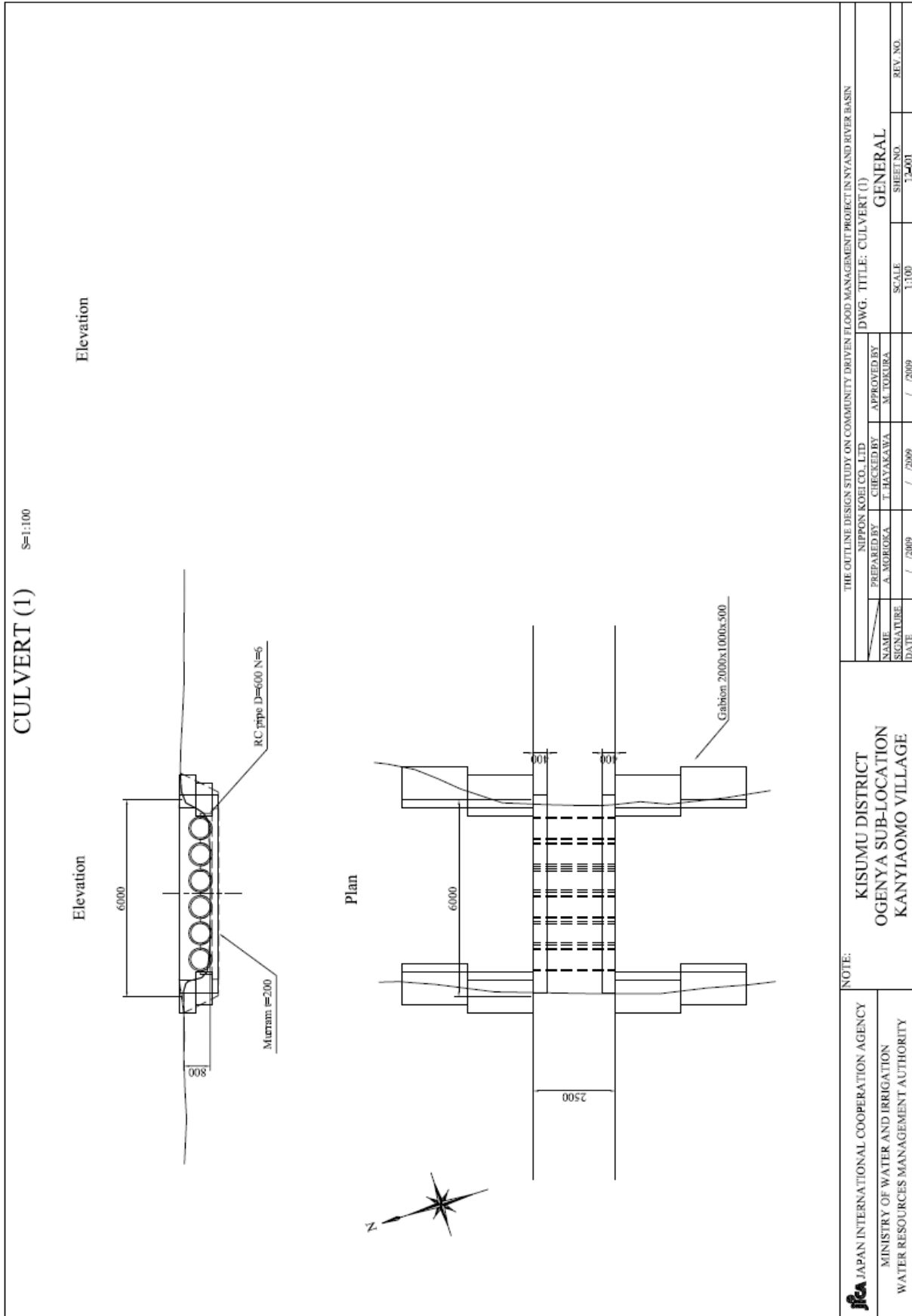


Figure 3.33 Kanyiaomo: Culvert (1)

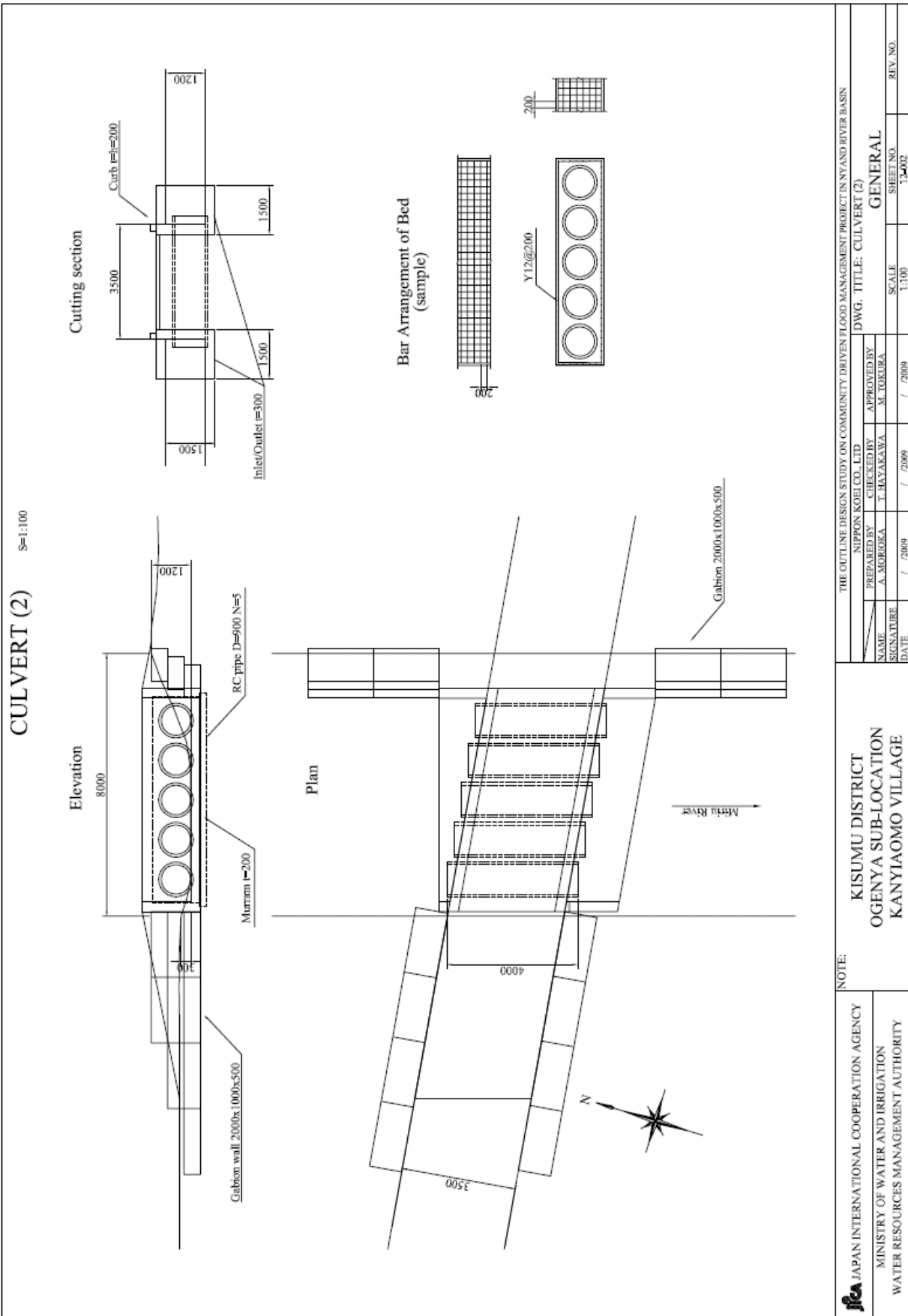


Figure 3.34 Kanyiaomo: Culvert (2)

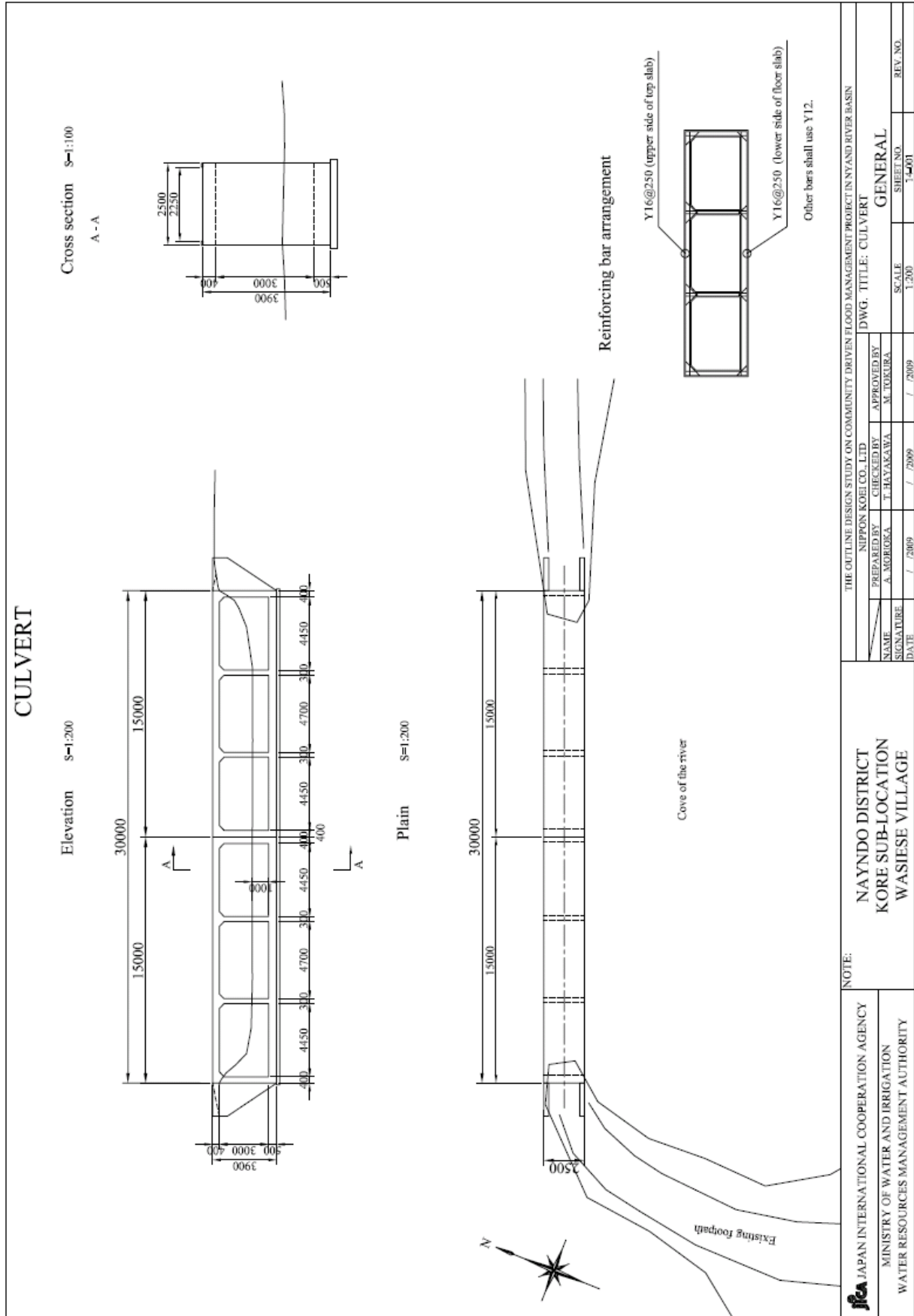
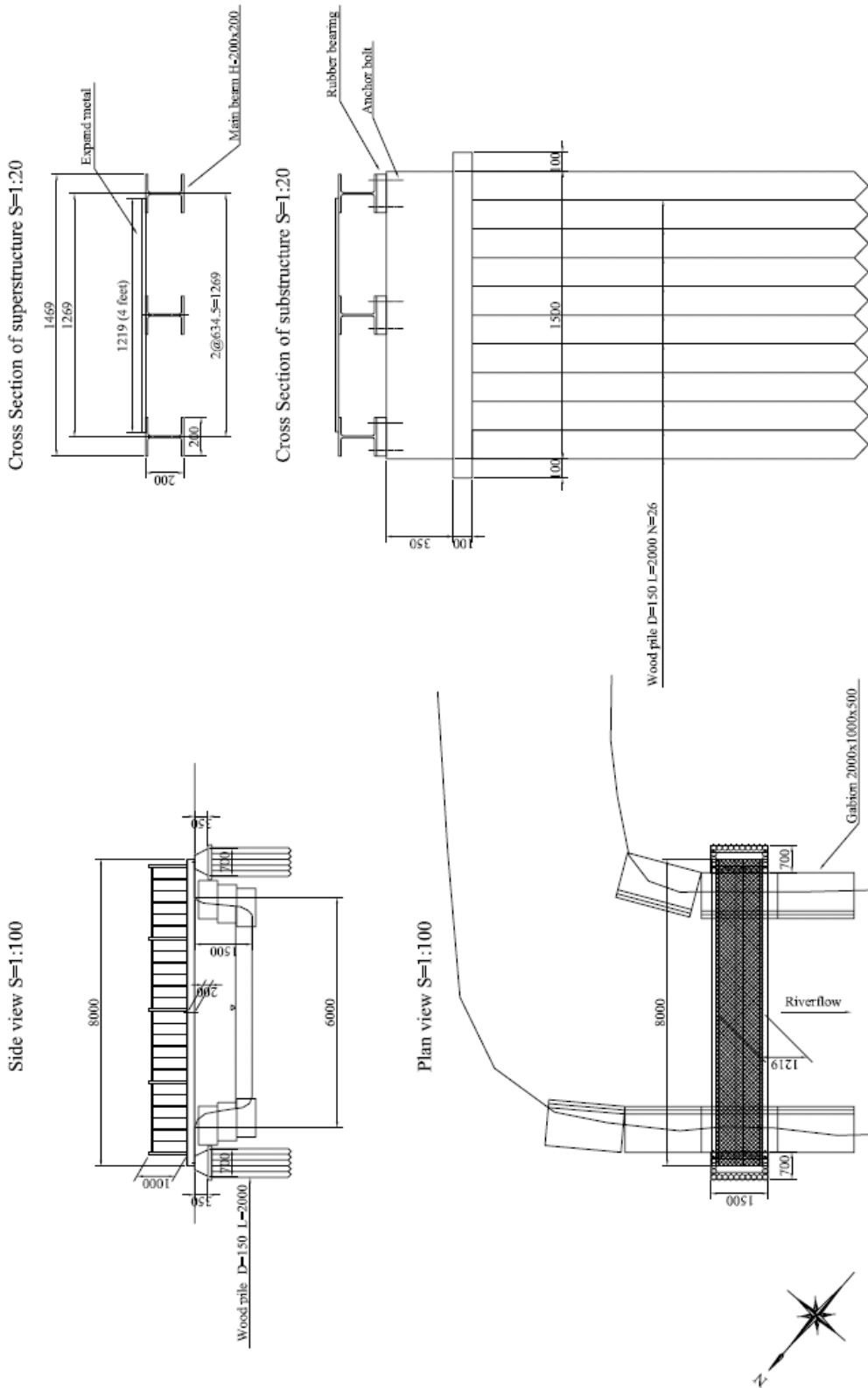


Figure 3.35 Wasiese: Culvert

FOOTBRIDGE



<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p> <p style="text-align: center;">NIPPON KOEI CO. LTD.</p>		<p>DWG. TITLE: FOOTBRIDGE</p>	
<p>PREPARED BY A. MGRUSKA</p>	<p>CHECKED BY T. HAYAKAWA</p>	<p>APPROVED BY M. TOKURA</p>	<p>SCALE 1:100</p>
<p>SIGNATURE DATE</p>	<p>DATE / / 2009</p>	<p>DATE / / 2009</p>	<p>SHEET NO. 1/001</p>
<p>NOTE:</p>		<p>GENERAL</p>	
<p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NAYNDO DISTRICT AHERO IRRIGATION SCHEME SUB-LOCATION KAMAGAGA VILLAGE</p>	

Figure 3.36 Kamagaga: Footbridge

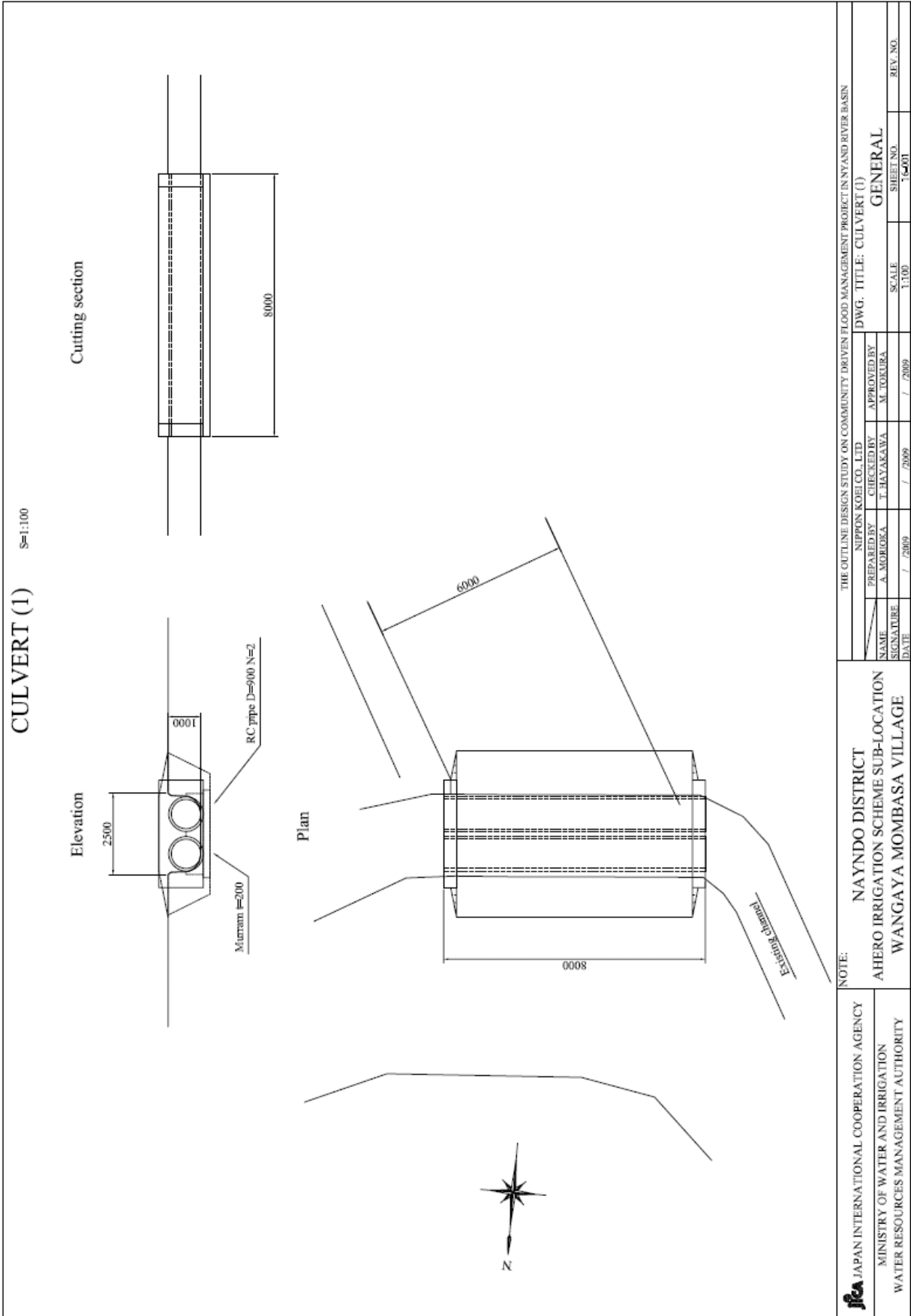


Figure 3.37 Wangaya Mombasa: Culvert (1)

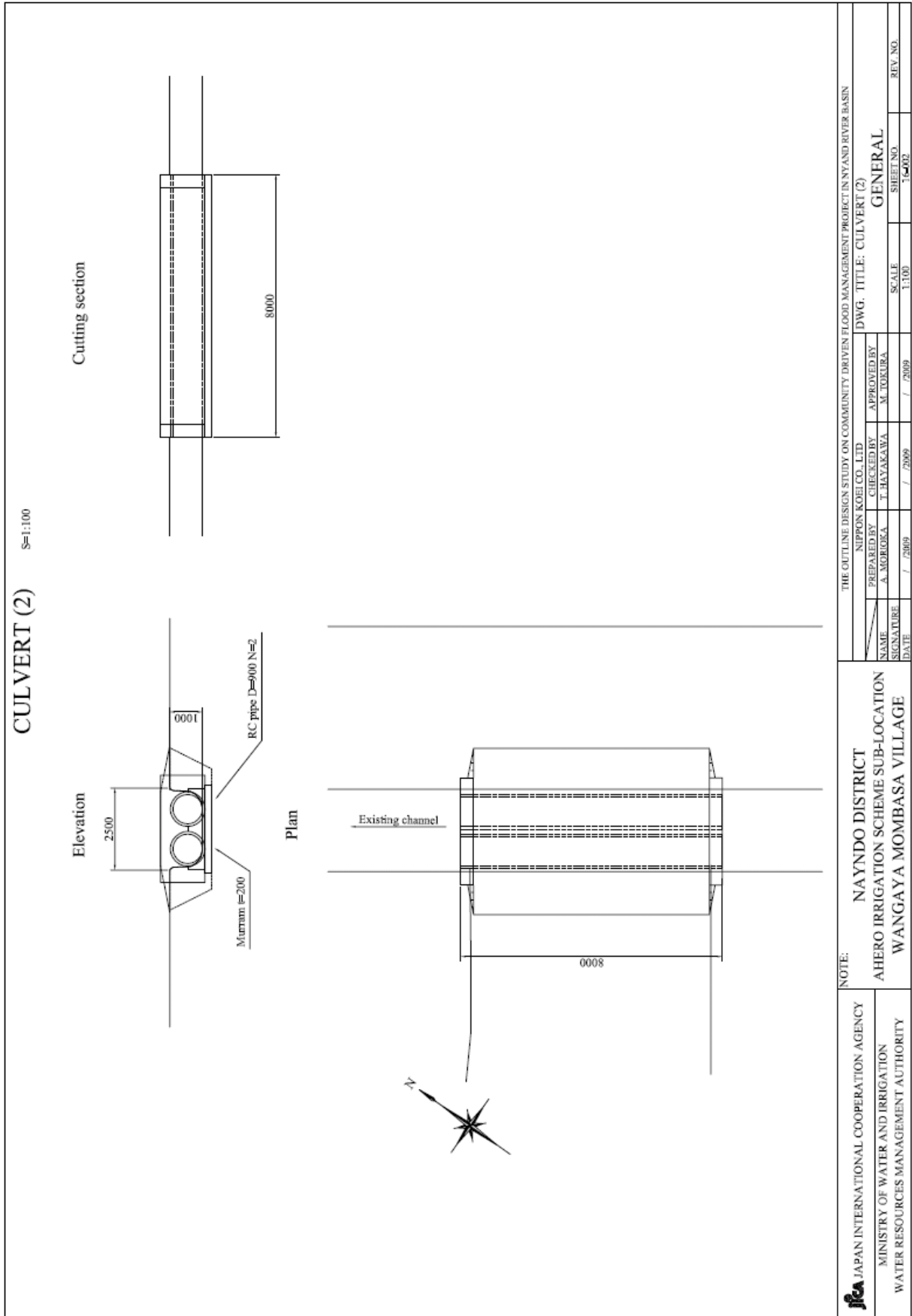


Figure 3.38 Wangaya Mombasa: Culvert (2)

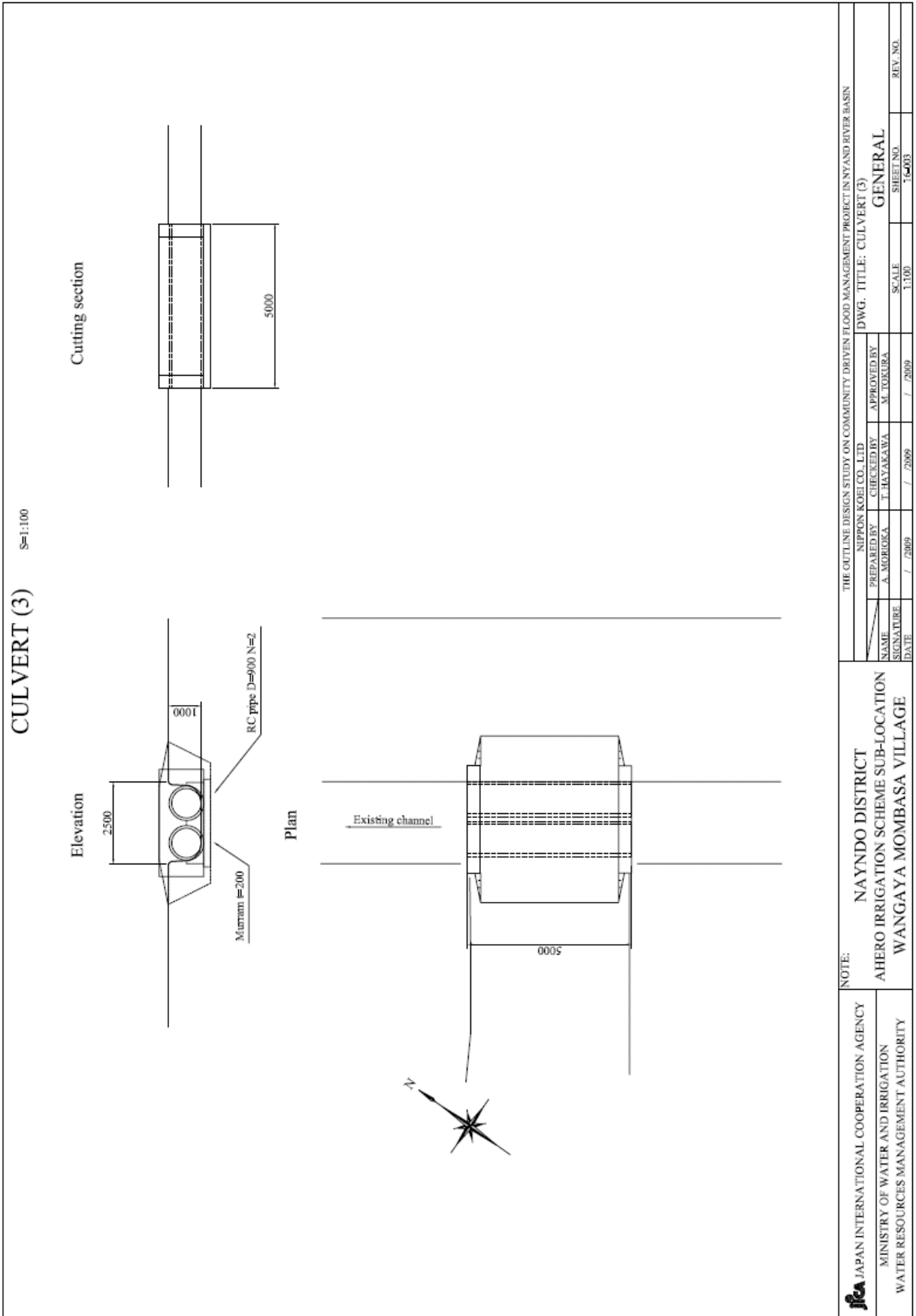


Figure 3.39 Wangaya Mombasa: Culvert (3)

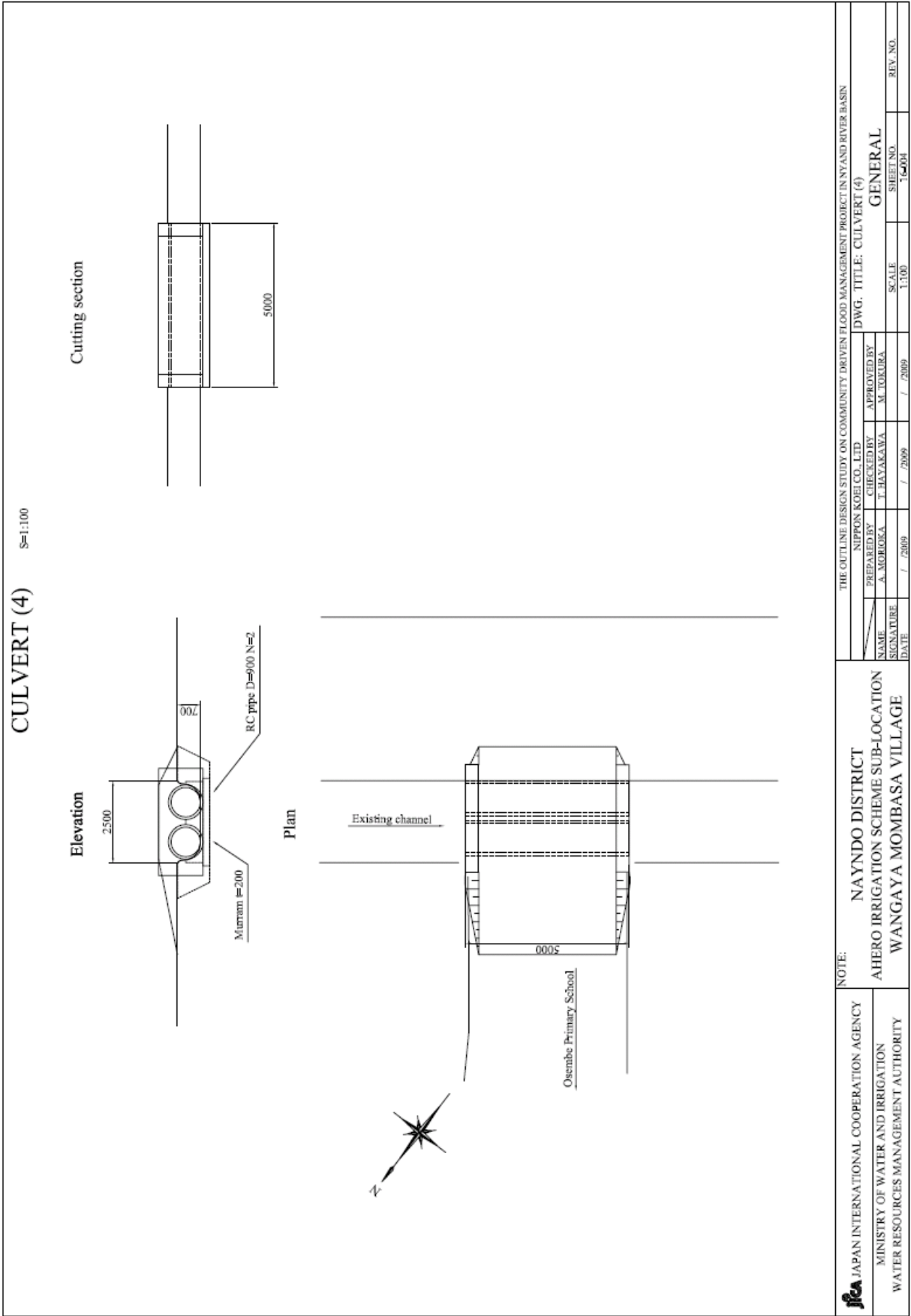
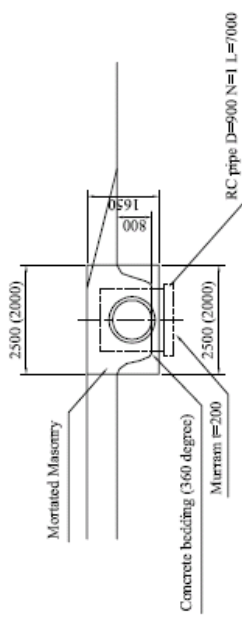


Figure 3.40 Wangaya Mombasa: Culvert (4)

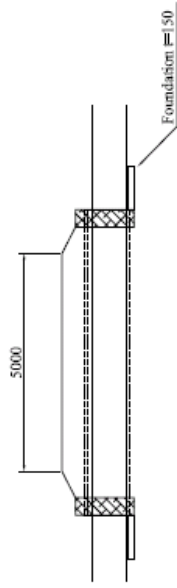
CULVERT

S=1:100

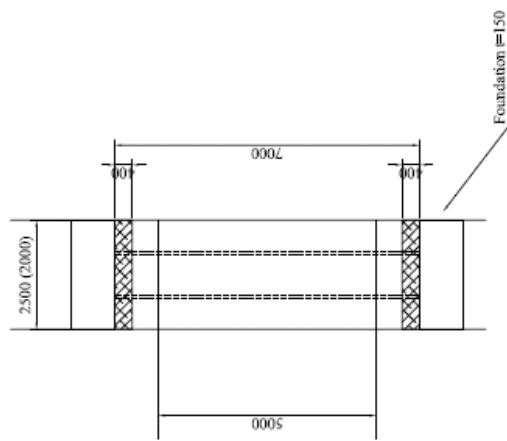
Elevation



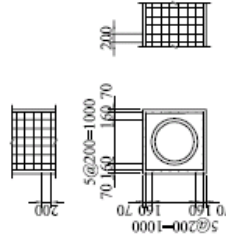
Cutting section



Plan



Bar Arrangement of Bed
(sample)



NOTE:

ifca JAPAN INTERNATIONAL COOPERATION AGENCY
MINISTRY OF WATER AND IRRIGATION
WATER RESOURCES MANAGEMENT AUTHORITY

NAYNDO DISTRICT
OBUMBA SUB-LOCATION
ACHUODHO VILLAGE

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

PREPARED BY A. MURUGA		CHECKED BY T. HAYAKAWA		APPROVED BY M. USUKIWA	
NAME		SIGNATURE		DATE	
DATE		/ /		/ /	
SCALE		1:100		SHEET NO.	
REV. NO.		1:002		GENERAL	
DWG. TITLE: CULVERT					

Figure 3.41 Achuodho: Culvert (1)

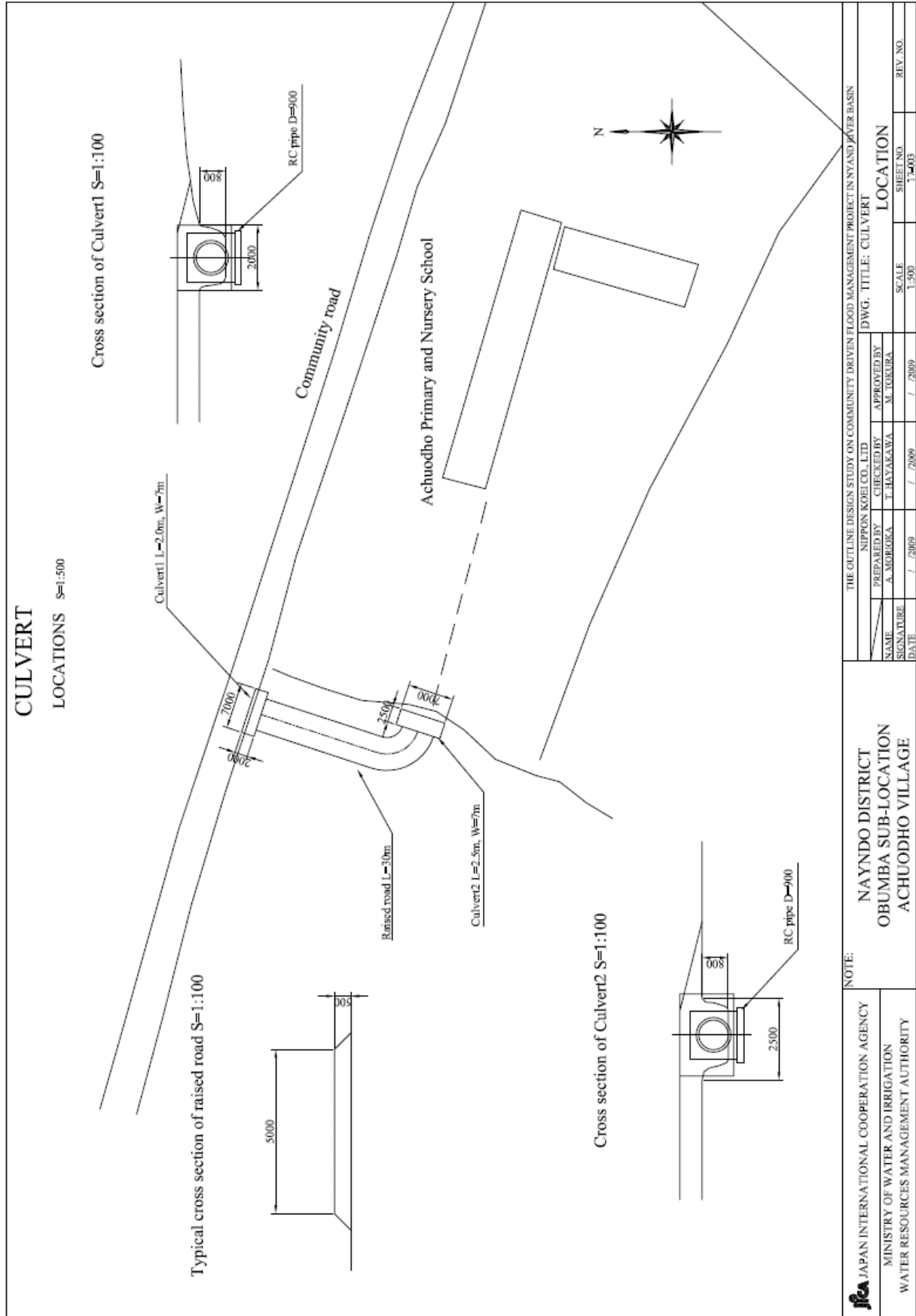
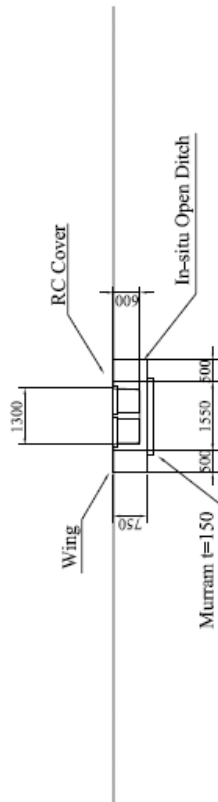


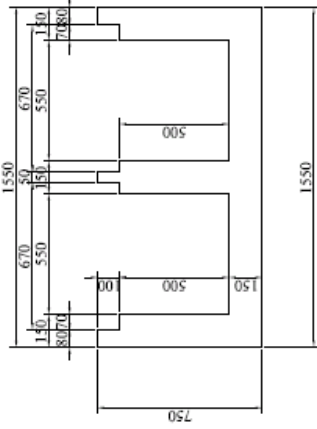
Figure 3.42 Achuodho: Culvert (2)

CULVERT

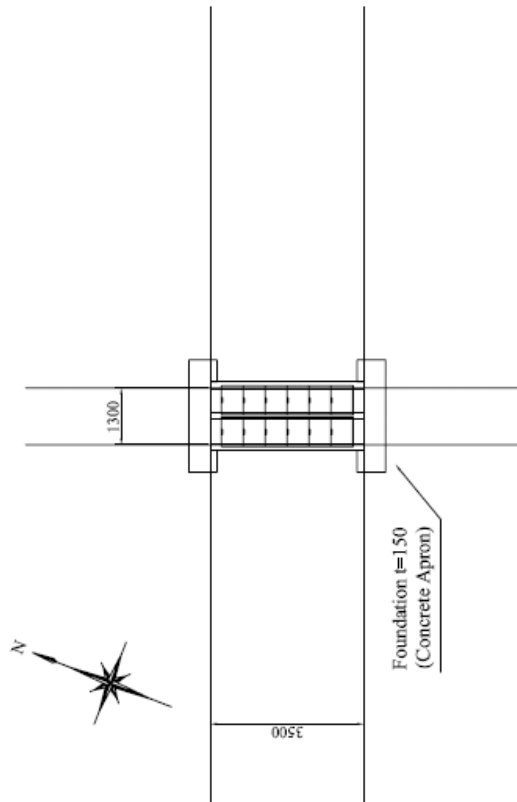
Elevation S=1:100



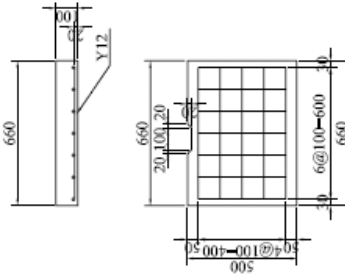
Details of Open Ditch S=1:20



Plan S=1:100



Details and Bar Arrangement of Cover S=1:20



NOTE:

ifca JAPAN INTERNATIONAL COOPERATION AGENCY
 MINISTRY OF WATER AND IRRIGATION
 WATER RESOURCES MANAGEMENT AUTHORITY

NAYNDO DISTRICT
 KANGO SUB-LOCATION
 WAKESI VILLAGE

THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

PREPARED BY		CHECKED BY		APPROVED BY	
A. MORIOKA		T. HAYAKAWA		M. TOKURA	
SIGNATURE		SCALE		SHEET NO.	
DATE		1:100		14/01	
		REV. NO.			

DWG. TITLE: CULVERT
 GENERAL

Figure 3.43 Wakesi: Culvert

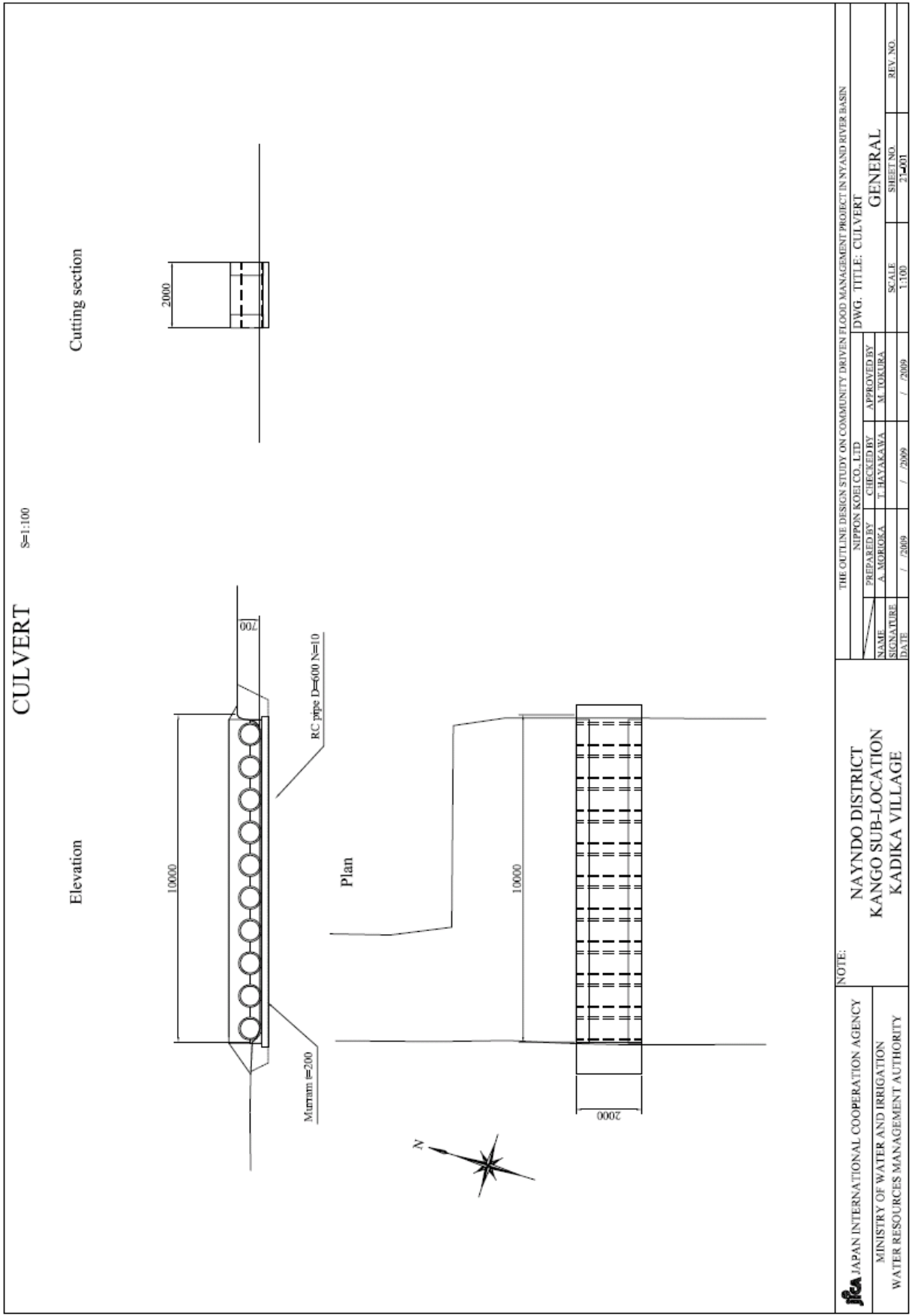
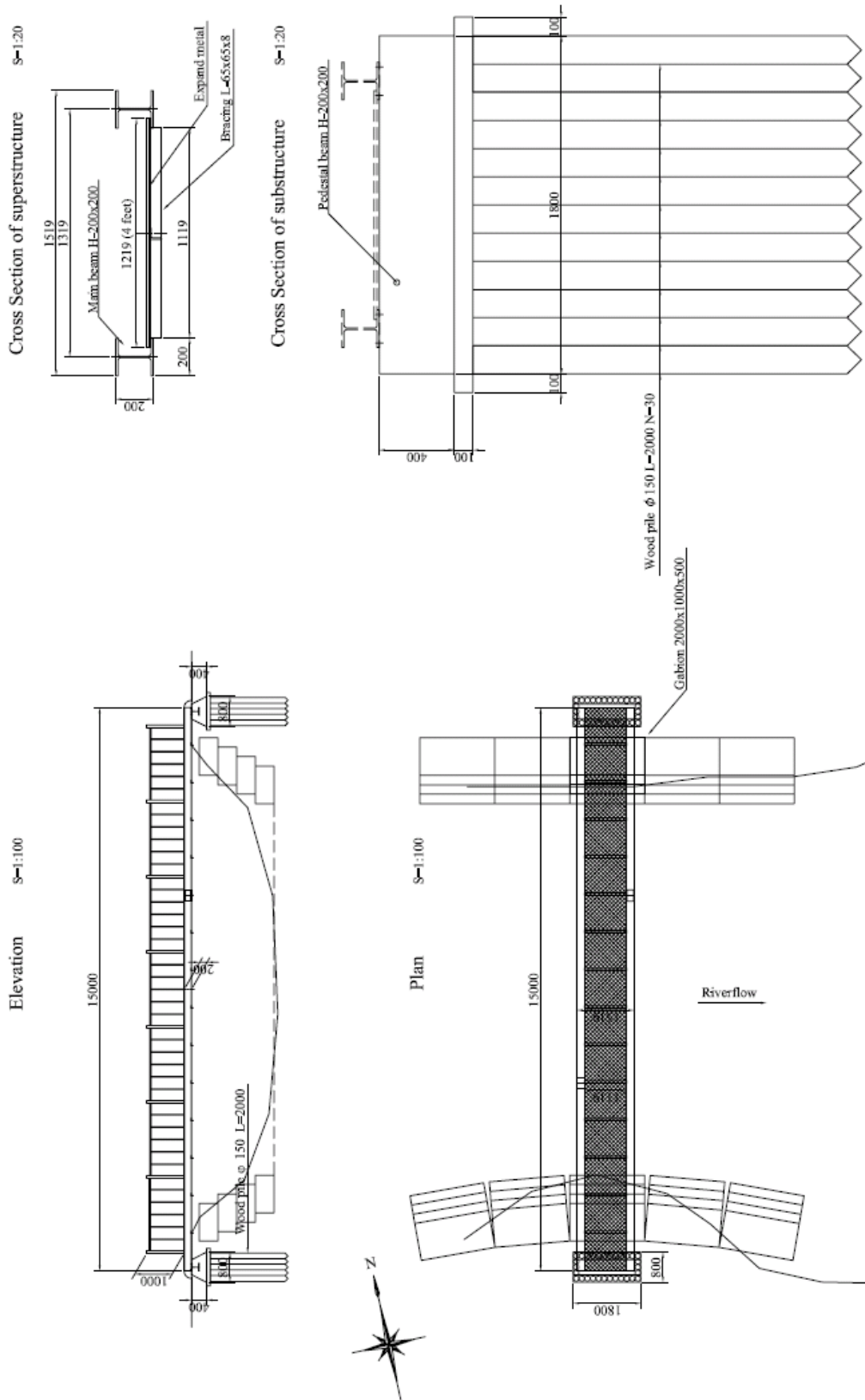


Figure 3.44 Kadika: Culvert

FOOTBRIDGE

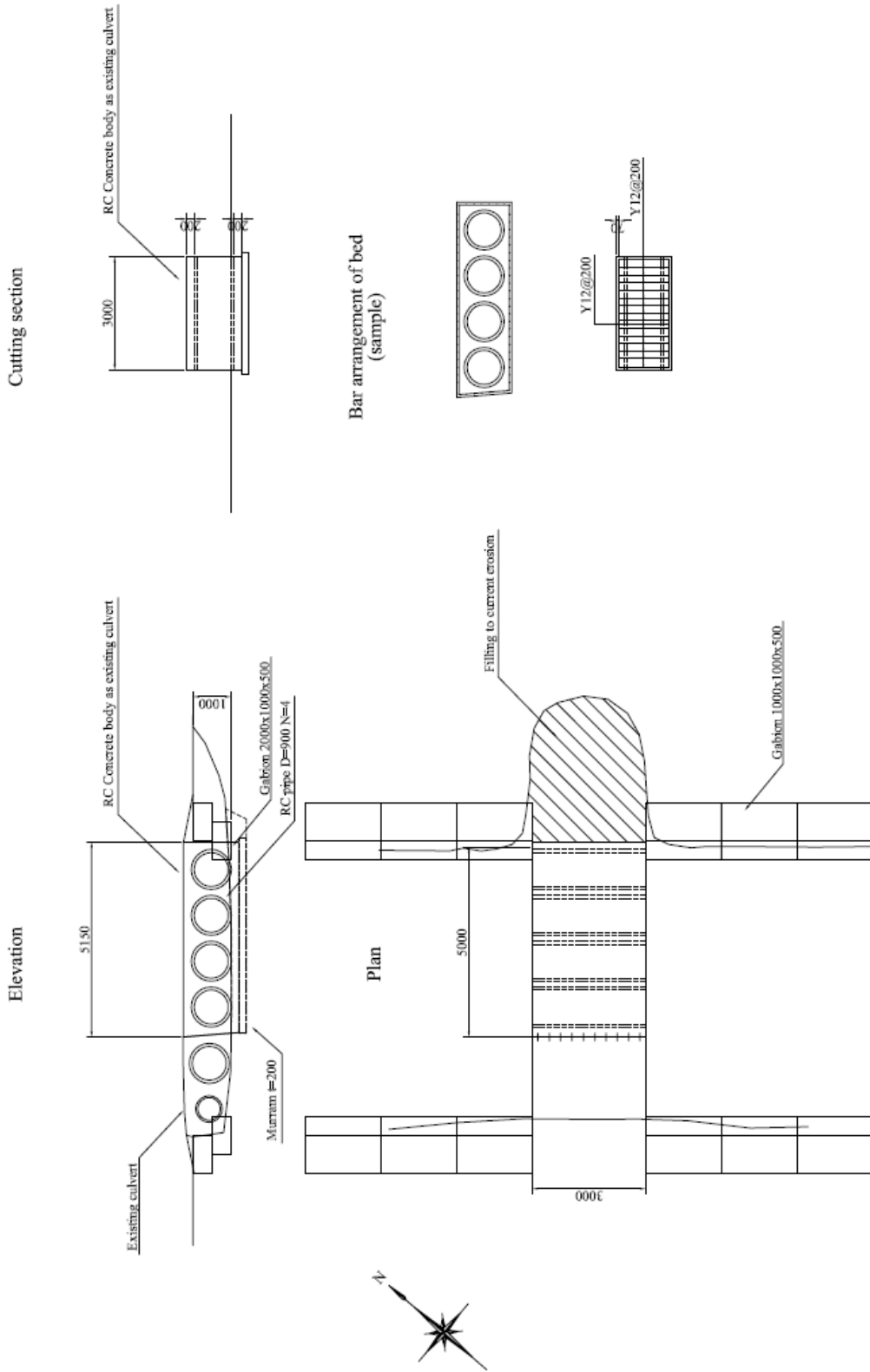


<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p> <p>NIPPON KOBEL CO. LTD</p> <p>PREPARED BY A. MORIGAKI / 2009 / 2009 / 2009</p> <p>CHECKED BY T. HAYAKAWA / 2009 / 2009 / 2009</p> <p>APPROVED BY M. TOKURA / 2009 / 2009 / 2009</p>		<p>DWG. TITLE: FOOTBRIDGE</p> <p>GENERAL</p> <p>SCALE 1:100</p> <p>SHEET NO. 2-402</p> <p>REV. NO.</p>	
<p>NOTE:</p> <p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY</p> <p>MINISTRY OF WATER AND IRRIGATION</p> <p>WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NAYNDO DISTRICT</p> <p>KANGO SUB-LOCATION</p> <p>KADIKA VILLAGE</p>	

Figure 3.45 Kadika: Footbridge

CULVERT (1)

S=1:100



NOTE:

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 MINISTRY OF WATER AND IRRIGATION
 WATER RESOURCES MANAGEMENT AUTHORITY

NAYNDO DISTRICT
 AYWEYO SUB-LOCATION
 NYACHODA VILLAGE

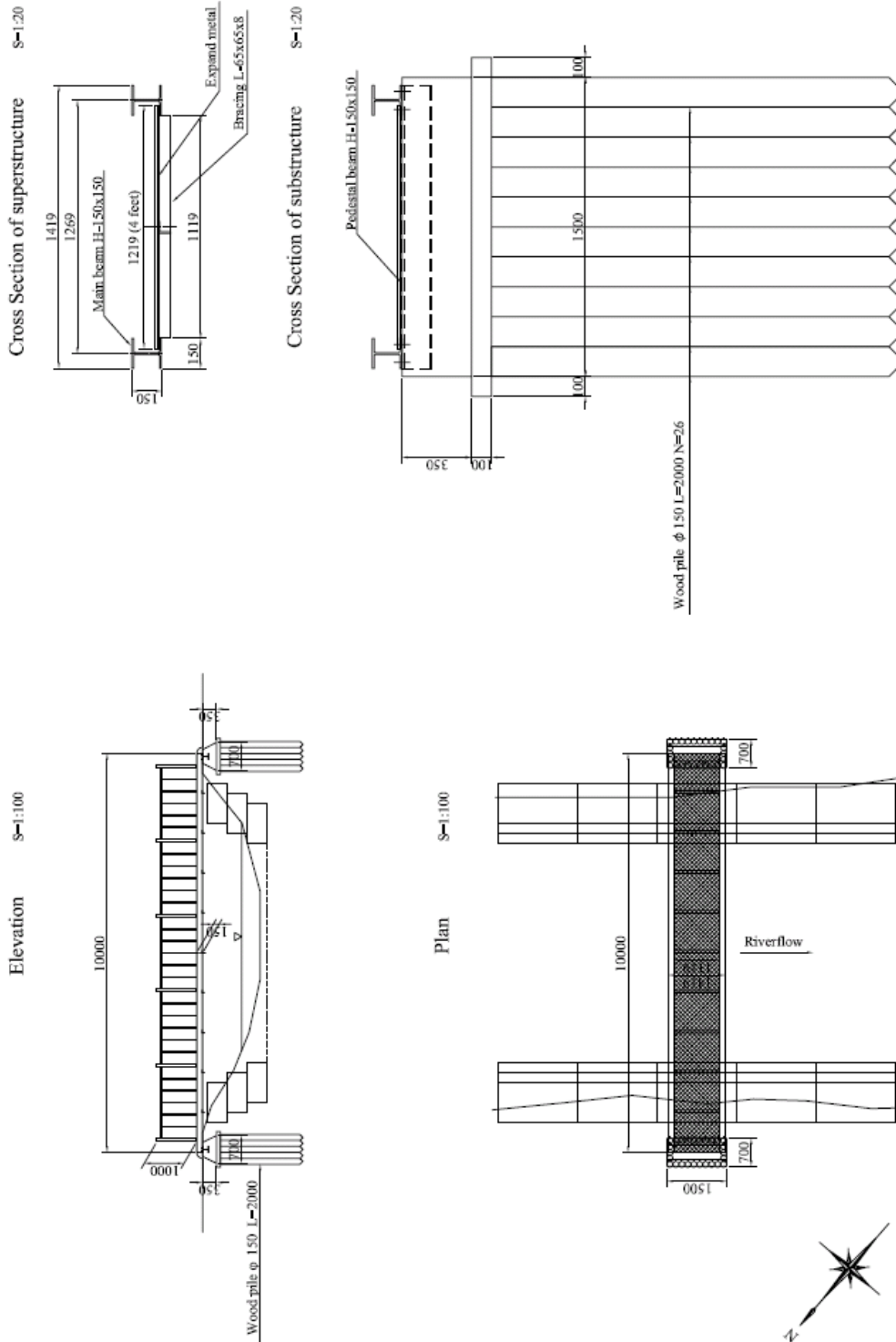
THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN

NIPPON KOEI CO., LTD		DWG. TITLE: CULVERT (1)	
PREPARED BY	CHECKED BY	APPROVED BY	
A. MORIOKA	T. HAYAKAWA	M. TOKURA	
SIGNATURE	DATE	SCALE	SHEET NO.
	/ 2009 / 2009	1:100	24/01
			REV. NO.

GENERAL

Figure 3.46 Nyachoda: Culvert (1)

FOOTBRIDGE



<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAYO RIVER BASIN</p> <p style="text-align: center;">NIPPON KOGI CO. LTD.</p>		<p>DWG. TITLE: FOOTBRIDGE</p>	
<p>PREPARED BY</p> <p>A. MORIOKA</p>	<p>CHECKED BY</p> <p>T. HAYAKAWA</p>	<p>APPROVED BY</p> <p>M. TOKURA</p>	<p>GENERAL</p>
<p>SIGNATURE</p>	<p>DATE</p>	<p>SCALE</p> <p>1:100</p>	<p>SHEET NO.</p> <p>23/03</p>
<p>NOTE:</p> <p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY</p> <p>MINISTRY OF WATER AND IRRIGATION</p> <p>WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NAYNDO DISTRICT</p> <p>AYWEYO SUB-LOCATION</p> <p>NYACHODA VILLAGE</p>	

Figure 3.47 Nyachoda: Culvert (2)

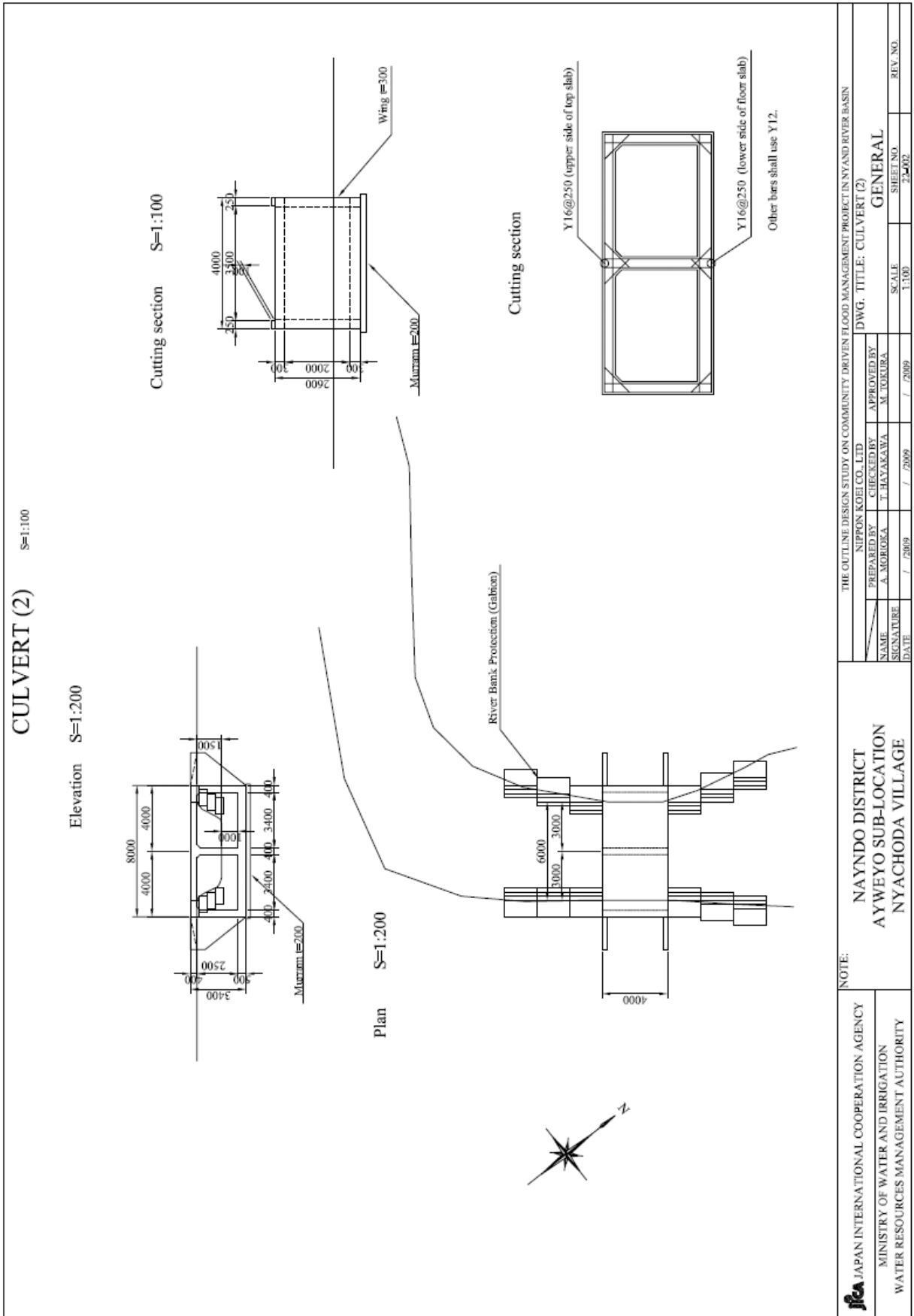
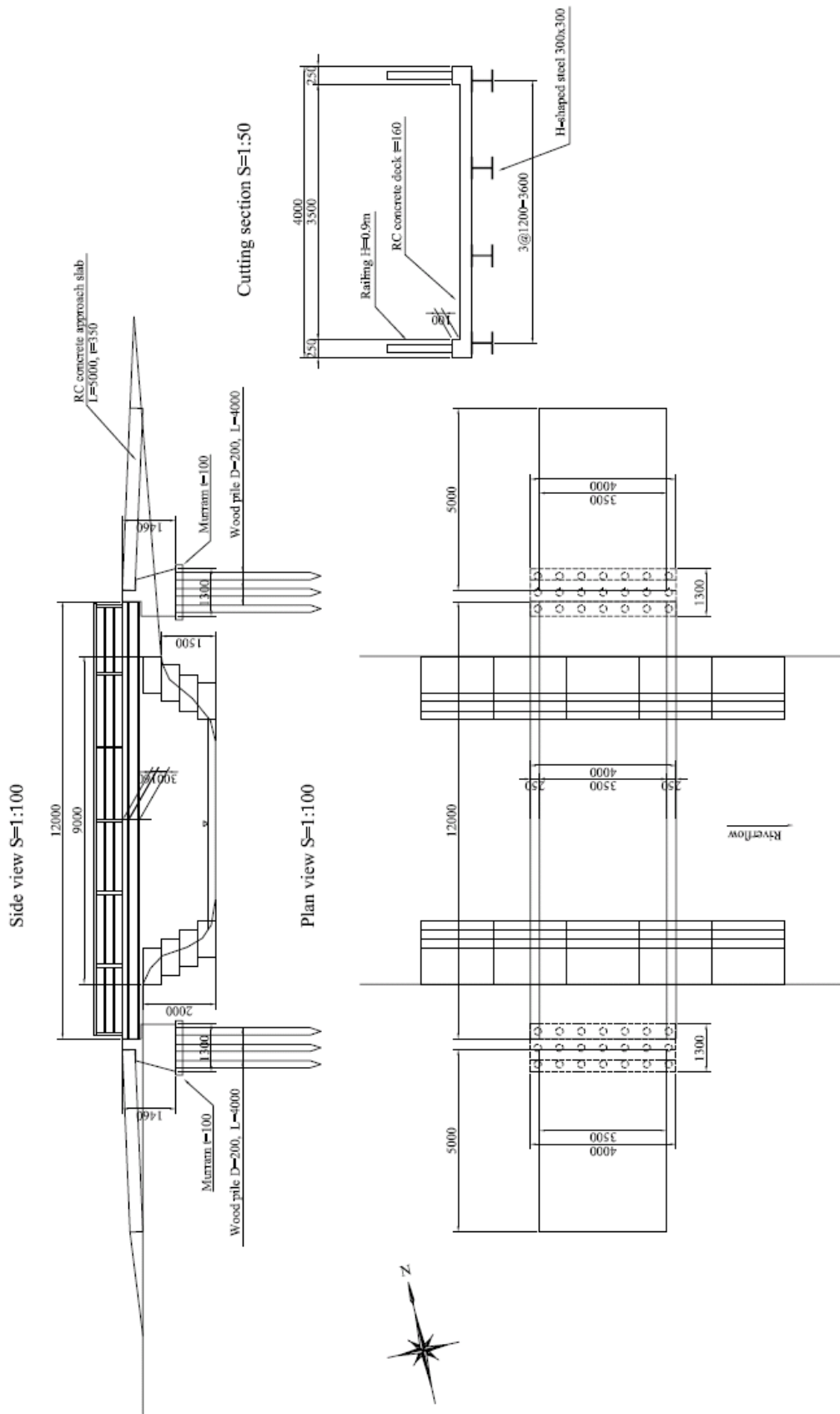


Figure 3.48 Nyachoda:: Footbridge

FOOTBRIDGE (1) S=1:100



<p>NOTE:</p> <p>JICA JAPAN INTERNATIONAL COOPERATION AGENCY MINISTRY OF WATER AND IRRIGATION WATER RESOURCES MANAGEMENT AUTHORITY</p>		<p>NAYNDO DISTRICT NYAKONGO SUB-LOCATION KOJUNGA VILLAGE</p>		<p>THE OUTLINE DESIGN STUDY ON COMMUNITY DRIVEN FLOOD MANAGEMENT PROJECT IN NYAND RIVER BASIN</p> <p>NIPPON KOGI CO., LTD.</p>		<p>DWG. TITLE: FOOTBRIDGE (1) GENERAL</p>	
NAME	A. MORIYAMA	CHECKED BY	T. HAYAKAWA	APPROVED BY	M. TOKURA	SCALE	1:100
SIGNATURE		DATE	/ 2009		/ 2009	SHEET NO.	2/401
						REV. NO.	

Figure 3.49 Kojunga: Footbridge (1)

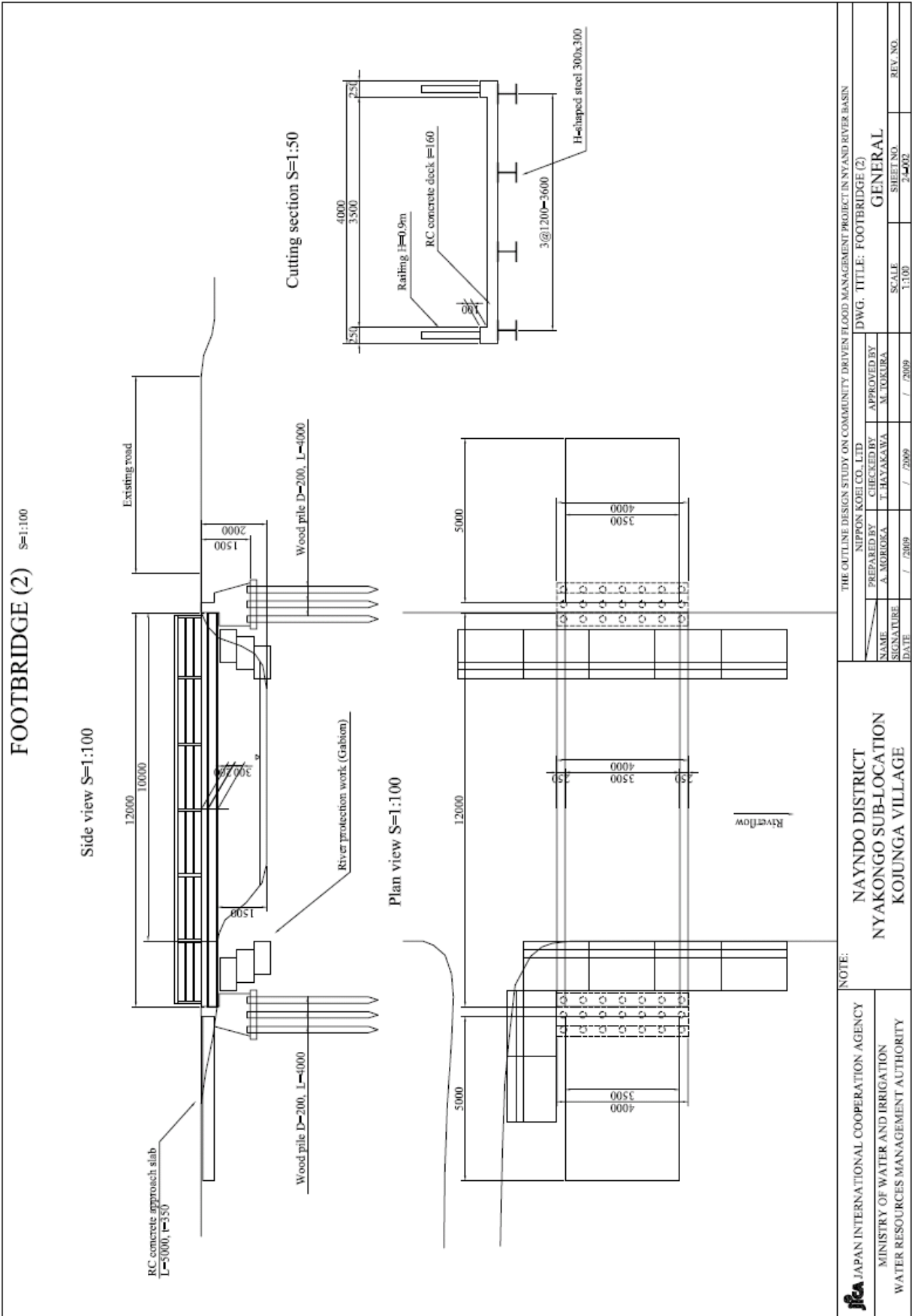


Figure 3.50 Kojunga: Footbridge (2)

AN.4 PROJECT DESIGN MATRIX FOR NON-STRUCTURAL MEASURES

The Project Design Matrix for Non-structural measures is formulated as shown in the next page.

Project Design Matrix for Non-Structural Measures

Project Name : The Programme for Community-Based Flood Disaster Management to Adapt to Climate Change in the Nyando River Basin in the Republic of Kenya

Target Area : 24 Villages in Kisumu District and Nyando District of Nyanza Province in Kenya
(12 Villages in Kisumu District: Rae Kanyaika, Mowlem, Bwanda, Otera, Kamuga, Oyola, Kanyango, Komwaga, Kowiti, Kamget Ugwe, Kopudo, and Kanyiaomo)
(12 Villages in Nyando District: Kolal, Wasiese, Kamagaga, Wangaya Mombasa, Achuodho, Wakesi, Kojiem, Kanyilum, Kadika, Nyachoda, Masune, and Kojunga)

Duration : 23 months after the signing of Exchange of Notes

Target Group : Community Based Flood Management Organizations of 24 villages

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OVERALL GOAL Capacity for the flood management to adapt to the climate change is strengthened in the Nyando River Basin.	1 Number of affected people from flood disasters is reduced. 2 Flood management is replicated throughout the Nyando River Basin.	1 Record of flood damage 2 Questionnaire survey	1 GOK will replicate the experiences of the Project to other villages.
PROJECT PURPOSE Capacity for the flood management is strengthened in 24 villages.	Capacity for the flood management is strengthened by the CFMOs.	1 Questionnaire survey in Lessons Learned Meeting 2 Number of residents registered in CFMOs	
OUTPUTS 1 Community Based Flood Management Organizations are established and strengthened in the Project Area.	1.1 By-laws is formulated for each CFMO. 1.2 Financial plan is formulated for each CFMO.	1.1.1 By-laws of each CFMO 1.1.2 Number of meetings and participants 1.2.1 Financial plan of each CFMO 1.2.2 Manual for writing proposals for fundraising of each CFMO 1.2.3 Number of meetings and participants	1 Unexpected heavy rainfall will not occur, due to the climate change. 2 Security conditions are maintained.
2 CFMO becomes capable to conduct O&M for constructed structural measures.	2 O&M manual is formulated for each CFMO.	2.1 O&M manuals of each CFMO 2.2 Number of lectures, on-site trainings, and participants 2.3 Questionnaire survey	
3 CFMO becomes capable to implement flood disaster management activities.	3.1 Community flood management manual is formulated for each CFMO. 3.2 Evacuation plan is formulated for each CFMO.	3.1 Community flood management manual of each CFMO 3.2 Number of participants in the evacuation drills	
4 Public awareness is widely promoted in the Project Area.	4.1 Education programs for disaster prevention is formulated and carried out in the targeted 16 schools. 4.2 Radio programs about flood management are broadcasted continuously. 4.3 Posters about flood management are prepared and used for the public relation activities.	4.1.1 Number of teaching manuals 4.1.2 Number of textbooks for pupils 4.1.3 Result of assessment for teaching practice 4.1.4 Questionnaire survey of the pupils having received the education programs 4.1.5 Number of pupils 4.2.1 Record of broadcasted long and short radio programs 4.2.2 Questionnaire survey of listeners 4.3 Number of distributed posters	
ACTIVITIES	INPUTS		PRE-CONDITIONS
1.1 Organizing trainings for CFMOs 1.2 Financial trainings for CFMOs 1.3 O&M trainings for CFMOs 2.1 Community Flood management Manual for CFMOs 2.2 Evacuation drills for CFMOs 3.1 Education programs for disaster prevention 3.2 Radio programs about flood management 3.3 Posters about flood management	Japanese Side 1 Procure the experts for supervising the non-structural measures 1.1 Japanese expert (12MM) 1.2 Local expert (2 persons and 42MM in total) 2 Procure the local NGOs to implement the non-structural measures 3 Provide equipment 3.1 O&M equipment 3.2 3 kinds of signboards to show hazard map, evacuation route, and evacuation place 3.3 Equipment for evacuation drill	Kenyan Side Assign a full-time counterpart of the Project	1 GOK policy on disaster management will continue to be highlighted. 2 GOK will support the CFMOs through WRUAs.