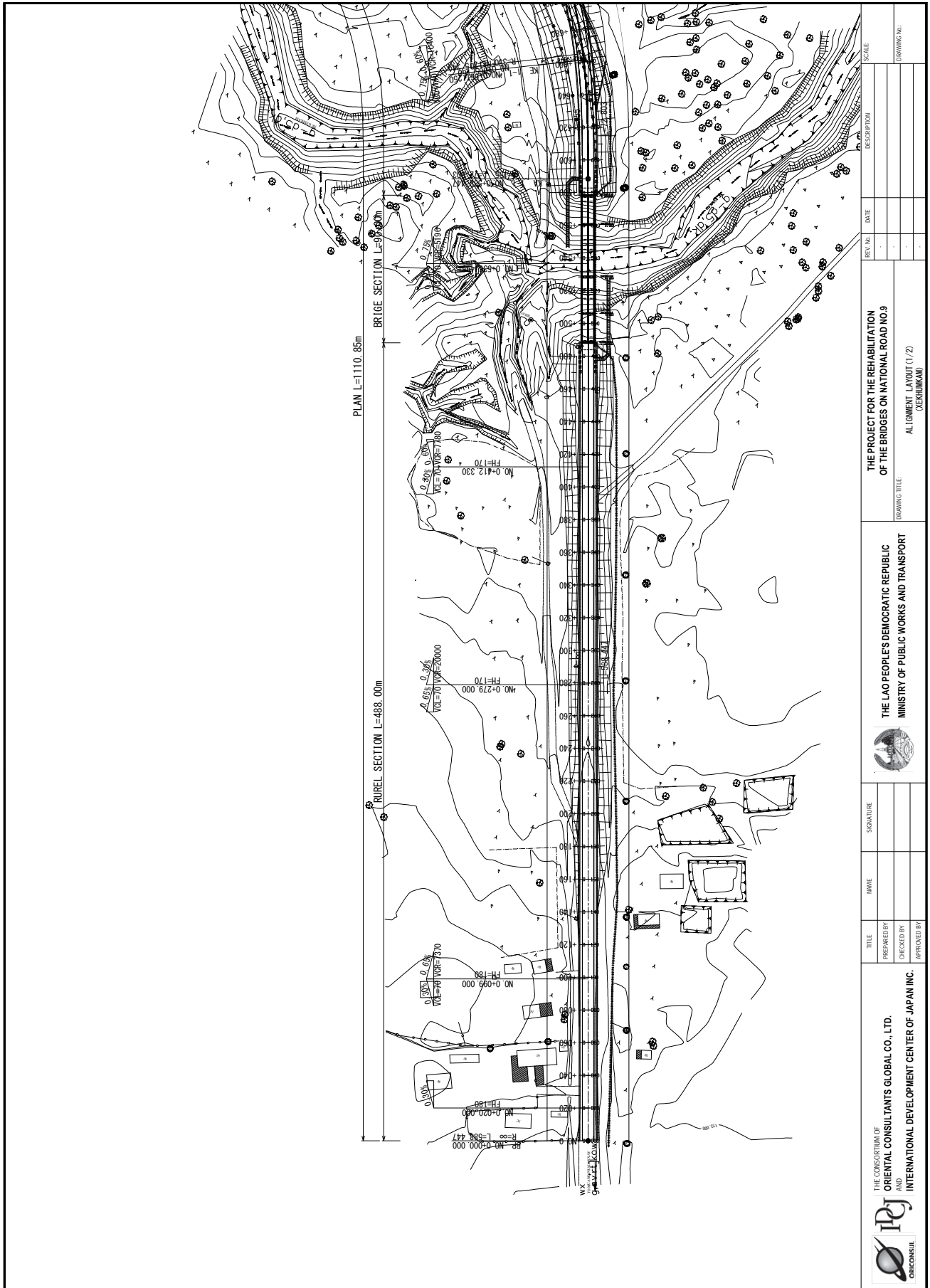
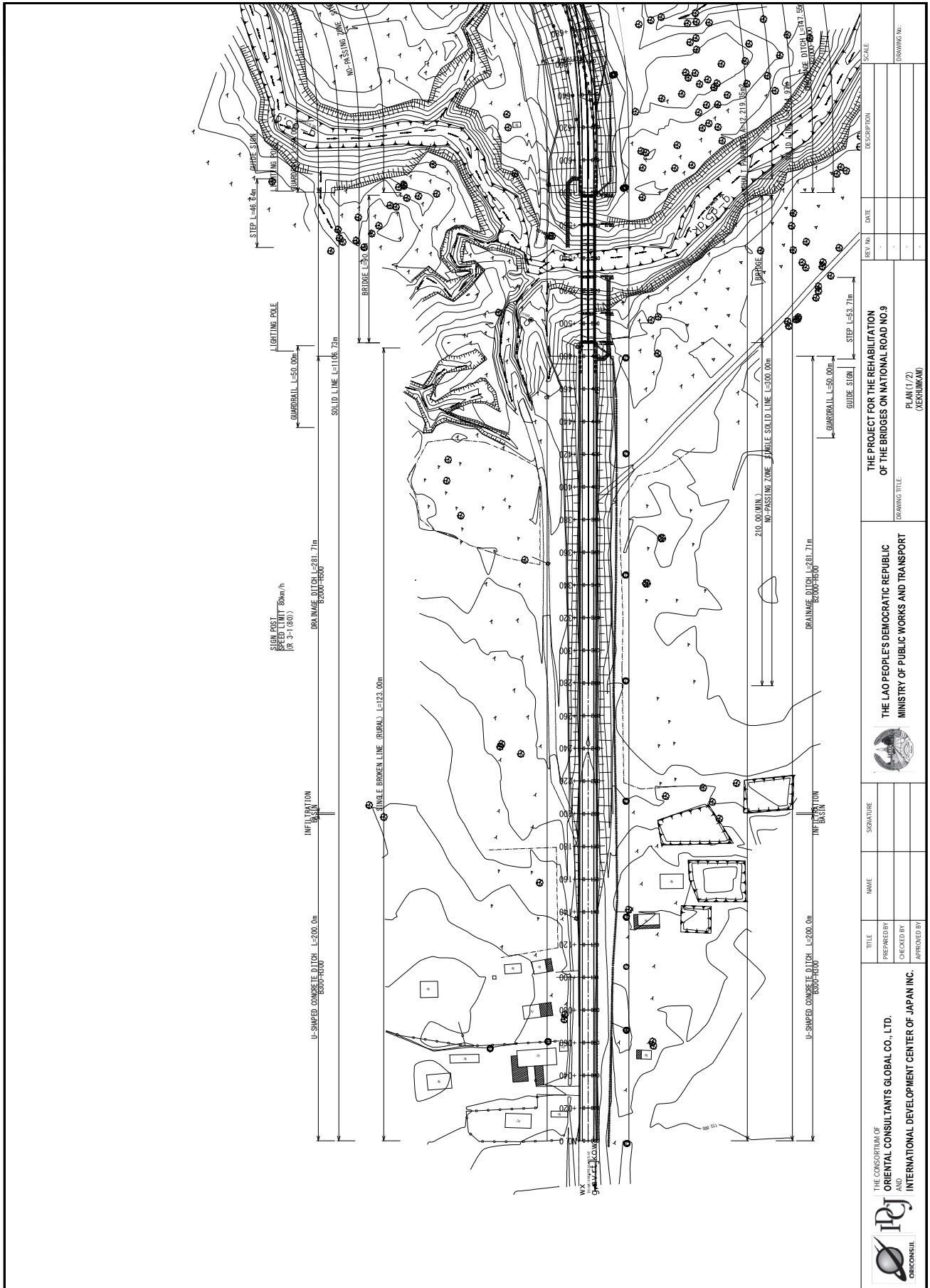


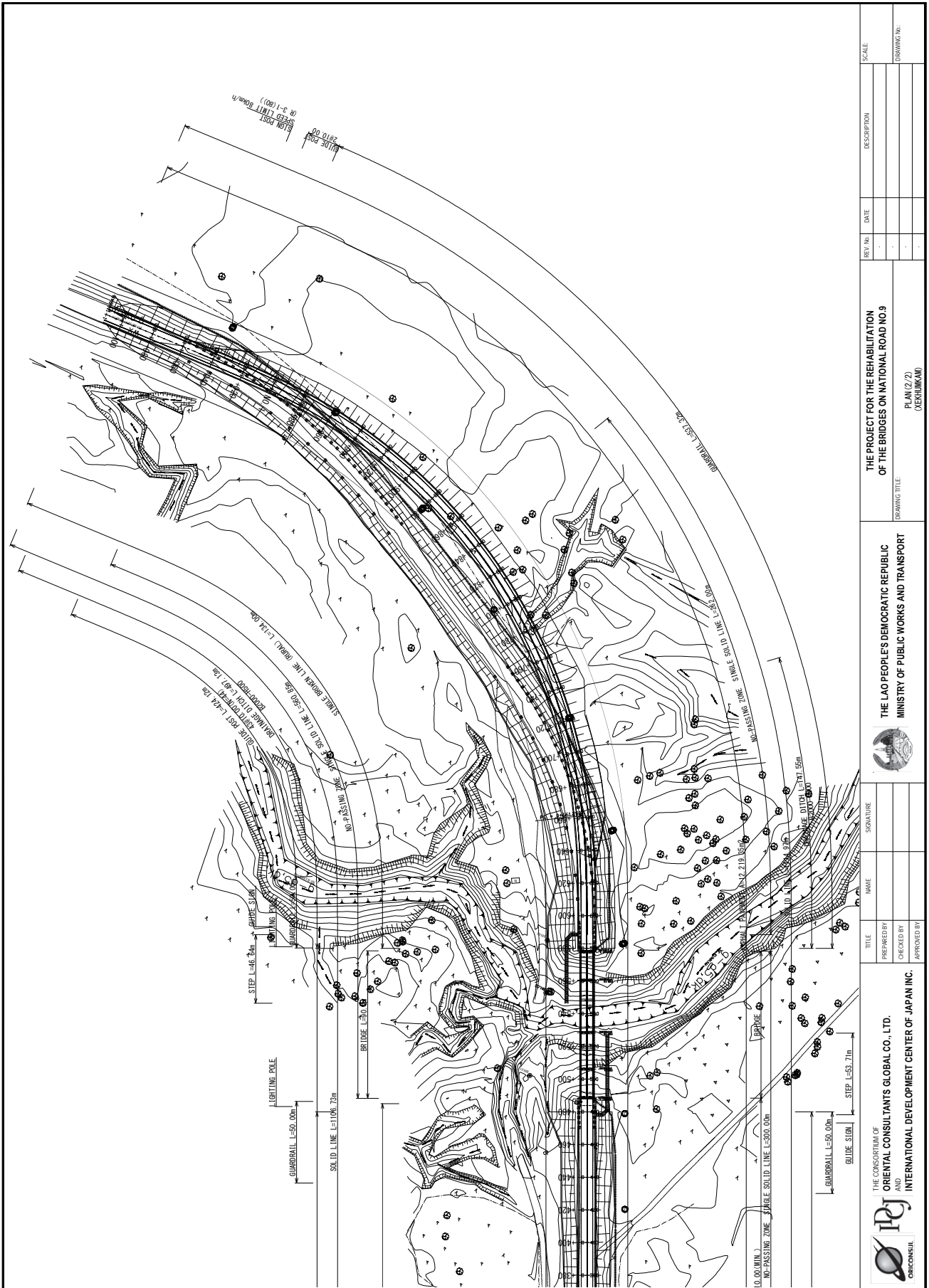
## 5. 概略設計図

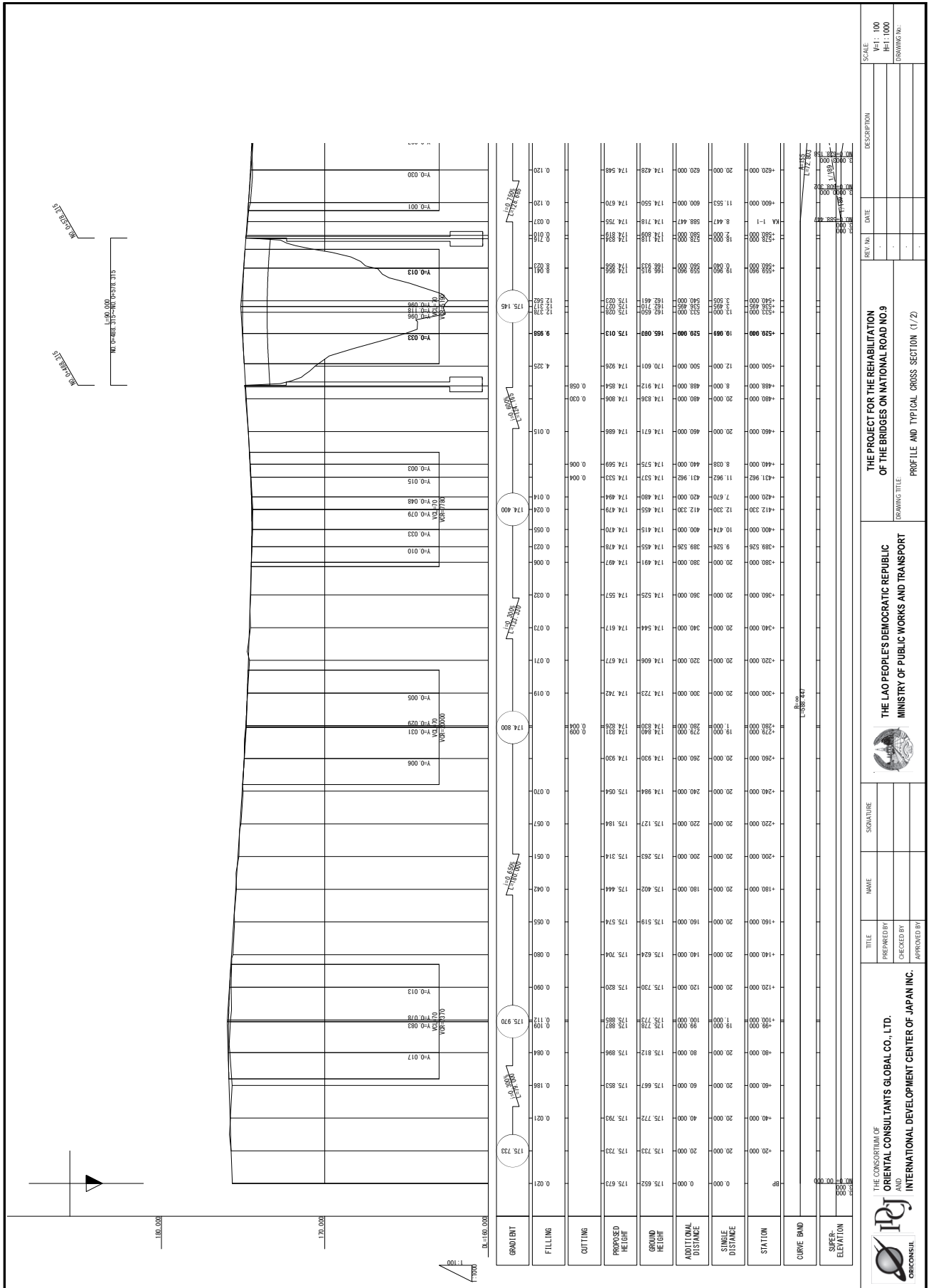


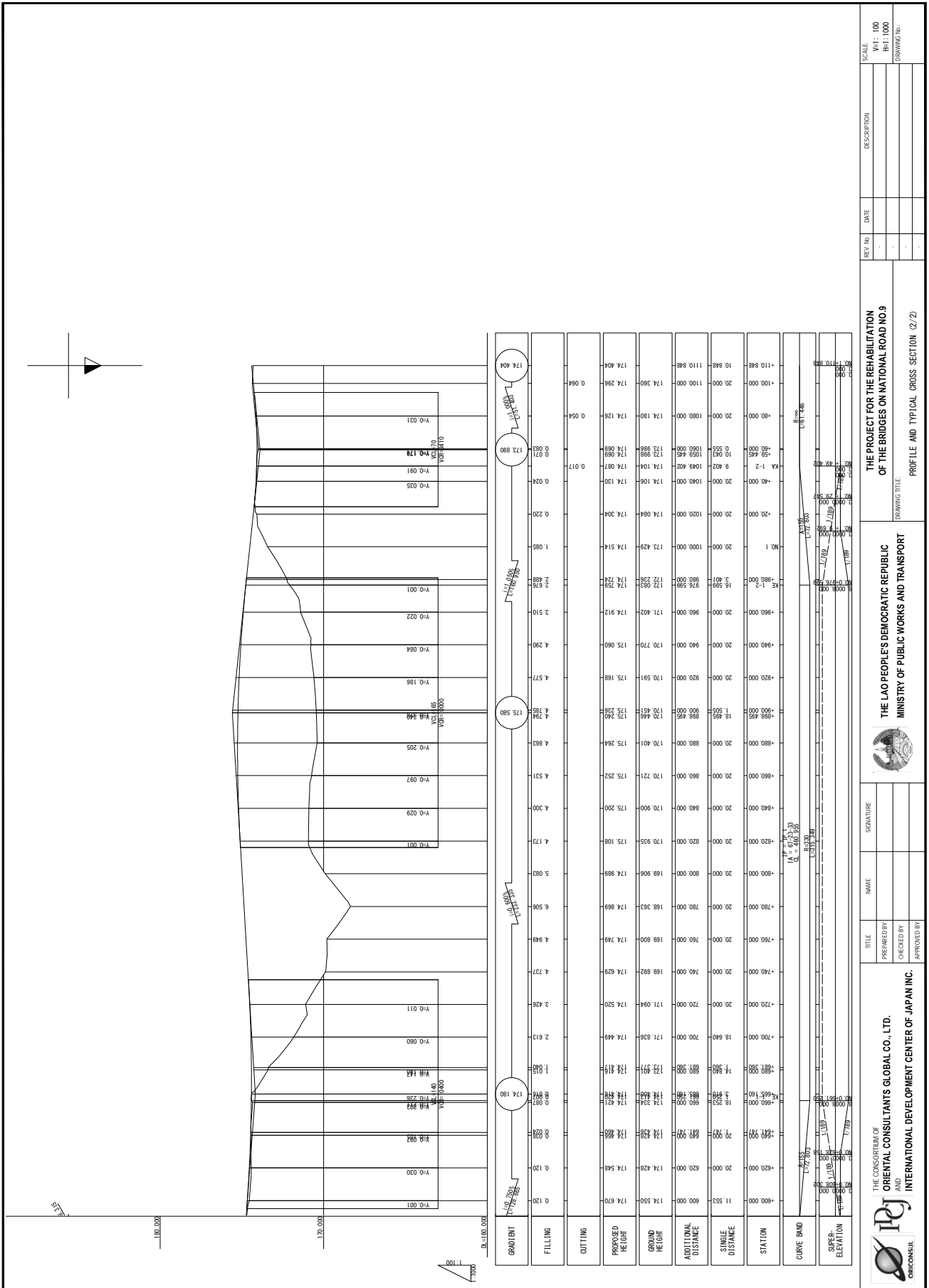












THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

THE CONSORTIUM OF  
ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.

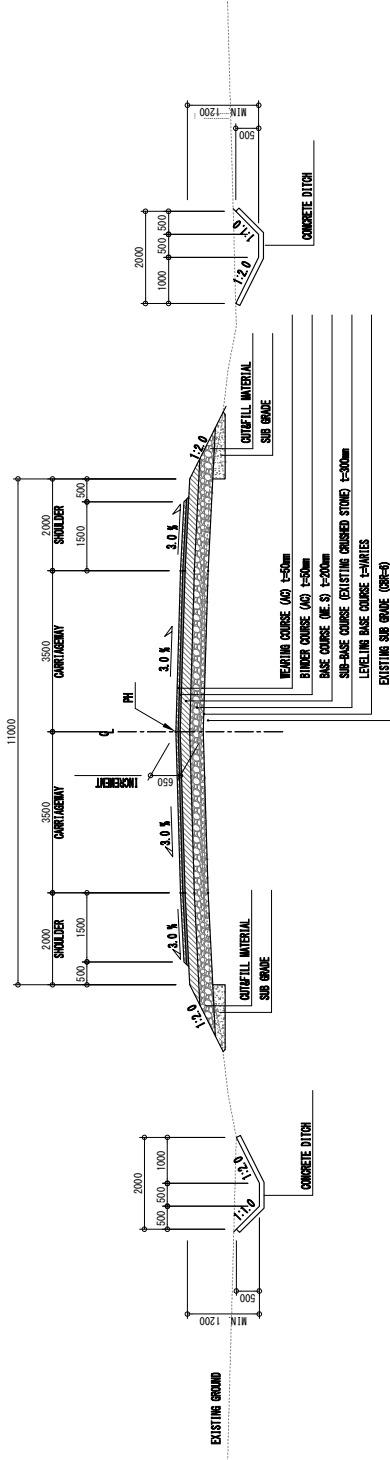
SCALE: V=1:100 H=1:1000  
DRAWING NO.:

REV. No. DATE DESCRIPTION

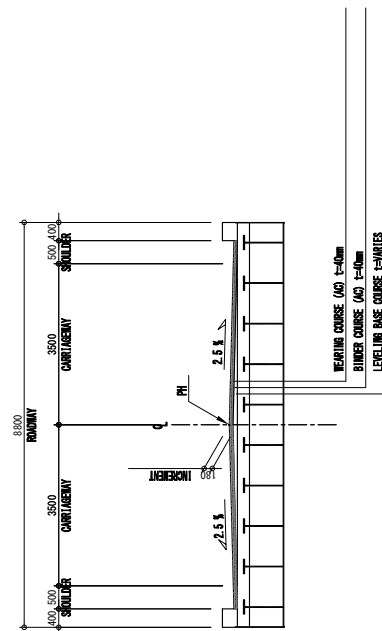
TITLE: PROFILE AND TYPICAL CROSS SECTION (2/2)

PREPARED BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_ APPROVED BY: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ NAME: \_\_\_\_\_





PIREL SECTION (RR-80)

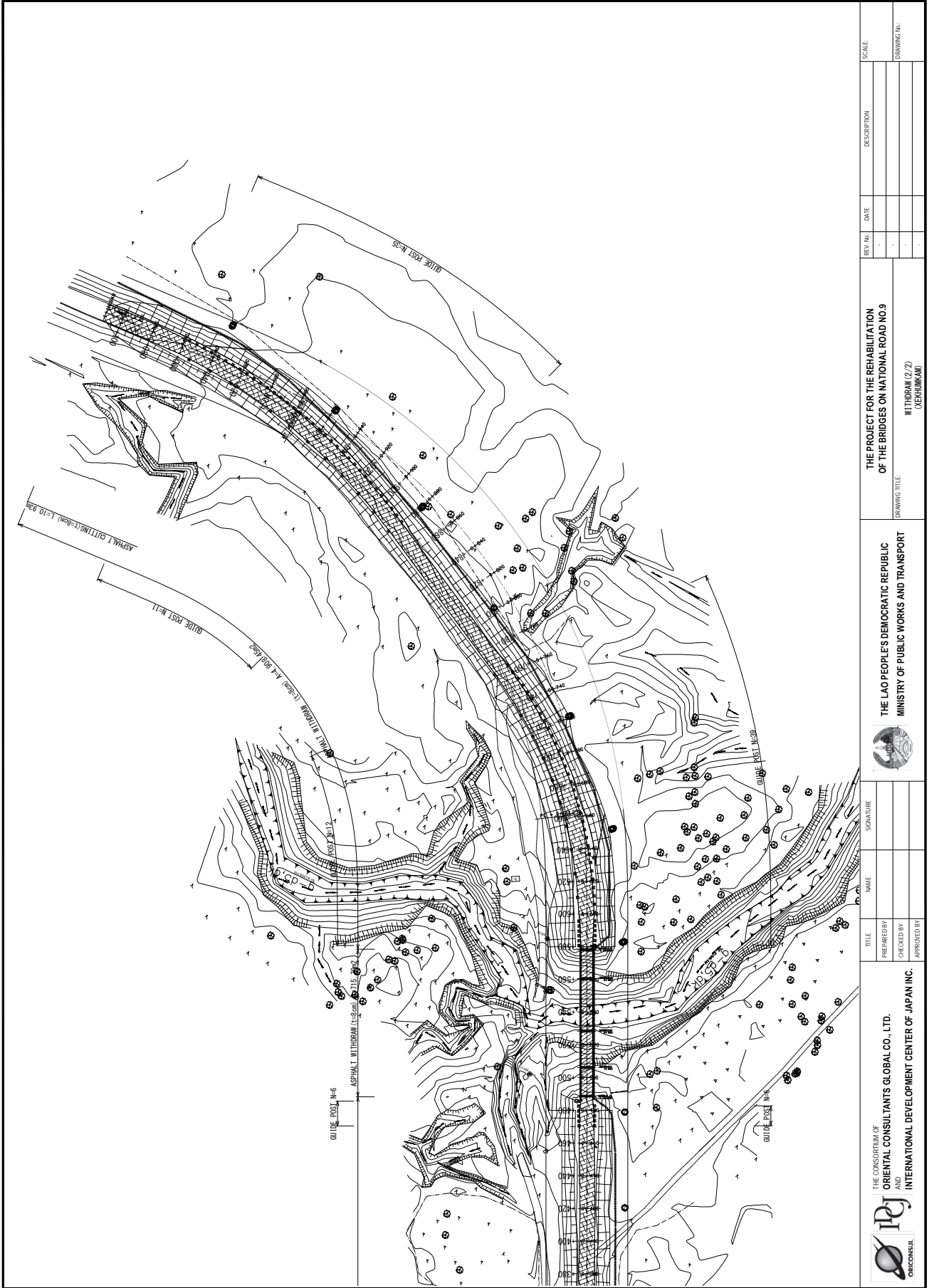




BRIDGE SECTION (RR-80)

NOTE: - POSITION OF DRAINAGE DITCH SHALL BE DETERMINED ON SITE WITH ATTENTION TO THE BARRIAGE CABLE LINE.

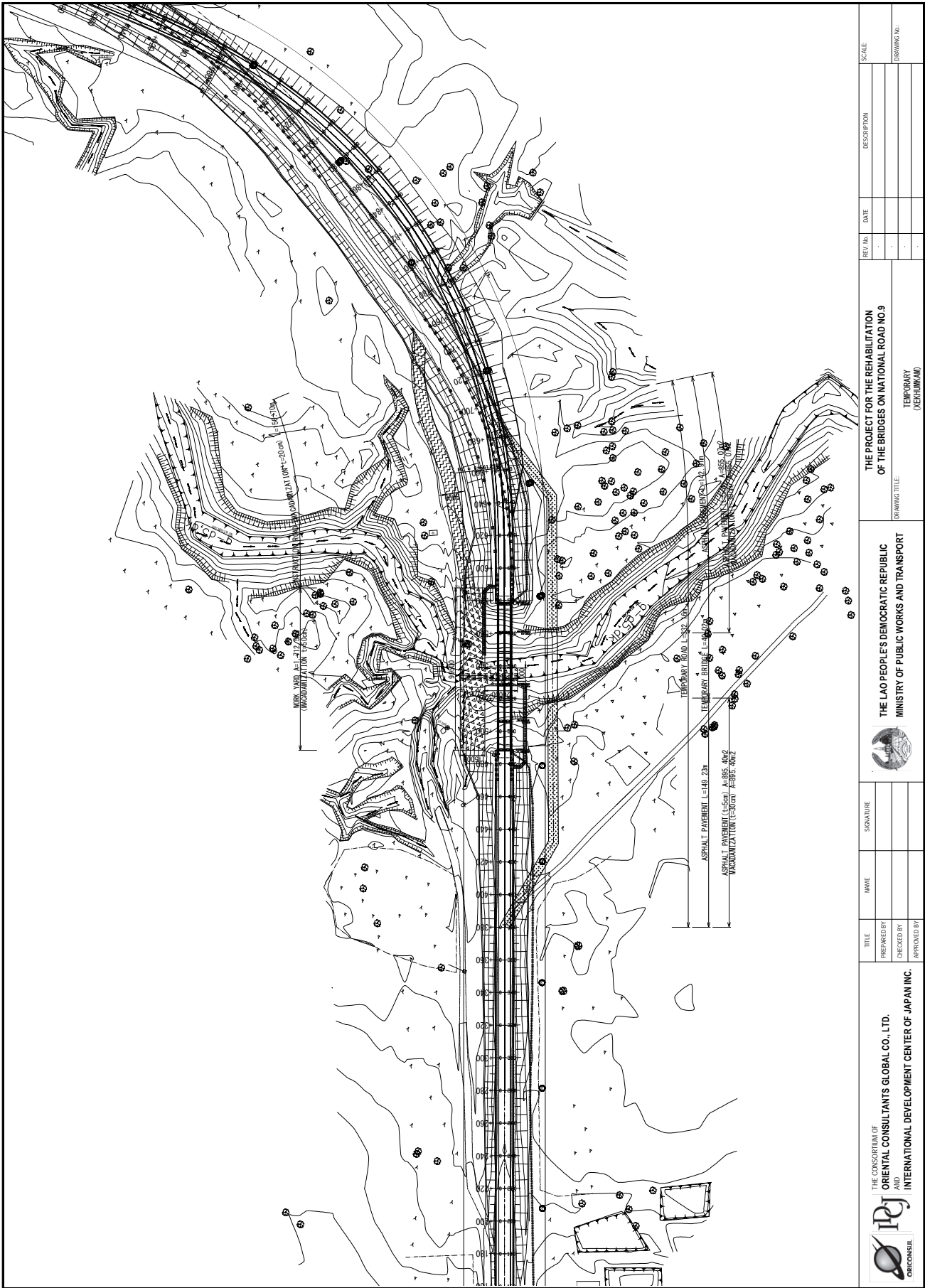
 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	 <p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	REV. No.    DATE    DESCRIPTION .    .    . .    .    . .    .    .	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING TITLE
						1:100





 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>		TITLE PREPARED BY CHECKED BY APPROVED BY	NAME SIGNATURE	 <p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	DRAWING TITLE WITHDRAWN (2/2) (CENTHUKAO)	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No. DATE DESCRIPTION SCALE
---	--	---	-------------------	--	---	--	--

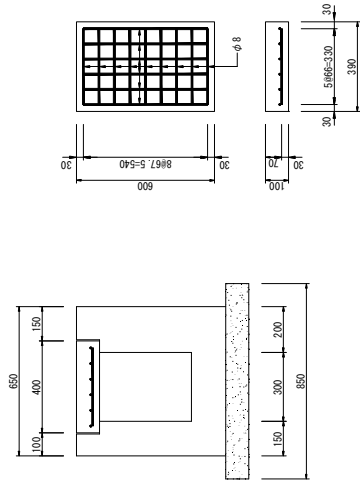




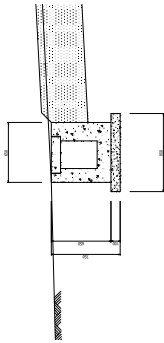
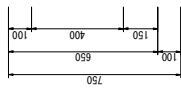
REV. No.	DATE	DESCRIPTION	SCALE

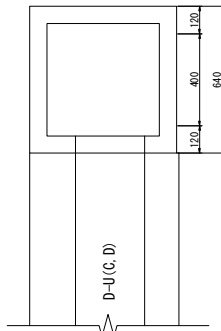
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 TEMPORARY (CENTURKAO)
TITLE	NAME	DRAWING TITLE
PREPARED BY	SIGNATURE	DRAWING No.
CHECKED BY		
APPROVED BY		



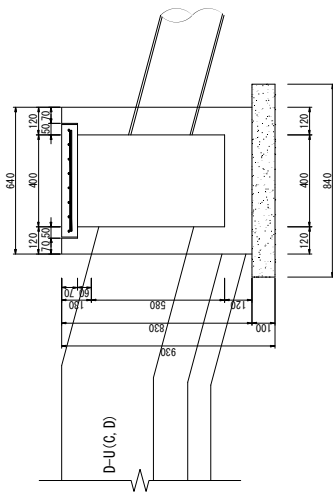
D-U(C)



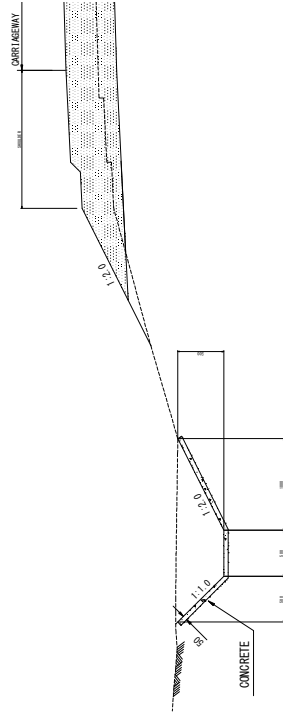
CONCRETE DITCH D-U(C) , D-U(D)



D-U(C, D)




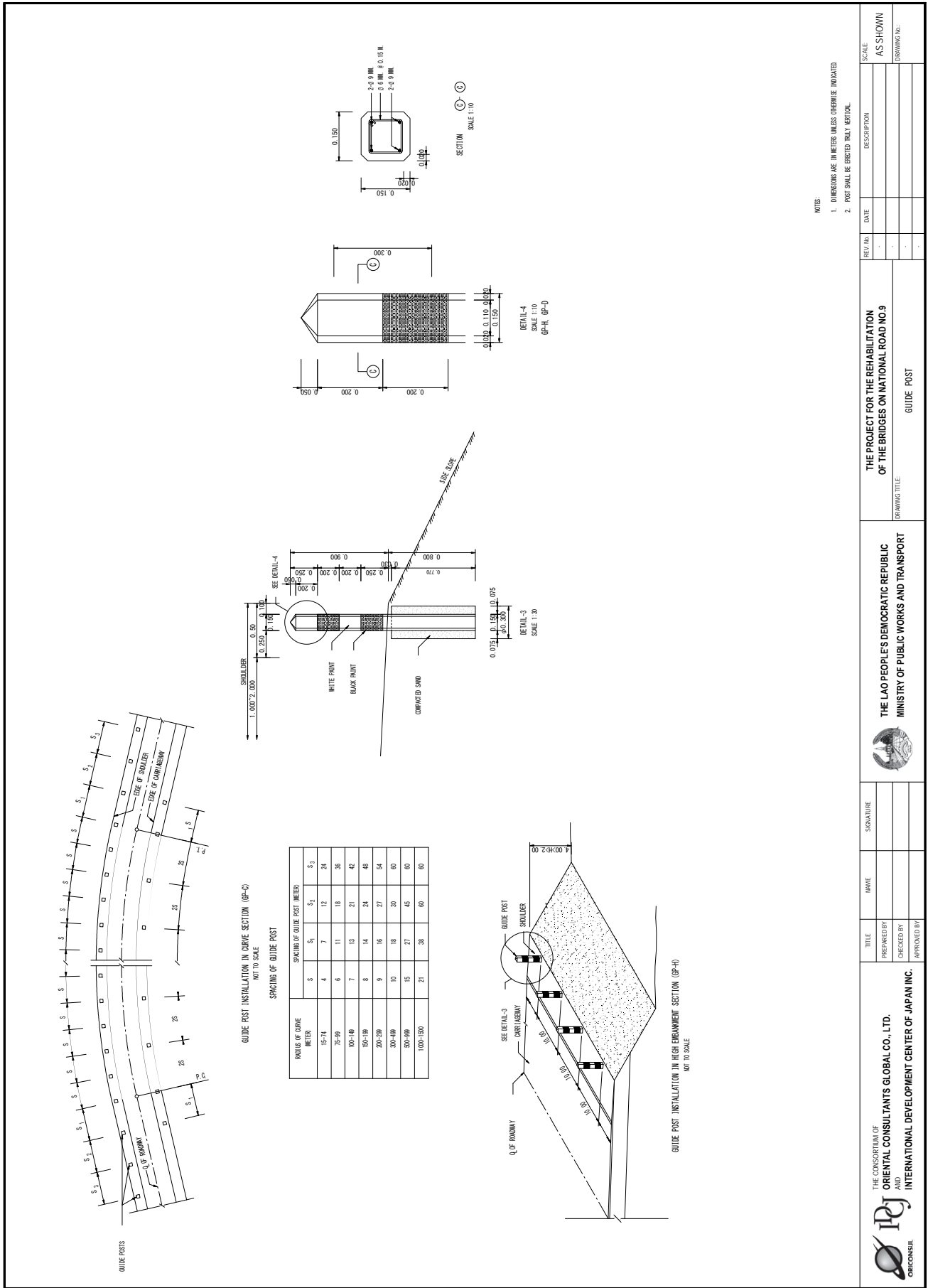
D-U(C, D)



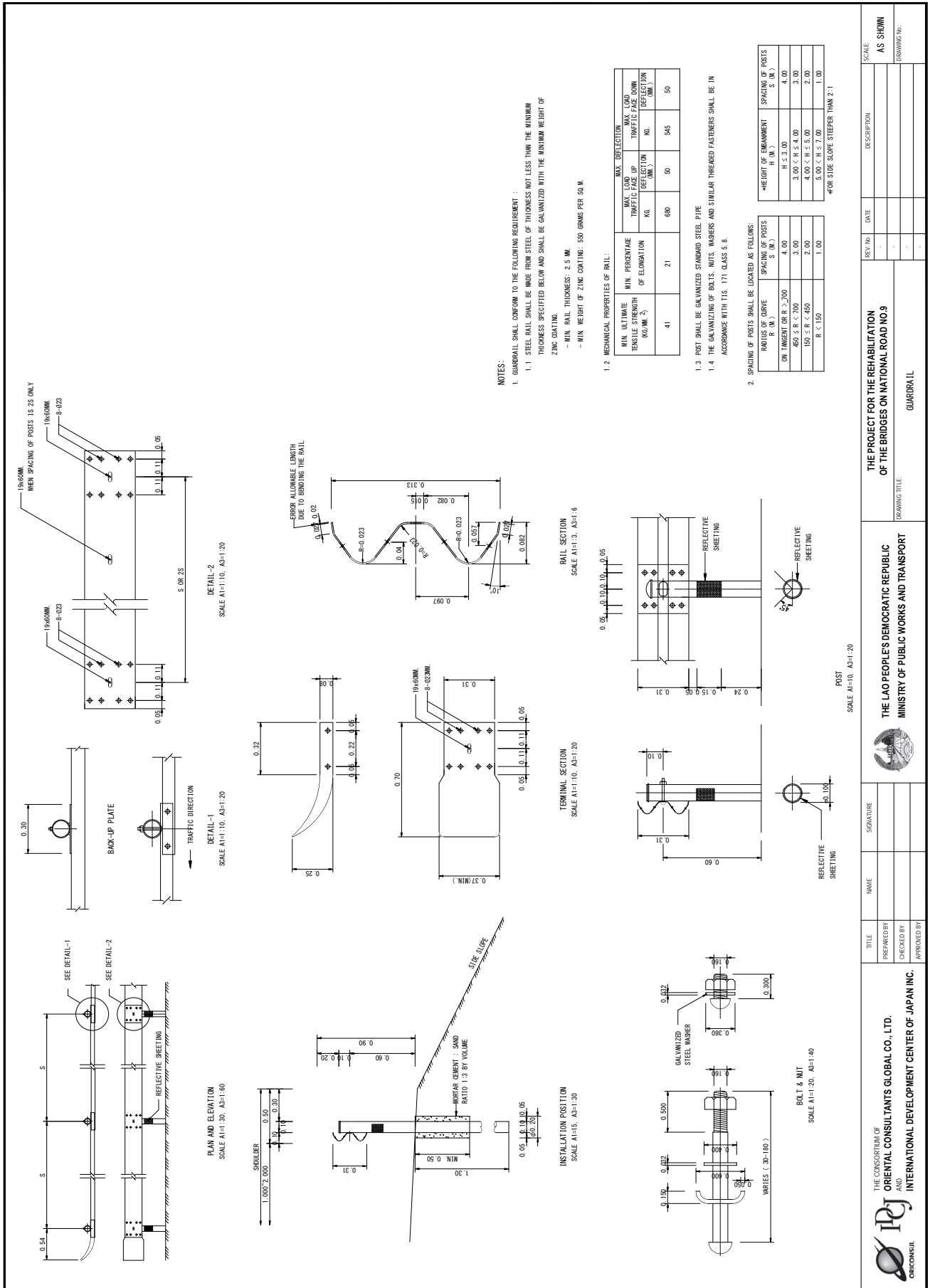
DRAINAGE DITCH, D-U(A)

- NOTES:
- POSITION OF DRAINAGE DITCH (D-U(A)) SHALL BE DETERMINED ON SITE WITH ATTENTION TO THE BURIED CABLE LINE.
  - JOINTS OF DRAINAGE DITCH STRUCTURE SHALL BE AT APPROXIMATELY 10 m INTERVAL.
  - CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH IN 18 MPa AT 28 DAYS.

 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p> 	<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9</p>	<p>REV. No.</p>	<p>DATE</p>	<p>DESCRIPTION</p>	<p>SCALE</p>
	<p>PREPARED BY</p> <p>CHECKED BY</p> <p>APPROVED BY</p>					<p>DRAINING TITLE</p> <p>DETAILS OF DRAINAGE DITCH</p>	<p>1:200</p>	<p>DRAWING No.</p>	



 THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	TITLE	NAME	SIGNATURE	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 DRAWING TITLE GUIDE POST	REV. NO.	DATE	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY		AS SHOWN		



THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

GUARDRAIL

SCALE AS SHOWN

AS SHOWN

DRAWING NO.

SCALE

DESCRIPTION

DATE

REV. No.

TITLE

PREPARED BY

CHECKED BY

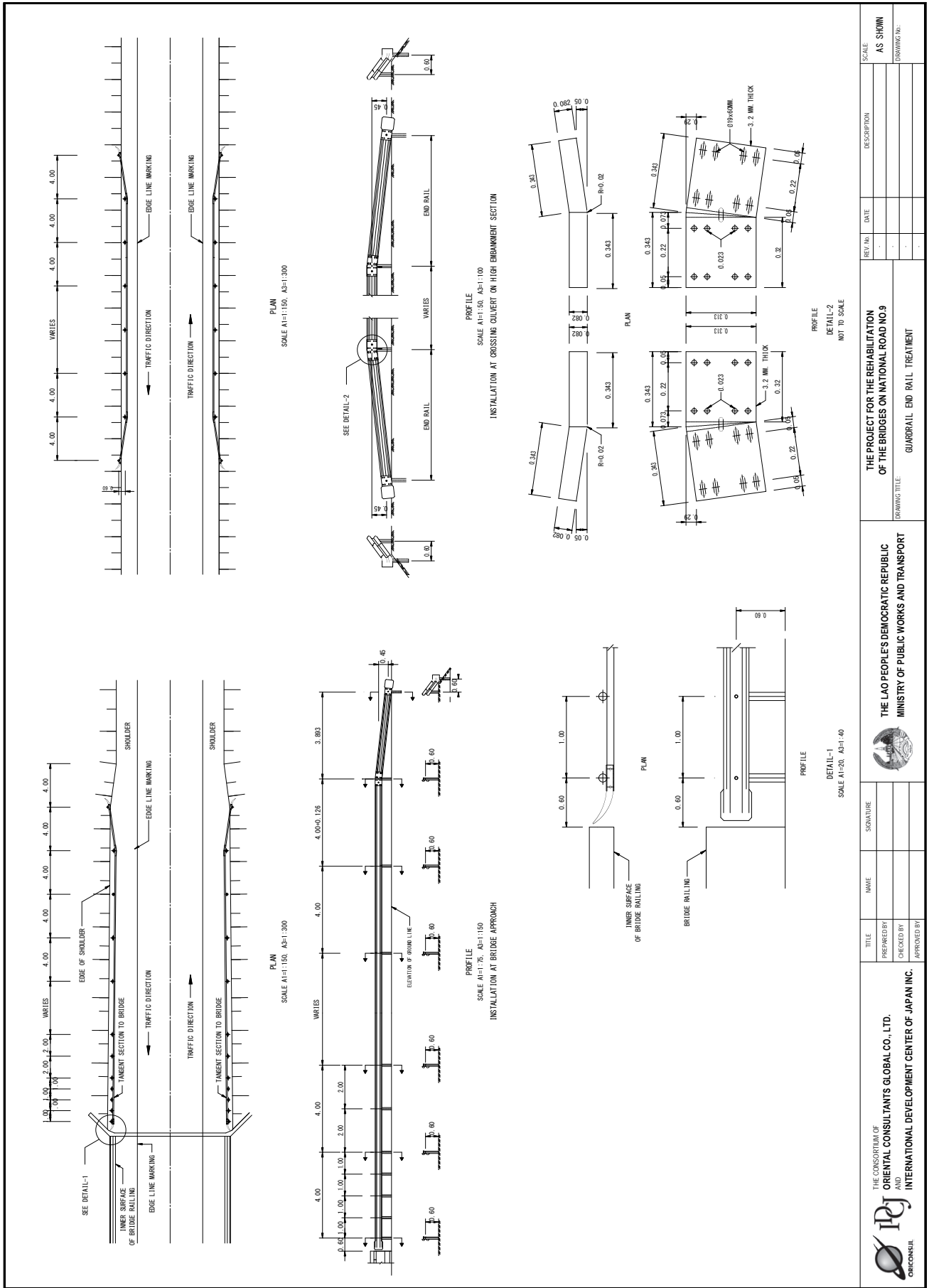
APPROVED BY

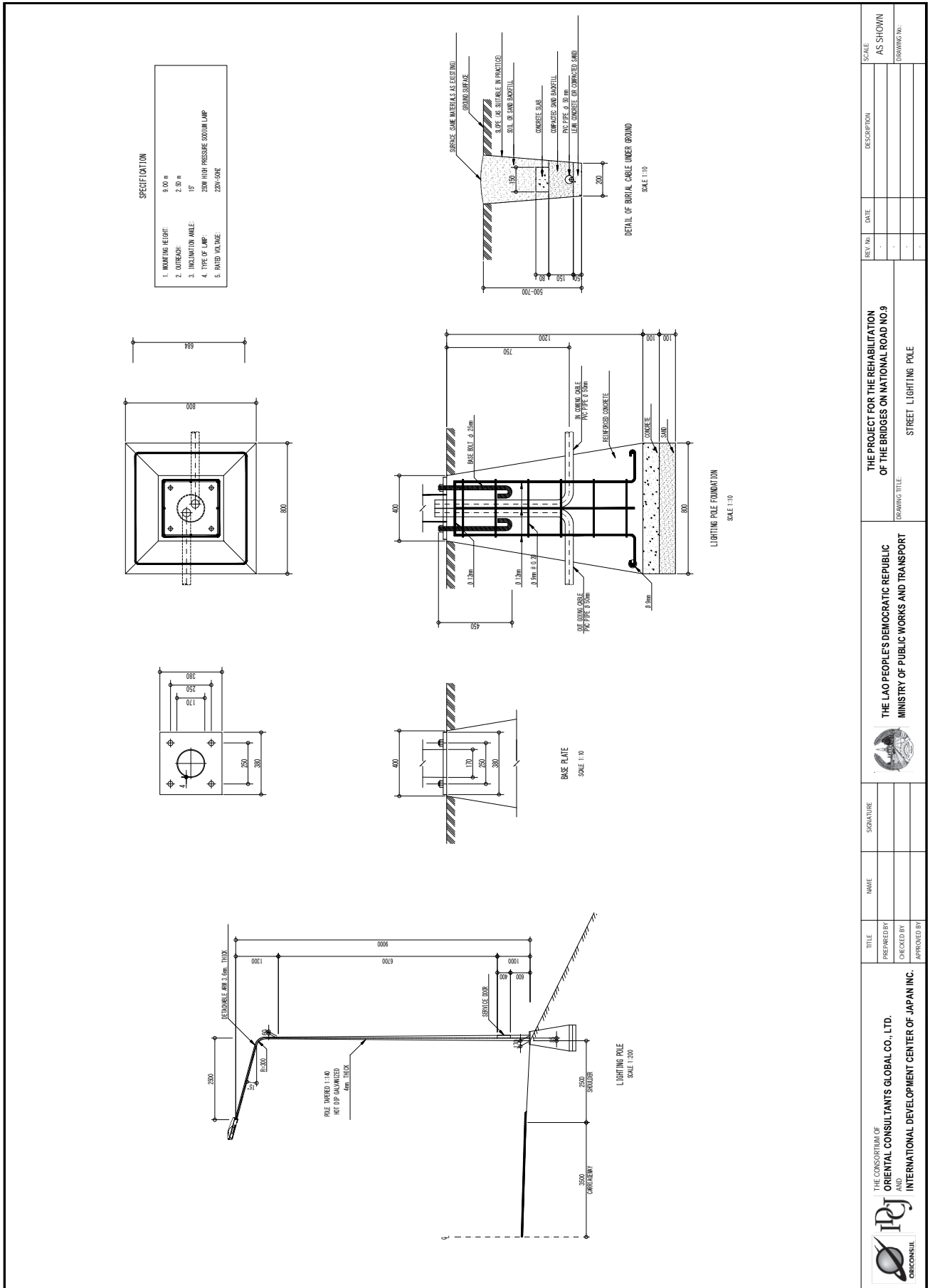
NAME

SIGNATURE

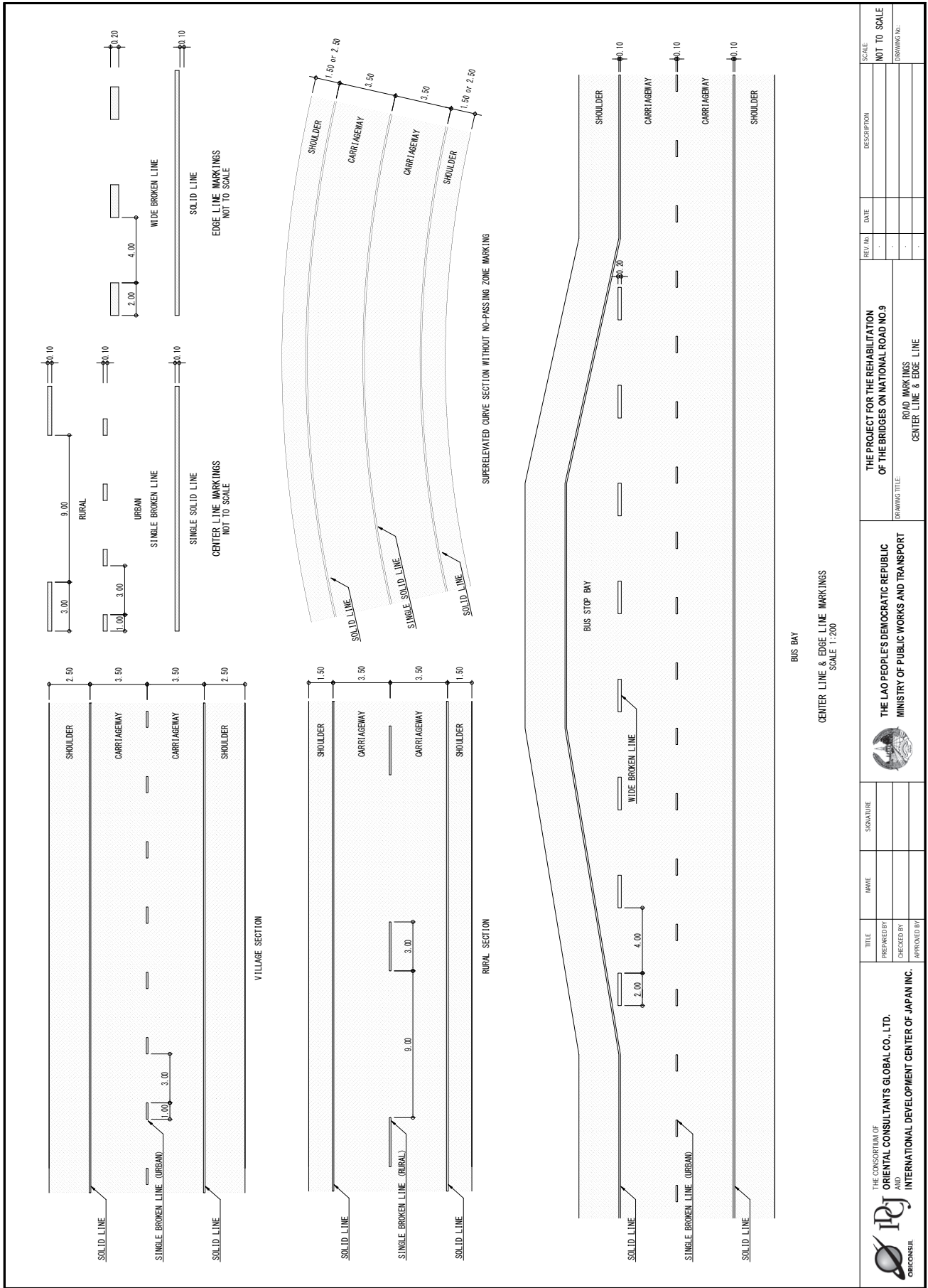
THE CONSORTIUM OF  
ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.


ORICONSU

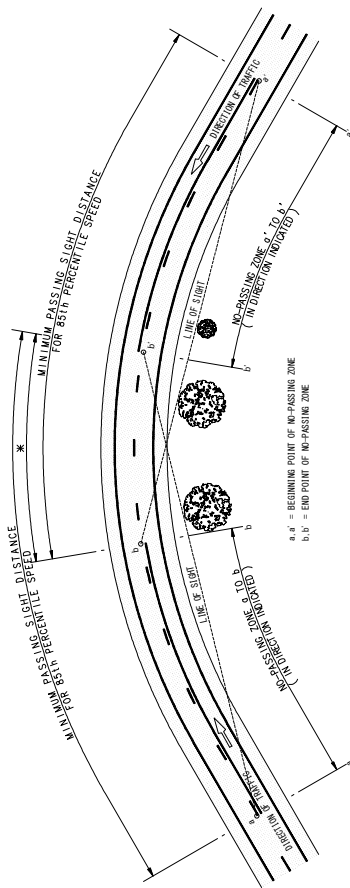






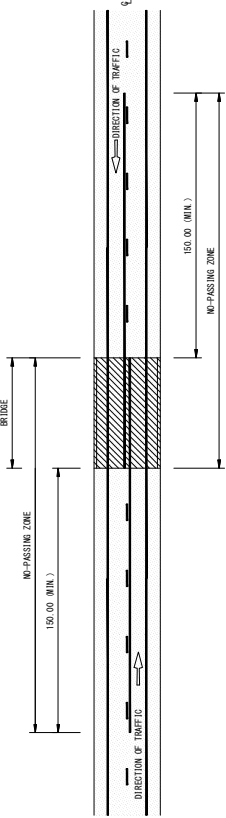


 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No.	DATE	SCALE	NOT TO SCALE
	PREPARED BY	DRAWING TITLE			DRAWING No.	
	CHECKED BY	ROAD MARKINGS				
	APPROVED BY	CENTER LINE & EDGE LINE				
	NAME					
	SIGNATURE					

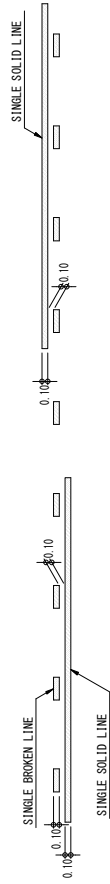


NOTE \* NO-PASSING ZONES IN OPPOSITE DIRECTIONS MAY OR MAY NOT OVERLAP, DEPENDING ON ALIGNMENT.

**NO-PASSING ZONES ON HORIZONTAL CURVES**  
NOT TO SCALE



**NO-PASSING ZONES ON BRIDGE APPROACH**  
NOT TO SCALE



**NO-PASSING ZONE MARKINGS**  
NOT TO SCALE

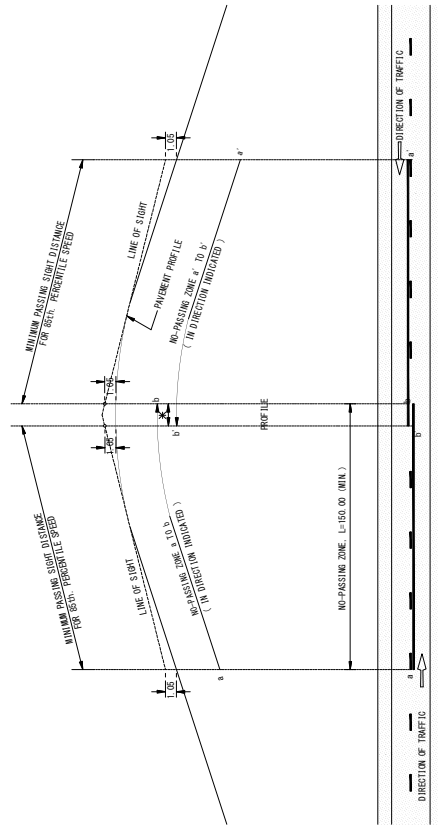
**TABLE MINIMUM PASSING SIGHT DISTANCE**

85 PERCENTILE SPEED (km/h)	MINIMUM PASSING SIGHT DISTANCE (m)
20	60
30	90
40	120
50	150
60	180
80	210

SOURCE: STANDARD DRAWING, VERTICAL/VIEWLINE MUNICIPALITY ROAD PROJECT, 2000

**NOTES:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
2. ALL MARKINGS SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF HIGHWAYS' TRAFFIC CONTROL DEVICE MANUAL, PART 2 ISSUED BE 2533
3. PAVEMENT MARKING FOR THE ASPHALT CONCRETE AND THE REINFORCED CONCRETE PAVEMENTS SHALL BE REFLECTORIZED THERMOPLASTIC PAINT, CONFORMING TO ITS 542. PAVEMENT MARKING FOR THE SURFACE TREATMENT PAVEMENT SHALL BE REFLECTORIZED PAINT, CONFORMING TO ITS 415 AND ITS 543.
4. THIS DRAWING SHALL BE REFERENCED TO THE THAILAND STANDARD DRAWINGS (S.D.), NO. RS-403.

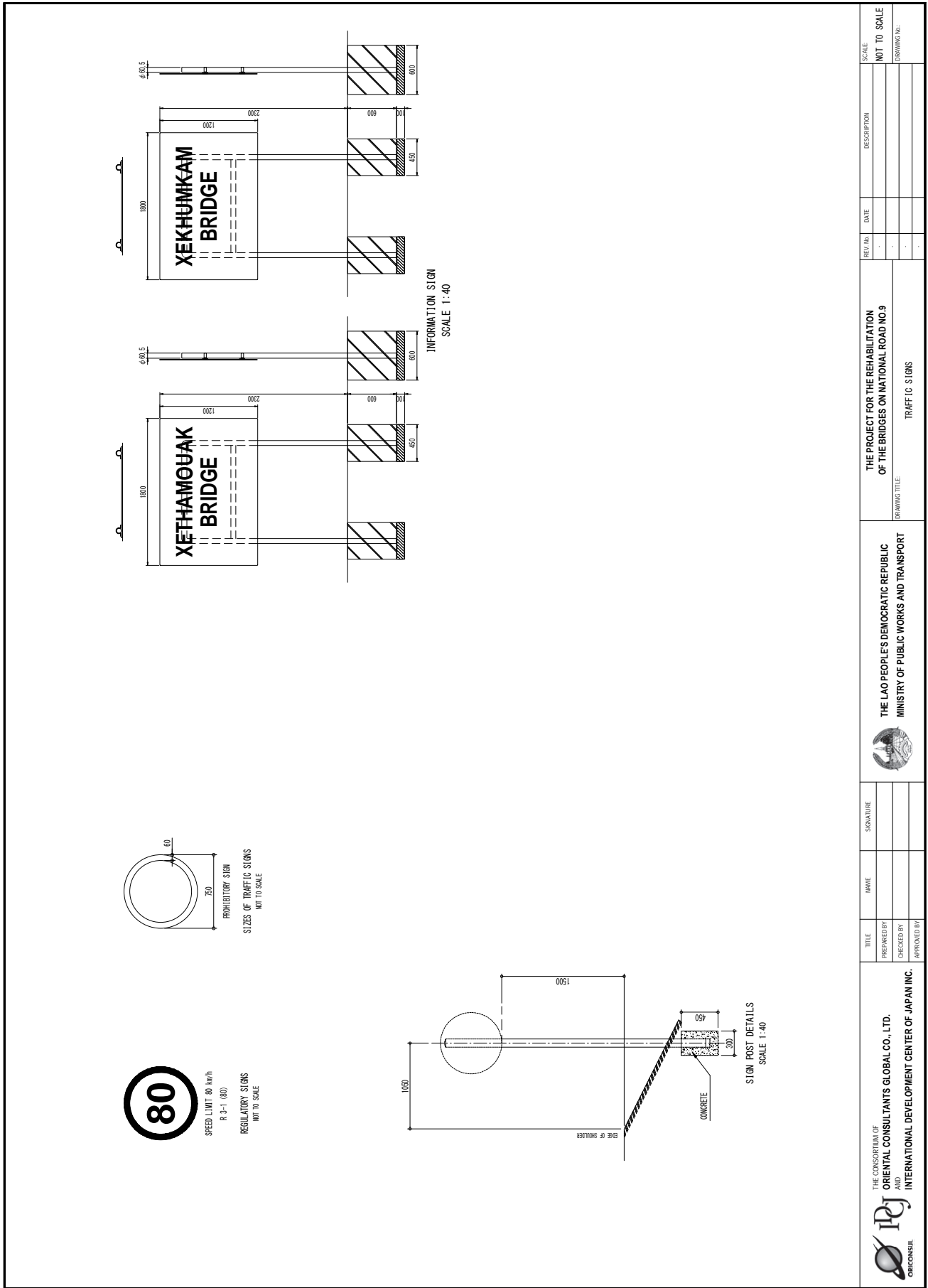


NOTE \* NO-PASSING ZONES IN OPPOSITE DIRECTIONS MAY OR MAY NOT OVERLAP, DEPENDING ON ALIGNMENT.

**NO-PASSING ZONES ON VERTICAL CURVES**  
NOT TO SCALE

PLAN

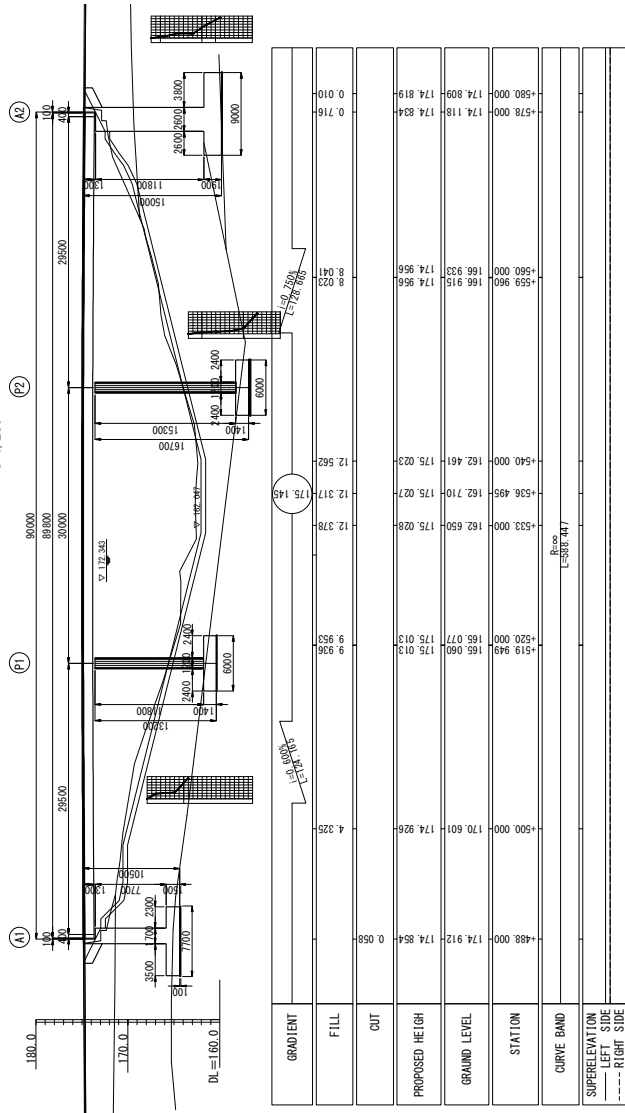
<p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY		DRAWING TITLE			
							ROAD MARKINGS NO-PASSING ZONE	DRAWING No.



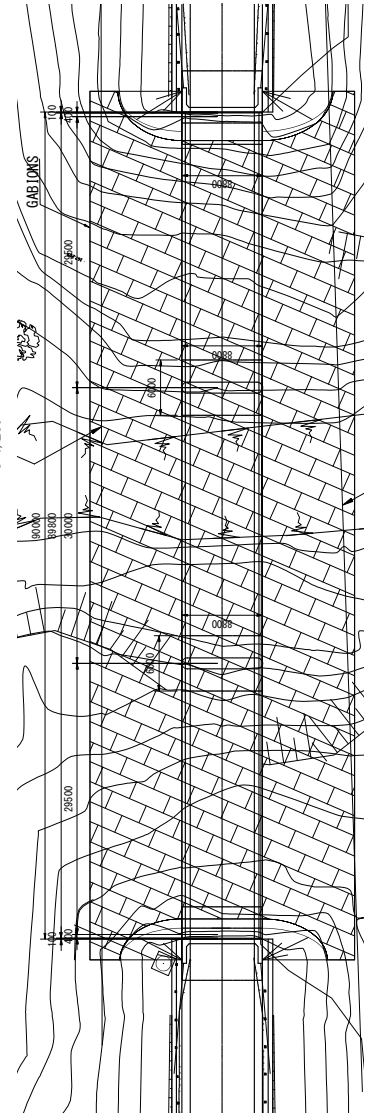
# GENERAL VIEW OF THE BRIDGE (1)

XEKHUMKAM

PROFILE S=1/250



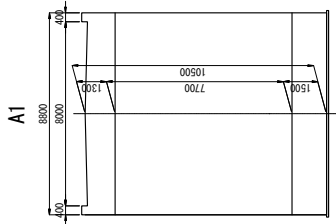
# PLAN S=1/250



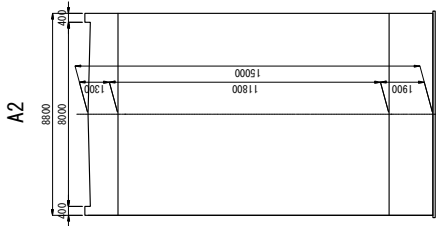
<p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 (XEKHUMKAM)</p>	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING TITLE	DRAWING No.		

GENERAL VIEW OF THE BRIDGE (2)  
XEKHUMKAM

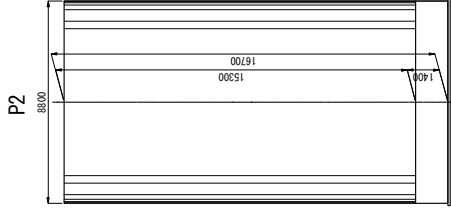
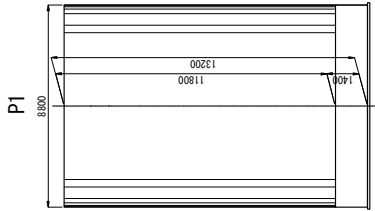
FRONT VIEW  
S=1/100



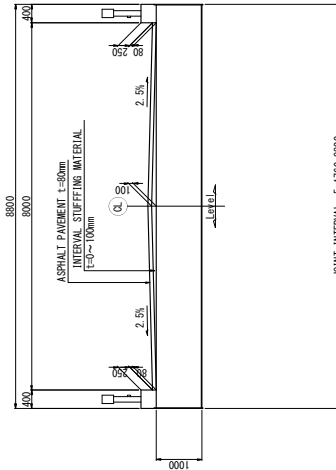
ABUTMENT



PIER




SECTION  
S=1/100



DESIGN CRITERIA

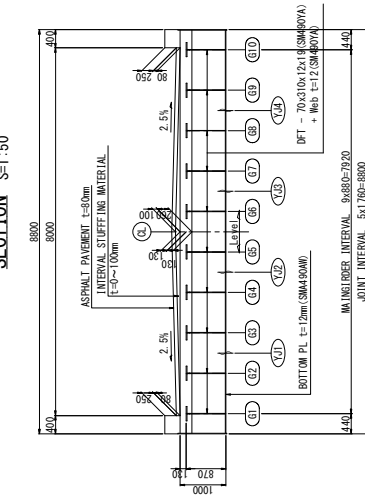
Road Class & Design Speed	Class II (Rv110), V=80km/h
Bridge Length (Span Length)	30.50m(29.50m+10.00m+29.50m)
Bridge Width	Carriageway: 8.00m
Pavement	Asphalt Concrete t=80mm
Longitudinal Gradient	+0.80% ~ -0.75%
Cross-fall of Carriageway	2.50%
Superstructure Type	3 span Continuous Composite Floor Slab Bridge
Substructure Type	Abutment Inverted T-Type
Pier	Wall Type
Foundation Type (Bearing Stratum)	Abutment AI, A2 : Spread Foundation (Mud Stone) Pier P1, P2 : Spread foundation (Mud Stone)
Material Strength	
Superstructure Slab	
Surface Facility	Curb, Adj.uting Concrete
Substructure	c25-c28N/mm <sup>2</sup> c25-c28N/mm <sup>2</sup>
Reinforcing Steel	S235 (fy=235N/mm <sup>2</sup> )

 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No.	DATE	SCALE
	PREPARED BY	DRAWING TITLE			
	CHECKED BY	GENERAL VIEW OF THE BRIDGE (2)			DRAWING No.
	APPROVED BY	(XEKHUMKAM)			

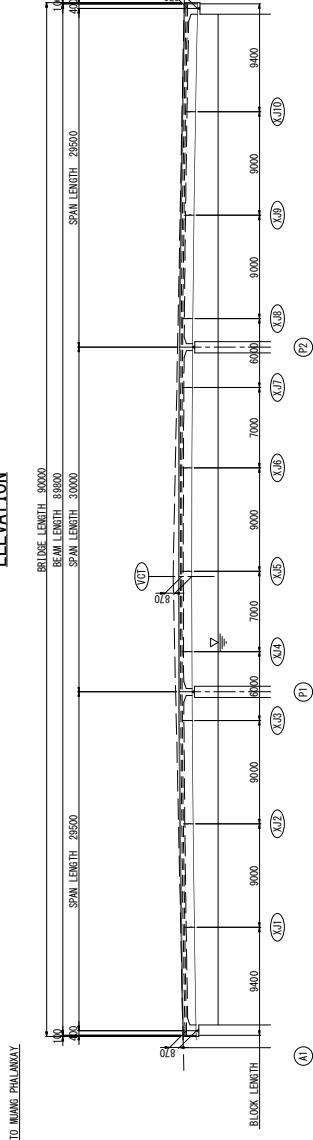
# XE KUM KAM BRIDGE STRUCTURE GENERAL DRAWING S=1:200

## XEKUMKAM REFERENCE DRAWING

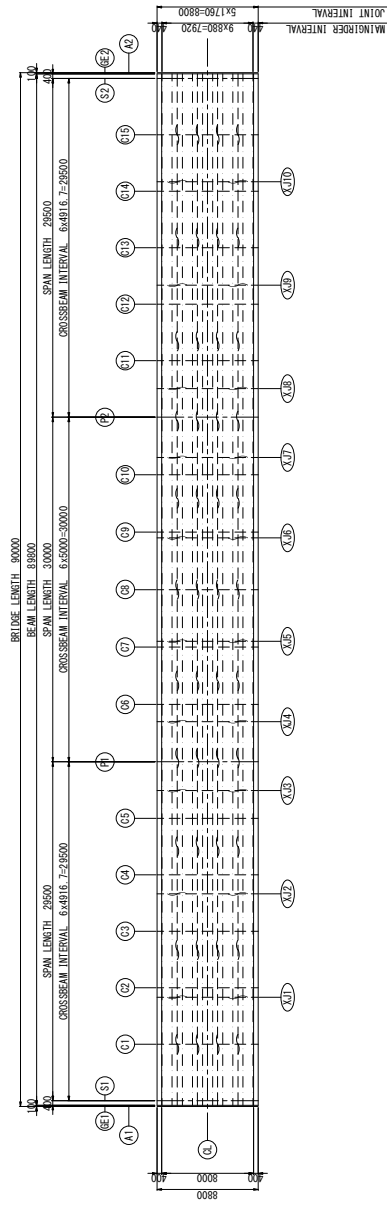
**ELEVATION**



TO MIANG PREEN





**PLAN**



**DESIGN CONDITIONS**

FORM	COMPOSITE FLOOR SUB BRIDGE
LIVE LOAD	TYPE B
BRIDGE LENGTH	90.00m
BEAM LENGTH	89.80m
SPAN LENGTH	29.50m + 30.00m + 29.50m
WIDTH	8.80m
ROAD WIDTH	8.00m
PLANE CURVE	STRAIGHT LINE
ROAD SURFACE	ROAD SURFACE
LONGITUDINAL GRADIENT	BOTTOM PL
TRANSVERSAL GRADIENT	ROAD SURFACE 2.5% FROM CENTER DOWN TO EDGE
ANGLE OF SKEW	BOTTOM PL Level
ASPHALT PAVEMENT	$\theta = 90^\circ 00' 00''$ $t = 80mm$

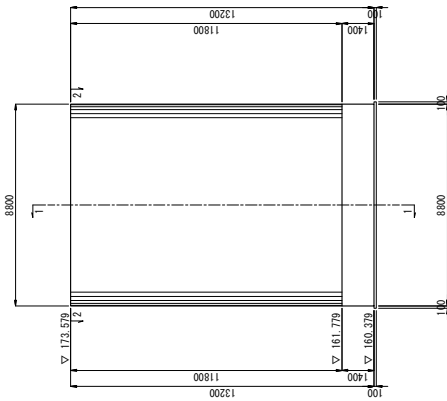
	THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC <b>MINISTRY OF PUBLIC WORKS AND TRANSPORT</b>	 THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	SCALE	
	TITLE	NAME	SIGNATURE	DATE	DESCRIPTION
PREPARED BY	CHECKED BY	APPROVED BY	DRAWING TITLE BRIDGE STRUCTURE GENERAL DRAWING (REFERENCE DRAWING) (XEKUMKAM)		
			REV. No.	DATE	DRAWING No.



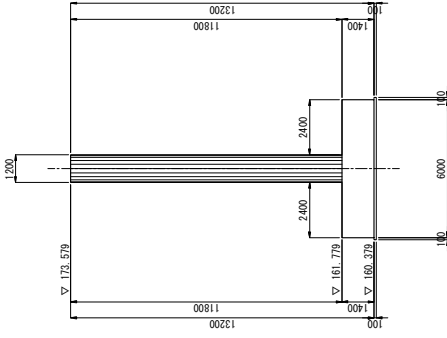


GENERAL STRUCTURAL VIEW (P1) S=1/100  
XEKHUMKAM

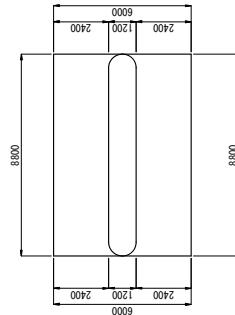
FRONT VIEW





SIDE VIEW  
(1-1)



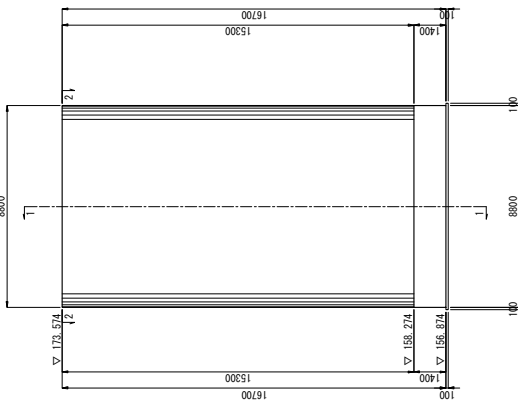
PLAN  
(2-2)



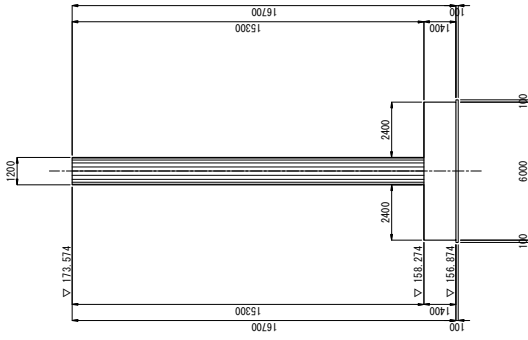
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9  DRAWING TITLE GENERAL STRUCTURAL VIEW (P1) (XEKHUMKAM)	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY						

GENERAL STRUCTURAL VIEW (P2) S=1/100  
XEKHUMKAM

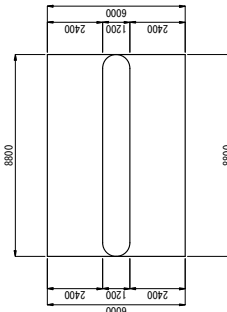
FRONT VIEW





SIDE VIEW  
( 1 - 1 )



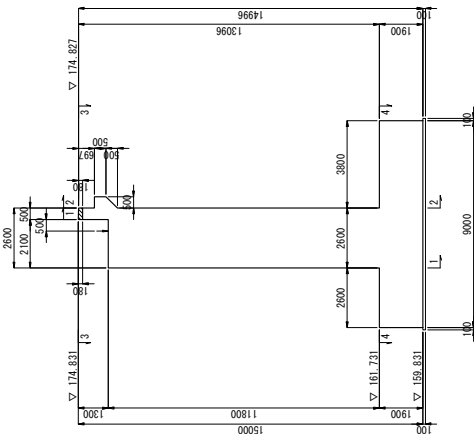
PLAN  
( 2 - 2 )



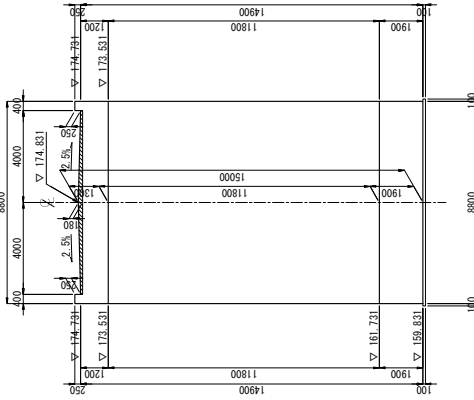
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	NAME		DRAWING TITLE	-	-	-
	CHECKED BY		THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	-	-	-	-
	APPROVED BY		GENERAL STRUCTURAL VIEW (P2) (XEKHUMKAM)	-	-	-	-

GENERAL STRUCTURAL VIEW (A2) S=1/100  
XEKHUMKAM

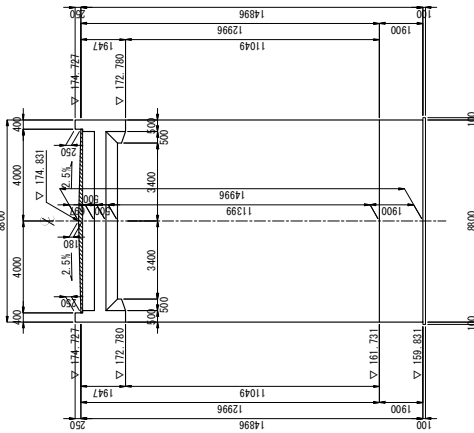
SECTION  
( 5 - 5 )



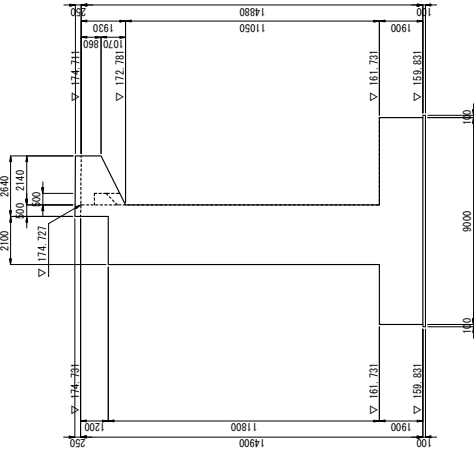
FRONT VIEW  
( 1 - 1 )



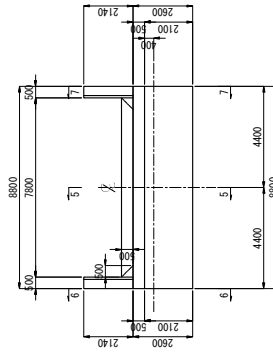
REAR VIEW  
( 2 - 2 )



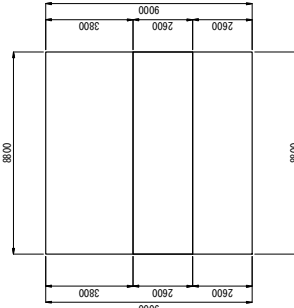
SIDE VIEW  
( 6 - 6 )



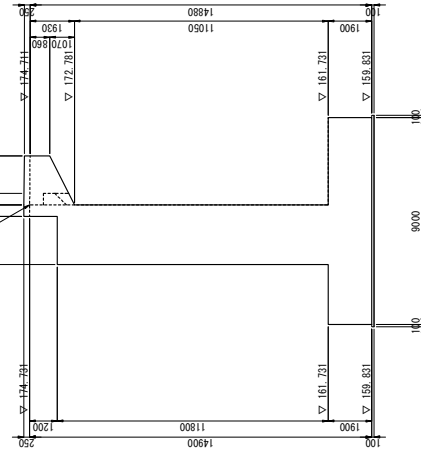
PLAN  
( 3 - 3 )





PLAN  
( 4 - 4 )



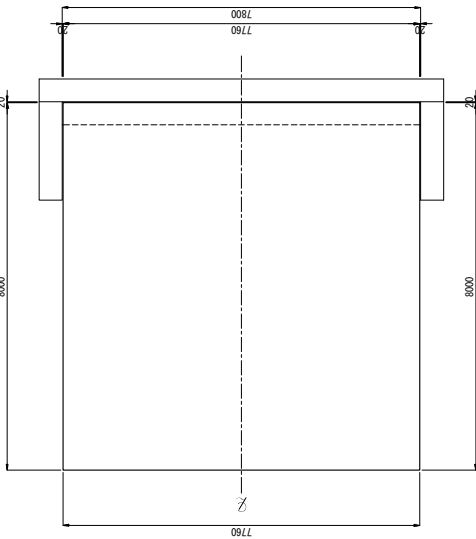
SIDE VIEW  
( 7 - 7 )



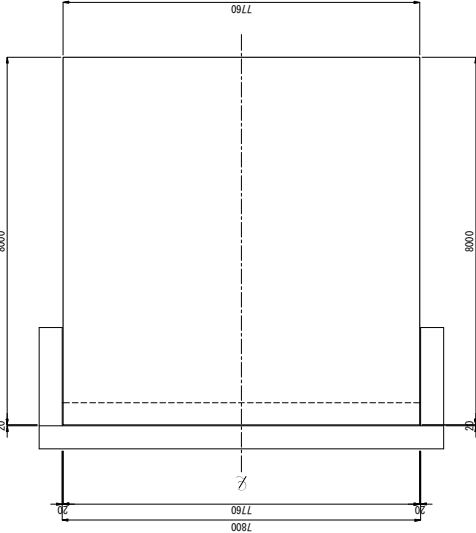
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 GENERAL STRUCTURAL VIEW (A2) (XEKHUMKAM)	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING No.			

APPROACH SLAB  
XEKHUMKAM

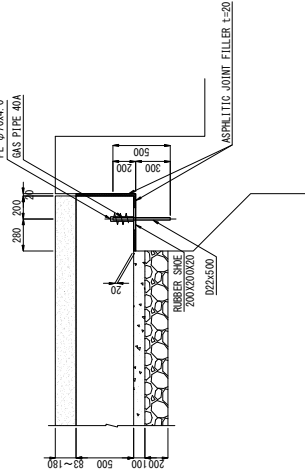
PLAN OF STRUCTURE (A1) S=1/50



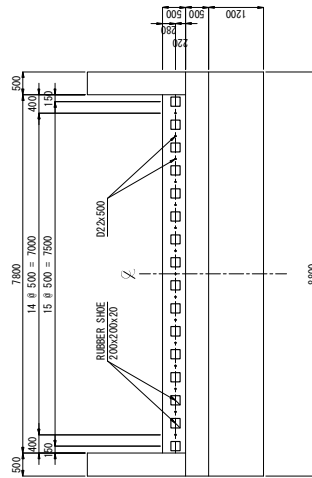
PLAN OF STRUCTURE (A2) S=1/50



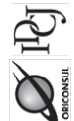
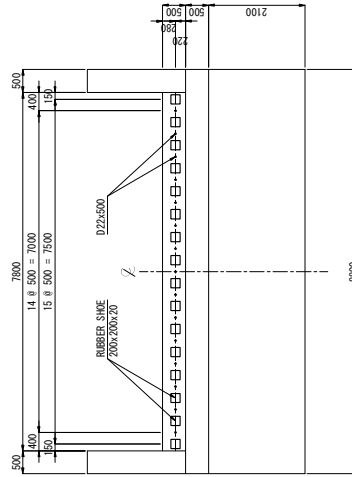
DETAIL OF ANCHOR S=1/20



PLAN OF SHOE (A1) S=1/50



PLAN OF SHOE (A2) S=1/50



THE CONSORTIUM OF  
ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.

TITLE	NAME	SIGNATURE
PREPARED BY		
CHECKED BY		
APPROVED BY		

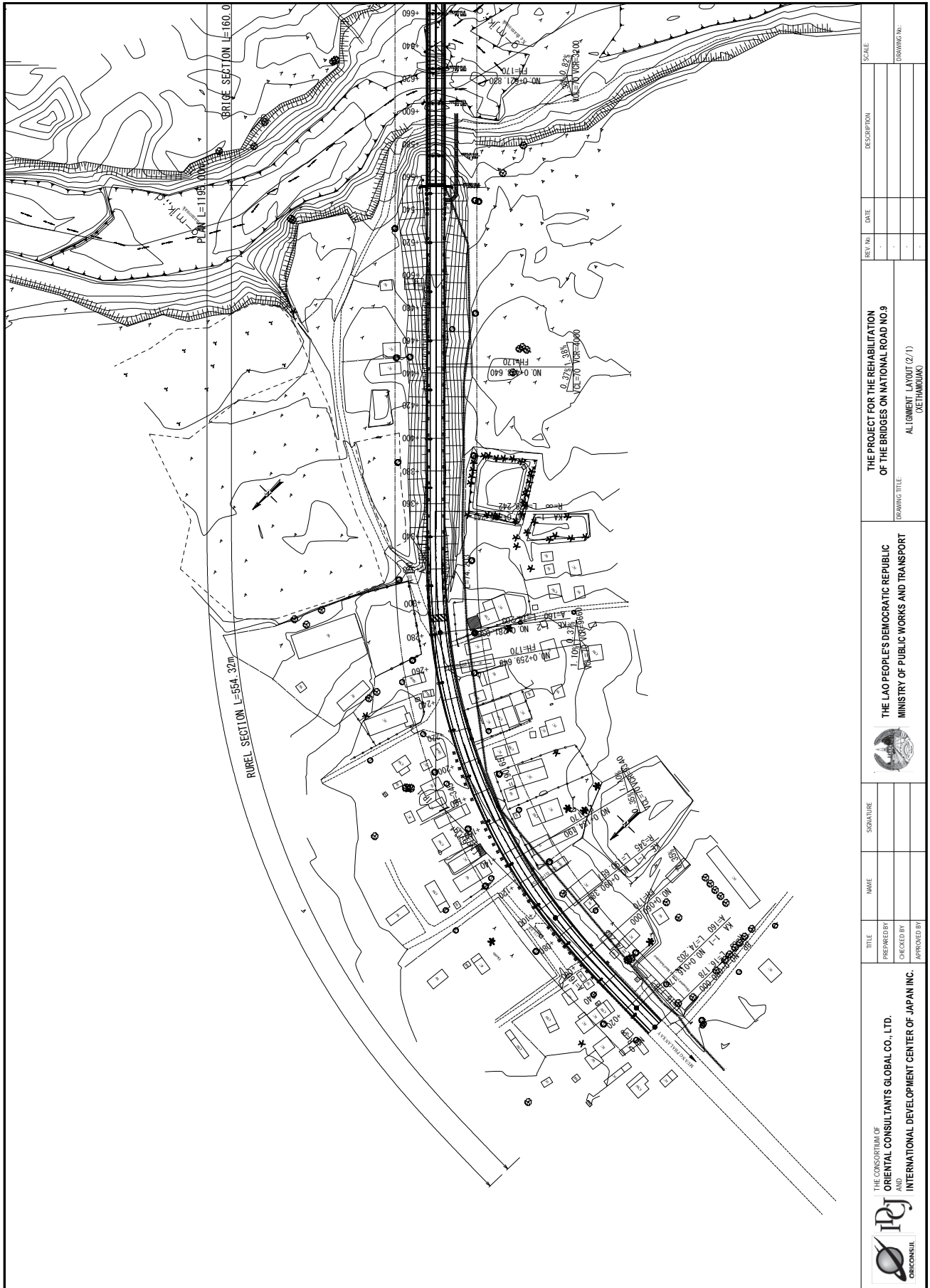


THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

THE PROJECT FOR THE REHABILITATION  
OF THE BRIDGES ON NATIONAL ROAD NO.9  
APPROACH SLAB  
(XEKHUMKAM)

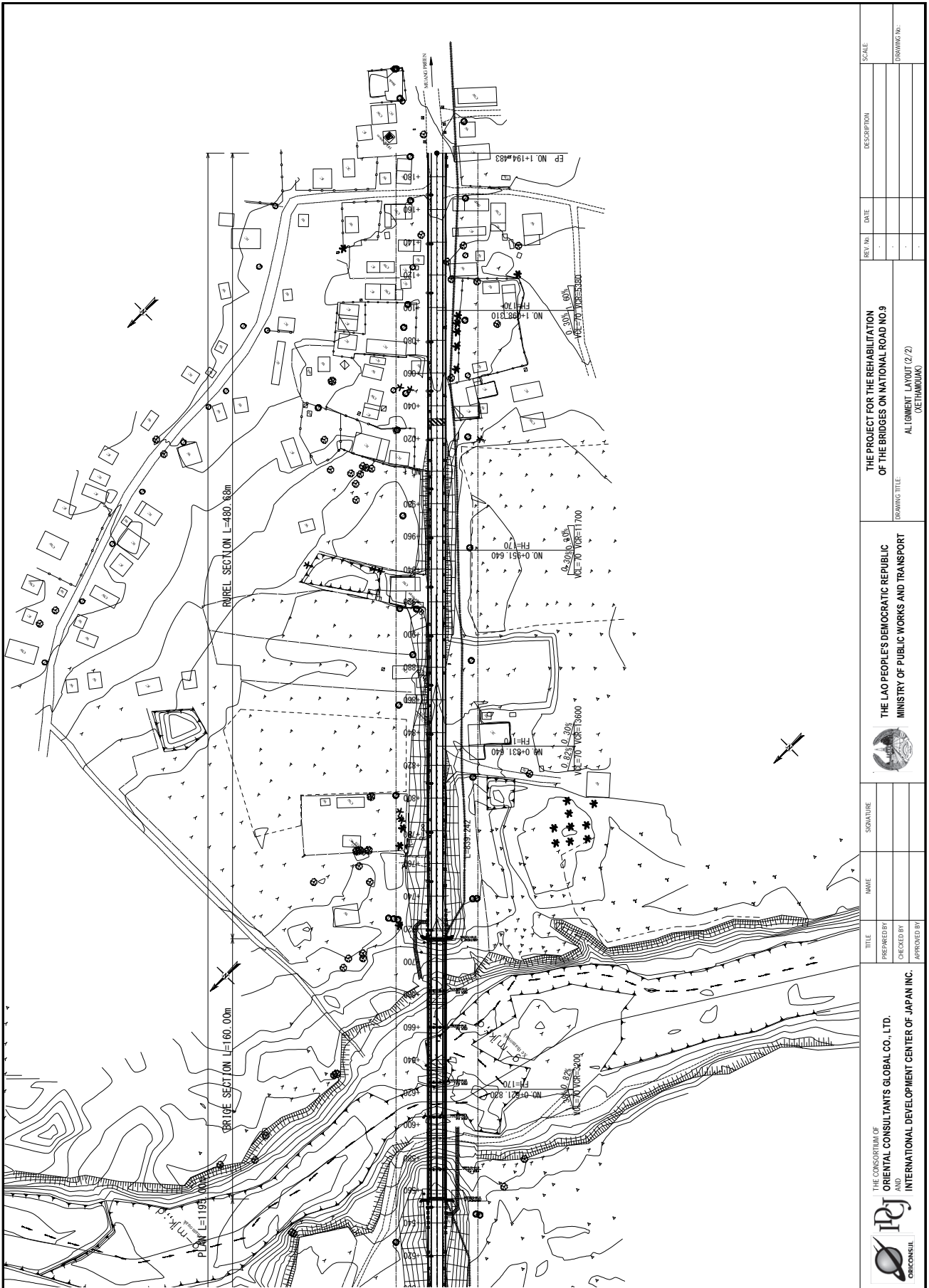
REV. No.	DATE	DESCRIPTION	SCALE



DRAWING No.

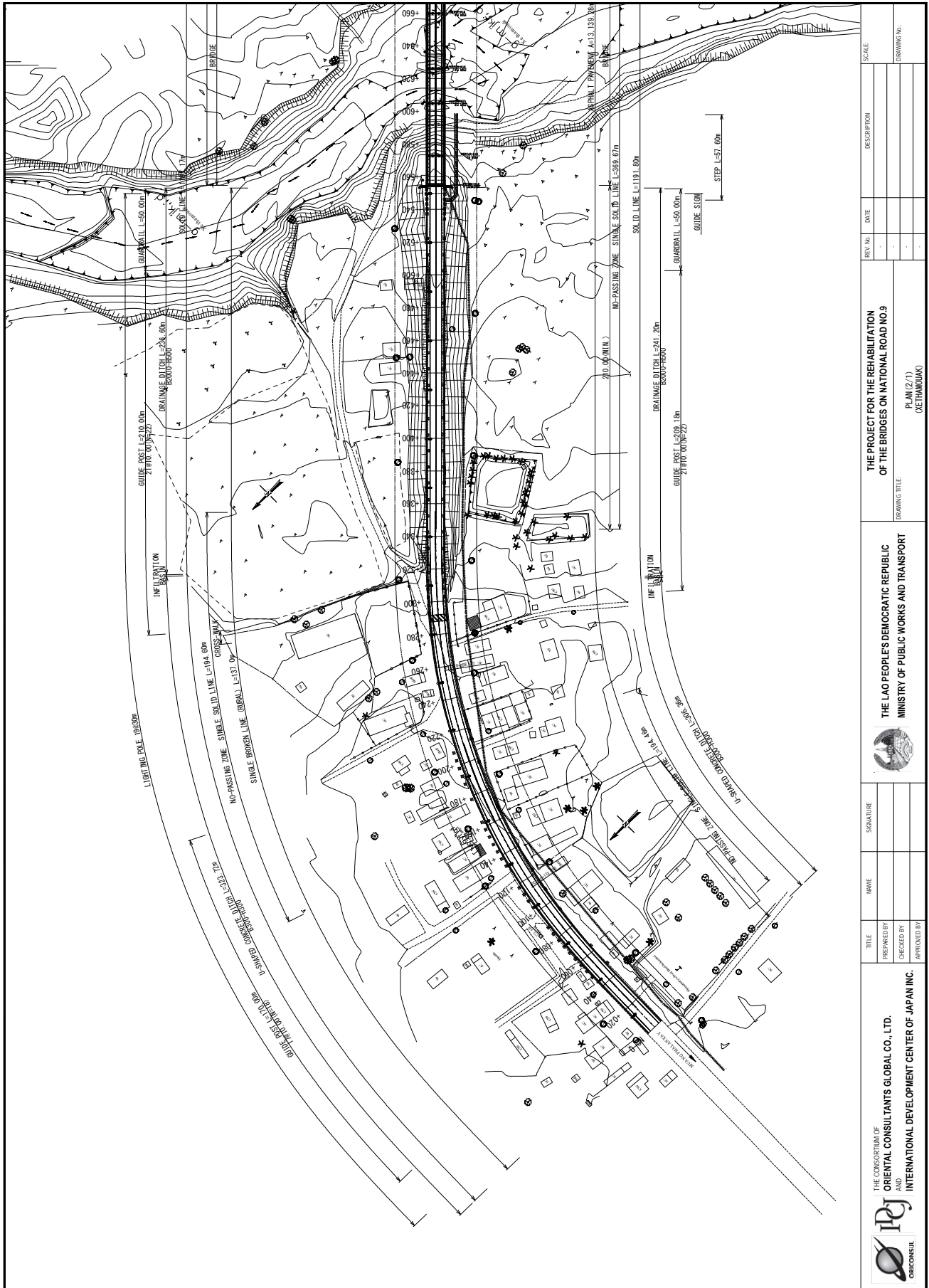




THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9		SCALE	
REV. No.	DATE	DESCRIPTION	
DRAWING TITLE		DRAWING No.	
AL (BRIDGE LAYOUT (2/1)) (AETIMDUANG)			
THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT		SIGNATURE	
		NAME	
		TITLE	
		PREPARED BY	
		CHECKED BY	
		APPROVED BY	
THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.			

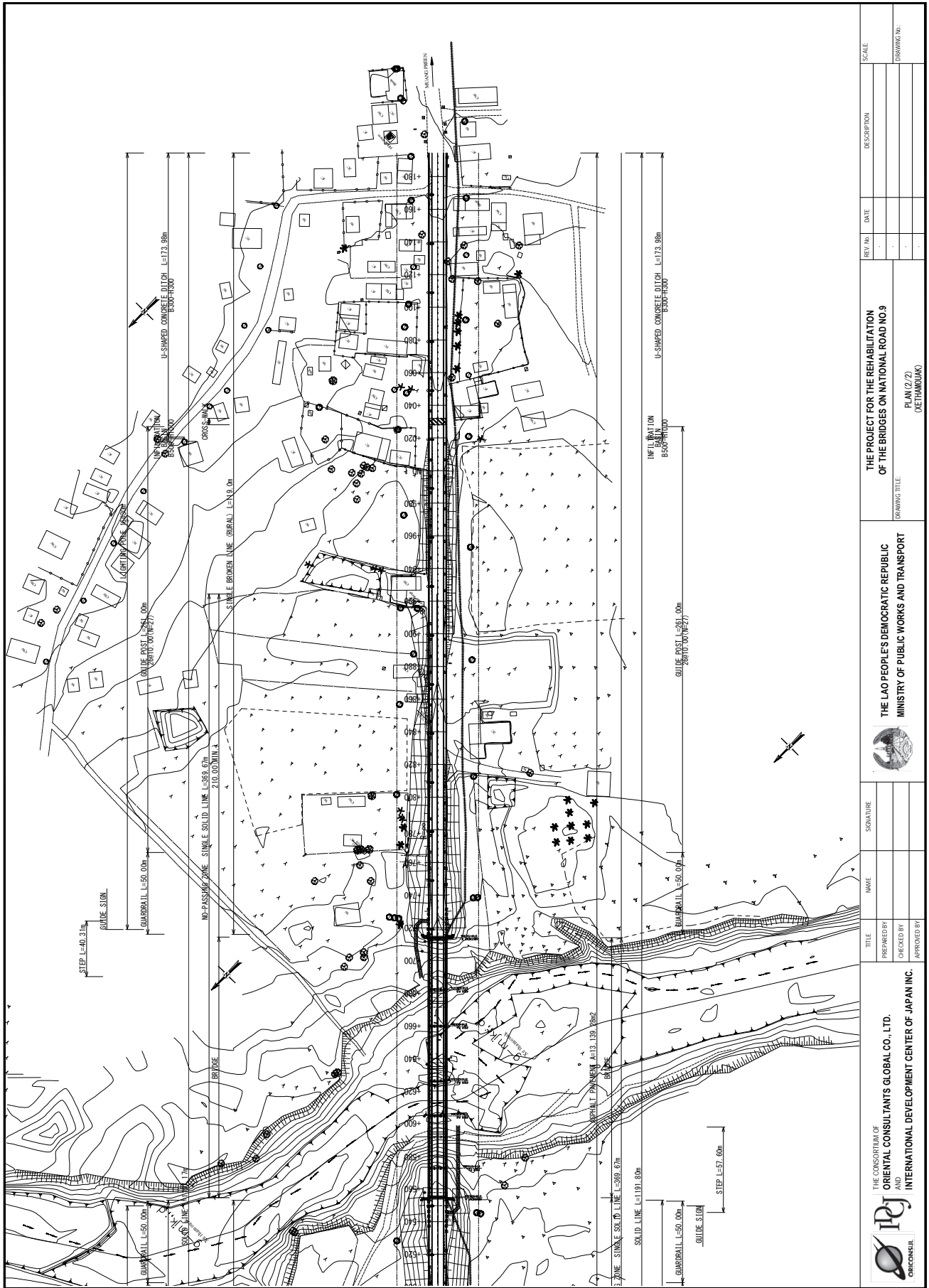





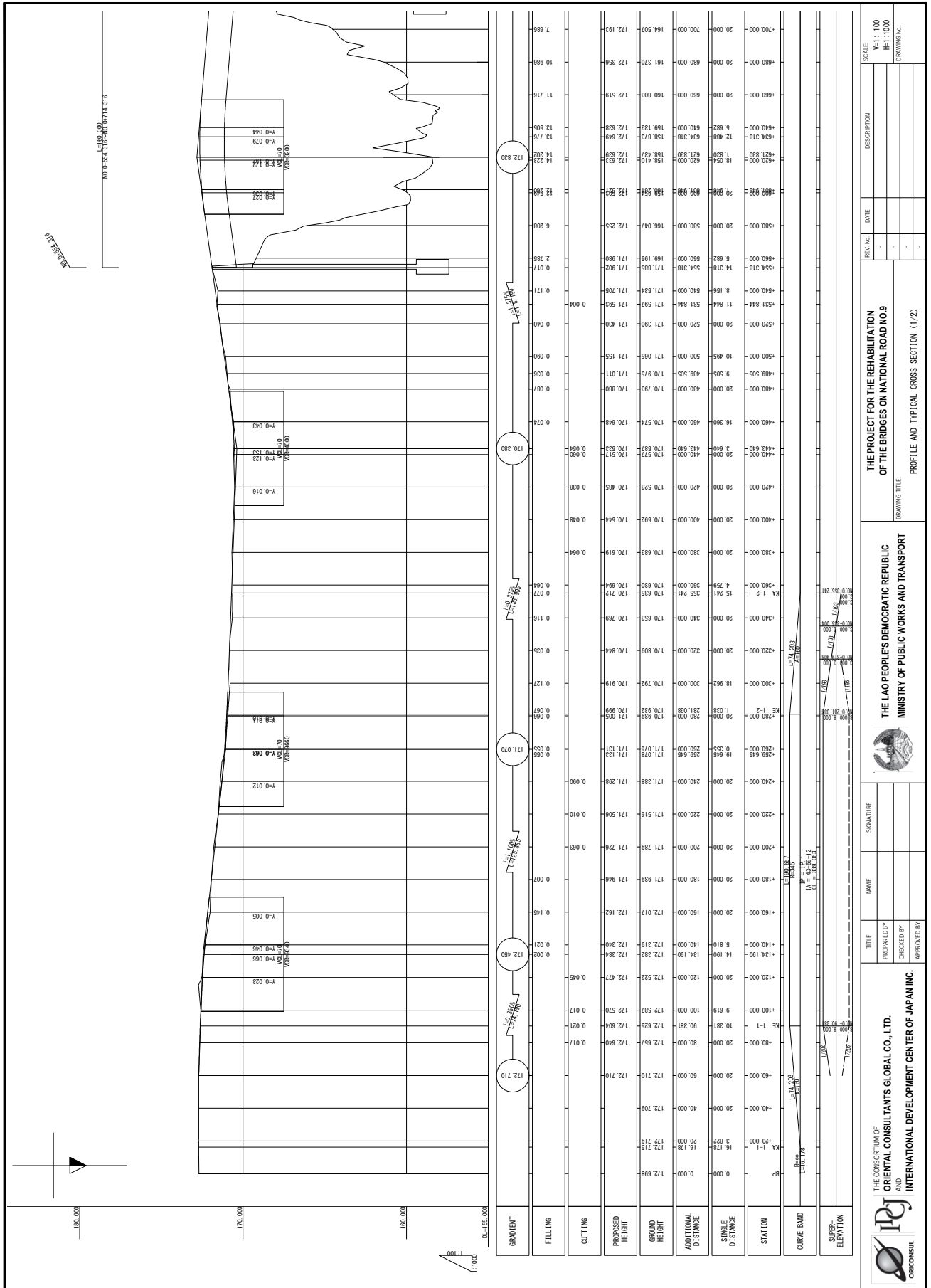
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY CHECKED BY APPROVED BY						DRAWING TITLE	ALIGMENT LAYOUT (2/2) (XETHAMOUANG)	



 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	SIGNATURE	 <p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	REV. No.	DATE	DESCRIPTION	SCALE	
	PREPARED BY CHECKED BY APPROVED BY	NAME			DRAWING TITLE			
			THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9			PLAN (2/1) (AETIMOUANG)		



 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE PREPARED BY CHECKED BY APPROVED BY	NAME SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	DRAWING TITLE PLAN (2/2) (AETIMJUNG)	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No. DATE	DESCRIPTION SCALE
	DRAWING No.	DRAWING No.	DRAWING No.	DRAWING No.	DRAWING No.	DRAWING No.	DRAWING No.



THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.

PROFILE AND TYPICAL CROSS SECTION (1/2)

SCALE: H=1:1000, V=1:100

DATE: \_\_\_\_\_

REV. No. \_\_\_\_\_

DRAWING No. \_\_\_\_\_

TITLE: \_\_\_\_\_

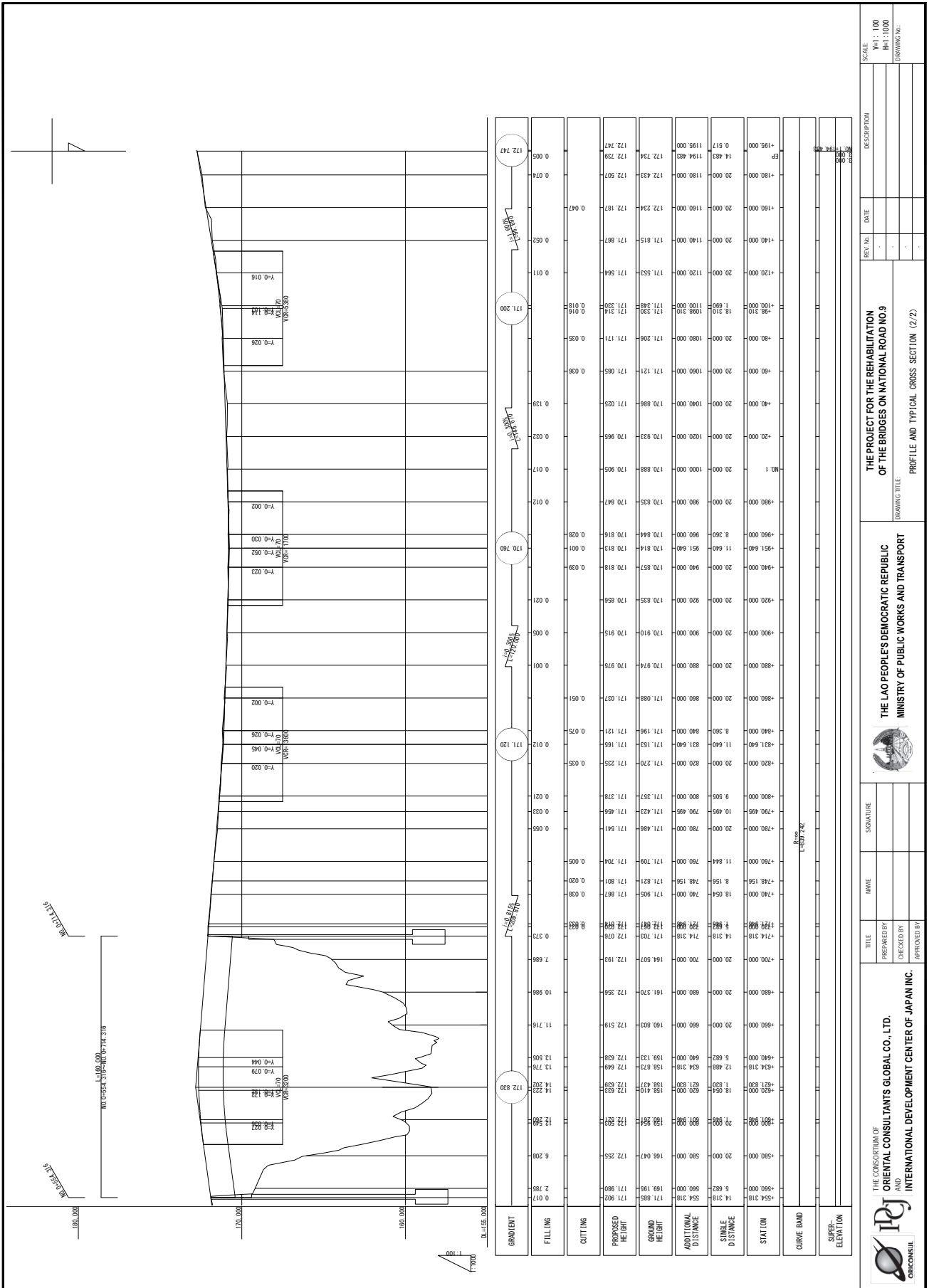
PREPARED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

NAME: \_\_\_\_\_



STATION	PROPOSED HEIGHT	GROUND HEIGHT	ADDITIONAL DISTANCE	SINGLE DISTANCE	STATION	CURVE BAND	SUPER-ELEVATION
172.927	172.927	172.927	0.000	0.000	172.927		
172.847	172.847	172.847	0.000	0.000	172.847		
172.734	172.734	172.734	0.000	0.000	172.734		
172.433	172.433	172.433	0.000	0.000	172.433		
172.234	172.234	172.234	0.000	0.000	172.234		
171.815	171.815	171.815	0.000	0.000	171.815		
171.553	171.553	171.553	0.000	0.000	171.553		
171.206	171.206	171.206	0.000	0.000	171.206		
171.121	171.121	171.121	0.000	0.000	171.121		
170.888	170.888	170.888	0.000	0.000	170.888		
170.933	170.933	170.933	0.000	0.000	170.933		
170.855	170.855	170.855	0.000	0.000	170.855		
170.814	170.814	170.814	0.000	0.000	170.814		
170.844	170.844	170.844	0.000	0.000	170.844		
170.816	170.816	170.816	0.000	0.000	170.816		
170.818	170.818	170.818	0.000	0.000	170.818		
170.856	170.856	170.856	0.000	0.000	170.856		
170.915	170.915	170.915	0.000	0.000	170.915		
170.974	170.974	170.974	0.000	0.000	170.974		
171.008	171.008	171.008	0.000	0.000	171.008		
171.121	171.121	171.121	0.000	0.000	171.121		
171.155	171.155	171.155	0.000	0.000	171.155		
171.270	171.270	171.270	0.000	0.000	171.270		
171.328	171.328	171.328	0.000	0.000	171.328		
171.456	171.456	171.456	0.000	0.000	171.456		
171.466	171.466	171.466	0.000	0.000	171.466		
171.704	171.704	171.704	0.000	0.000	171.704		
171.801	171.801	171.801	0.000	0.000	171.801		
171.867	171.867	171.867	0.000	0.000	171.867		
172.000	172.000	172.000	0.000	0.000	172.000		
172.000	172.000	172.000	0.000	0.000	172.000		
172.747	172.747	172.747	0.000	0.000	172.747		

SCALE  
V=1:100  
H=1:1000

DESCRIPTION  
DATE  
REV. No.  
DATE

THE PROJECT FOR THE REHABILITATION  
OF THE BRIDGES ON NATIONAL ROAD NO.9  
DRAWING TITLE

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT



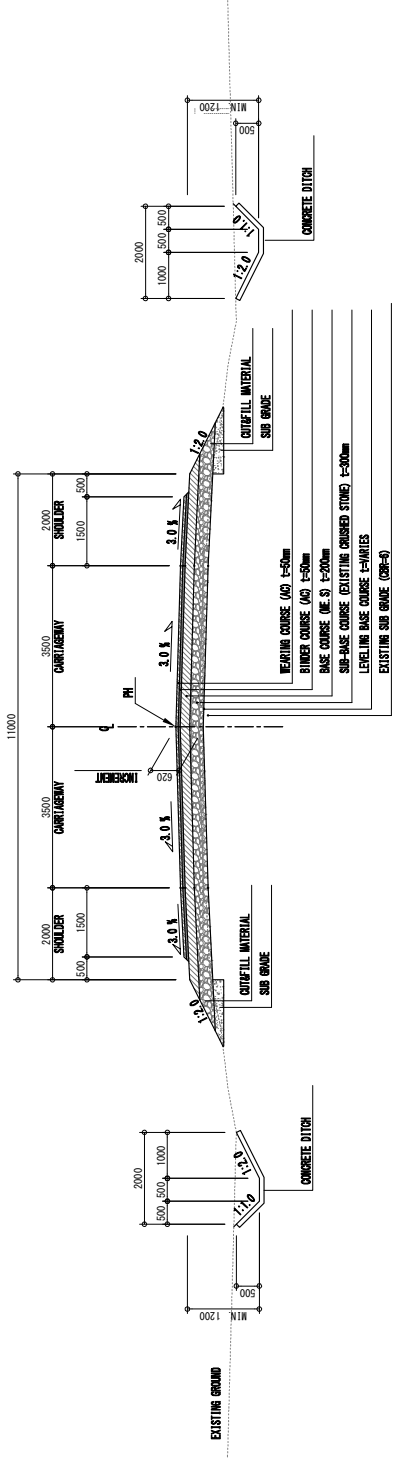
SIGNATURE

NAME

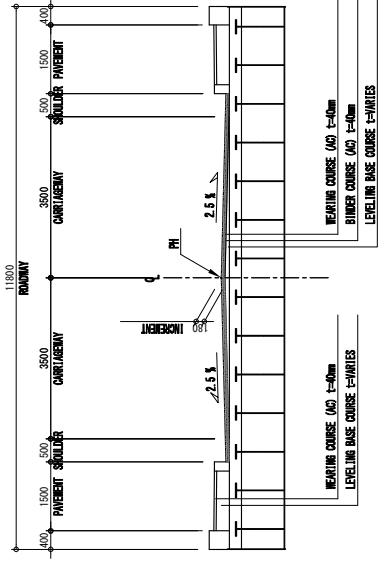
TITLE  
PREPARED BY  
CHECKED BY  
APPROVED BY

THE CONSORTIUM OF  
ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.







RUREL SECTION (RR-80)

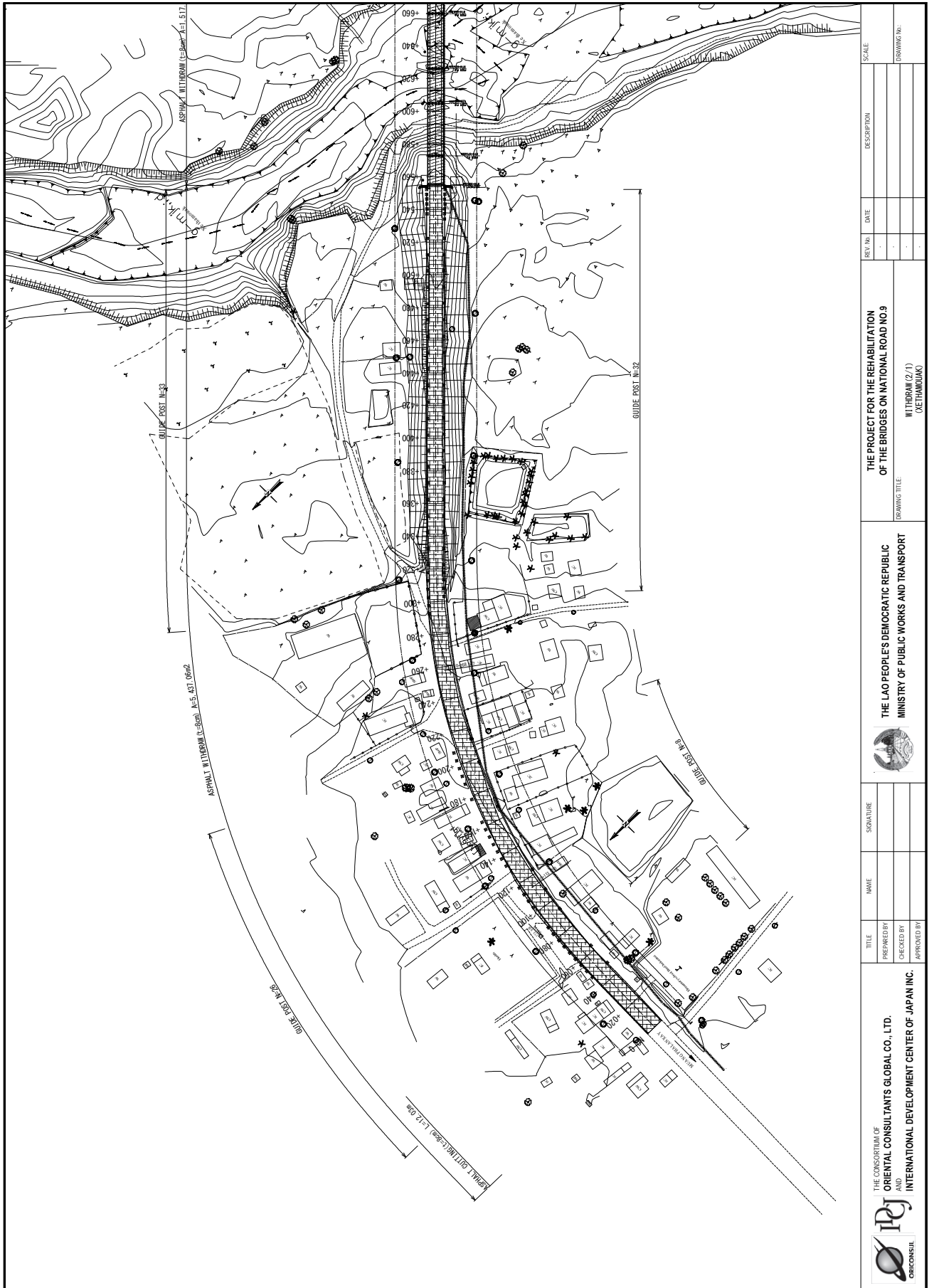


BRIDGE SECTION (RR-80)

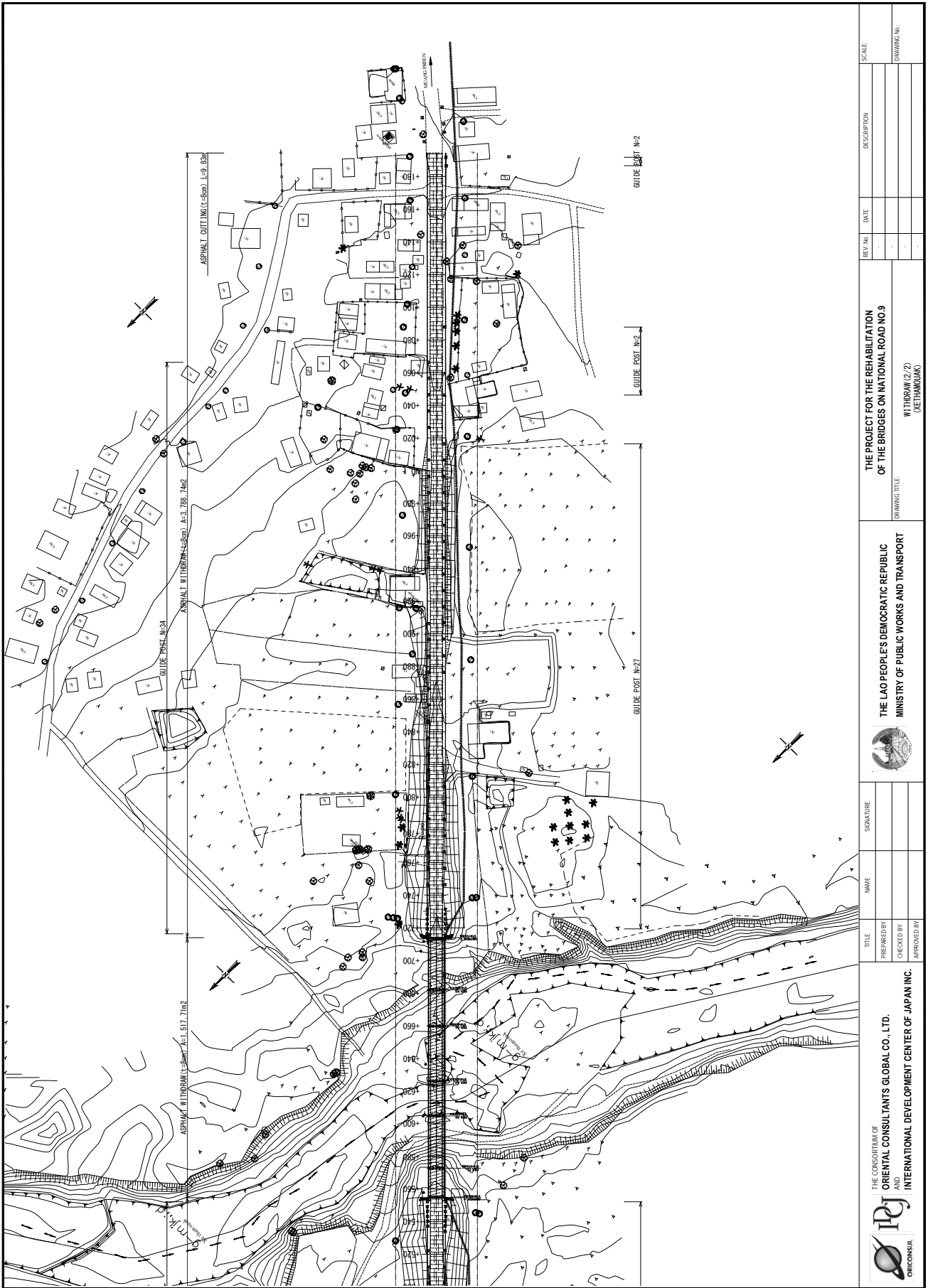
NOTE: - POSITION OF DRAINAGE DITCH SHALL BE DETERMINED ON SITE WITH ATTENTION TO THE BARRIER CABLE LINE.



 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	 <p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	REV/NO - DATE - DESCRIPTION - SCALE 1:100 DRAWING NO. -
	PREPARED BY				
	CHECKED BY			IN-SITU RECYCLING OF BASE COURSE (RR-80)	
	APPROVED BY				



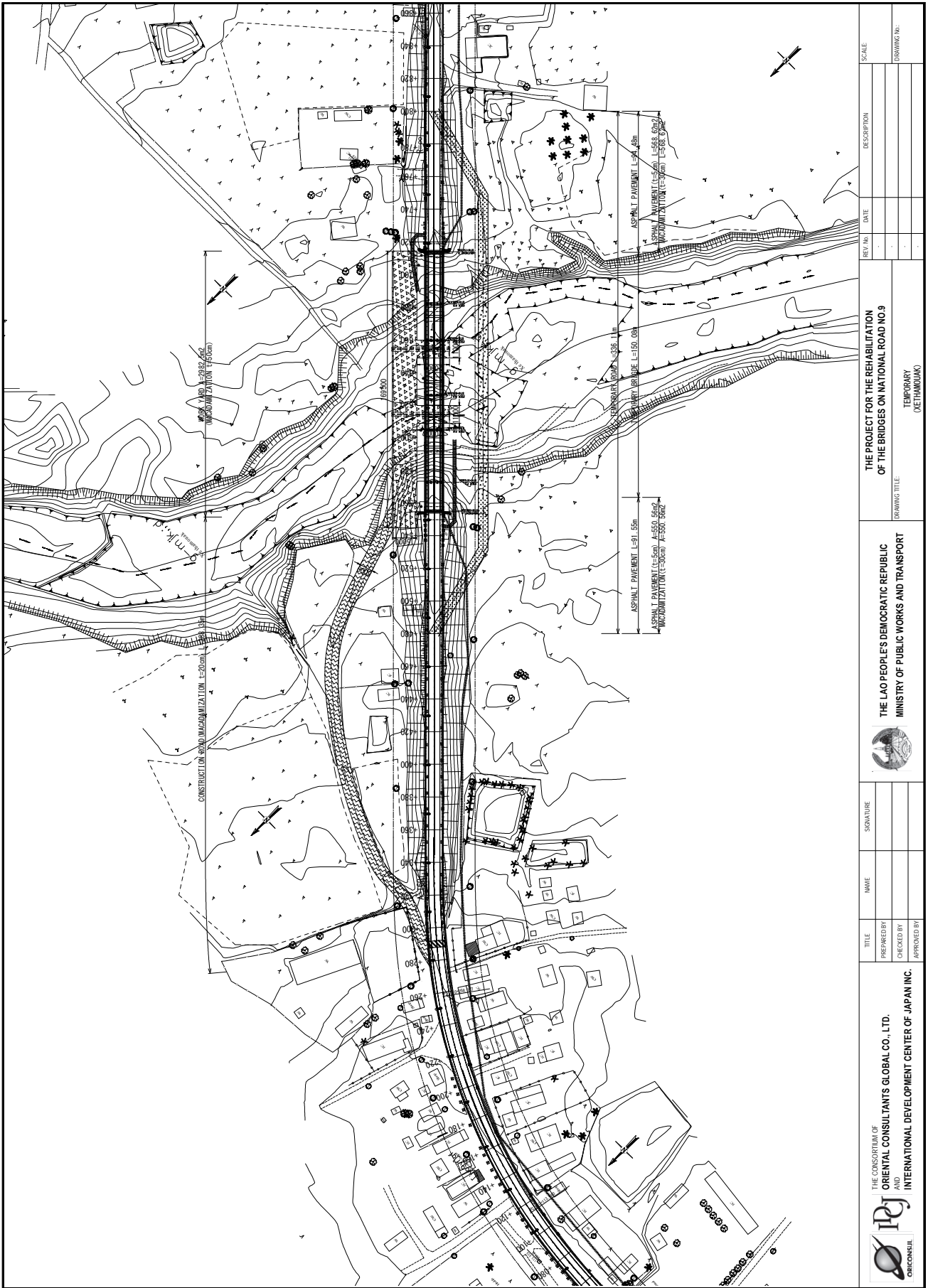


 THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>		TITLE PREPARED BY CHECKED BY APPROVED BY	NAME SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	DRAWING TITLE WITHDRAWAL (2.5) (AETIMOUANG)	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No. DATE	DESCRIPTION SCALE	DRAWING No.
--	--	---	-------------------	---	---	--	------------------	----------------------	-------------

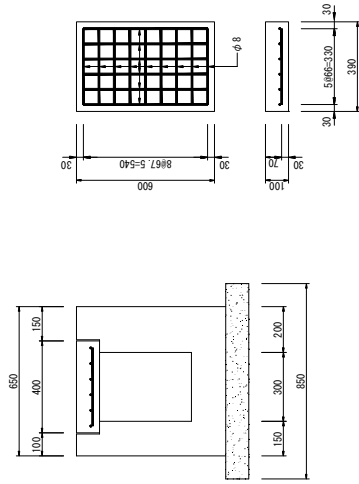


 THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	TITLE PREPARED BY CHECKED BY APPROVED BY	NAME SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	DRAWING TITLE WITHDRAWN (2/2) (AETIMOUANG)	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No. DATE	DESCRIPTION SCALE
	DRAWING No.						

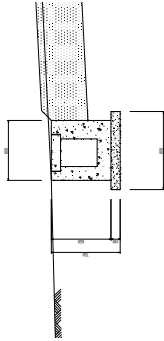
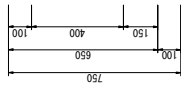




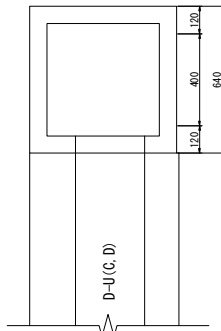
THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.		TITLE	NAME	SIGNATURE	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT		THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	
PREPARED BY		PREPARED BY			DATE	DATE	DESCRIPTION	SCALE
CHECKED BY		CHECKED BY						
APPROVED BY		APPROVED BY						DRAWING NO.
					DRAWING TITLE			
					TEMPORARY (AETIMBUANG)			



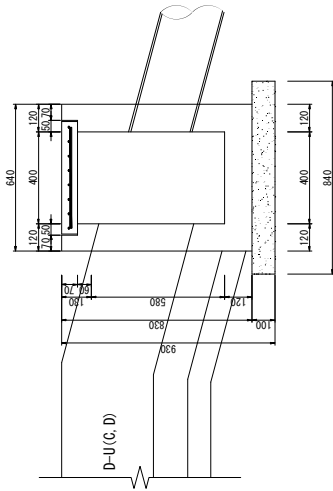
D-U(C)



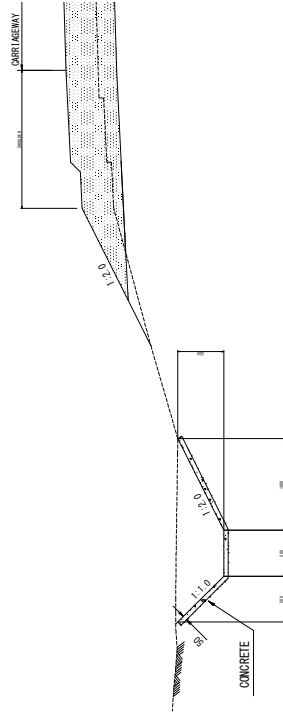
CONCRETE DITCH D-U(C) , D-U(D)



D-U(C, D)



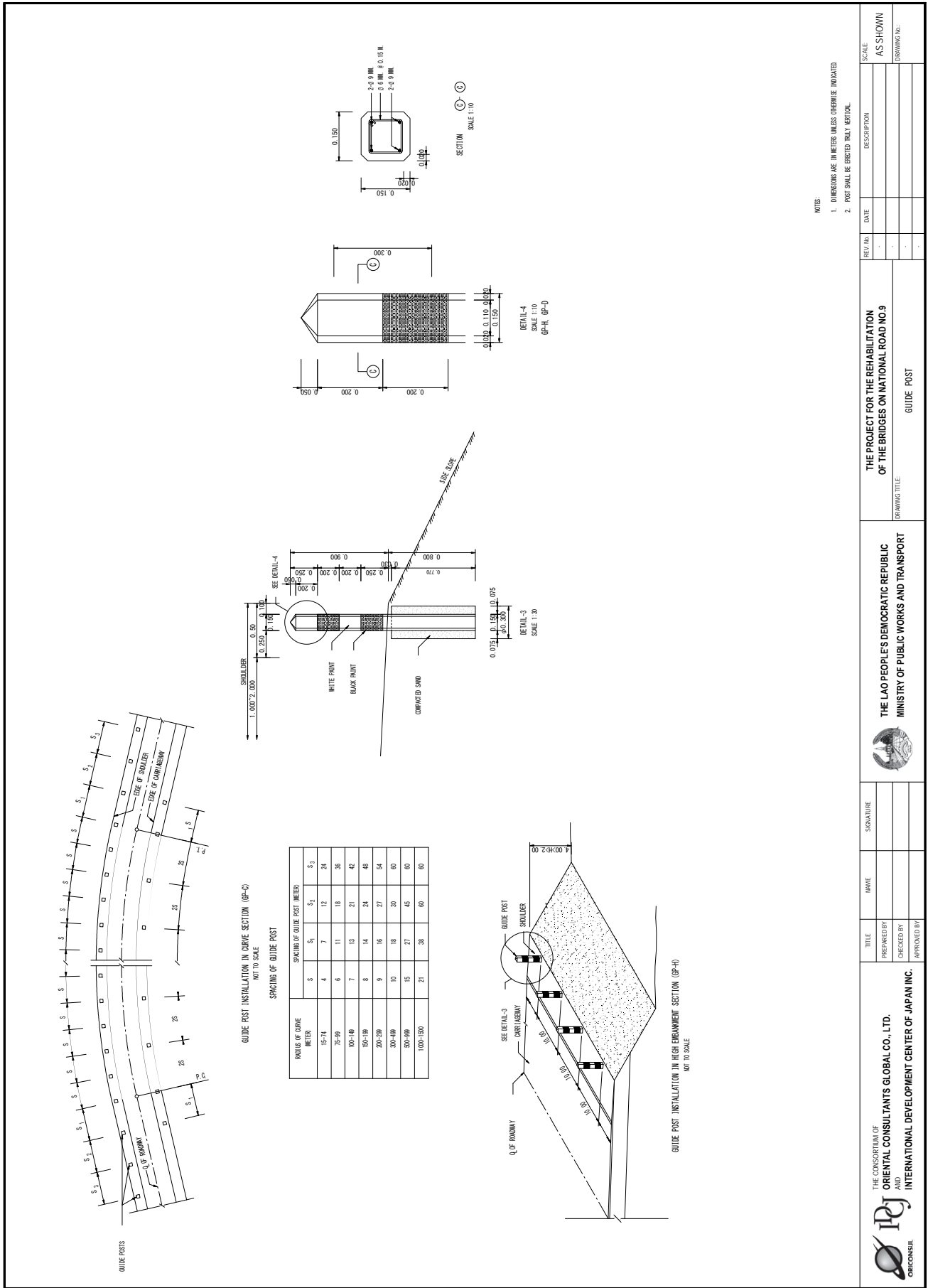
D-U(C, D)

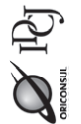


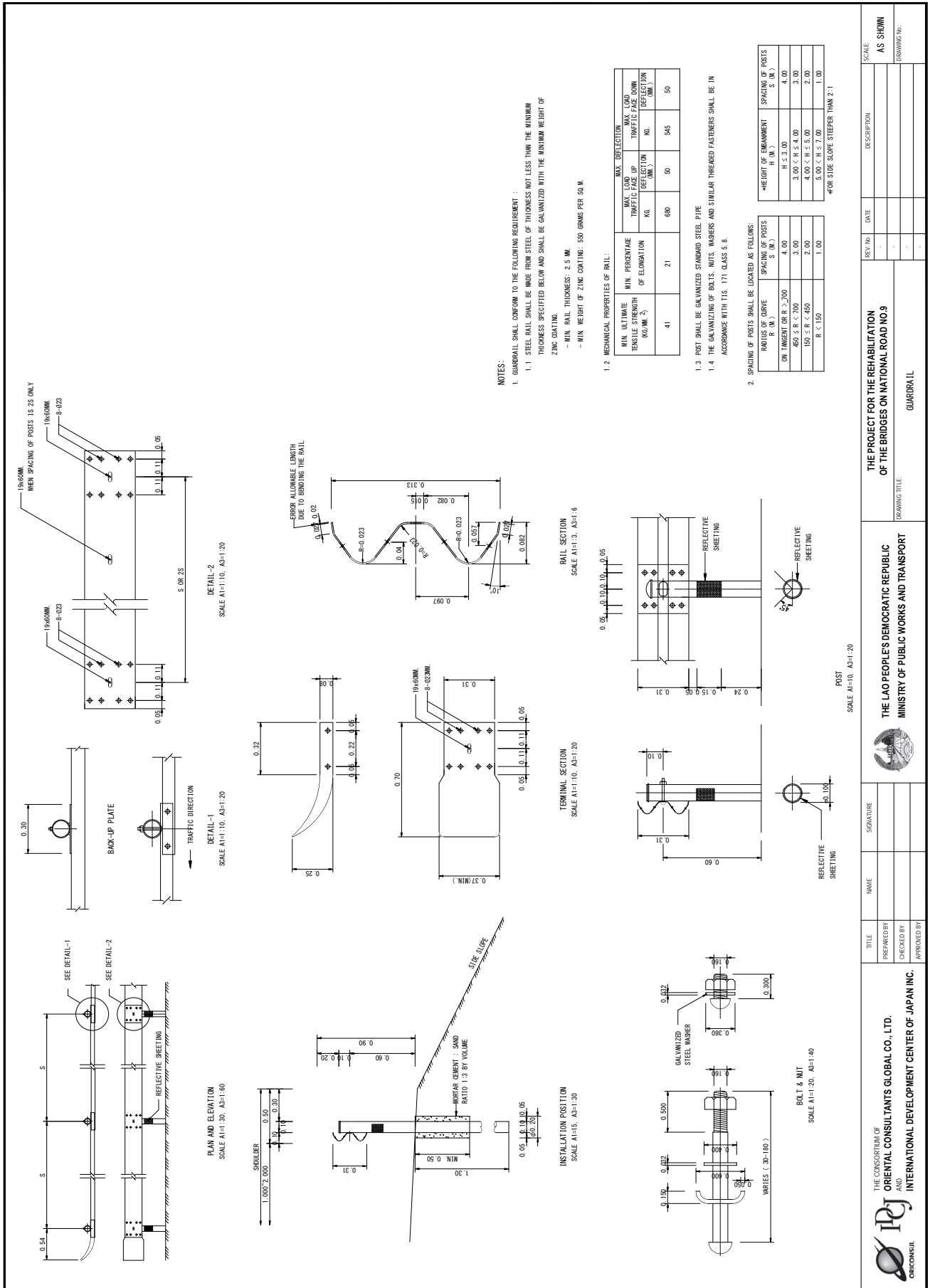
DRAINAGE DITCH, D-U(A)

- NOTES:
- POSITION OF DRAINAGE DITCH (D-U(A)) SHALL BE DETERMINED ON SITE WITH ATTENTION TO THE BURIED CABLE LINE.
  - JOINTS OF DRAINAGE DITCH STRUCTURE SHALL BE AT APPROXIMATELY 10 m INTERVAL.
  - CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH IN 18 MPa AT 28 DAYS.

<p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9</p>	<p>REV. No.</p> <p>DATE</p> <p>DESCRIPTION</p>	<p>SCALE</p> <p>1:200</p> <p>DRAWING No.</p>
	<p>PREPARED BY</p> <p>CHECKED BY</p> <p>APPROVED BY</p>				<p>DRAWING TITLE</p> <p>DETAILS OF DRAINAGE DITCH</p>		



 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 DRAWING TITLE GUIDE POST	REV. NO.	DATE	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY		AS SHOWN		



THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

GUARDRAIL

SCALE AS SHOWN

AS SHOWN

DRAWING NO.

SCALE

DESCRIPTION

DATE

REV. No.

TITLE

PREPARED BY

CHECKED BY

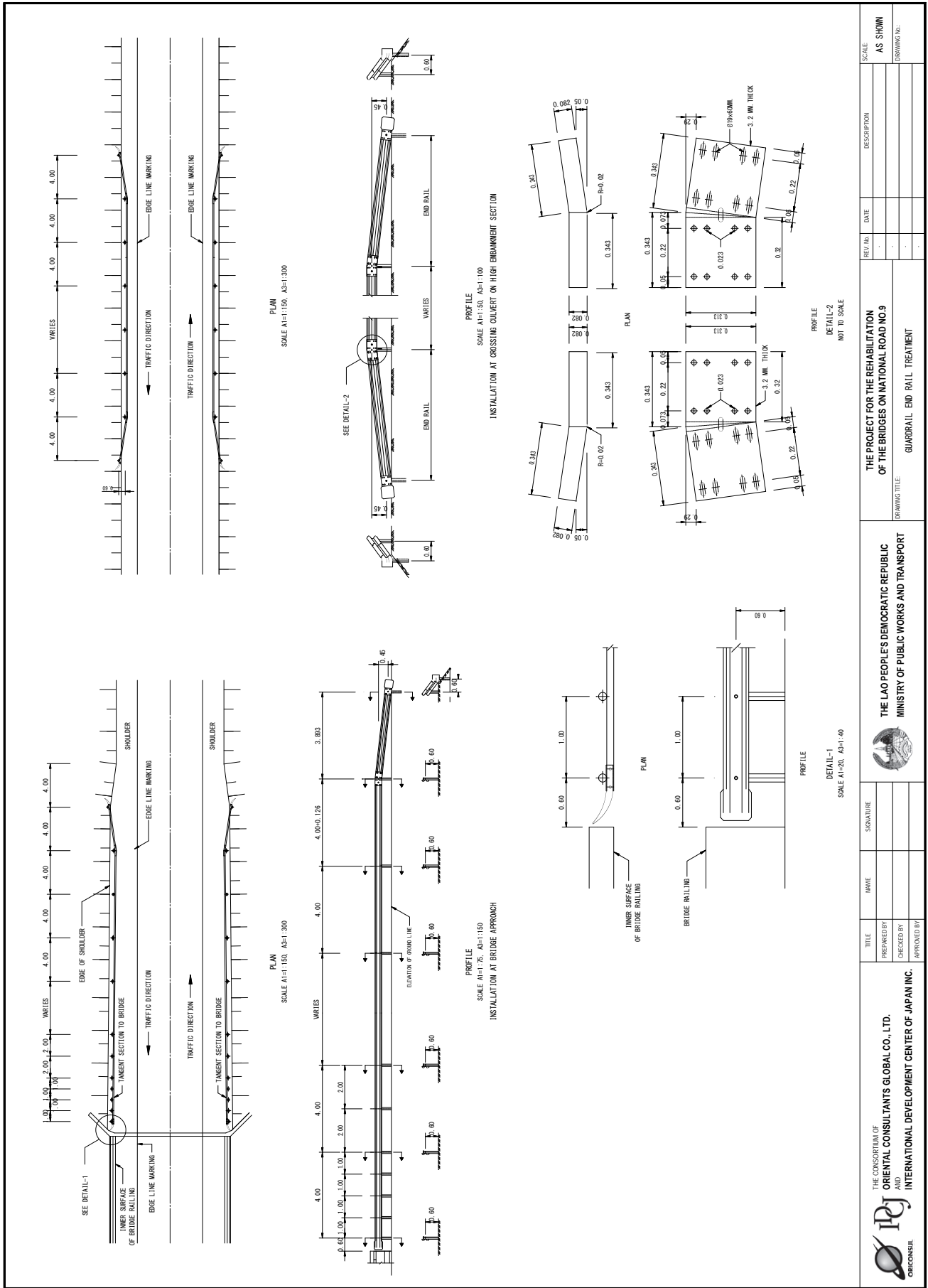
APPROVED BY

NAME

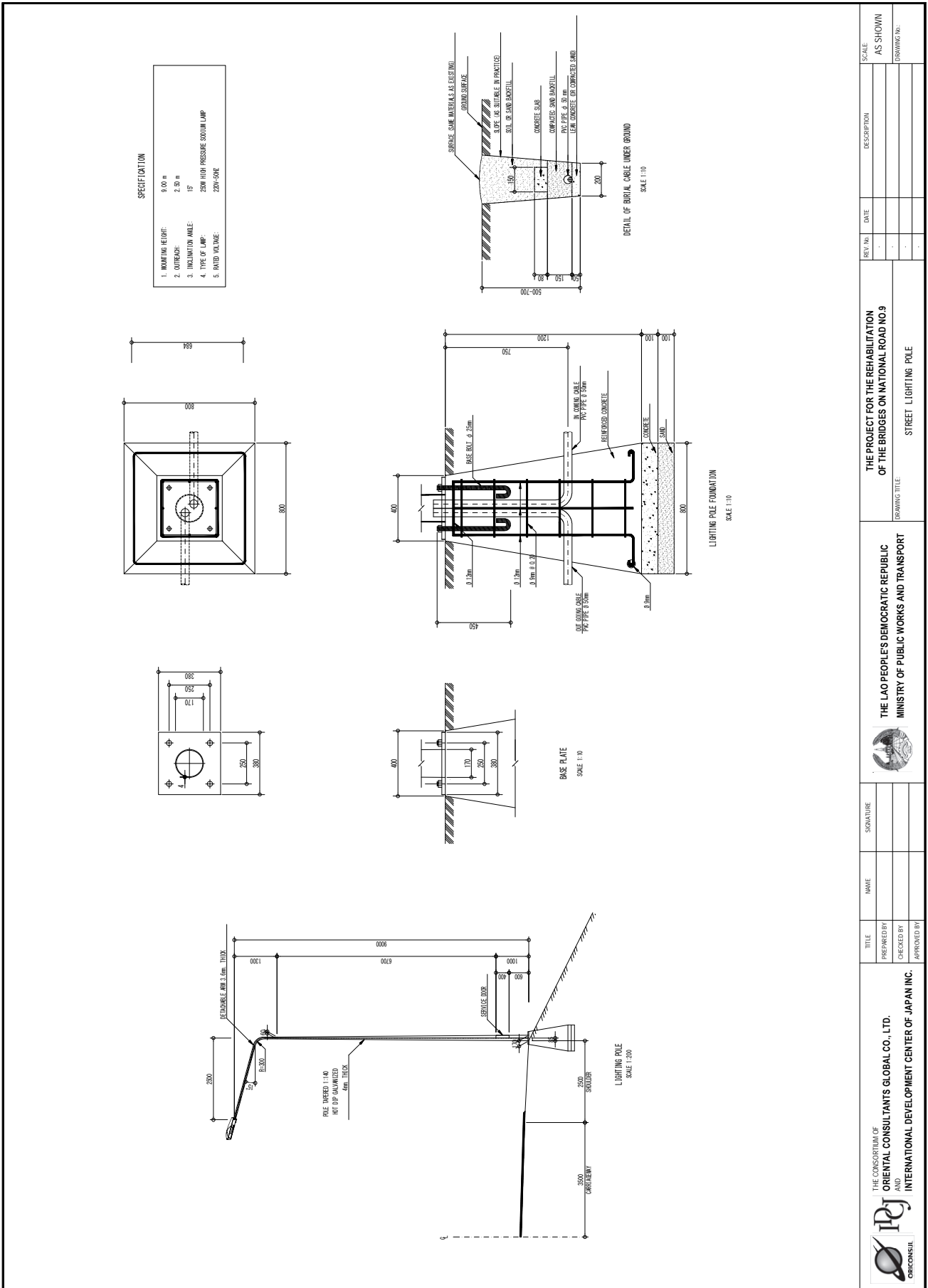
SIGNATURE



THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.

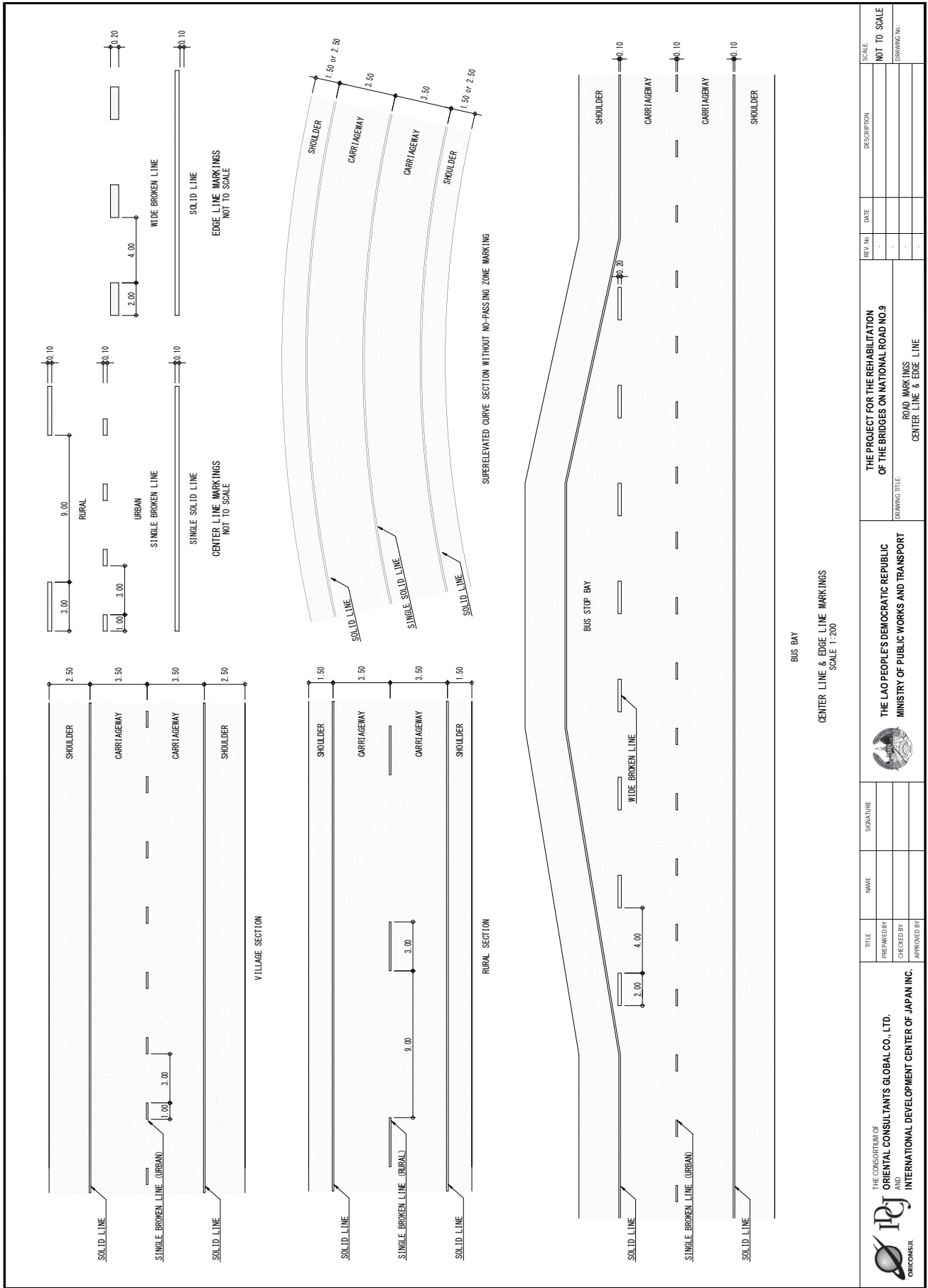
ORICONSU




 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p> 	<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9</p>	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING TITLE	AS SHOWN		
				GUARDRAIL END RAIL TREATMENT					

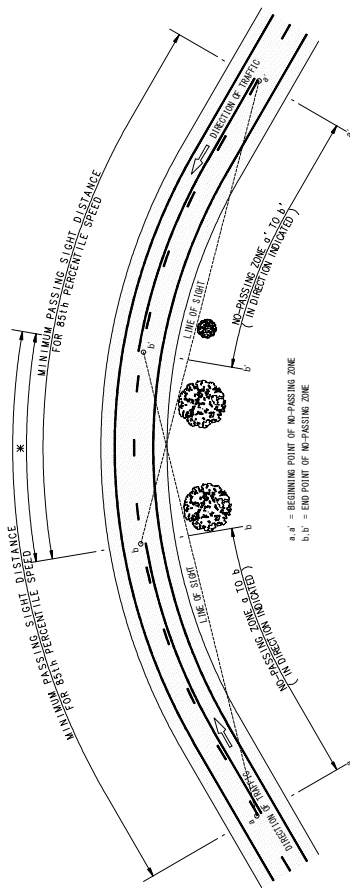


 THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	TITLE	NAME	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY		DRAWING TITLE	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN



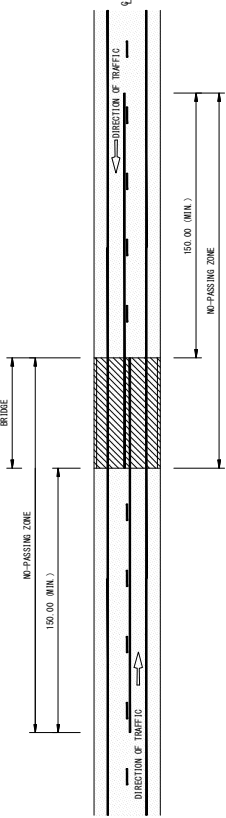
 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9	REV. No.	DATE	SCALE	NOT TO SCALE
	PREPARED BY	DRAWING TITLE				DRAWING No.
CHECKED BY	ROAD MARKINGS					
APPROVED BY	CENTER LINE & EDGE LINE					
	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT					
	SIGNATURE					
	NAME					



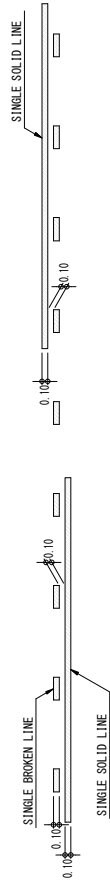


NOTE \* NO-PASSING ZONES IN OPPOSITE DIRECTIONS MAY OR MAY NOT OVERLAP, DEPENDING ON ALIGNMENT.

**NO-PASSING ZONES ON HORIZONTAL CURVES**  
NOT TO SCALE



**NO-PASSING ZONES ON BRIDGE APPROACH**  
NOT TO SCALE



**NO-PASSING ZONE MARKINGS**  
NOT TO SCALE

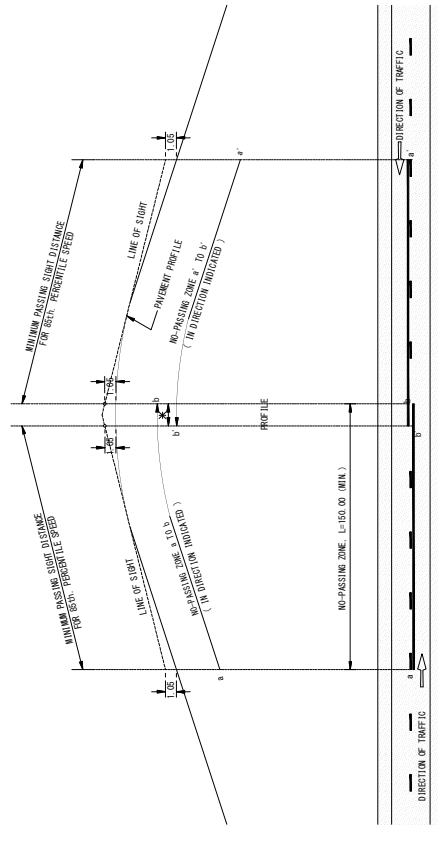
**TABLE MINIMUM PASSING SIGHT DISTANCE**

85 PERCENTILE SPEED (km/h)	MINIMUM PASSING SIGHT DISTANCE (m)
20	60
30	90
40	120
50	150
60	180
80	210

SOURCE: STANDARD DRAWING, VERTICAL/VIEWLINE MUNICIPALITY ROAD PROJECT, 2000

**NOTES:**

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
2. ALL MARKINGS SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF HIGHWAYS' TRAFFIC CONTROL DEVICE MANUAL, PART 2 ISSUED BE 2533
3. PAVEMENT MARKING FOR THE ASPHALT CONCRETE AND THE REINFORCED CONCRETE PAVEMENTS SHALL BE REFLECTORIZED THERMOPLASTIC PAINT, CONFORMING TO ITS 542. PAVEMENT MARKING FOR THE SURFACE TREATMENT PAVEMENT SHALL BE REFLECTORIZED PAINT, CONFORMING TO ITS 415 AND ITS 543.
4. THIS DRAWING SHALL BE REFERENCED TO THE THAILAND STANDARD DRAWINGS (SING. NO. RS-403).

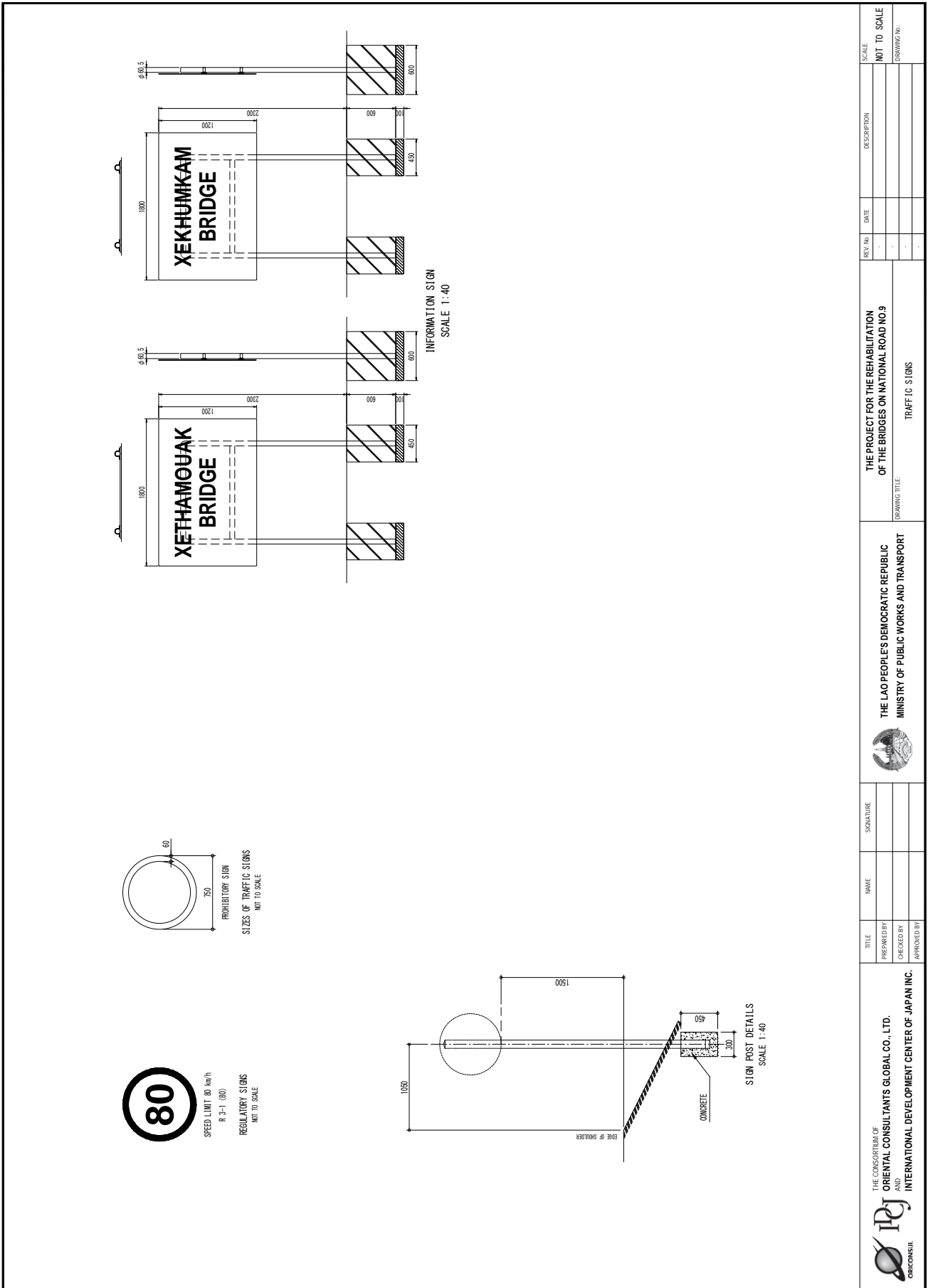


NOTE \* NO-PASSING ZONES IN OPPOSITE DIRECTIONS MAY OR MAY NOT OVERLAP, DEPENDING ON ALIGNMENT.

**NO-PASSING ZONES ON VERTICAL CURVES**  
NOT TO SCALE

<p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p>	REV. No.	DATE	DESCRIPTION	SCALE	
	PREPARED BY	CHECKED BY	APPROVED BY		<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9</p>				NOT TO SCALE
					DRAWING TITLE				DRAWING No.
					ROAD MARKINGS				
					NO-PASSING ZONE				

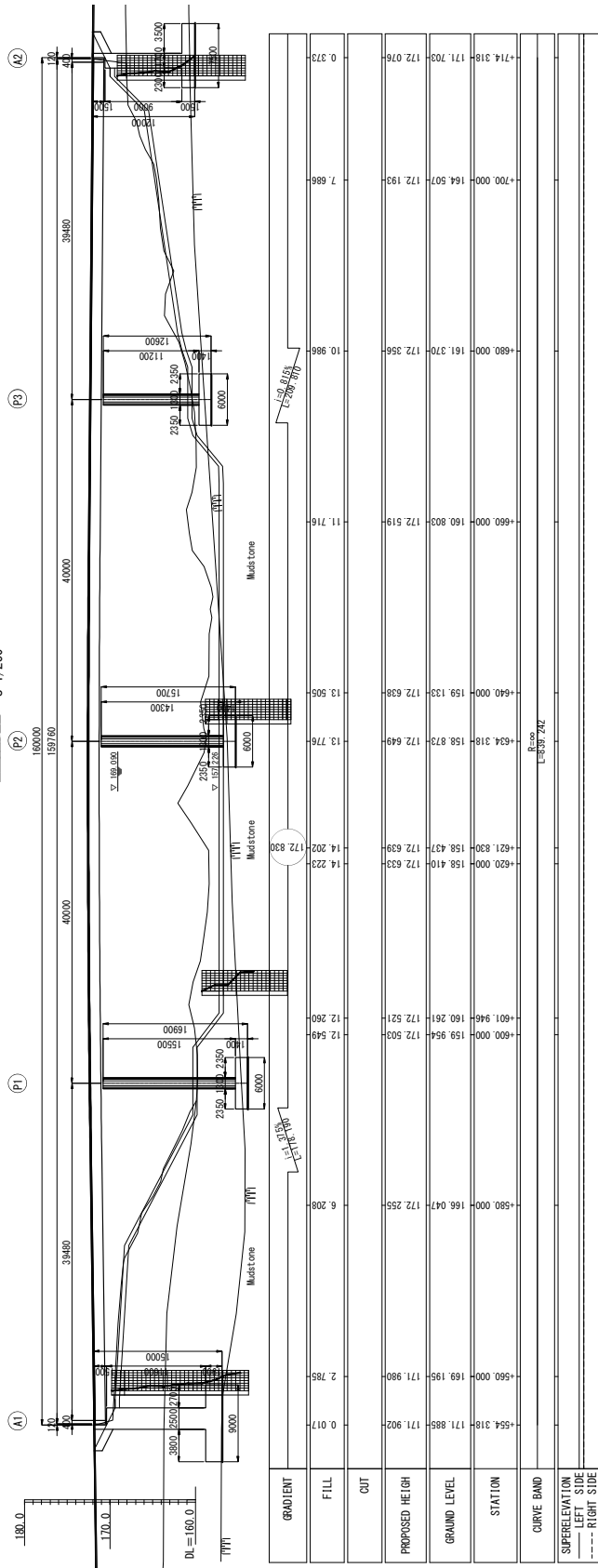




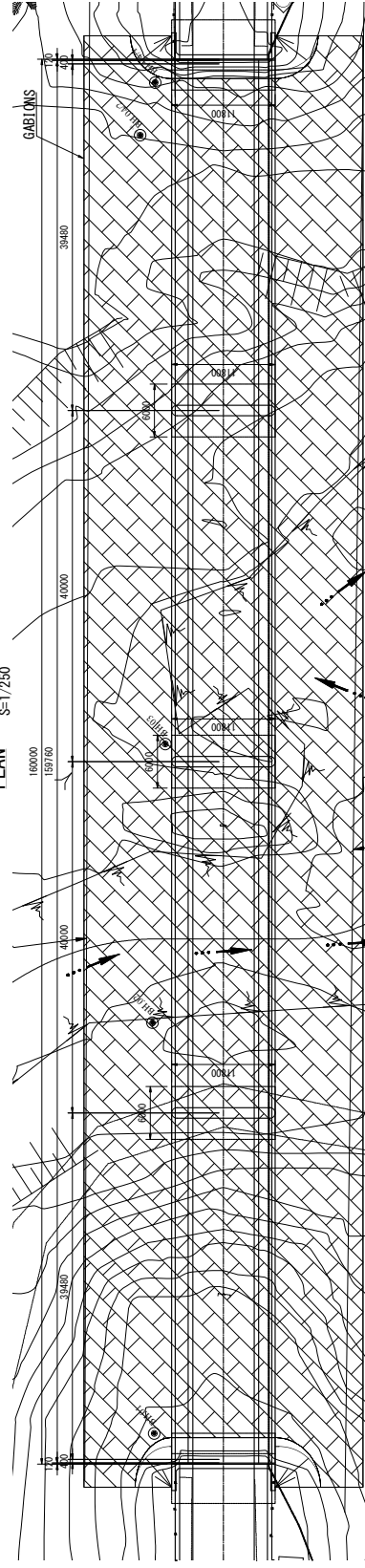
# GENERAL VIEW OF THE BRIDGE (1)

XETHAMOUAK

PROFILE S=1/250



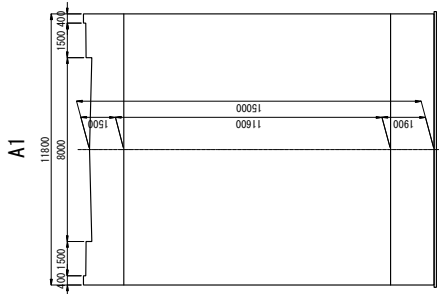
PLAN S=1/250



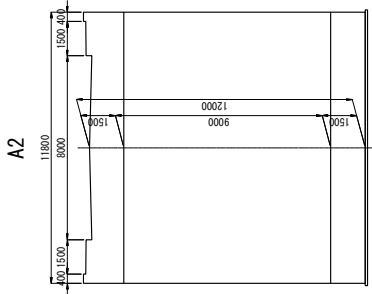
	THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>			TITLE PREPARED BY CHECKED BY APPROVED BY	SIGNATURE NAME	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT		THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 XETHAMOUAK		REV. No. DATE SCALE
	DRAWING TITLE GENERAL VIEW OF THE BRIDGE (1)		DRAWING No.		DRAWING No.		DRAWING No.		DRAWING No.	

GENERAL VIEW OF THE BRIDGE (2)  
XETHAMOUAK

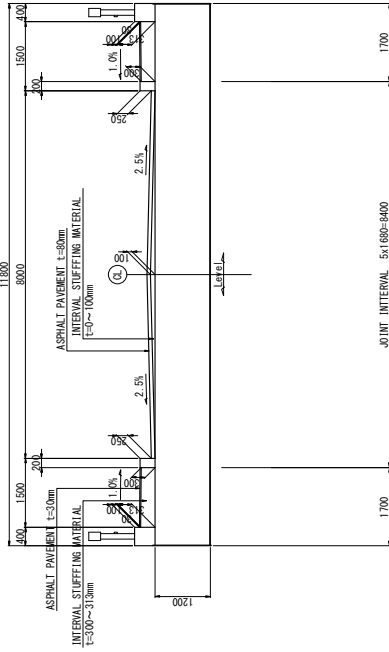
FRONT VIEW  
S=1/100



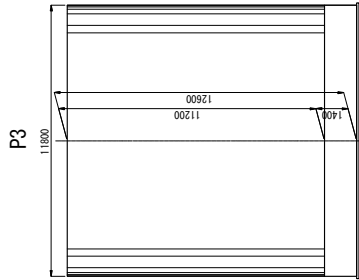
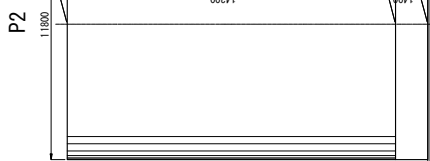
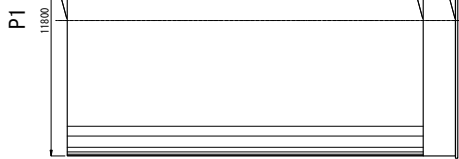
ABUTMENT



SECTION S=1/60



PIER



DESIGN CRITERIA

Road Class & Design Speed	Class II (R611ing), V=80km/h
Bridge Length (Span Length)	160.00m (39.48m+40.00m+40.00m+39.48m)
Bridge Width	Carriageway: 8.00m, Walkway: 1.50m
Pavement	Asphalt Concrete t=80mm
Longitudinal Gradient	+1.375% ~ -0.815%
Cross-fall of Carriageway	2.50%
Superstructure Type	4-span Continuous Composite Floor Slab Bridge
Substructure Type	Inverted T-Type
Pier	Wall Type
Abutment	Abutment
Foundation Type (Bearing Stratum)	A1 : A2 : Spread Foundation (Mud Stone) P1 : P2 : P3 : Spread foundation (Mud Stone)
Material Strength	
Superstructure	Girder
Slab	
Surface Fecility	Corb Adjusting Concrete
Substructure	σ28=21N/mm <sup>2</sup> σ28=21N/mm <sup>2</sup>
Reinforcing Steel	SD295 (σ <sub>y</sub> =285N/mm <sup>2</sup> )



THE CONSORTIUM OF  
ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
AND  
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.



THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

THE PROJECT FOR THE REHABILITATION  
OF THE BRIDGES ON NATIONAL ROAD NO.9

GENERAL VIEW OF THE BRIDGE (2)  
(XETHAMOUAK)

REVISION

REV. No.	DATE	DESCRIPTION	SCALE

DRAWING TITLE

DRIVING No.

TITLE

PREPARED BY

CHECKED BY

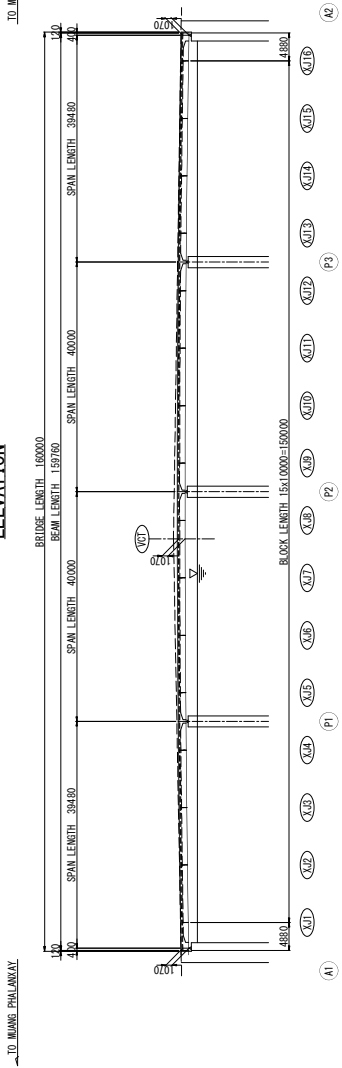
APPROVED BY

NAME

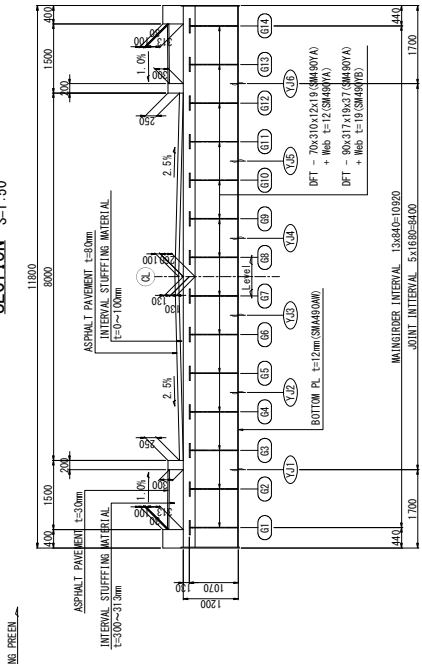
SIGNATURE

# XE THA MOUAK BRIDGE STRUCTURE GENERAL DRAWING S=1:400 XETHAMOUAK REFERENCE DRAWING

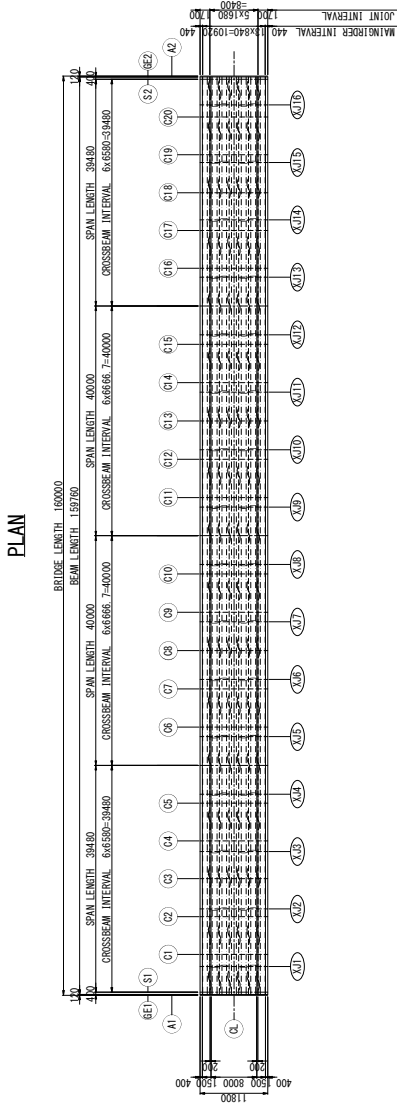
**ELEVATION**



**SECTION S=1:50**

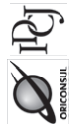


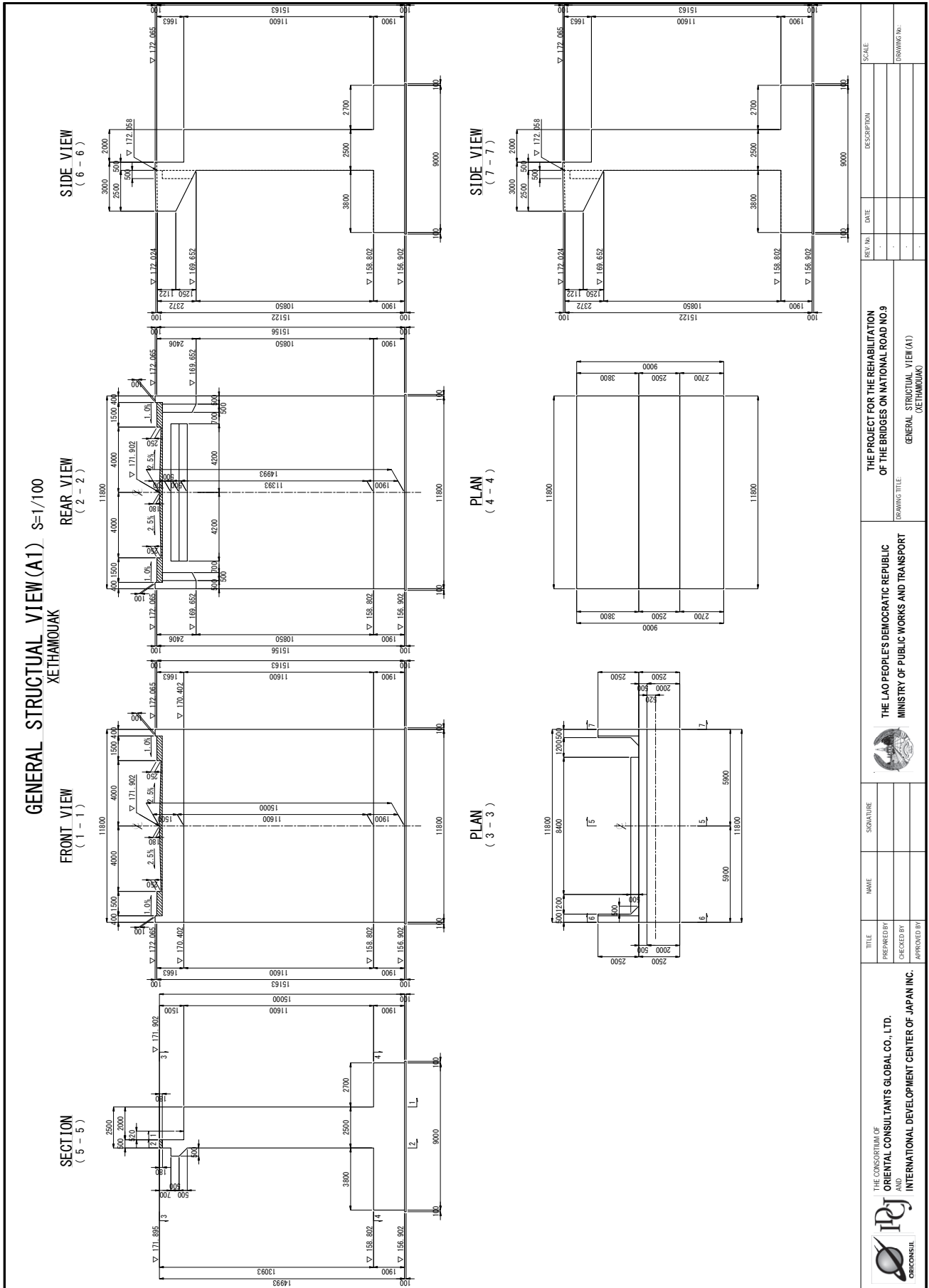
**PLAN**




**DESIGN CONDITIONS**

FORM	COMPOSITE FLOOR SLAB BRIDGE
LIVE LOAD	TYPE-B
BRIDGE LENGTH	160.000m
BEAM LENGTH	159.760m
SPAN LENGTH	39.480m + 40.000m + 40.000m + 39.480m
WIDTH	11.800m
ROAD WIDTH	CARRIAGEWAY: 8.000m, WALKWAY: 1.500m
PLANE CURVE	STRAIGHT LINE
LONGITUDINAL GRADIENT	ROAD SURFACE: 2.5% FROM CENTER DOWN TO EDGE BOTTOM FL: 1.0% FROM EDGE DOWN TO CENTER
TRANSVERSE GRADIENT	ROAD SURFACE: 1.0% FROM EDGE DOWN TO CENTER WALKWAY: Level
ANGLE OF SKEW	θ = 90° 00' 00"
ASPHALT PAVEMENT	CARRIAGEWAY: t = 50mm, WALKWAY: t = 30mm

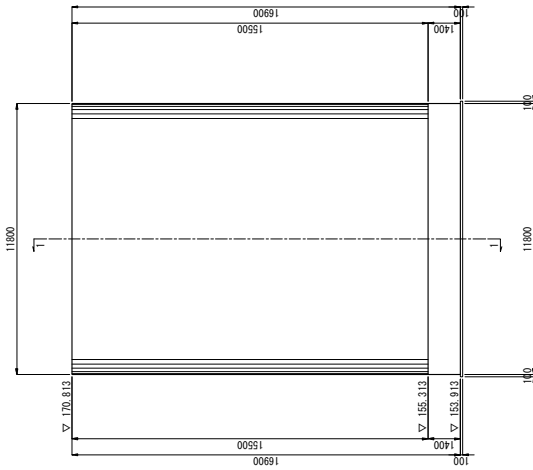
	THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC <b>MINISTRY OF PUBLIC WORKS AND TRANSPORT</b>	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9
	DRAWING TITLE: BRIDGE STRUCTURE GENERAL DRAWING (REFERENCE DRAWING) (XETHAMOUAK)	DRAWING NO.:	SCALE:
TITLE	NAME	SIGNATURE	DATE
PREPARED BY	CHECKED BY	APPROVED BY	DESCRIPTION



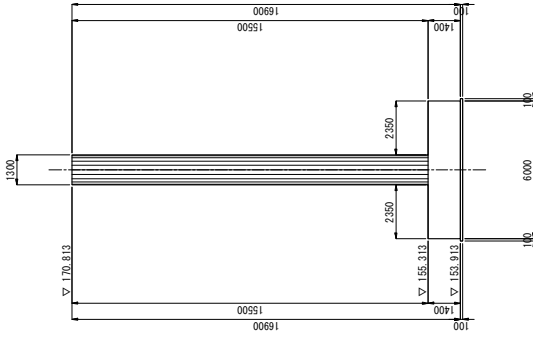
 THE CONSORTIUM OF <b>ORIENTAL CONSULTANTS GLOBAL CO., LTD.</b> AND <b>INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</b>	TITLE	NAME	SIGNATURE		THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9
	PREPARED BY				DRAWING TITLE	GENERAL STRUCTURAL VIEW (A1) (XETHAMOUAK)
	CHECKED BY					REV. No.
	APPROVED BY					DATE
						DESCRIPTION
						SCALE
						DRAWING No.

GENERAL STRUCTURAL VIEW (P1) S=1/100  
XETHAMOUAK

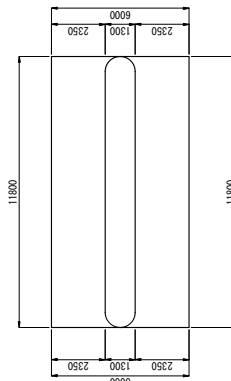
FRONT VIEW





SIDE VIEW  
(1-1)



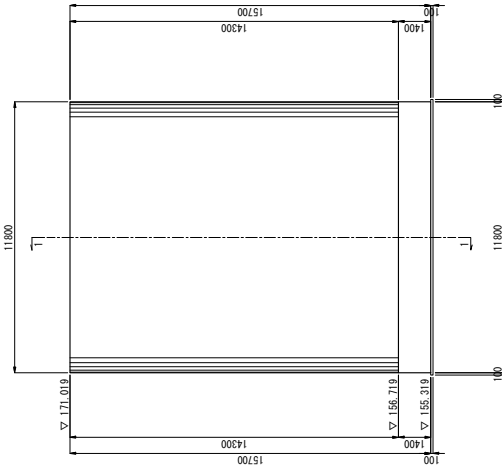
PLAN  
(2-2)



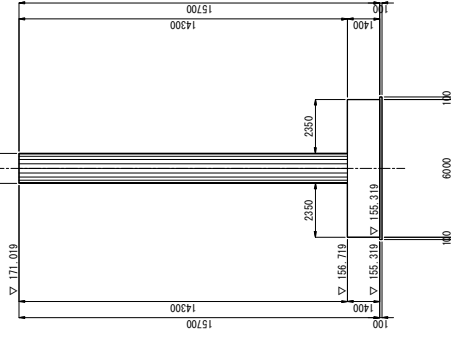
 <p>THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.</p>	TITLE	NAME	SIGNATURE	<p>THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT</p> 	<p>THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9</p>	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING No.			

GENERAL STRUCTURAL VIEW (P2) S=1/100  
XETHAMOUAK

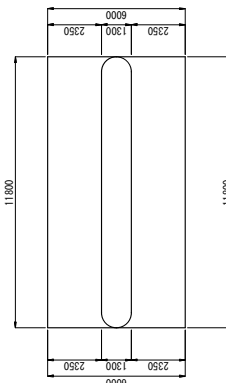
FRONT VIEW




SIDE VIEW  
(1-1)



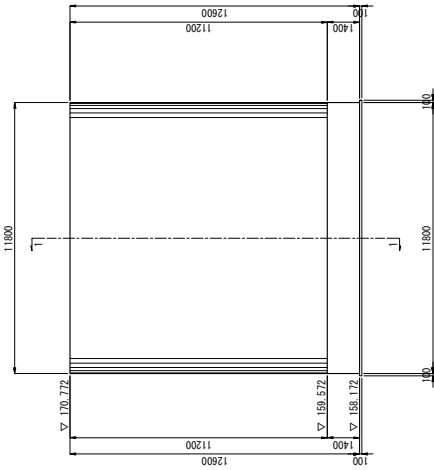
PLAN  
(2-2)



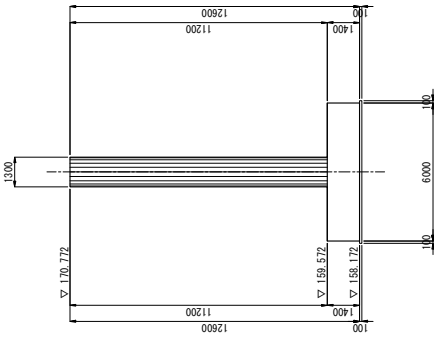
 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 XETHAMOUAK GENERAL STRUCTURAL VIEW (P2)	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING No.			

GENERAL STRUCTURAL VIEW (P3) S=1/100  
XETHAMOUAK

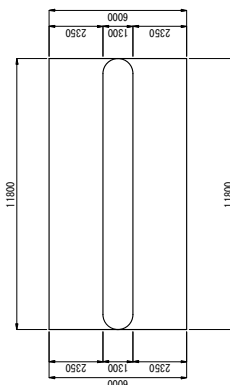
FRONT VIEW





SIDE VIEW  
(1-1)



PLAN  
(2-2)

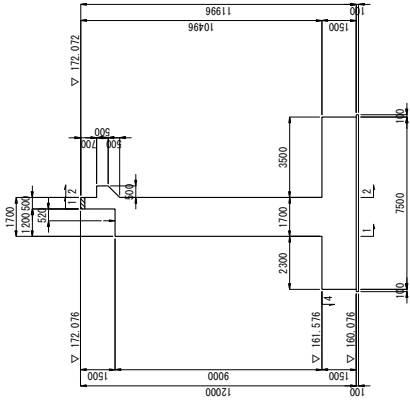


 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT 	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 XETHAMOUAK		SCALE
	PREPARED BY CHECKED BY APPROVED BY	DATE REV. No. DRAWING No.	DESCRIPTION DATE REV. No. DRAWING No.				

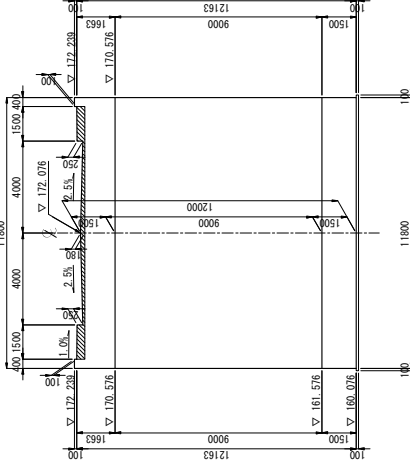


GENERAL STRUCTURAL VIEW (A2) S=1/100  
XETHAMOUAK

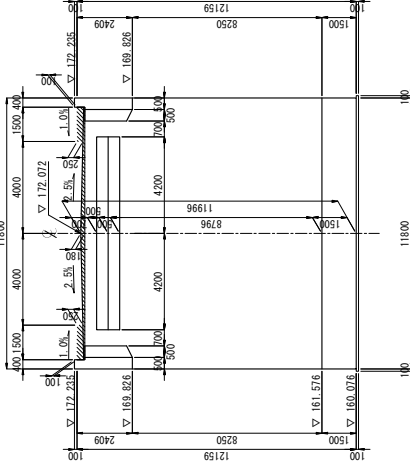
SECTION  
( 5 - 5 )



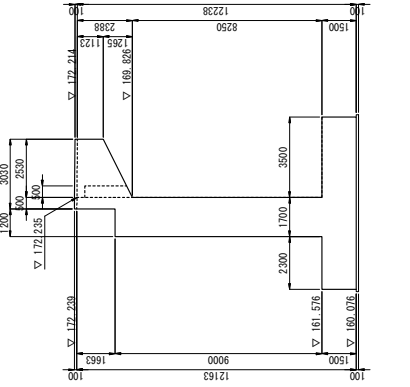
FRONT VIEW  
( 1 - 1 )



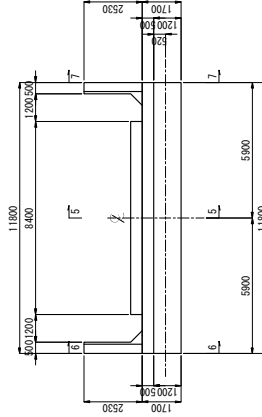
REAR VIEW  
( 2 - 2 )



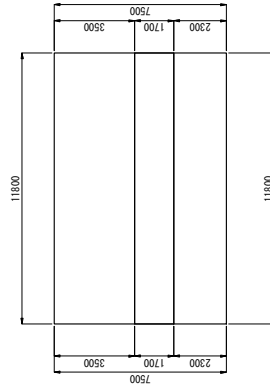
SIDE VIEW  
( 6 - 6 )



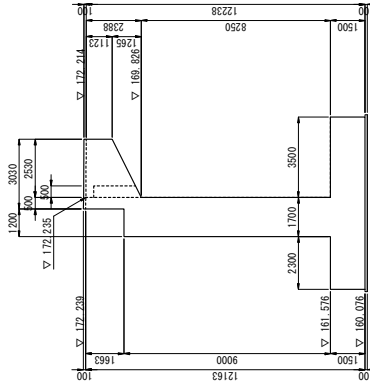
PLAN  
( 3 - 3 )



PLAN  
( 4 - 4 )



SIDE VIEW  
( 7 - 7 )



THE CONSORTIUM OF  
**ORIENTAL CONSULTANTS GLOBAL CO., LTD.**  
AND  
**INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.**

TITLE	NAME	SIGNATURE
PREPARED BY		
CHECKED BY		
APPROVED BY		

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC  
MINISTRY OF PUBLIC WORKS AND TRANSPORT



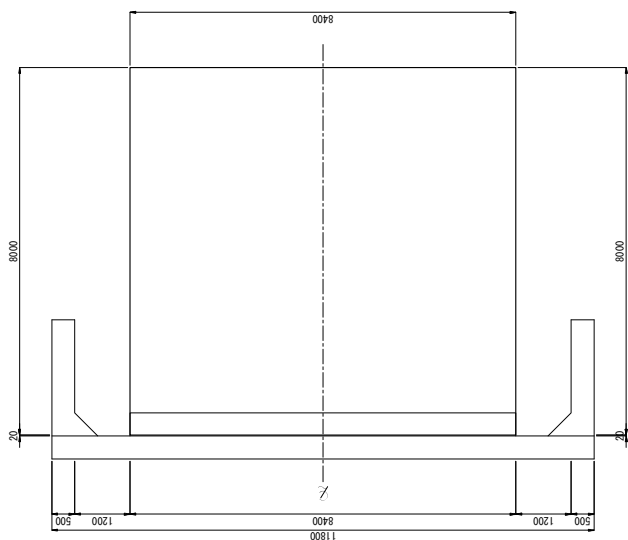
THE PROJECT FOR THE REHABILITATION  
OF THE BRIDGES ON NATIONAL ROAD NO.9  
DRAWING TITLE  
GENERAL STRUCTURAL VIEW (A2)  
(XETHAMOUAK)

REV. No.	DATE	DESCRIPTION	SCALE

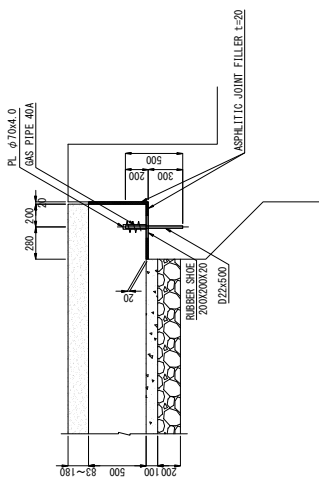
DRAWING No. \_\_\_\_\_

**APPROACH SLAB  
XETHAMOUAK**

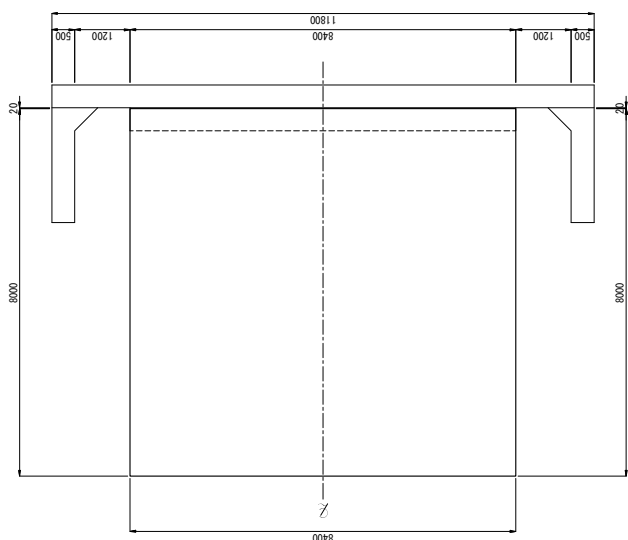
PLAN OF STRUCTURE (A2) S=1/50



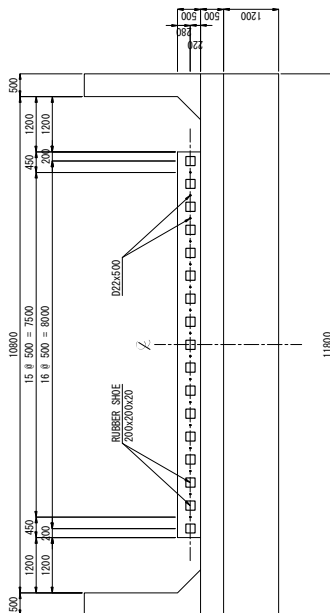
DETAIL OF ANCHOR S=1/20



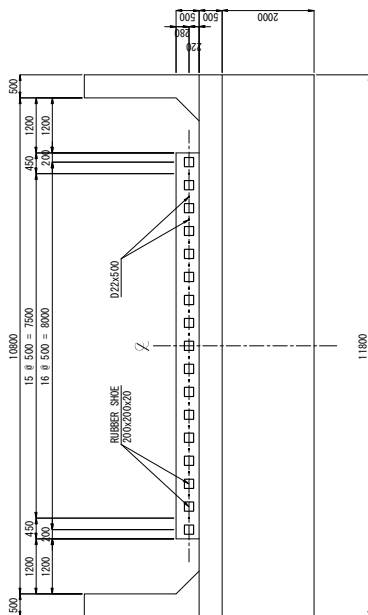
PLAN OF STRUCTURE (A1) S=1/50





PLAN OF SHOE (A2) S=1/50



PLAN OF SHOE (A1) S=1/50



 THE CONSORTIUM OF ORIENTAL CONSULTANTS GLOBAL CO., LTD. AND INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.	TITLE	NAME	SIGNATURE	 THE LAO PEOPLE'S DEMOCRATIC REPUBLIC MINISTRY OF PUBLIC WORKS AND TRANSPORT	THE PROJECT FOR THE REHABILITATION OF THE BRIDGES ON NATIONAL ROAD NO.9 APPROACH SLAB (XETHAMOUAK)	REV. No.	DATE	DESCRIPTION	SCALE
	PREPARED BY	CHECKED BY	APPROVED BY			DRAWING TITLE	DRAWING No.		

## 6. ソフトコンポーネント計画書

ラオス国  
国道 9 号線橋梁改修計画  
ソフトコンポーネント計画書

2015 年 9 月

株式会社 オリエンタルコンサルタンツグローバル  
一般財団法人 国際開発センター

(ソフトコンポーネント基礎情報)

案件名	: 国道9号線橋梁改修計画 The Project for Reconstruction of the Bridges on National Road No. 9
E/N期間	:
限度額	:
所要経費	: <u>¥18,400,000</u>
実施形態	: <del>マネージメント支援</del> / <u>エンジニアリング支援</u> / 相手国負担事業促進
現地要員	: <u>有</u> / 無
実施期間	: 2016年7月～2017年11月
業務完了時期	: 本工事竣工1ヶ月前(2019年1月)
支払	: 前払い 有 / <u>無</u>

ラオス国  
国道9号線橋梁改修計画  
ソフトコンポーネント計画書

目次

1. ソフトコンポーネントを計画する背景.....	1
2. ソフトコンポーネントの目標.....	2
3. ソフトコンポーネントの成果.....	2
4. 成果達成度の確認方法.....	3
5. ソフトコンポーネントの活動（投入計画） .....	3
6. ソフトコンポーネントの実施リソースの調達方法.....	4
7. ソフトコンポーネントの実施工程.....	5
8. ソフトコンポーネントの成果品.....	5
9. ソフトコンポーネントの概略事業費.....	7
10. 相手国側の責務 .....	9

添付書類

## 1. ソフトコンポーネントを計画する背景

### 1.1 プロジェクトの背景

ラオス人民民主共和国（以下、ラ国）は、内陸国という地理的特性もあり、隣接国との交通網、特に道路輸送による物流の重要性が非常に高い。特にインドシナ半島を横断する東西経済回廊の一部を形成する国道 9 号線は、タイ東北部とベトナム中部を接続する国際幹線道路であり、今年末の ASEAN 統合に資する重要インフラとして、また、ラ国国内における中南部地域の地域経済発展に資する道路として重要な位置づけにある。本事業のような周辺国への交通アクセスのための道路・橋梁を中心とした運輸インフラ整備は、ラ国政府の第 7 次社会経済開発計画「National Socio-Economic Development Plan (NSEDP)」でも重要な位置付けとされており、ASEAN 経済共同体 (AEC) との連結性の実現及び域内の経済格差是正の効果として期待されている。

国道 9 号線上の橋梁は、旧ソ連邦及びベトナムの支援により 1980 年代に整備されたものが多く、構造上の問題を多く孕んでいる。近年、その問題は顕在化しており、特に本事業で対象とする「セクムカーム橋」及び「セタームアック橋」（ともにチェコ・スロバキア共和国（当時）の支援により建設）は、貴機構が 2010 年に実施した「南部地方道路・橋梁改善計画準備調査」において、主桁の耐力不足による残留たわみなどの問題に加え、中間橋脚における主桁の折れ（ピン支承）など、橋梁構造上の不具合から円滑な交通流に支障を来しており、交通安全性を確保する上で架け替えが必要と評価された。このような状況下、ラ国公共事業運輸省（MPWT）道路局（DOR）から、無償資金協力による当該 2 橋梁改修の要請がなされた。

### 1.2 プロジェクトの概要

本プロジェクトは、国道 9 号線の国際幹線道路としての円滑な交通を確保することを目的に、既存橋の架け替えを行うとともに、工事期間中に亘って架け替え技術（切り回し、既存橋撤去）や橋梁維持管理の技術力向上に資する指導を行うものである。

#### 施設建設

- 既設橋 2 橋の架け替え（既存橋の撤去含む）

#### 資材調達

なし

### 1.3 ソフトコンポーネント導入の必要性和効果

国道 9 号線上には全 51 橋の橋梁が存在し、そのうち、2009 年には 1 橋梁が落橋し、一時、東西経済回廊の通行が不能となった。落橋による交通流の遮断は、ラオスの経済活動に大きなダメージを与えるほか、陸路が主体となるラオスでは、輸送路の寸断は緊急時のライフラインの確保に大きく影響する。2010 年にはラオス側の要請を受け、ラオス国南部地方道路・橋梁改善計画準備調査の中で、国道 9 号線の橋梁健全度調査が行われた。結果として、当該 2 橋梁のほか、損傷が進行し、維持管理が必要な鉄筋コンクリート橋が多く存在することが判明した。そのため、2011 年より始まった道路維持管理技プロ（CaRoL）では、橋梁維持管理マニュアルを整備し、OJT による橋梁点検、補修のワークショップ等の活動を行い、橋梁維持管理の必要性をカウンターパートに対し教育訓練を行っている。しかし、カウンターパートの能力の向上、維持管理体制の構築、醸成には時間がかかるものと考え、継続的な教育訓練の提供が必要と考える。そのため、当該案件においても、技プロのフォローアップの一環として、国道 9 号線の橋梁を対象として、維持管理の手法および新橋の建設計画も含めた橋梁架け替え計画の包括的な技術移転計画を策定、実施に関するソフトコンポーネント計画を実施して上記解決に努める。

## 2. ソフトコンポーネントの目標

本ソフトコンポーネント業務では、以下を上位目標、およびプロジェクト目標とする。

#### 上位目標

国道 9 号線（東西経済回廊）を介して隣国との交易および「ラ」国中南部地域における投資が促進される。

#### プロジェクト目標

国道 9 号線の安全かつ安定的な交通が実現する。

#### ソフトコンポーネント目標

- 適切な橋梁点検の実施が実現できる
- 適切な橋梁架け替え（新橋建設・既存橋撤去）の計画の策定が実現する
- 施工中の安全性が向上する



### 3. ソフトコンポーネントの成果

前述した目標を達成するためには、以下の成果を達成する事が必要である。

- ① 適切な橋梁点検が実施できる
- ② 適切な橋梁架け替え（新橋建設・既存橋撤去）の計画ができる
- ③ 適切な工事期間中の安全管理ができる
  - \*1 適切な点検・評価・補修工法選択ができる
  - \*2 適切な竣工後の維持管理ができる

上記の内\*1、\*2については、橋梁のライフサイクルマネジメントとしては、他の活動と連動しているためキャパシティ向上が不可欠な項目である。しかし、先に区分した通り、同活動は技プロで実施することが計画されているため、本ソフトコンポーネントの活動内容へは含めない。しかし、技プロと連携してマニュアル作成・実施計画策定・OJTによる現場での活動等を支援するものとする。

### 4. 成果達成度の確認方法

3.で定めた成果が達成される度合を確認する方法を以下に設定する。

成果	達成度確認方法
① 適切な橋梁点検が実施できる	既設橋の状態を正確に評価できるか。
	劣化状態に対して、適切な対策工を選定できるか。
② 適切な橋梁架け替え（新橋建設・既存橋撤去）の施工計画ができる	適切な橋梁形式を選定できるか。
	施工ヤード、使用機材等、施工計画は適切か
	既存埋設物、UXO等の対策は適切か
	現況交通量に対し、切り回し計画は適切か。
	廃棄物計画は適切か。
③ 適切な工事中の安全管理ができる	安全管理実施計画策定は適切か
	安全集合内容が住民に十分理解されたか
	現場員に対する指示・指導が適切か

## 5. ソフトコンポーネントの活動（投入計画）

上記成果を達成するために必要な活動内容（投入計画）は以下の通りである。

### 成果①「適切な橋梁点検の実施ができる」

（活動内容）

#### ①-1 橋梁点検の実施

本プロジェクトの架け替え対象としているセクムカム橋、セタムアック橋に対して、技プロで作成しているマニュアルを使って点検作業を実施、架け替え判断までの評価を指導する。また、その経験をもとに国道 9 号線上の他の橋梁に対しての点検・評価のワークショップを実施する。

実施時期：橋梁点検ワークショップ DD 期間 2016 年 7 月（1.0 ヶ月）

対 象 者：MPWT

日 本 側：橋梁維持管理担当 1 名

### 成果②「適切な橋梁架け替え（新橋建設・既存橋撤去）の施工計画策定ができる」

（活動内容）

#### ②-1 架け替え計画の実施

本プロジェクトで実施した橋梁架け替え計画、施工計画の説明を行うワークショップを開催し、計画策定の指導を行う。また、各実施段階において実施状況のモニタリングを行い、課題の抽出及び改善に向けた指導を行う。

実施時期：ワークショップ開催 DD 期間 2016 年 10 月～11 月（0.5 ヶ月）

道路切り回し SV 期間 2016 年 11 月～11 月（0.5 ヶ月）

施工管理 SV 期間 2016 年 11 月～12 月（1.0 ヶ月）

既存橋撤去 SV 期間 2017 年 3 月～3 月（1.0 ヶ月）

対 象 者：MPWT

日 本 側：橋梁施工担当 1 名

### 成果③「適切な工事期間中の安全管理ができる」

（活動内容）

#### ③-1 施工期間中の安全管理の実施

日本の業者が実施する本工事の施工管理に OJT 形式で参加し、安全管理のノウハウを学ぶとともに、地域を管轄する警察機関と連携して、沿線住民に対する安全啓蒙集会を開催する。また実施状況のモニタリングを行い、課題の抽出および改善に向けた指導を行う。

実施時期：SV 期間 2017 年 2 月、2017 年 11 月（2.0 ヶ月）

安全管理計画策定	0.5 ヶ月
安全集会開催	2 回程度
安全管理実施	1.5 ヶ月

対象者：DPWT

日本側：橋梁施工担当 1 名

## 6. ソフトコンポーネントの実施リソースの調達方法

本ソフトコンポーネント業務は、無償資金協力によって実施される国道 9 号線の橋梁改修工事期間中に、SV 実施コンサルタントから 2 名の日本人技術者を派遣して、OJT 形式で「ラ」国政府道路管理者、および現地施工会社の橋梁架け替え工事に関するキャパシティの向上を図る。一連の作業の日本人技術者の業務を補助する目的で、現地傭人で通訳・翻訳者 1 名を雇用する計画である。日本人技術者の主な担当項目は以下の通りである。

### (1) 橋梁維持管理技術者

- 現地セミナーの実施（現地技術者への説明）
- 施工管理のモニタリング・指導
- モニタリング報告書の作成

### (2) 橋梁施工

- 現地セミナーの実施（現地技術者への説明）
- 施工管理のモニタリング・指導
- 安全管理のモニタリング・指導
- モニタリング報告書の作成

## 7. ソフトコンポーネントの実施工程

本ソフトコンポーネント業務の実施工程を表-1 に示す。

## 8. ソフトコンポーネントの成果品

本ソフトコンポーネント業務の成果品は以下の通りとする。

- ワークショップ研修報告書
- モニタリング実施報告書
- 業務実施報告書
- 業務完了報告書



9. ソフトコンポーネントの概略事業費

本ソフトコンポーネント業務の概略事業費を表-2、表-3に示す。

表-2 ソフトコンポーネント概略事業費

名称	金額			備考
	現地貨 (Kip)	米ドル (US\$)	日本円 (¥)	
直接人件費			5,136,000	
直接経費		27,825.19	3,339,130	
間接費			6,574,080	
合計		27,579.79	15,049,210	
円換算		3,354,327	15,049,210	

合計： ¥18,400,000 (千円単位切り捨て)

交換レート

1 米ドル = 120.55 円

表-3 概略事業費内訳

名称	規格	数量	単位	単価			金額			備考
				現地貨 (Kip)	米ドル (US\$)	日本円 (¥)	現地貨 (Kip)	米ドル (US\$)	日本円 (¥)	
1. 直接人件費										
施工段階										
橋梁維持管理担当	3号	1.0	人月			856,000			856,000	
橋梁施工担当	3号	5.0	人月			856,000			4,280,000	
合計									<b>5,136,000</b>	
2. 直設経費										
1)航空運賃		1	式			752,330			752,330	
2)日当+宿泊費		1	式			2,586,800			2,586,800	
3)車輛費		1	式		9,825.19			9,825.19		
4)現地備人費		1	式		15,000.00			15,000.00		
5)報告書等作成費		1	式		3,000.00			3,000.00		
合計								<b>27,825.19</b>	<b>3,339,130</b>	
3. 間接費										
1)諸経費		1	式			4,622,400			4,622,400	直設人件費×90%
2)技術経費		1	式			9,758,400			9,758,400	(直接人件費+諸経費)×20%
合計									<b>6,574,080</b>	

## 10. 相手国側の責務

本ソフトコンポーネント業務実施における、「ラ」国側による責務は、以下を予定する。

- 適切なカウンターパートの配置
- 研修施設の提供
- プロジェクト運営管理費用負担

また、業務完了後も、成果が継続的に継承されていくために必要な前提条件を以下のよう  
に想定している。

- モニタリング技術の継承
- 工事实施の予算確保
- 現地業者の育成