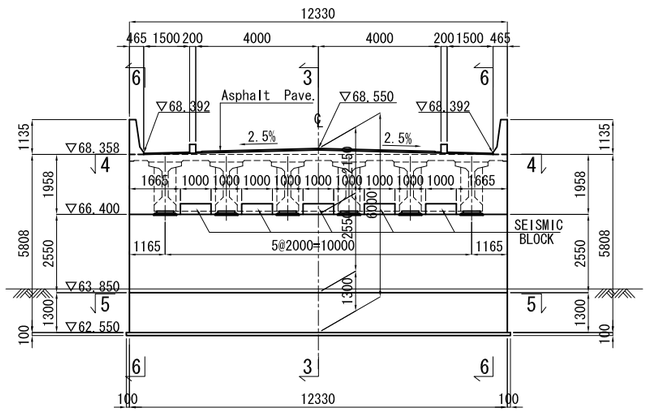
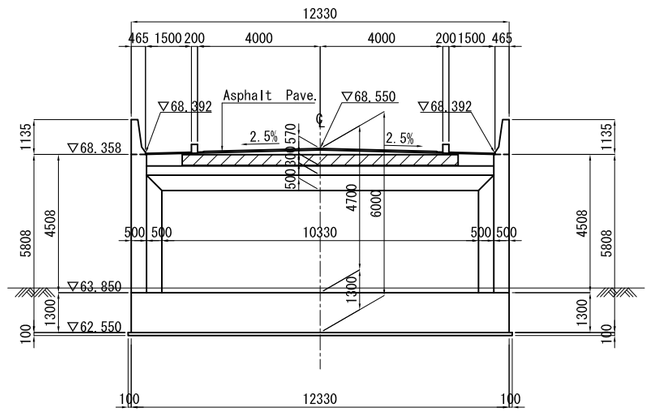
STRUCTURAL DRAWING OF A1 ABUTMENT SCALE 1:100

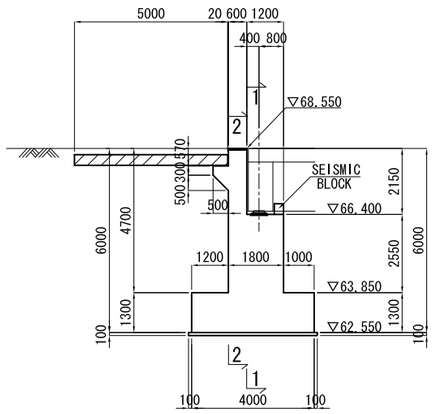
1 - 1



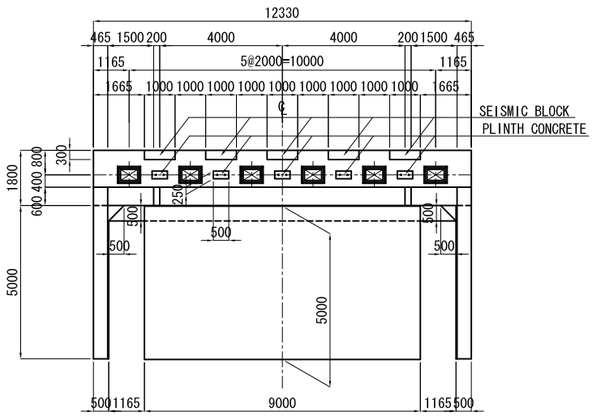
2 - 2



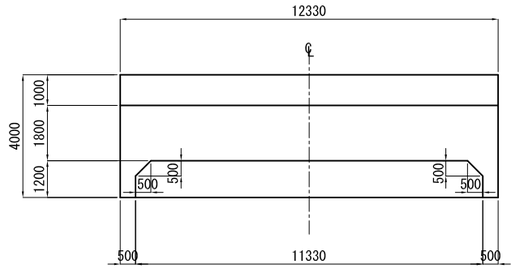
3 - 3



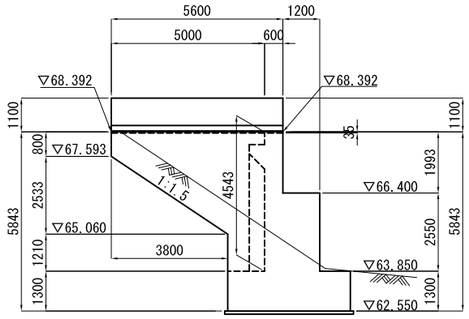
4 - 4



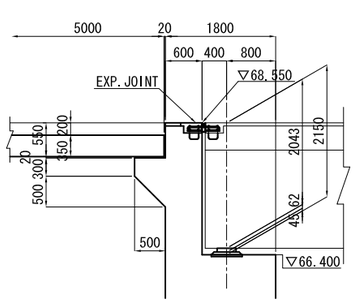
5 - 5



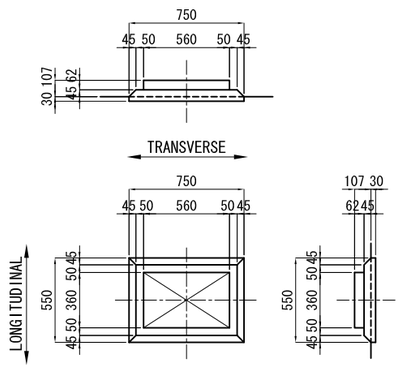
6 - 6



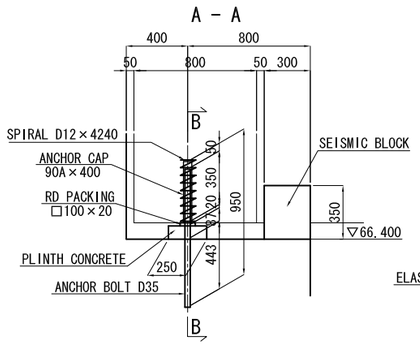
DETAILS SCALE 1:50



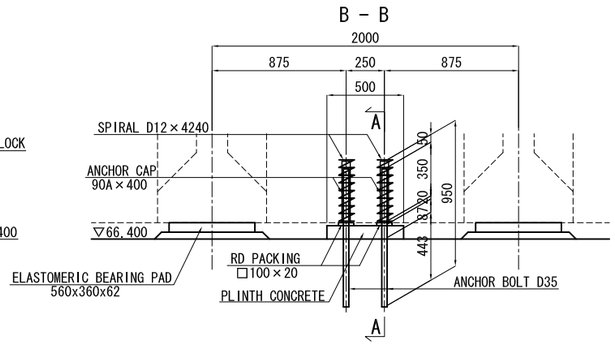
DETAILS SCALE 1:20



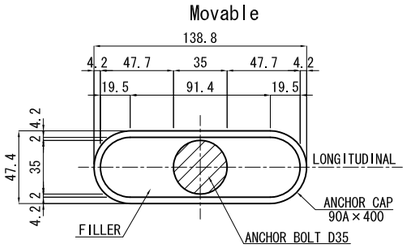
A - A



B - B



ANCHOR CAP SCALE 1:2
Movable

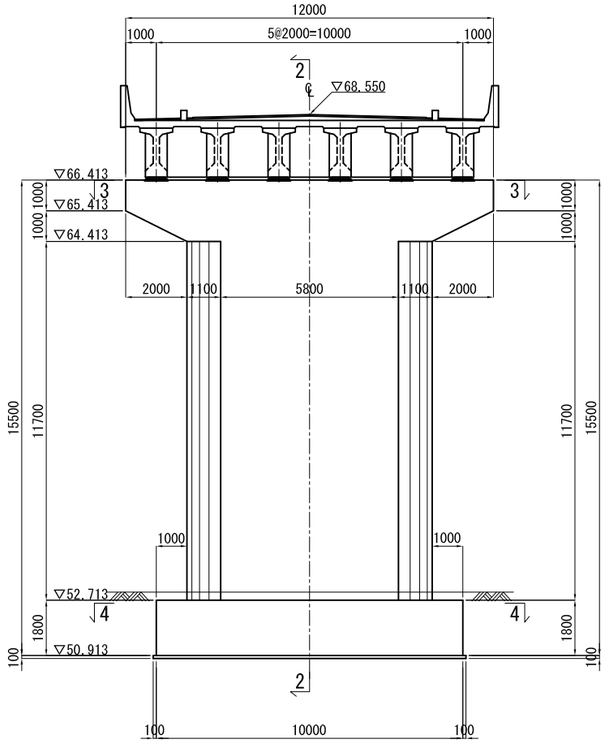


DETAILS SCALE 1:20

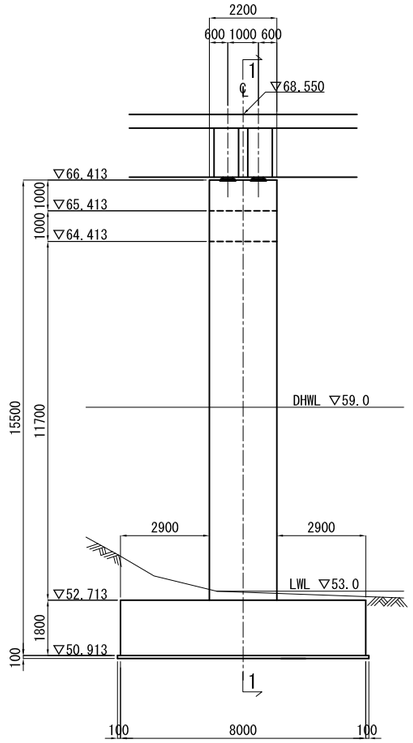
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO.,LTD	TITLE : STRUCTURAL DRAWING OF A1 ABUTMENT	SCALE (A1 size) AS SHOWN	DRAWING NO. : LT-05

STRUCTURAL DRAWING OF P1 BRIDGE PIER SCALE 1:100

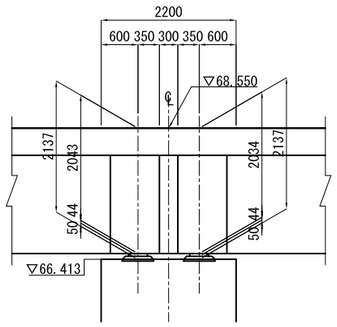
1 - 1



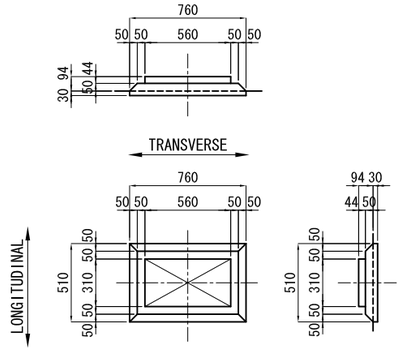
2 - 2



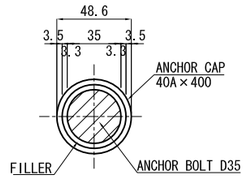
DETAILS SCALE 1:50



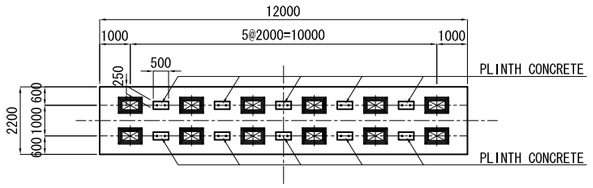
DETAILS SCALE 1:20



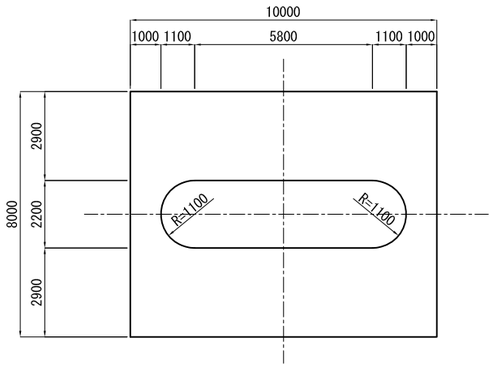
ANCHOR CAP SCALE 1:2
Fixed



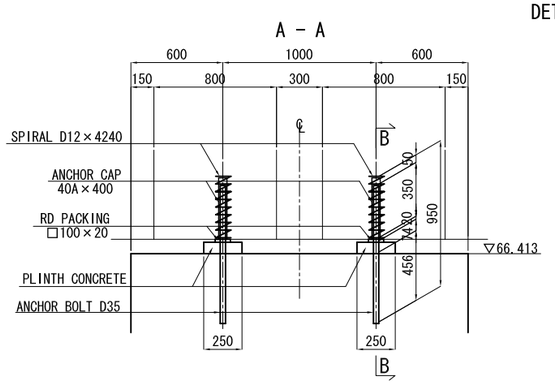
3 - 3



4 - 4

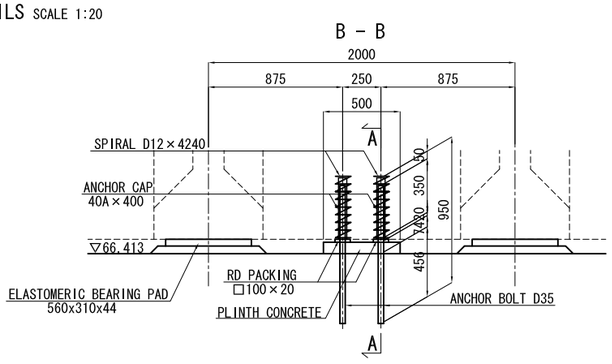


A - A



DETAILS SCALE 1:20

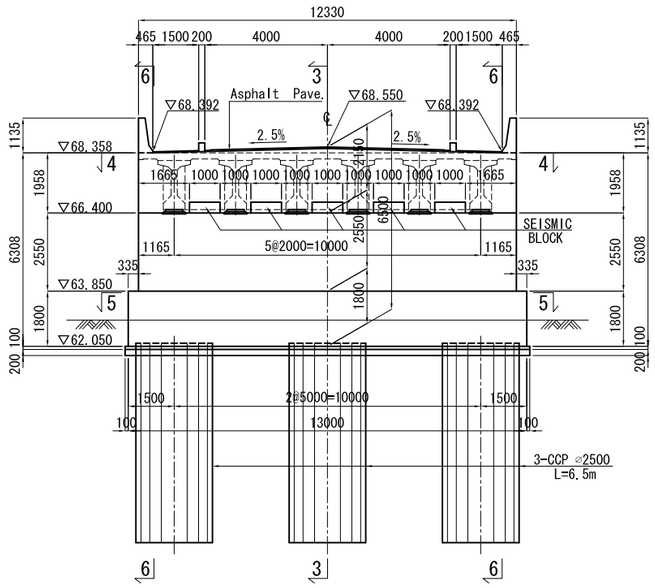
B - B



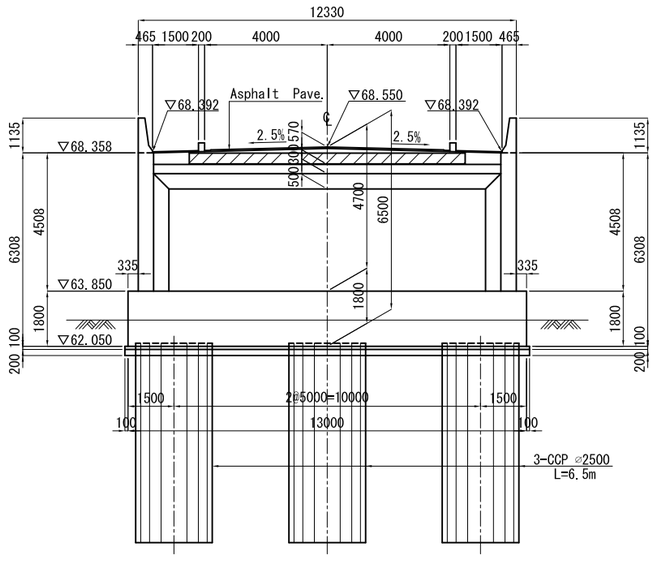
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO.,LTD	TITLE : STRUCTURAL DRAWING OF P1 BRIDGE PIER	SCALE (A1 size) AS SHOWN	DRAWING NO. : LT-06

STRUCTURAL DRAWING OF A2 ABUTMENT SCALE 1:100

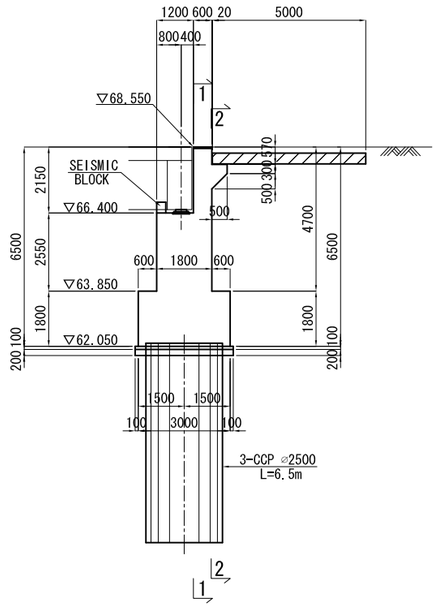
1 - 1



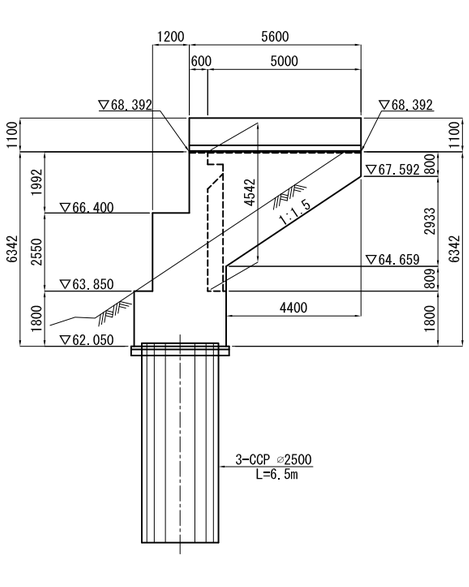
2 - 2



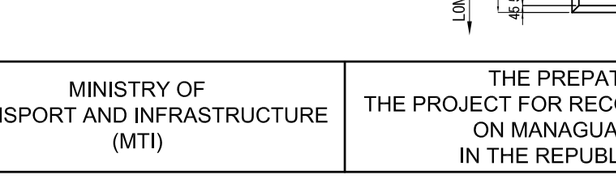
3 - 3



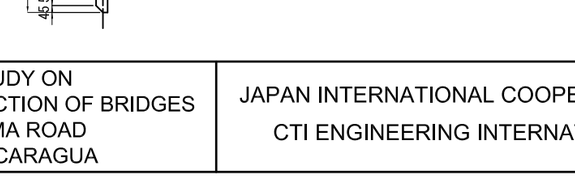
6 - 6



4 - 4

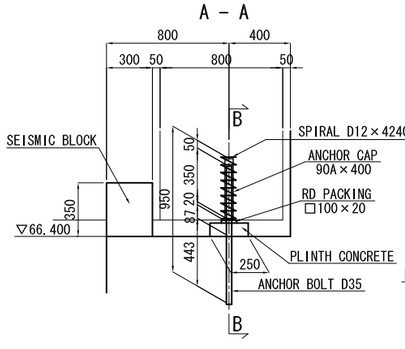


5 - 5

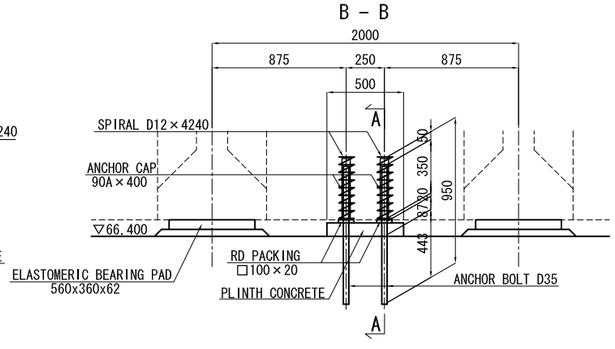


DETAILS SCALE 1:20

A - A

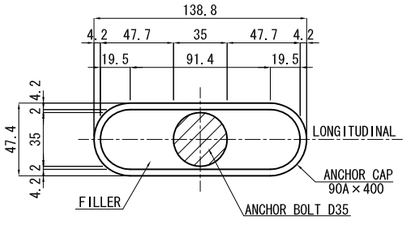


B - B

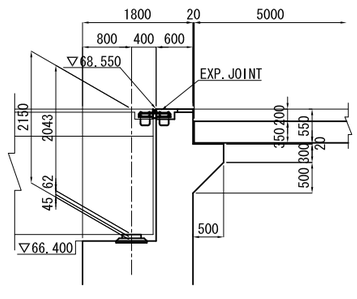


ANCHOR CAP SCALE 1:2

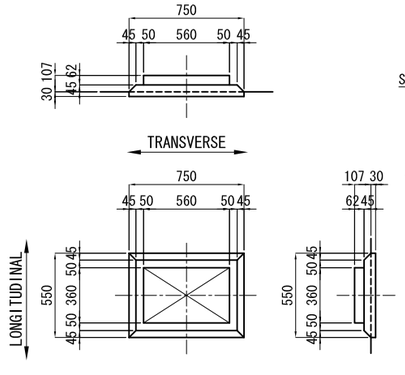
Movable



DETAILS SCALE 1:50



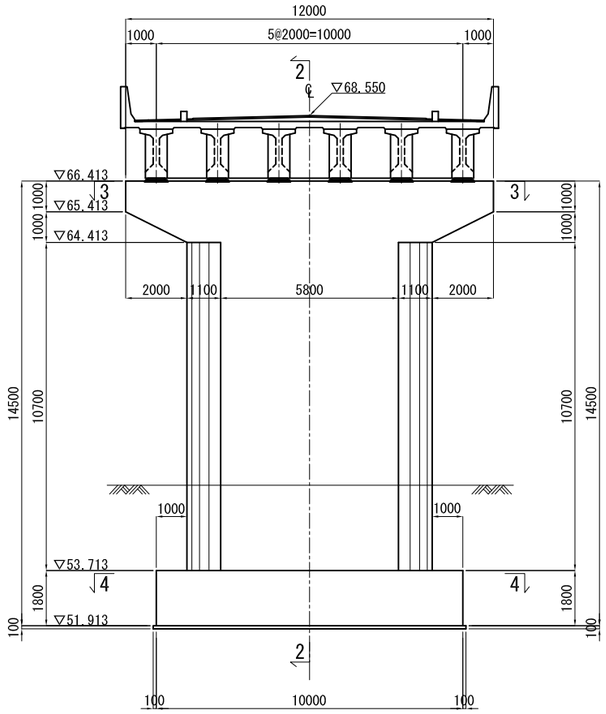
DETAILS SCALE 1:20



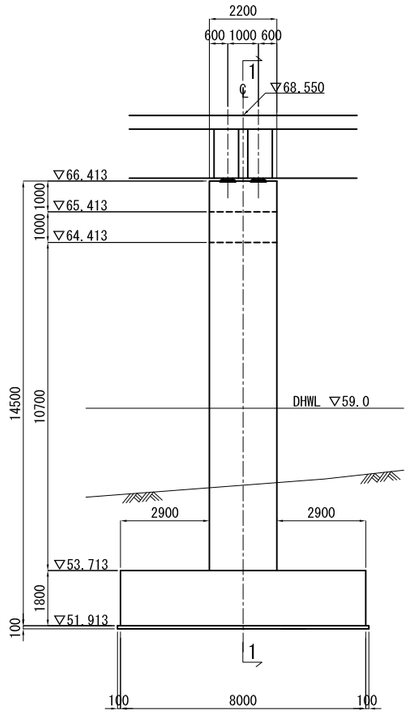
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO.,LTD	TITLE : STRUCTURAL DRAWING OF A2 ABUTMENT	SCALE (A1 size) AS SHOWN	DRAWING NO. : LT-07

STRUCTURAL DRAWING OF P2 BRIDGE PIER SCALE 1:100

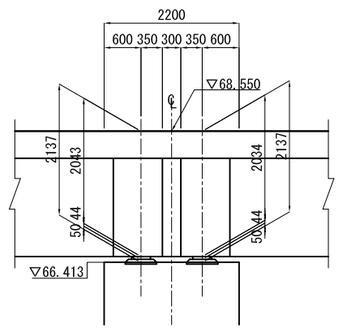
1 - 1



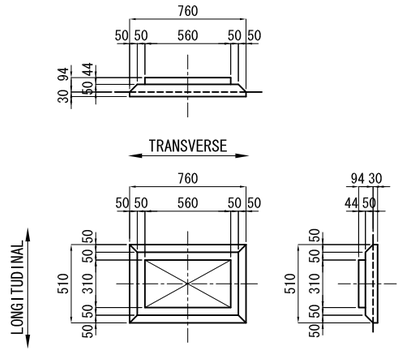
2 - 2



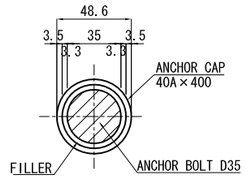
DETAILS SCALE 1:50



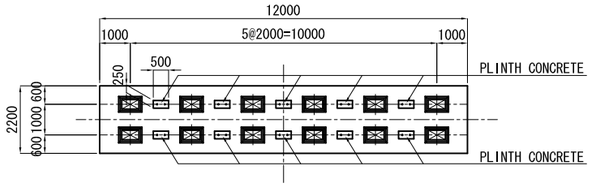
DETAILS SCALE 1:20



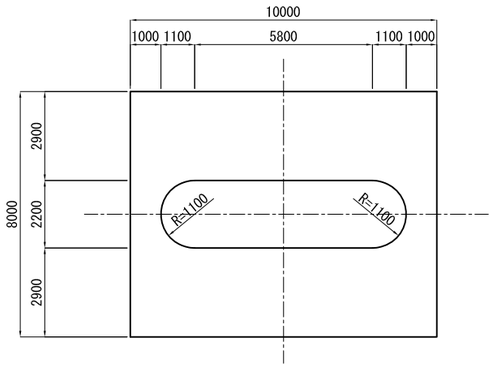
ANCHOR CAP SCALE 1:2
Fixed



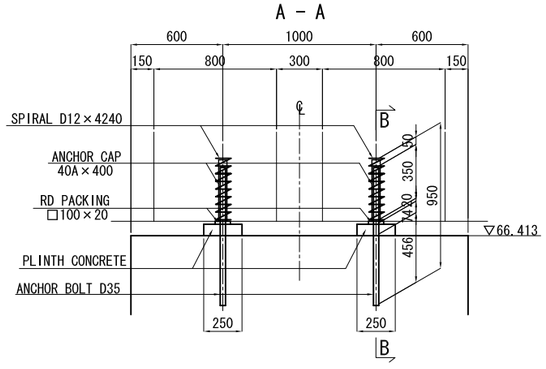
3 - 3



4 - 4

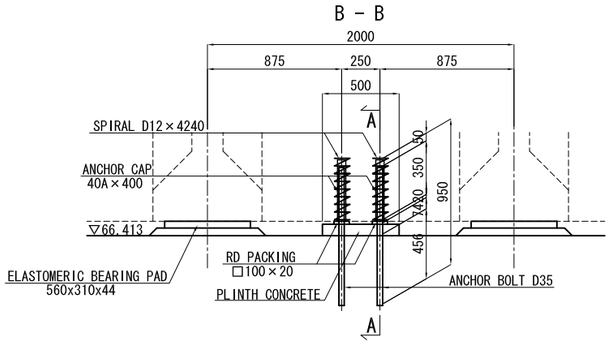


A - A

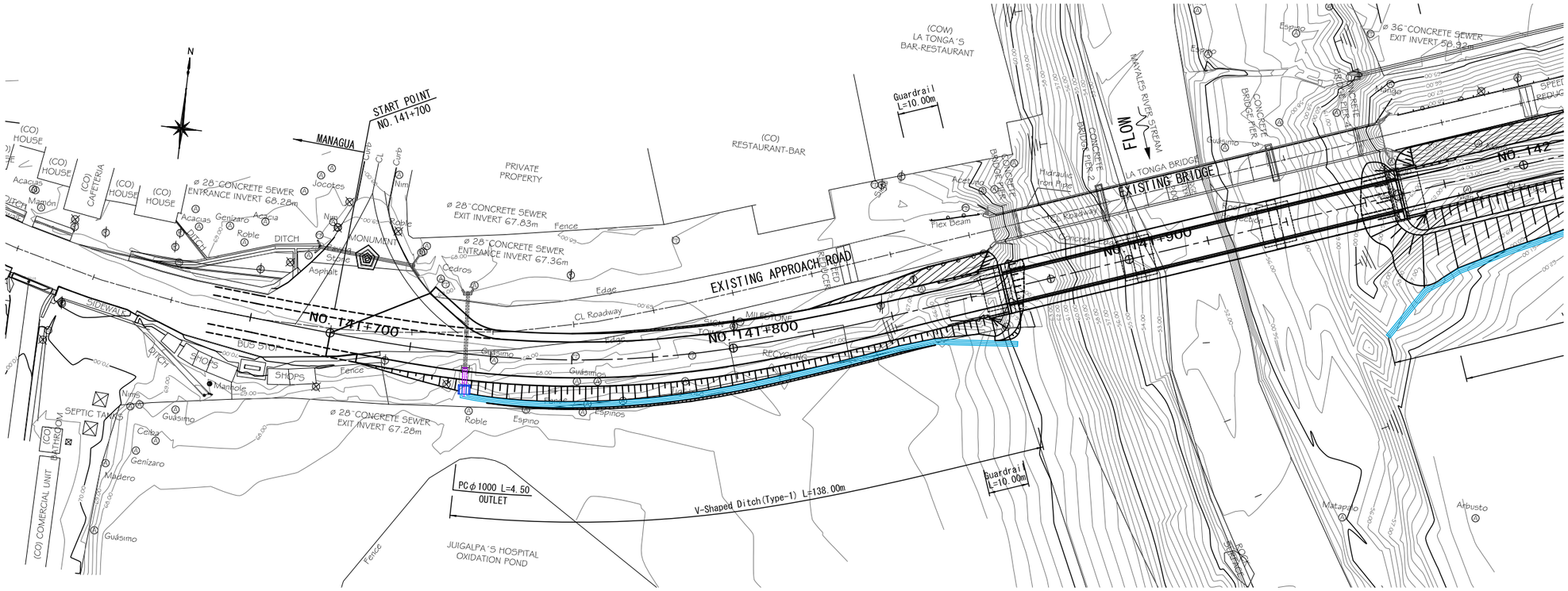


DETAILS SCALE 1:20

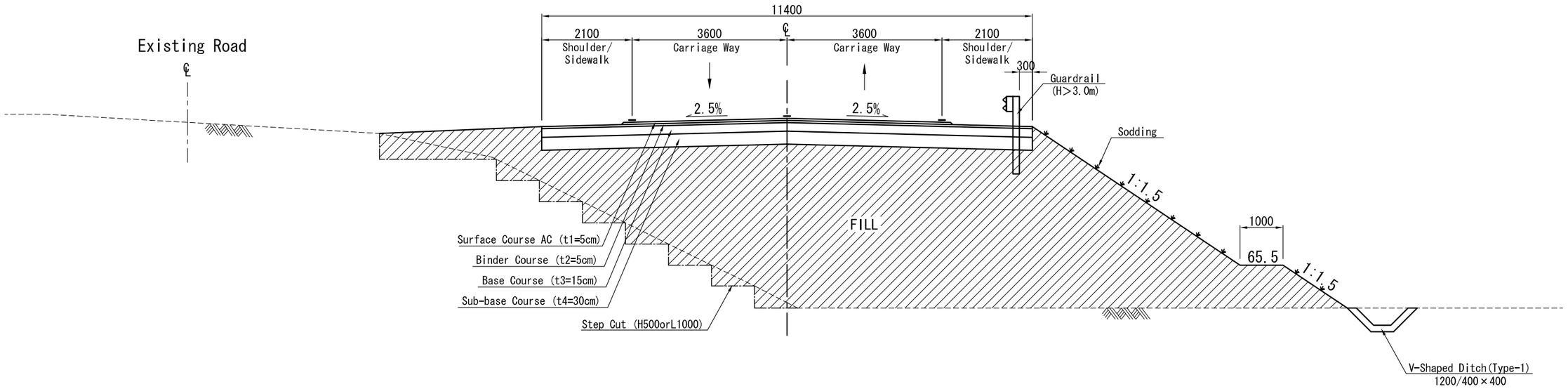
B - B



MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO.,LTD	TITLE : STRUCTURAL DRAWING OF P2 BRIDGE PIER	SCALE (A1 size) AS SHOWN	DRAWING NO. : LT-07'



MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : PLAN OF APPROACH ROAD (DRAINAGE AND ANCILLARY)	SCALE(A1size) S=1:600	Drawing No. LT-08



NO.141+700 to NO.142+340
(EXCLUDING BRIDE SECTION)

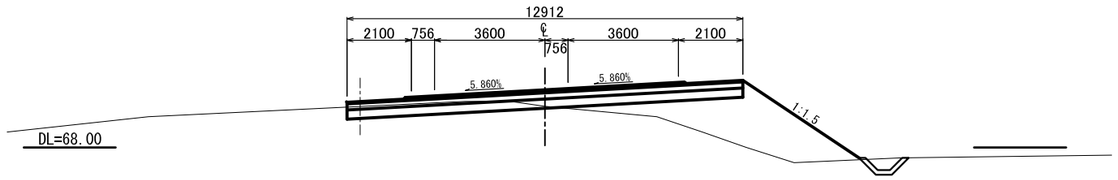
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. ASPHALT OF THE EXISTING ROAD WITHIN THE SECTION TO BE AFFECTED BY NEW CONSTRUCTION SHALL BE REMOVED COMPLETELY.
3. CEMENT MORTAR FOR DITCHES SHALL BE ONE PART PORTLAND CEMENT AND THREE PARTS SAND.

MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : TYPICAL CROSS SECTION OF APPROACH ROAD	SCALE(A1size) S=1:50	Drawing No. LT-09

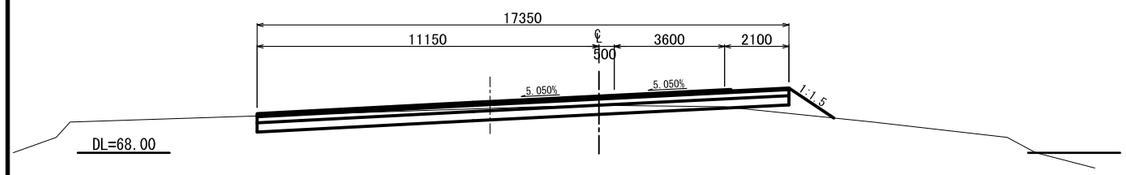
NO. 141+740

GH=69.34
FH=69.879



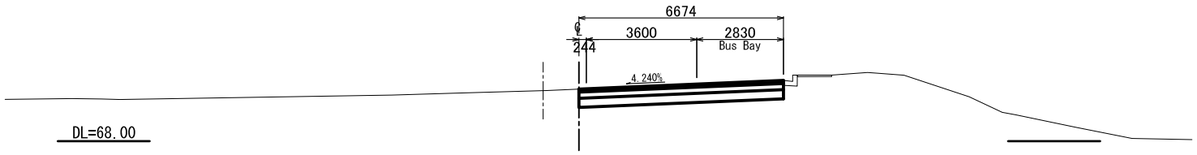
NO. 141+720

GH=69.55
FH=69.851



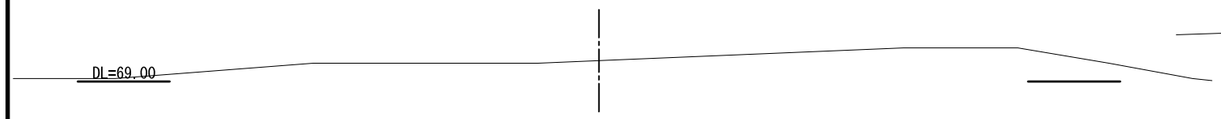
NO. 141+700

GH=69.70
FH=69.700



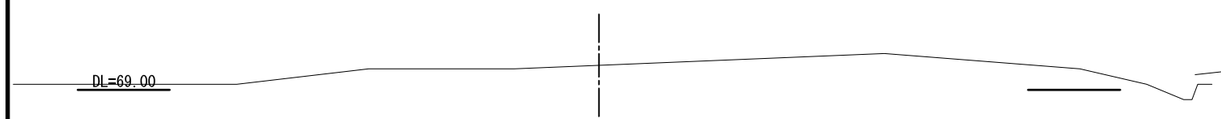
NO. 141+680

GH=69.68
FH=



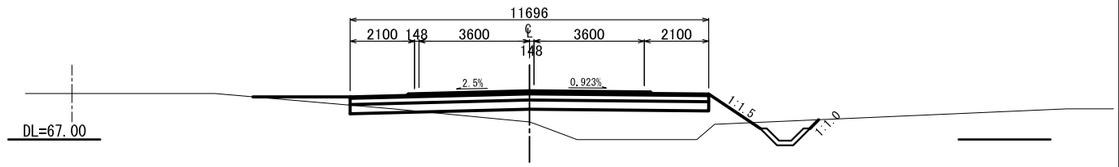
NO. 141+670

GH=69.80
FH=



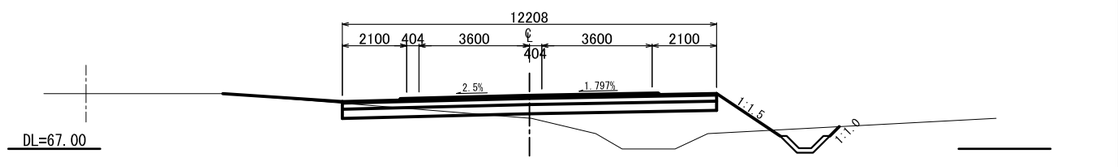
NO. 141+840

GH=67.57
FH=68.585



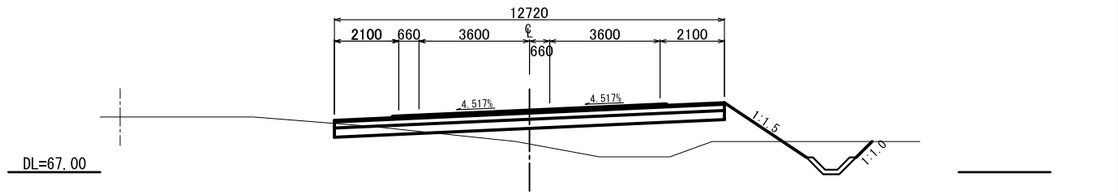
NO. 141+820

GH=68.00
FH=68.743



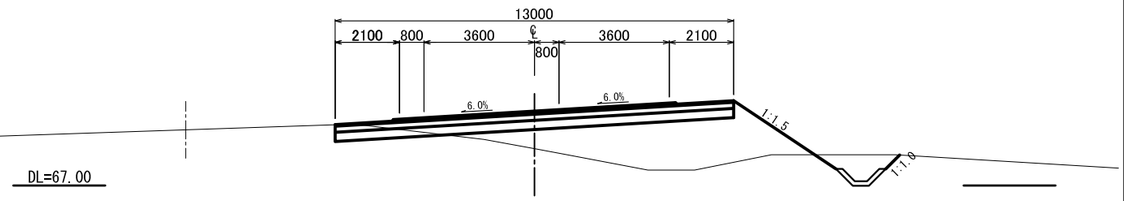
NO. 141+800

GH=67.92
FH=69.025



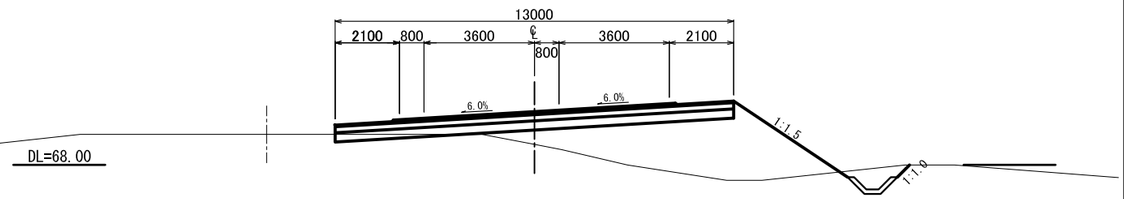
NO. 141+780

GH=68.20
FH=69.425



NO. 141+760

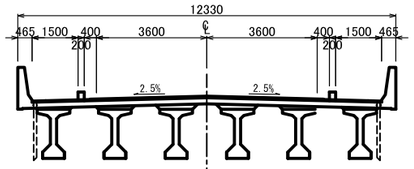
GH=68.67
FH=69.737



MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : CROSS SECTION OF APPROACH ROAD (1/4)	SCALE(A1size) S=1:100	Drawing No. LT-10

NO. 141+920

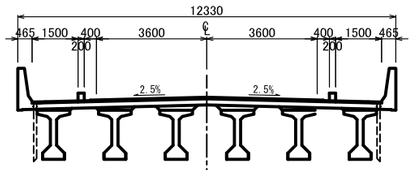
GH=52.39
FH=68.550



(DL=64.00)
DL=52.00

NO. 141+900

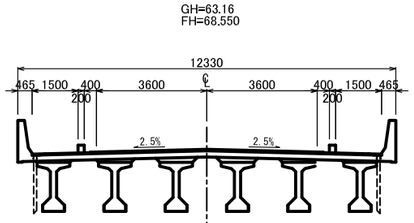
GH=54.17
FH=68.550



(DL=64.00)
DL=54.00

NO. 141+880

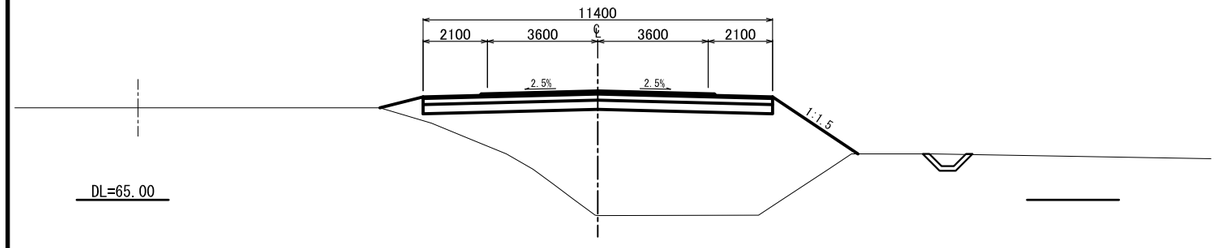
GH=63.16
FH=68.550



(DL=64.00)
DL=63.00

NO. 141+860

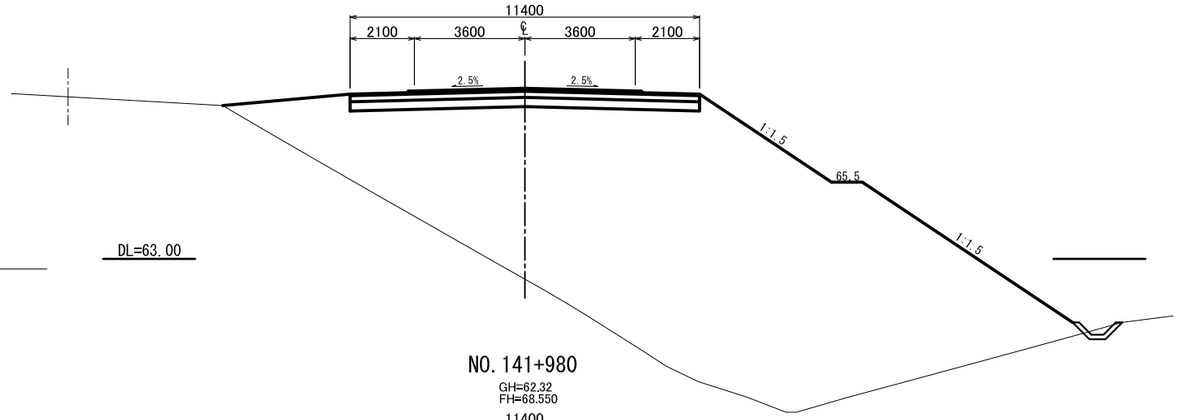
GH=64.49
FH=68.550



DL=65.00

NO. 142+000

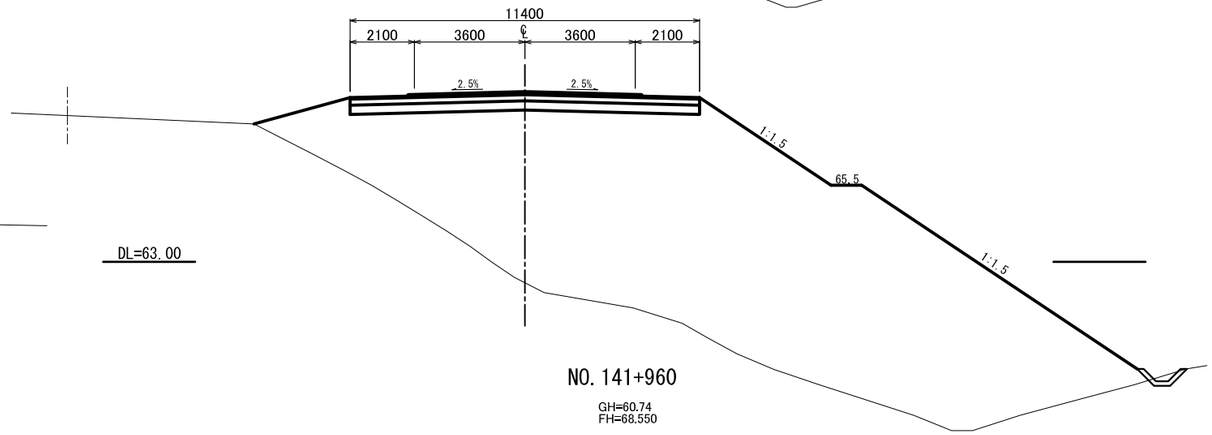
GH=62.34
FH=68.564



DL=63.00

NO. 141+980

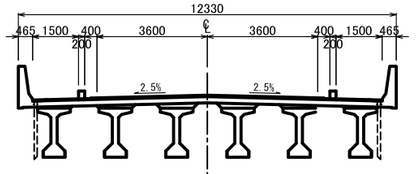
GH=62.32
FH=68.550



DL=63.00

NO. 141+960

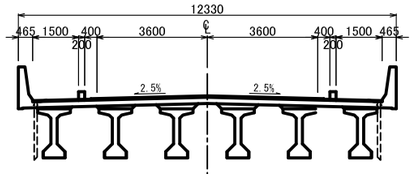
GH=60.74
FH=68.550



(DL=64.00)
DL=60.00

NO. 141+940

GH=56.69
FH=68.550

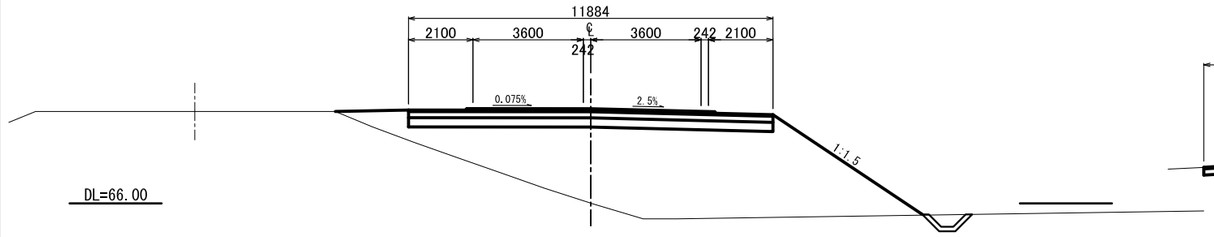


(DL=64.00)
DL=56.00

MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : CROSS SECTION OF APPROACH ROAD (2/4)	SCALE(A1size) S=1:100	Drawing No. LT-11

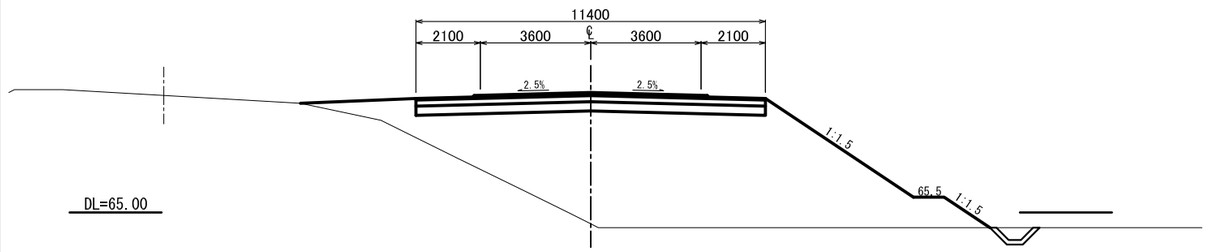
NO. 142+080

GH=66.01
FH=69.090



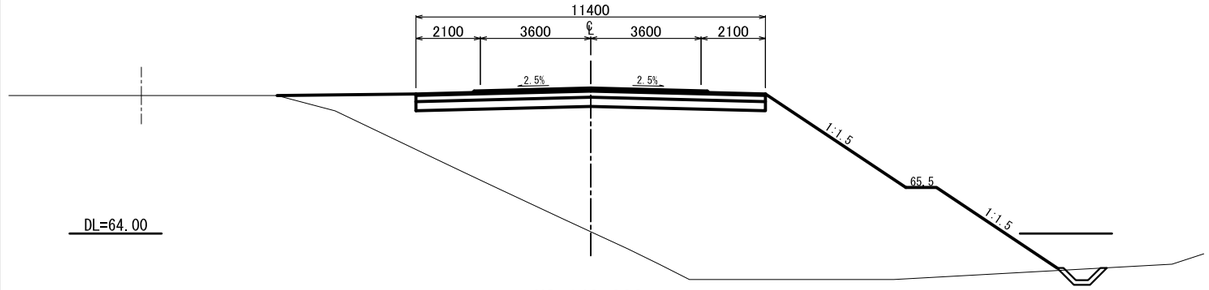
NO. 142+060

GH=64.63
FH=68.910



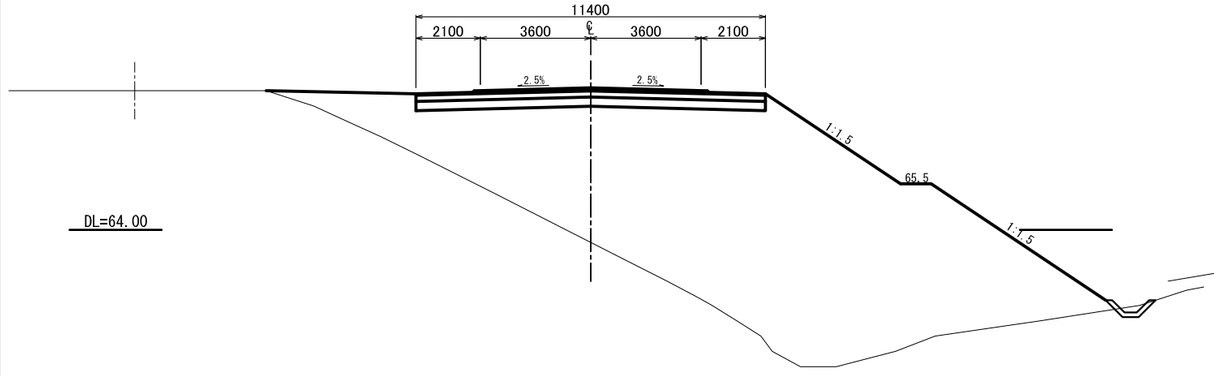
NO. 142+040

GH=64.06
FH=68.744



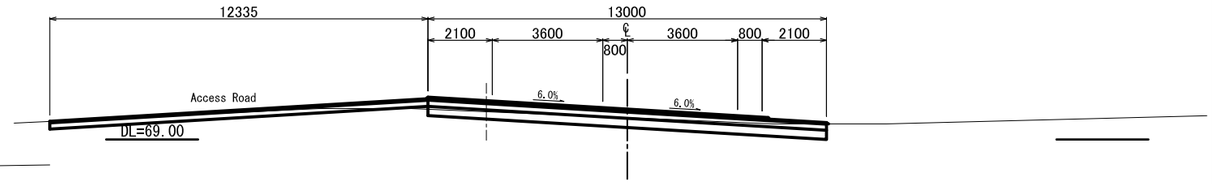
NO. 142+020

GH=63.55
FH=68.629



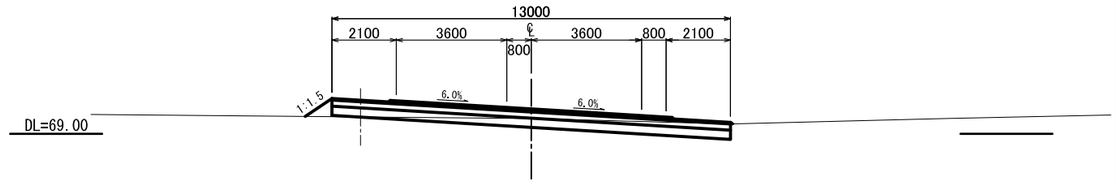
NO. 142+180

GH=69.71
FH=69.990



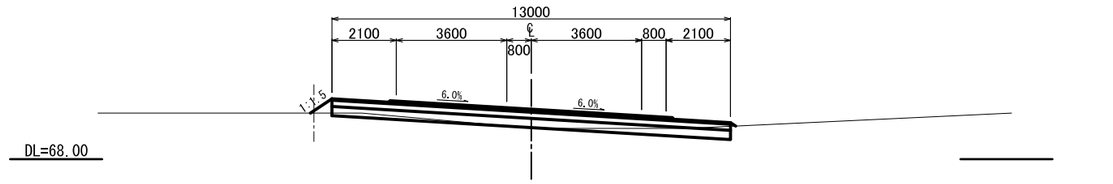
NO. 142+160

GH=69.50
FH=69.810



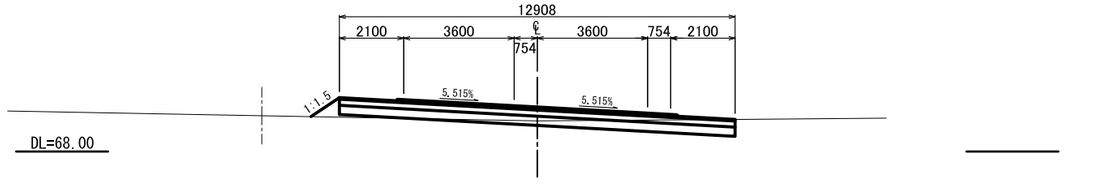
NO. 142+140

GH=69.01
FH=69.630



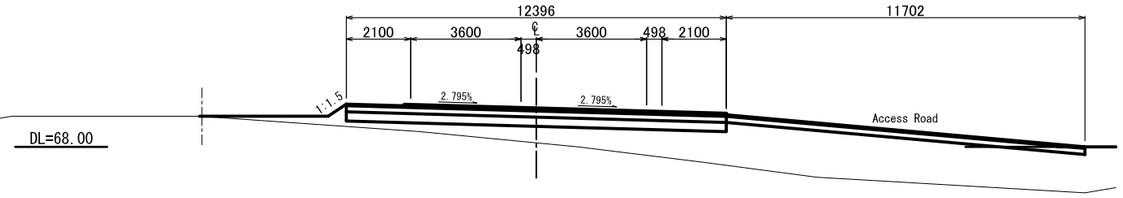
NO. 142+120

GH=69.00
FH=69.450



NO. 142+100

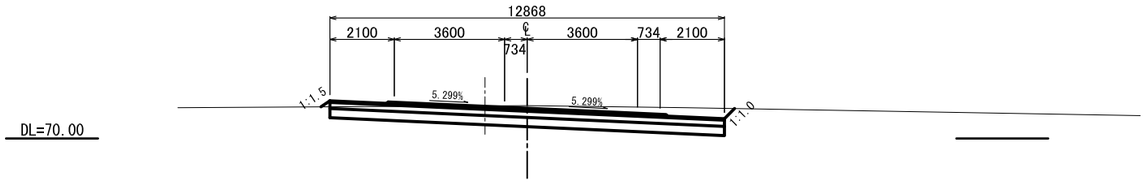
GH=68.13
FH=69.270



MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : CROSS SECTION OF APPROACH ROAD (3/4)	SCALE(A1size) S=1:100	Drawing No. LT-12

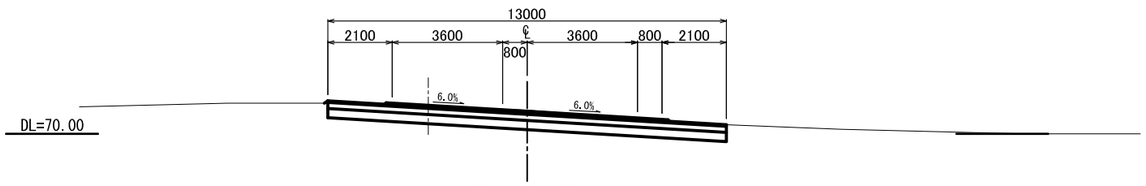
NO. 142+280

GH=71.07
FH=70.985



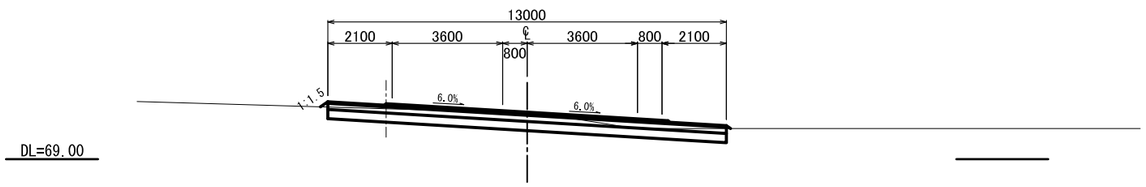
NO. 142+260

GH=70.77
FH=70.734



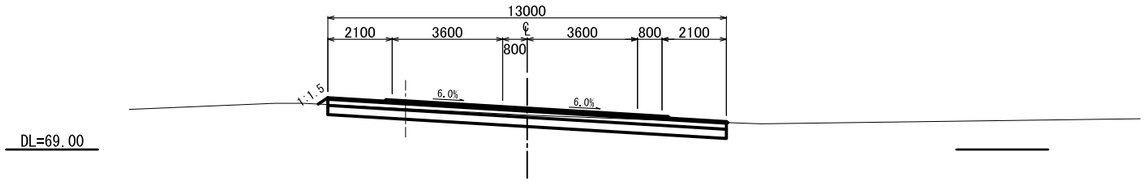
NO. 142+240

GH=70.51
FH=70.530



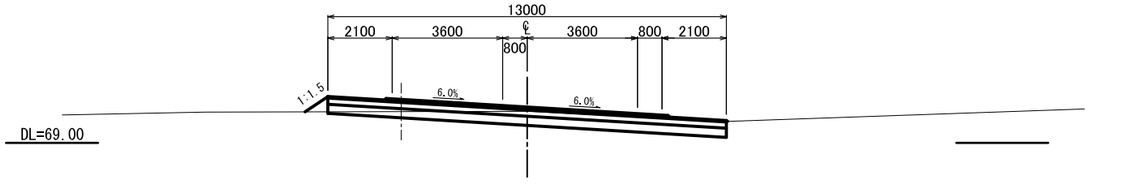
NO. 142+220

GH=70.12
FH=70.350



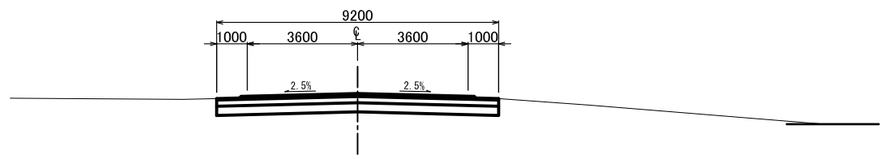
NO. 142+200

GH=70.03
FH=70.170



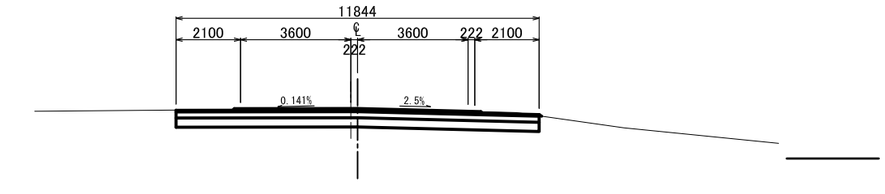
NO. 142+340

GH=72.00
FH=72.000



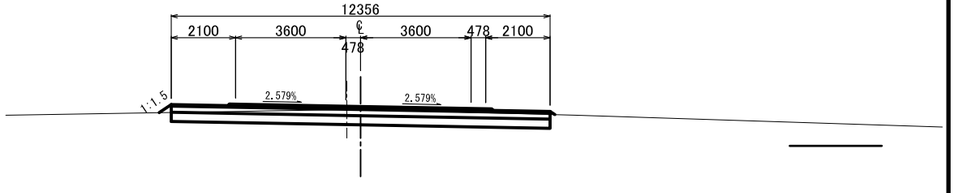
NO. 142+320

GH=71.63
FH=71.630

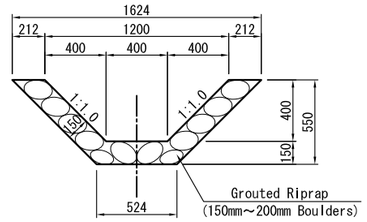


NO. 142+300

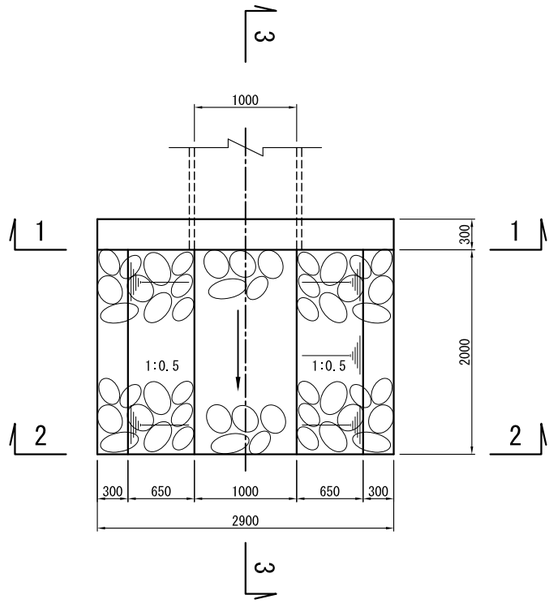
GH=71.19
FH=71.284



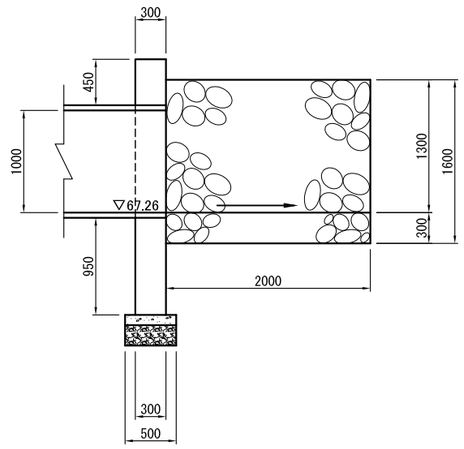
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : CROSS SECTION OF APPROACH ROAD (4/4)	SCALE(A1size) S=1:100	Drawing No. LT-13



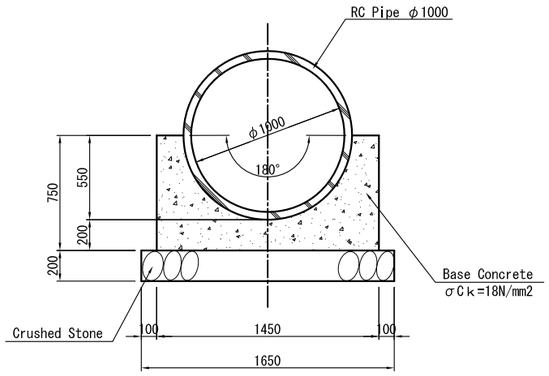
V-SHAPED DITCH(Type-1) S=1:20



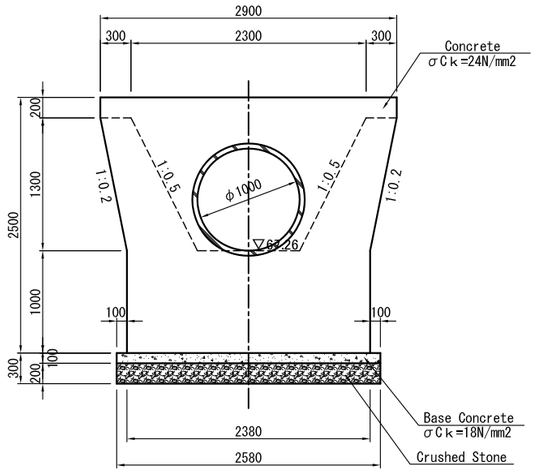
PLAN



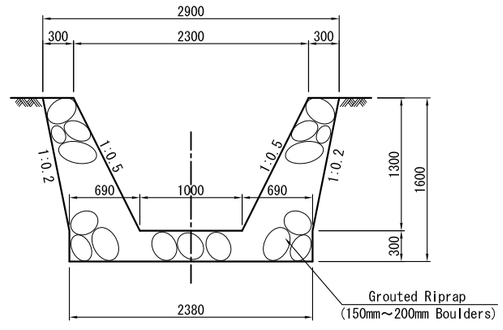
3-3 SECTION



PIPE CULVERT φ1000(180°) S=1:20



1-1 SECTION

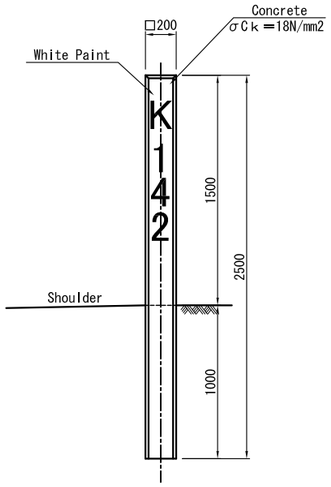


2-2 SECTION

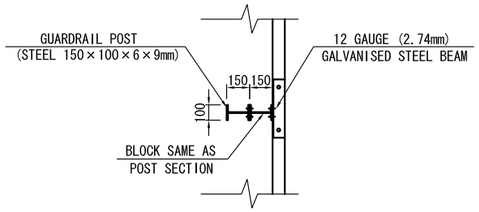
OUTLET (φ1000) S=1:30

NOTE: CONCRETE MORTAR FOR GROUTED RIPRAP IS ONE PART CEMENT AND THREE PARTS SAND.

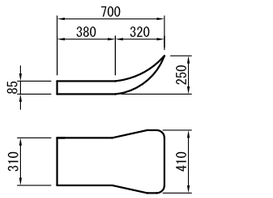
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : STRUCTURE OF DRAINAGE FACILITIES	SCALE(A1size) AS SHOWN	Drawing No. LT-14



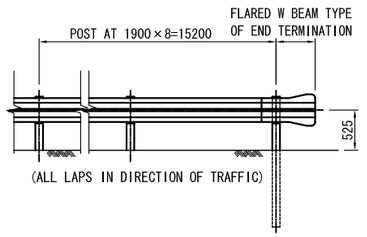
KILOPOST S=1:20



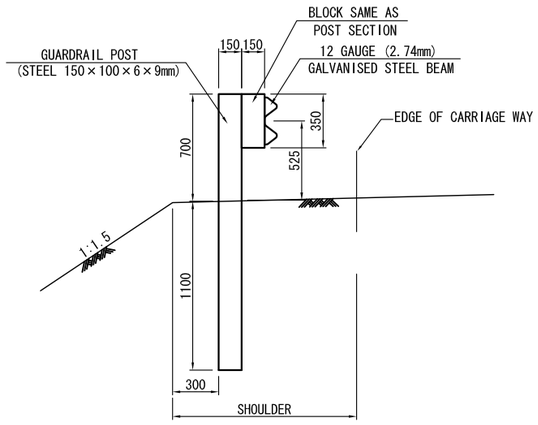
PLAN



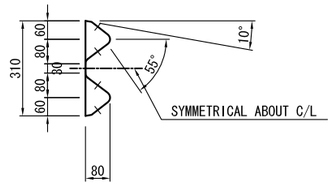
W-BEAM TERMINAL SECTION



FRONT VIEW S=1:40



TYPICAL POST



SECTION THROUGH W-BEAM S=1:10

GUARDRAIL S=1:20

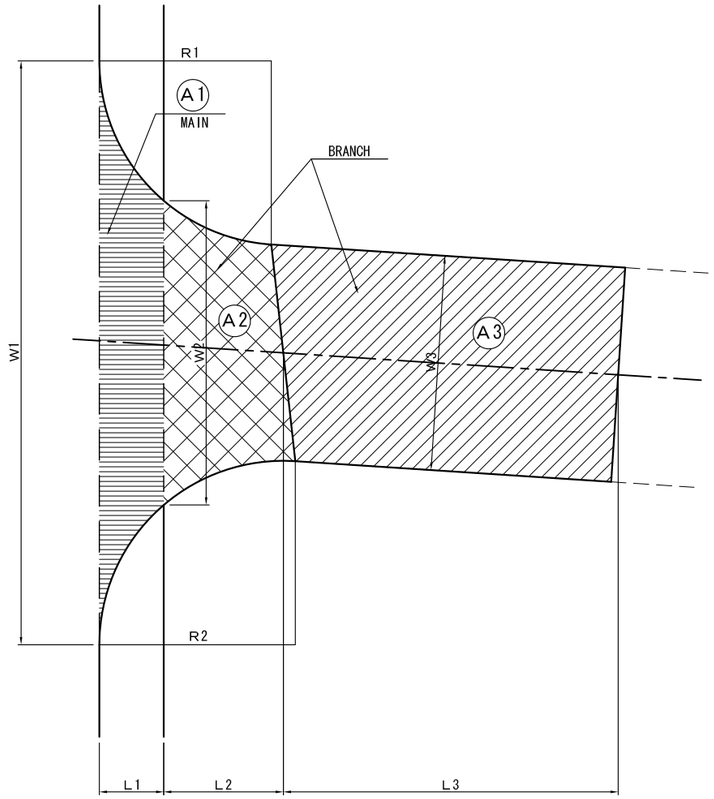
Scheduled List of Kilopost

No.	STATION	SIDE		Nos.	Remarks
1	142+000	LEFT	RIGHT	2	

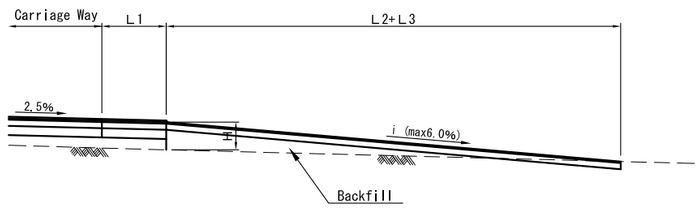
Scheduled List of Guardrail

No.	STATION		SIDE		LENGTH	Remarks
	START POINT	END POINT			(m)	
1	141+853	141+863	LEFT		10.0	
2	141+853	141+863		RIGHT	10.0	
3	141+974	141+984	LEFT		10.0	
4	141+974	142+080		RIGHT	106.0	

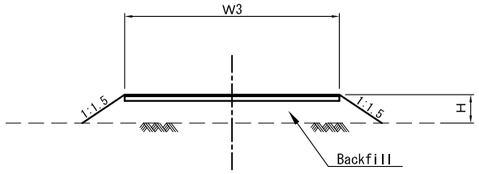
MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : ANCILLARY WORK	SCALE(A1size) AS SHOWN	Drawing No. LT-15



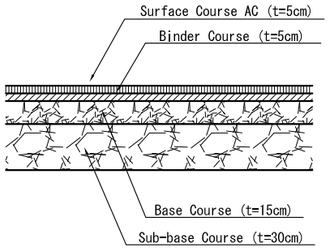
PLAN



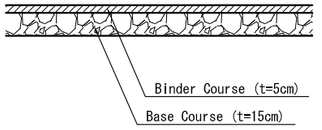
SECTION



CROSS SECTION



MAIN



BRANCH

PAVEMENT S=1:20

ACCESS ROAD S=1:100

MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : STANDARD TREATMENT OF ACCESS ROAD	SCALE(A1size) AS SHOWN	Drawing No. LT-16

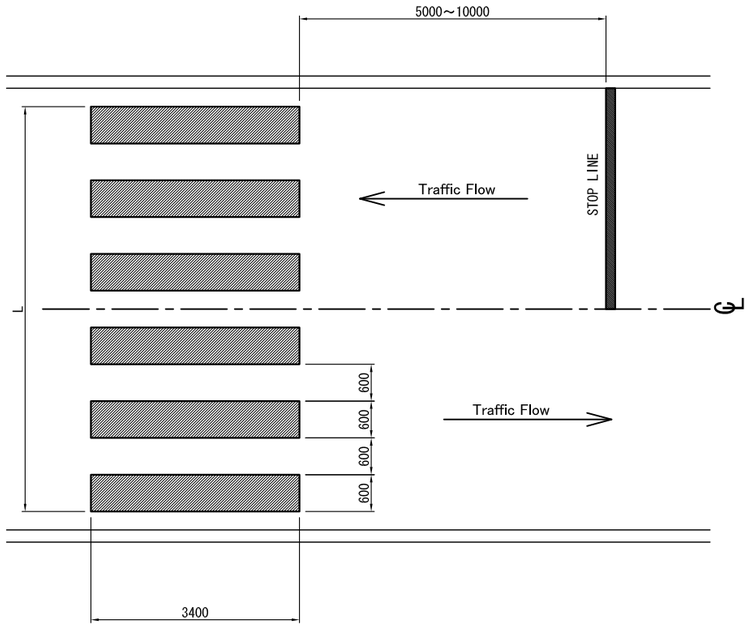
CENTER LINE (SOLID YELLOW) S=1:50

SIDE LINE ① (SOLID WHITE) S=1:50

SIDE LINE ② (SHORT BROKEN WHITE) S=1:100

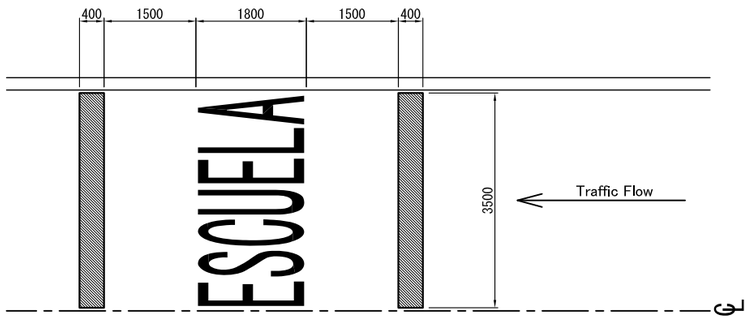
ZEBRA MARKING S=1:50

STOP LINE MARKING S=1:50



CROSS WALKS S=1:50

CROSS WALKS S=1:50



SCHOOL ZONE S=1:50

NOTE: THE MATERIALS, DIMENSION, SHAPES, COLOR, SIZE OF NUMERALS, LETTERS AND INSTALLATION LOCATION SHALL CONFORM WITH THE SPECIFICATION OF SIECA.

MINISTRY OF TRANSPORT AND INFRASTRUCTURE (MTI)	THE PREPATORY STUDY ON THE PROJECT FOR RECONSTRUCTION OF BRIDGES ON MANAGUA - EL RAMA ROAD IN THE REPUBLIC OF NICARAGUA	JAPAN INTERNATIONAL COOPERATION AGENCY CTI ENGINEERING INTERNATIONAL CO., LTD.	TITLE : STANDARD PAVEMENT AND PEDESTRIAN MARKINGS	SCALE(A1size) AS SHOWN	Drawing No. LT-17

Anexo 2: Formulario de Monitorización

Formulario de Monitorización

1. Permisos y Explicaciones

Parámetros de la monitorización	Situación durante el período de reporte
Licencia Ambiental del Municipio y permiso de uso de depósitos de tierra. Concesión de explotación de canteras de tierra (MARENA y Ministerio de Energía y Minas). Permiso de tala de árboles (Instituto Nacional Forestal-INAFOR). Permiso de traslado de líneas de servicio de agua y luz entre otros.	Según el resultado de la Evaluación del Impacto Ambiental de MARENA, el presente proyecto no se ajusta a ninguna de las categorías establecidas en el país por tratarse de una obra de reconstrucción de puentes en servicio, por lo que basta con obtener el permiso del municipio correspondiente para su ejecución. Se han organizado hasta la fecha cuatro (4) Audiencias Públicas en Las Banderas (de las cuales una (1) fue organizada durante el Estudio Preliminar), dos (2) en La Tonga y una (1) en Tecolostote (Estudio Preliminar) obteniéndose el consenso del público respecto al presente Proyecto.

2. Medidas de control de contaminación

- Calidad de aire (valores medidos de gases de emisión y valores medidos del entorno atmosférico circundante)

Parámetro (Unidad)	Valor medido (Valor promedio)	Valor medido (Valor máximo)	Normas locales	Normas Internacionales consultadas	Observaciones (Lugar, frecuencia y método de medición)
No se aplica					

- Calidad de agua (valores medidos de la evacuación de agua y valores medidos del entorno hidrológico circundante)

Parámetro (Unidad)	Valor medido (Valor promedio)	Valor medido (Valor máximo)	Normas locales	Normas Internacionales consultadas	Observaciones (Lugar, frecuencia y método de medición)
pH					El punto de monitorización se ubicará 50 a 60 m aguas abajo del puente a ser reconstruido. Se tomará como datos básicos de referencia el resultado de la medición hecha durante el D/D (Diseño Detallado) efectuando la medición a un intervalo mensual durante la ejecución de la obra.
SS (Sólidos Suspendidos)					
BOD/COD					Se realizará únicamente la monitorización de la BOD en el punto y a un intervalo arriba mencionado.
Temperatura de agua					El punto de monitoreo se ubicará 50 a 60 m aguas abajo del puente a ser reconstruido. Se tomará como datos básicos de referencia el resultado de la medición hecha durante el D/D (Diseño Detallado) efectuando la medición a un intervalo mensual durante la ejecución de la obra.
Otros (Turbidez)					

- Desechos

Parámetros de la monitorización	Situación durante el período de reporte
Desechos de construcción y desechos sólidos generales generados en el sitio de la obra.	Reportar semanalmente el método de manejo y tratamiento de desechos generados en el sitio de construcción.

- Ruidos y Vibraciones

Parámetro (Unidad)	Valor medido (Valor promedio)	Valor medido (Valor máximo)	Normas locales	Normas exigidas en el contrato de crédito	Normas Internacionales consultadas	Observaciones (Lugar, frecuencia y método de medición)
Nivel de ruido						Realizar una medición semanal en la zona residencial circundante durante el período de construcción.
Nivel de vibración						

- Olor fétido

Parámetros de la monitorización	Situación durante el período de reporte
No se aplica.	

3. Entorno natural

- Ecosistema

Parámetros de la monitorización	Situación durante el período de reporte
No se aplica.	

4. Entorno social

- Reasentamiento

Parámetros de la monitorización	Situación durante el período de reporte
Avances de las negociaciones para el reasentamiento. Número de viviendas y comercios a ser reasentados.	Serán reasentados en total cinco (5) establecimientos (tres (3) despensas-cafetería, una (1) caseta de depósito y una (1) estación pluviométrica).

- Vida y economía familiar

Parámetros de la monitorización	Situación durante el período de reporte
Generación de oportunidades de empleo local.	Número y salario de los trabajadores contratados localmente.