

JAPAN INTERNATIONAL COOPERATION AGENCY

MINISTRY OF EQUIPMENT AND TRANSPORTS
REPUBLIC OF NIGER

**THE STUDY
ON
SANITATION IMPROVEMENT
FOR
THE NIAMEY CITY
IN
THE REPUBLIC OF NIGER**

**FINAL REPORT
VOLUME IV: DRAWINGS**

DECEMBER 2001

**TOKYO ENGINEERING CONSULTANTS CO., LTD.
YACHIYO ENGINEERING CO., LTD.**

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In this report, project costs are estimated based on
May, 2001 prices with an exchange rate of
 $\text{FCFA } 100 = \text{FRF } 1.00 = \text{JPY } 16.66$

**THE STUDY
ON
SANITATION IMPROVEMENT
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IN
THE REPUBLIC OF NIGER**

FINAL REPORT

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WASTEWATER TREATMENT PLANT
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TREATMENT PLANT

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DWG NO. PL/528/GA-02	GA DRAWING FOR GRIT CHANNEL AND UASB SYSTEM
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DWG NO. PL/528/GA-05	GA DETAILS OF SLUDGE DRYING BEDS
DWG NO. PL/528/GA-06	GA DETAILS OF GAS HOLDER
DWG NO. PL/528/GA-07	GA DETAILS OF OFFICE & MCC ROOM
DWG NO. PL/528/ME-01	MECHANICAL DETAIL OF COARSE & FINE BAR SCREEN PERFORATED WITH LIFTING MECHANISM
DWG NO. PL/528/ME-02	DETAIL OF WEIR PLATE
DWG NO. PL/528/ME-03	MECHANICAL DETAIL OF GAS HOLDER

DWG NO. PL/528/ME-06 DETAIL OF CHLORINE SOLUTION TANK WITH
COVER

DWG NO. PL/528/ME/SK-01 TROLLEY FOR GRIT COLLECTION

DWG NO. PL/528/MP-01 OVERALL INTERCONNECTING PIPING LAYOUT

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DWG NO. B-204 ACCESS & OPERATION ROAD PLAN: DISPOSAL SITE
KOUBIA

DWG NO. B-205 RAINWATER DRAIN PLAN: DISPOSAL SITE KOUBIA

DWG NO. B-206 LEACHATE COLLECTION PLAN: DISPOSAL SITE KOUBIA

DWG NO. B-207 CONTROL HOUSE PLAN: DISPOSAL SITE KOUBIA

DWG NO. B-208 SHADE PLAN FOR BULLDOZER: DIPOSAL SITE KOUBIA

DWG NO. B-209 GAS EXHAUST FACILITIES PLAN: DISPOSAL SITE KOUBIA

DWG NO. B-210 FENCE AND GATE PLAN: DIPOSAL SITE KOUBIA

DWG NO. B-301 GENERAL PLAN OF DISPOSAL SITE BENGALE TOROMBI

DWG NO. B-302 FACILITIES PLAN: DISPOSAL SITE BENGALE TOROMBI

DWG NO. B-303 EARTH WORK PLAN: DISPOSAL SITE BENGALE TOROMBI

DWG NO. B-304 ACCESS & OPERATION ROAD PLAN: DISPOSAL SITE
BENGALE TOROMBI

DWG NO. B-305 RAINWATER DRAIN PLAN: DISPOSAL SITE BENGALE
TOROMBI

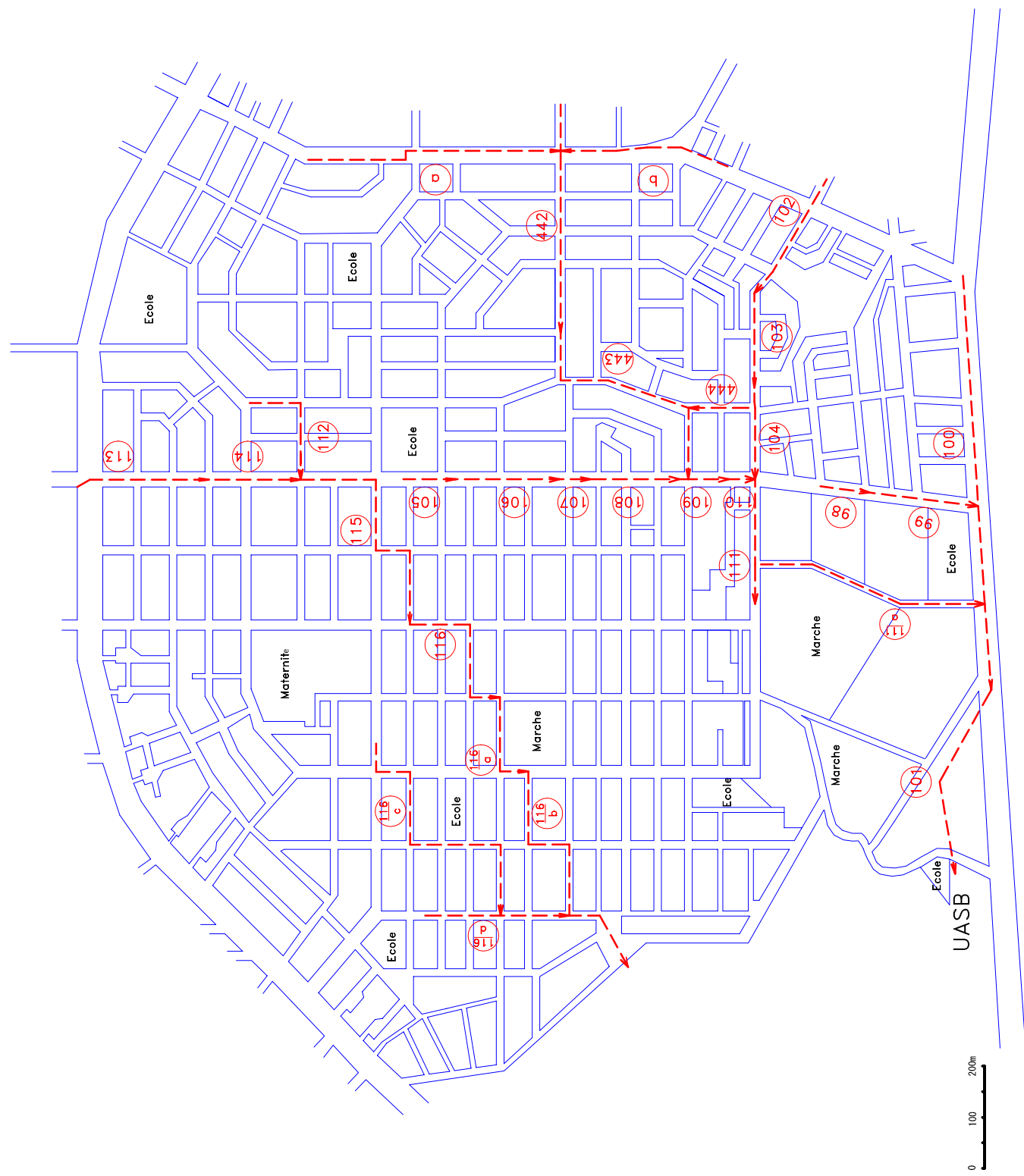
DWG NO. B-306 LEACHATE COLLECTION PLAN: DISPOSAL SITE BENGALE
TOROMBI

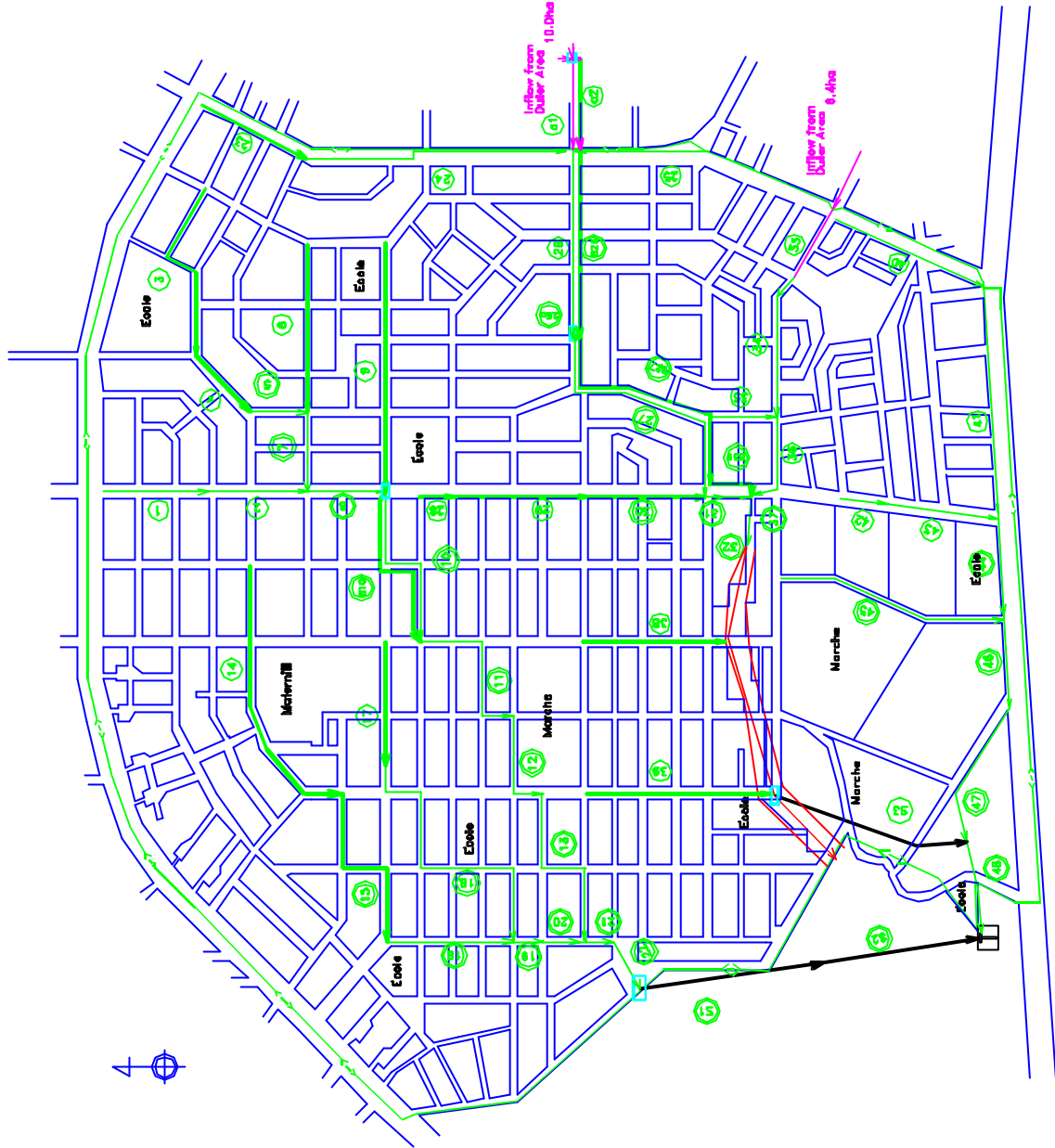
DWG NO. B-307 CONTROL HOUSE PLAN: DISPOSAL SITE BENGALE
TOROMBI

DWG NO. B-308 GAS EXHAUST FACILITIES PLAN: DISPOSAL SITE BENGAL
TOROMBI

DWG NO. B-309 FENCE AND GATE PLAN: DISPOSAL SITE BENGAL
TOROMBI

DRAWING A. SEWERAGE / DRAINAGE





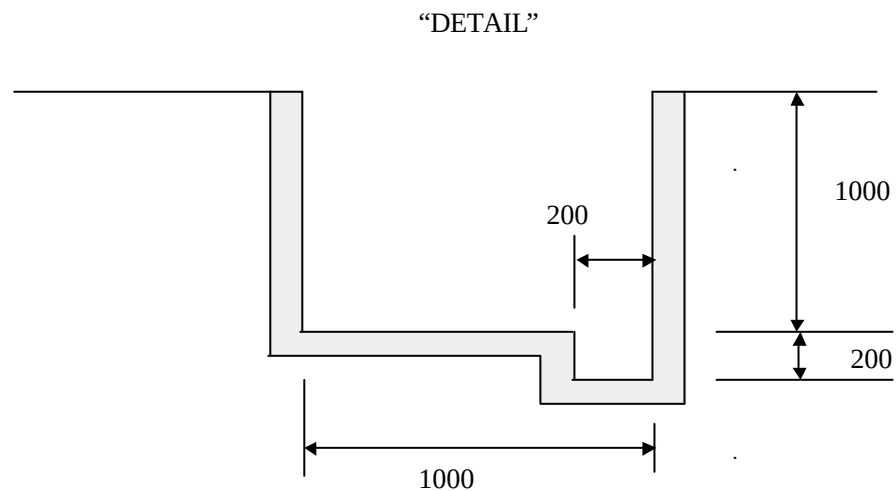
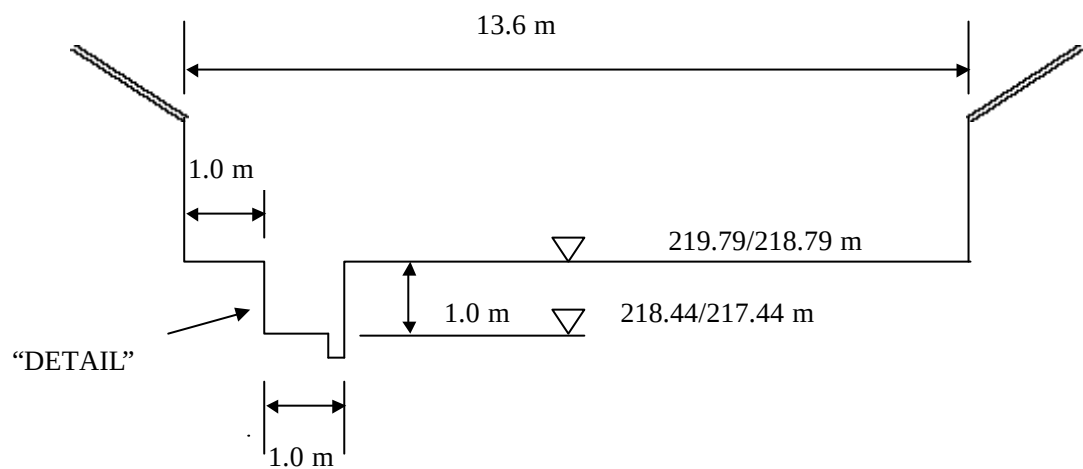
LEGEND	
	Sewerage Area
	Proposed Mdn
	Existing Sewer
	Trunk Sewer
	Branch Sewer
	Diversion Weir
	UASB Plant

THE STUDY ON SANITATION IMPROVEMENT FOR
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A-102
C3 AREA DRAINAGE GENERAL
PLAN

SCALE
JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	3
LENGTH	340 M
TYPE & DIMENSION	U 1000 X 1000
GRADIENT	2.9 ‰
SEWER INVERT ELEVATION START/END	218.44 / 217.44
GROUND LEVEL START / END	219.79 / 218.79



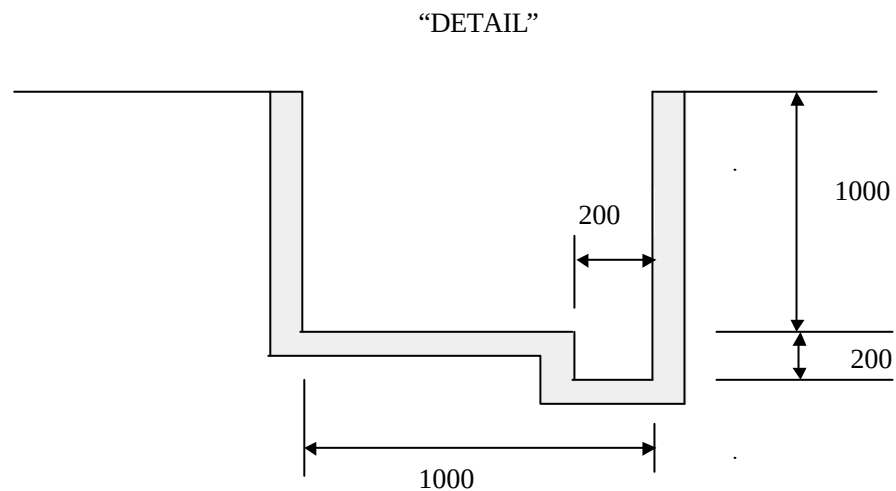
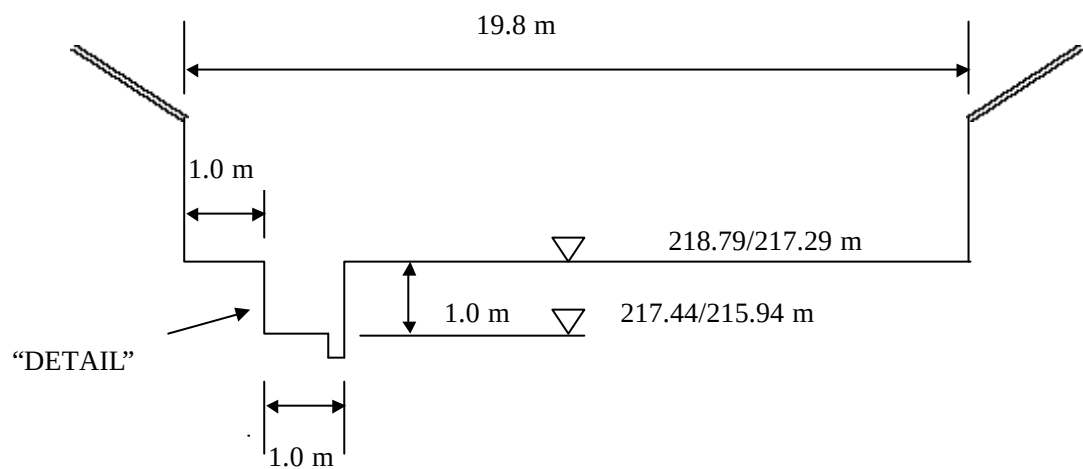
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-111

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	4
LENGTH	150 M
TYPE & DIMENSION	U 1000 X 1000
GRADIENT	10.0 ‰
SEWER INVERT ELEVATION START/END	217.44/215.94
GROUND LEVEL START / END	218.79/217.29



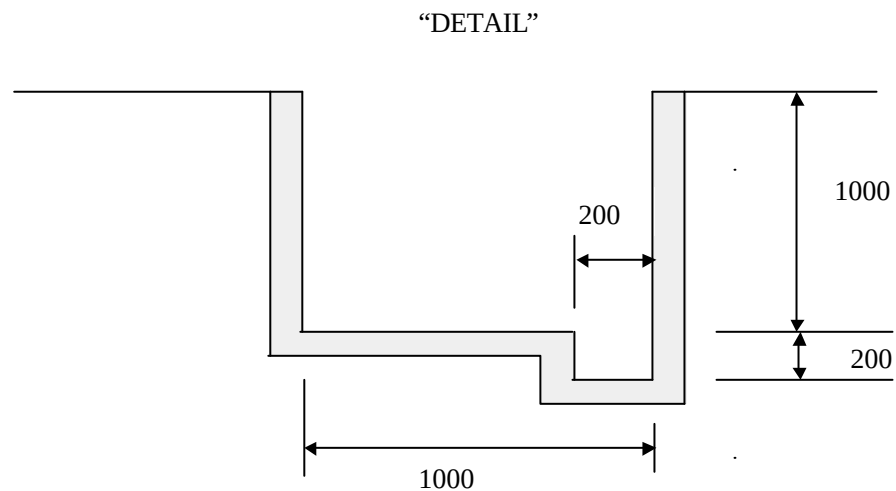
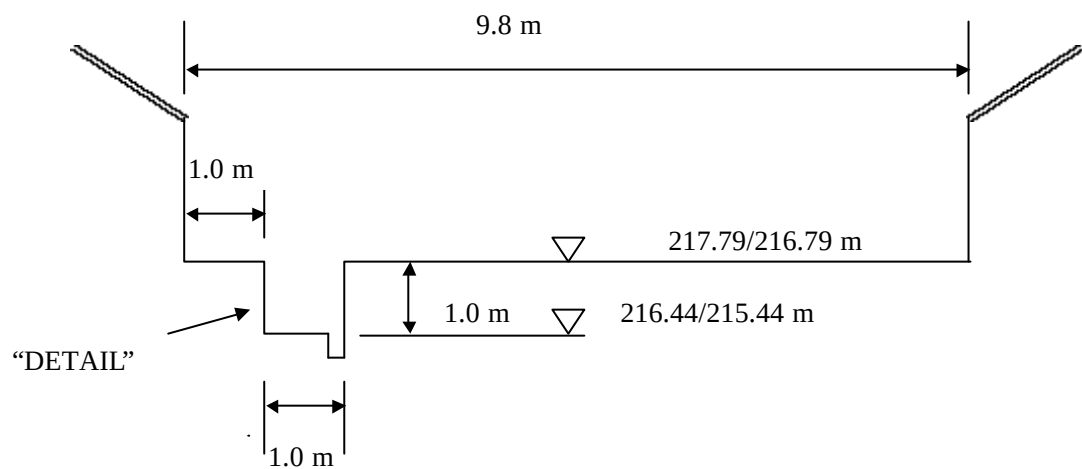
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-112

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	6
LENGTH	320 M
TYPE & DIMENSION	U 1000 X 1000
GRADIENT	3.1 ‰
SEWER INVERT ELEVATION START/END	216.44/215.44
GROUND LEVEL START / END	217.79/216.79



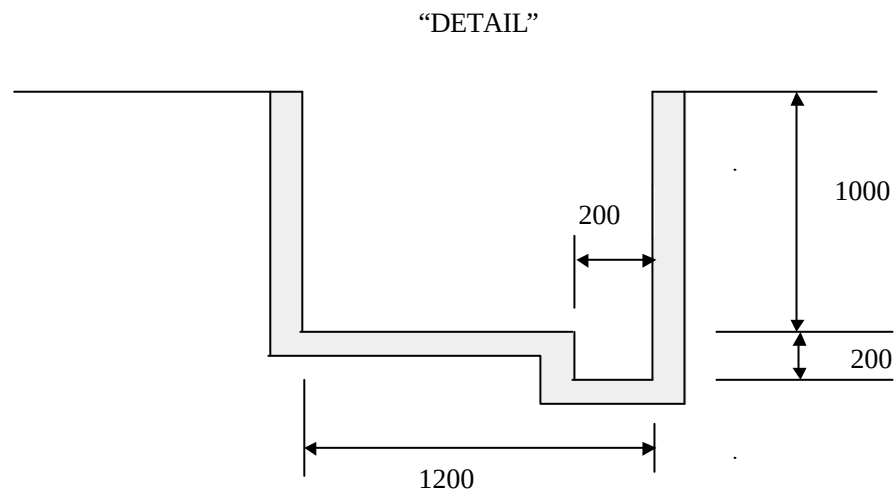
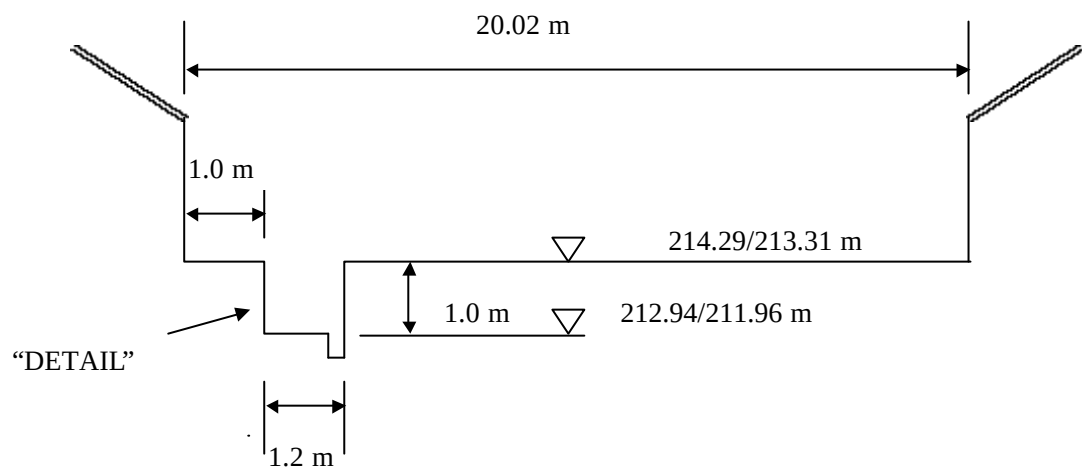
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-113

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	9
LENGTH	470 M
TYPE & DIMENSION	U 1200 X 1000
GRADIENT	2.1 ‰
SEWER INVERT ELEVATION START/END	212.94/211.96
GROUND LEVEL START / END	214.29/213.31



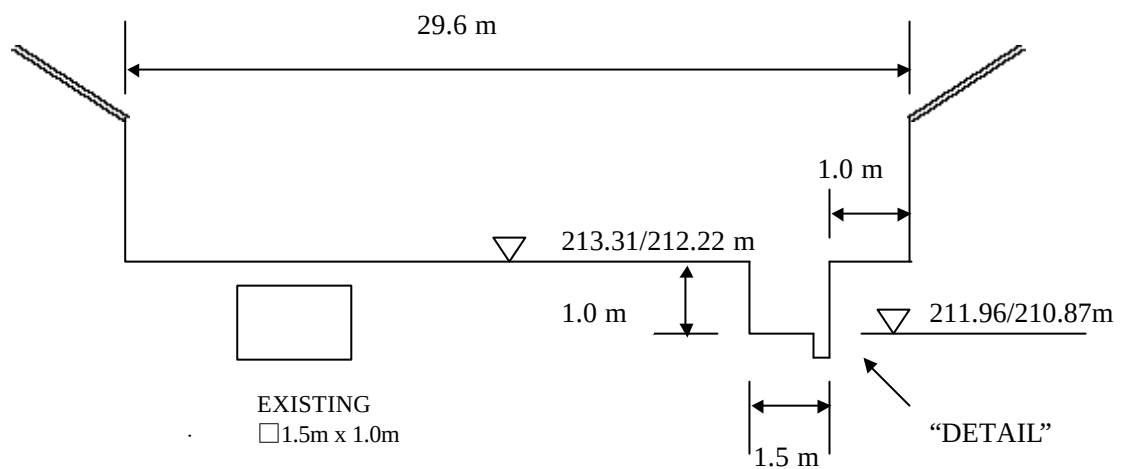
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-114

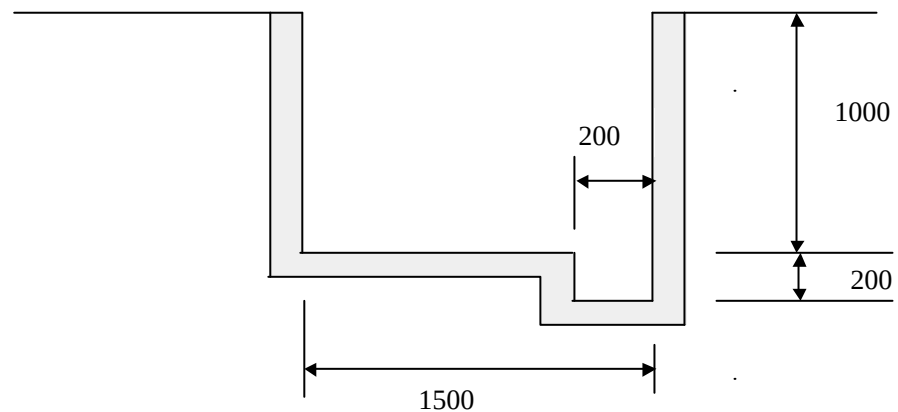
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	B10
LENGTH	360 M
TYPE & DIMENSION	U 1500 X 1000
GRADIENT	3.0 ‰
SEWER INVERT ELEVATION START/END	211.96/210.87
GROUND LEVEL START / END	213.31/212.22



“DETAIL”



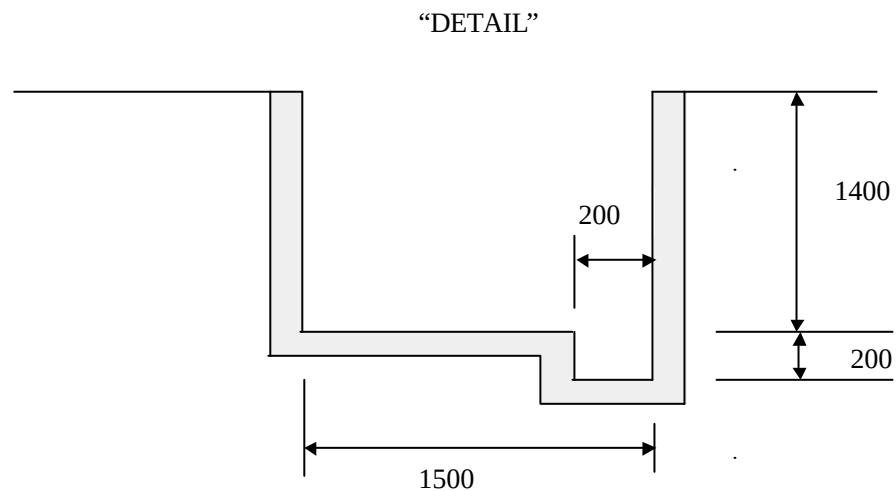
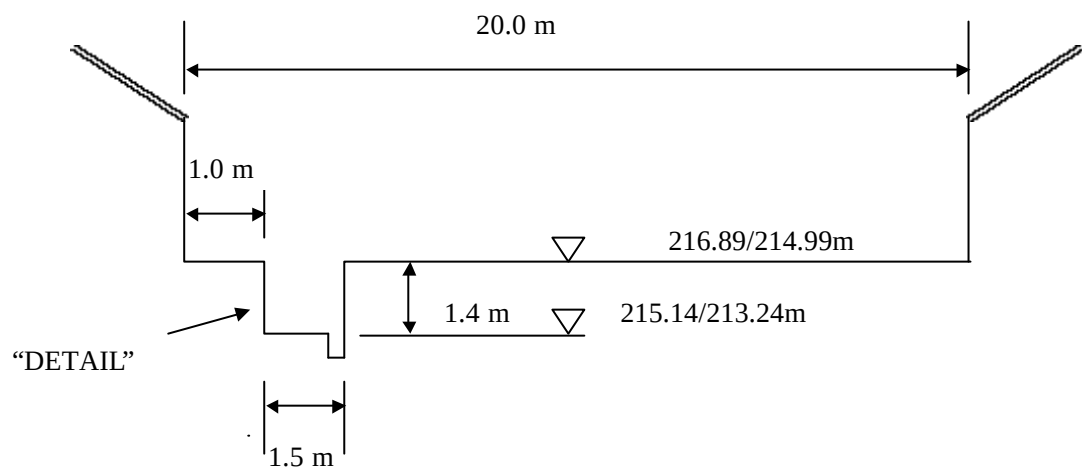
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	14
LENGTH	540 M
TYPE & DIMENSION	U 1500 X 1400
GRADIENT	3.5 ‰
SEWER INVERT ELEVATION START/END	215.14/213.24
GROUND LEVEL START / END	216.89/214.99



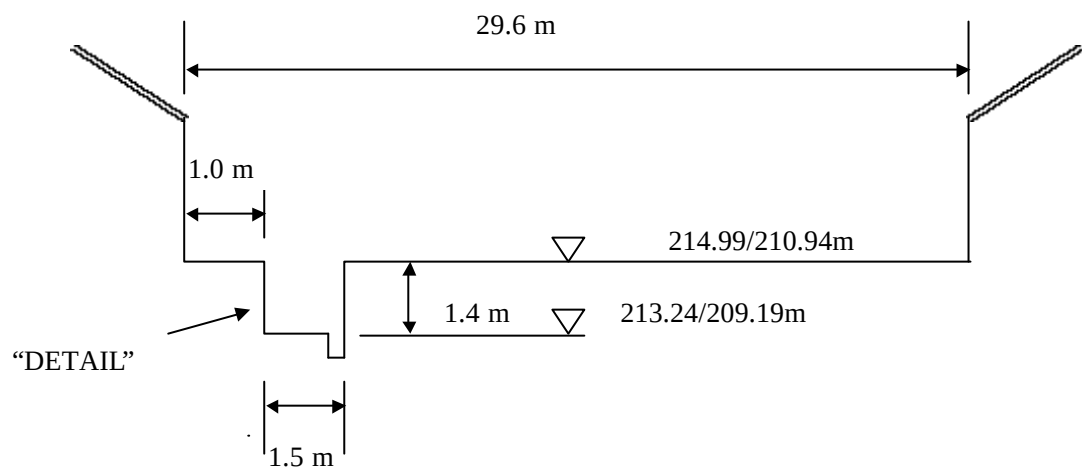
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-116

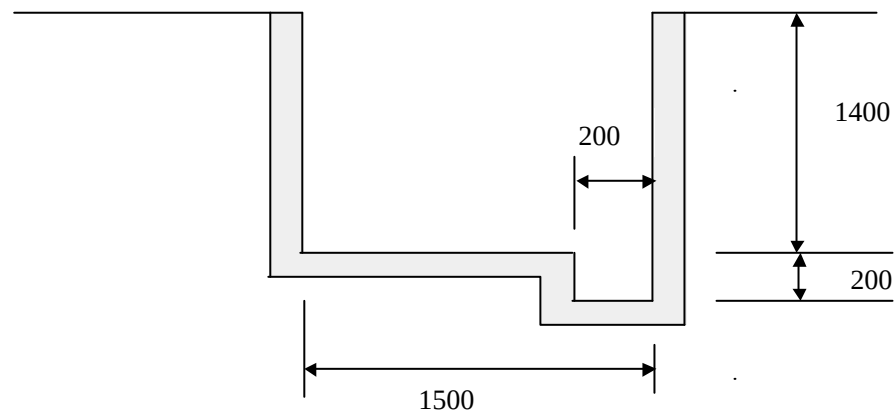
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	15
LENGTH	360 M
TYPE & DIMENSION	U 1500 X 1400
GRADIENT	11.3 ‰
SEWER INVERT ELEVATION START/END	213.24/209.19
GROUND LEVEL START / END	214.99/210.94



“DETAIL”



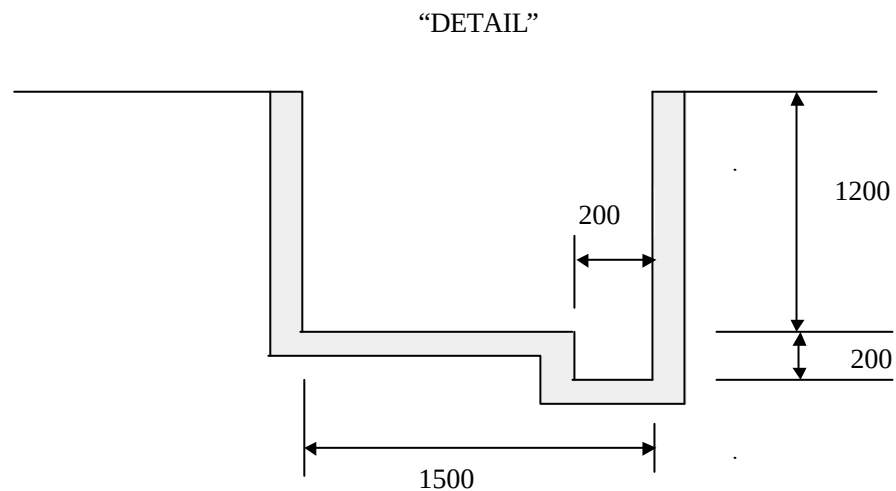
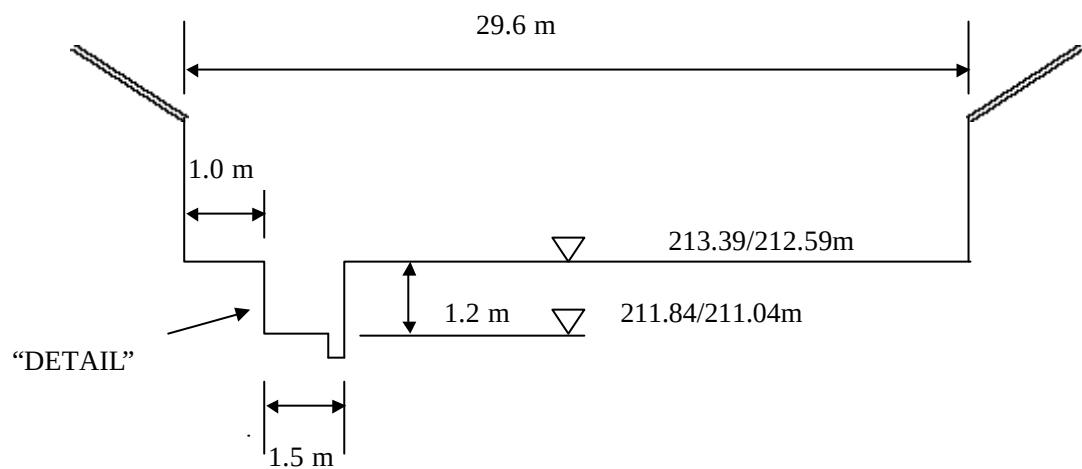
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	17
LENGTH	240 M
TYPE & DIMENSION	U 1500 X 1200
GRADIENT	3.3 ‰
SEWER INVERT ELEVATION START/END	211.84/211.04
GROUND LEVEL START / END	213.39/212.59



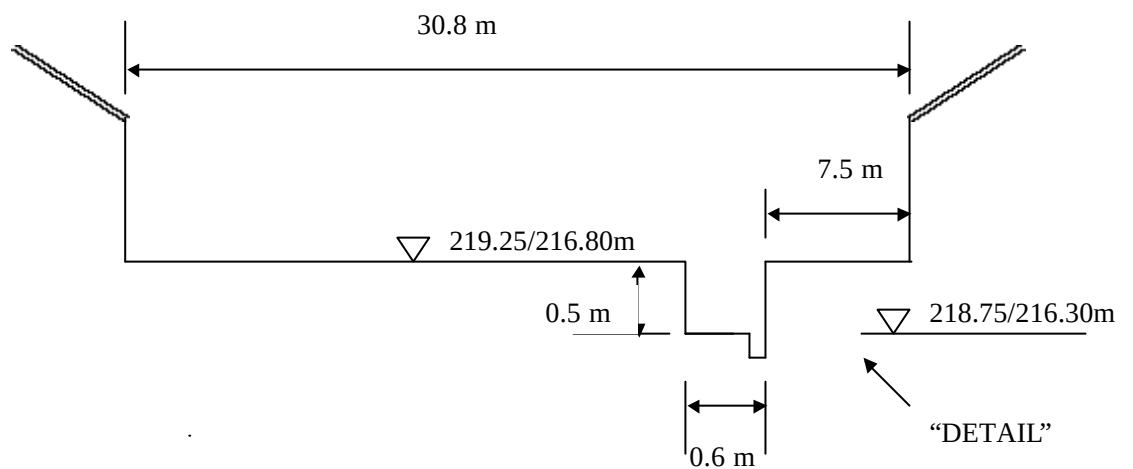
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-118

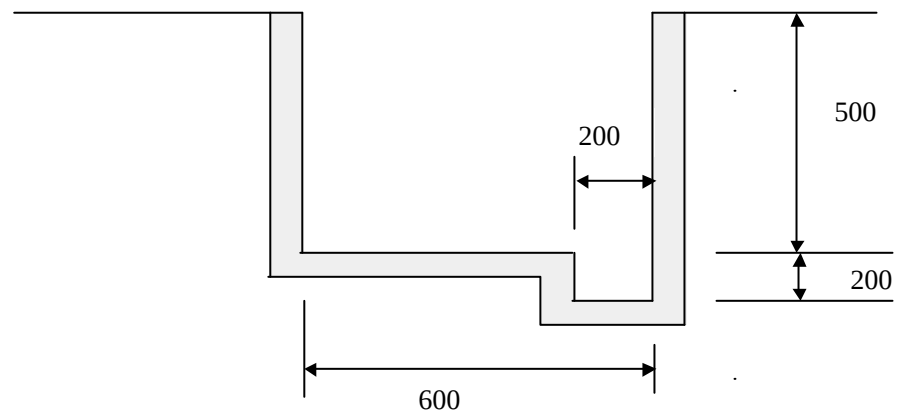
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	23
LENGTH	220 M
TYPE & DIMENSION	U 600 X 500
GRADIENT	11.1 ‰
SEWER INVERT ELEVATION START/END	218.75/216.30
GROUND LEVEL START / END	219.25/216.80



“DETAIL”



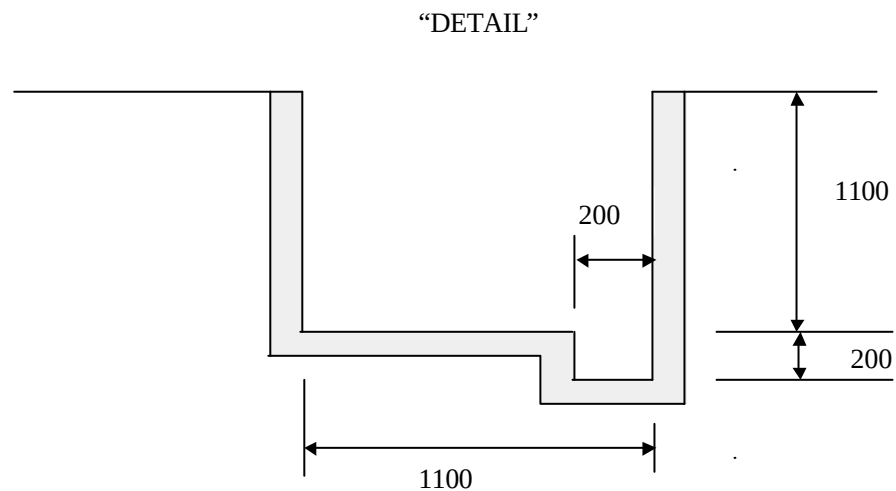
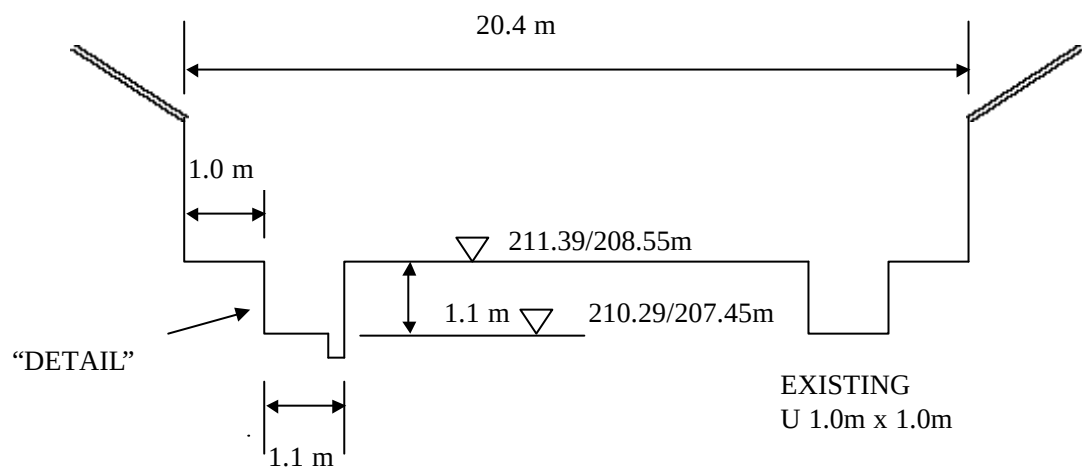
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-119

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	B26
LENGTH	360 M
TYPE & DIMENSION	U 1100 X 1100
GRADIENT	7.9 ‰
SEWER INVERT ELEVATION START/END	210.29/207.45
GROUND LEVEL START / END	211.39/208.55



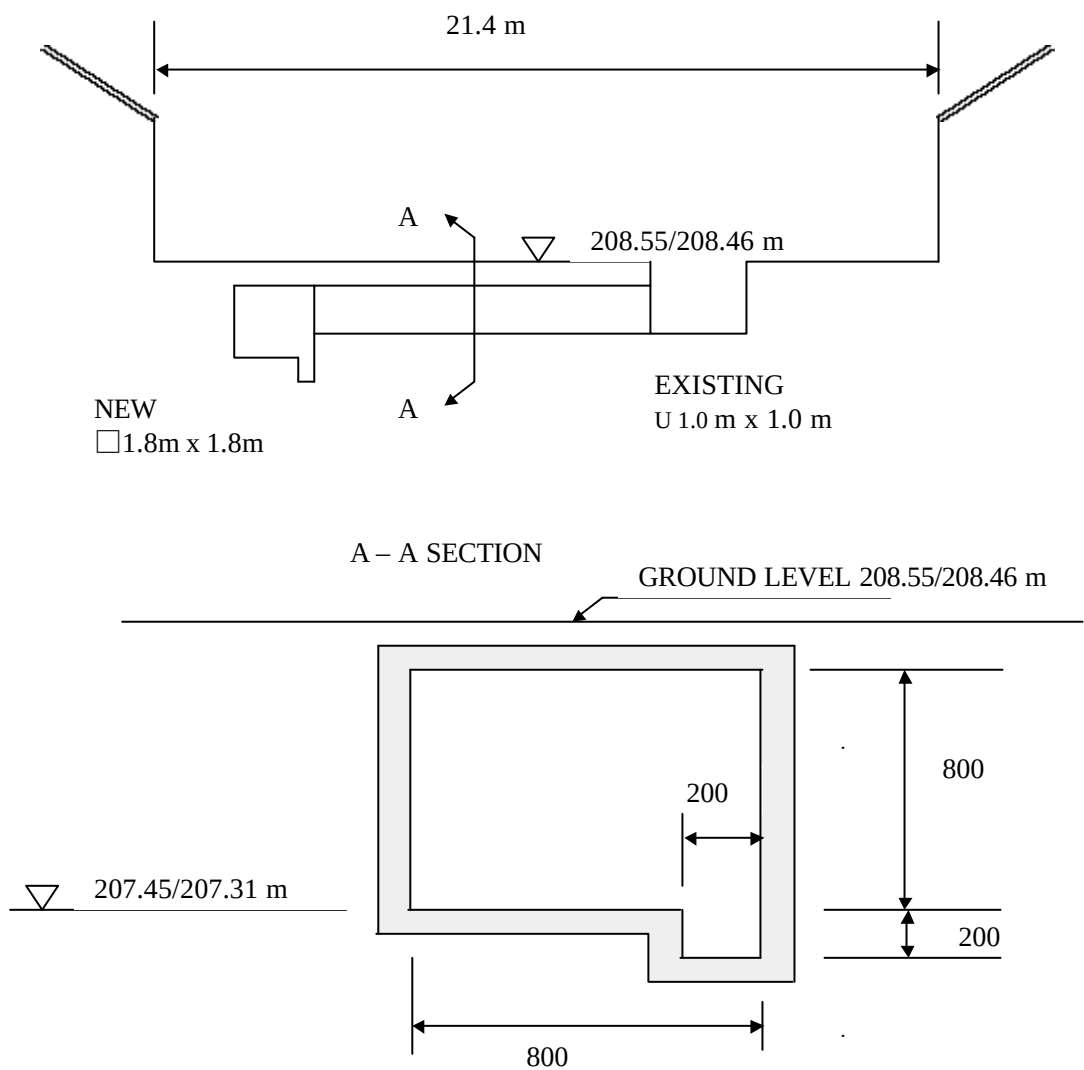
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A-120

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	26A
LENGTH	5 M
TYPE & DIMENSION	□ 800 X 800
GRADIENT	28.0 ‰
SEWER INVERT ELEVATION START/END	207.45/207.31
GROUND LEVEL START / END	208.55/208.46



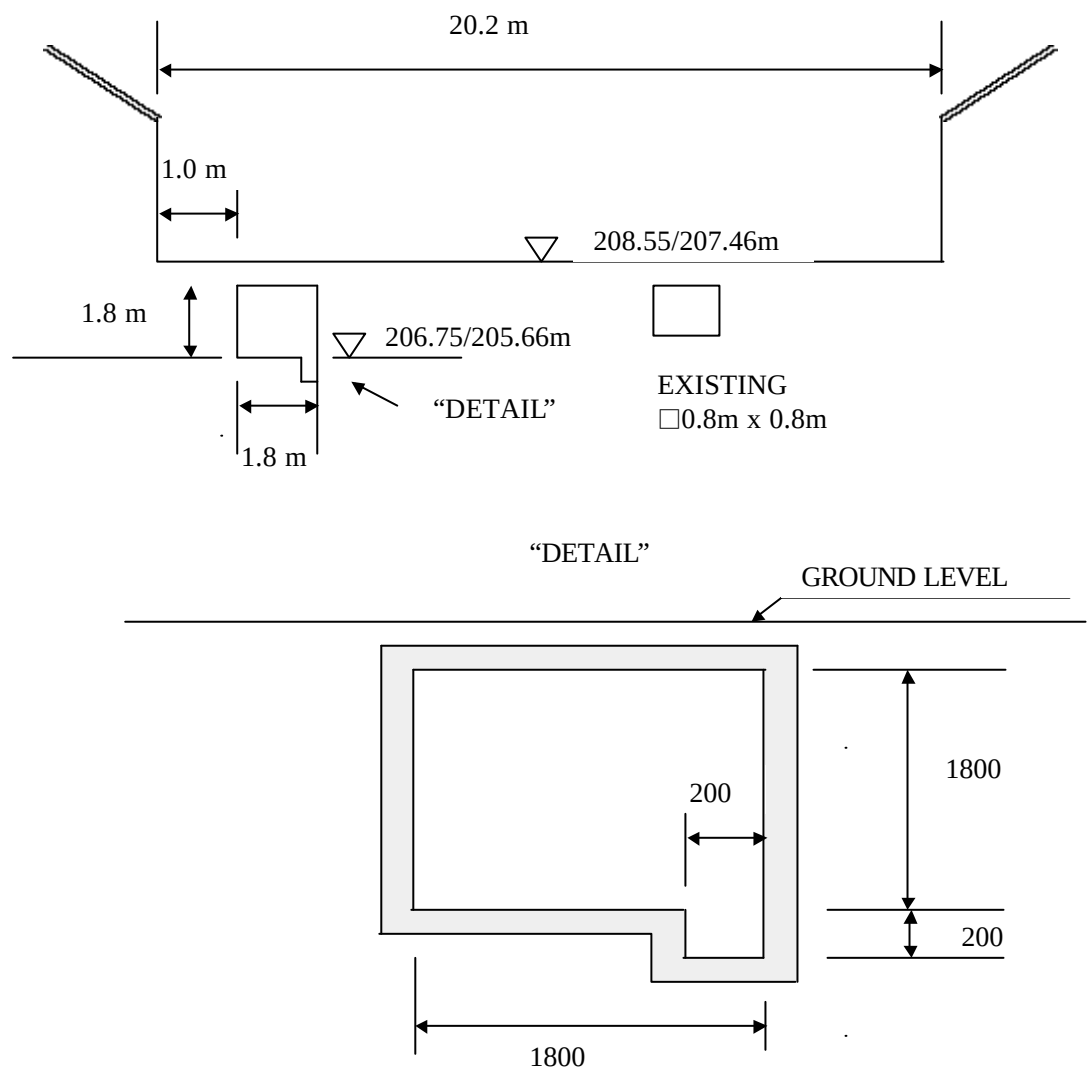
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	B27
LENGTH	490 M
TYPE & DIMENSION	□1800 X 1800
GRADIENT	2.2 ‰
SEWER INVERT ELEVATION START/END	206.75/205.66
GROUND LEVEL START / END	208.55/207.46



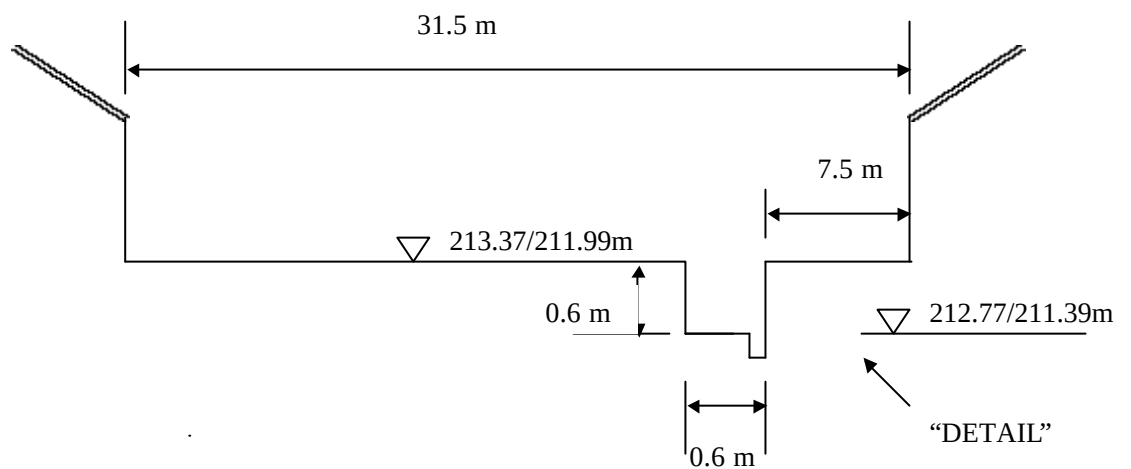
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

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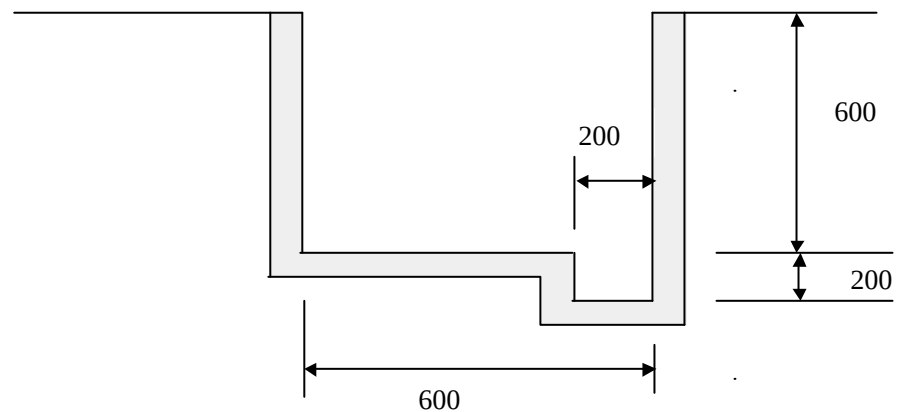
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	28
LENGTH	70 M
TYPE & DIMENSION	U 600 X 600
GRADIENT	19.7 ‰
SEWER INVERT ELEVATION START/END	212.77/211.39
GROUND LEVEL START / END	213.37/211.99



“DETAIL”



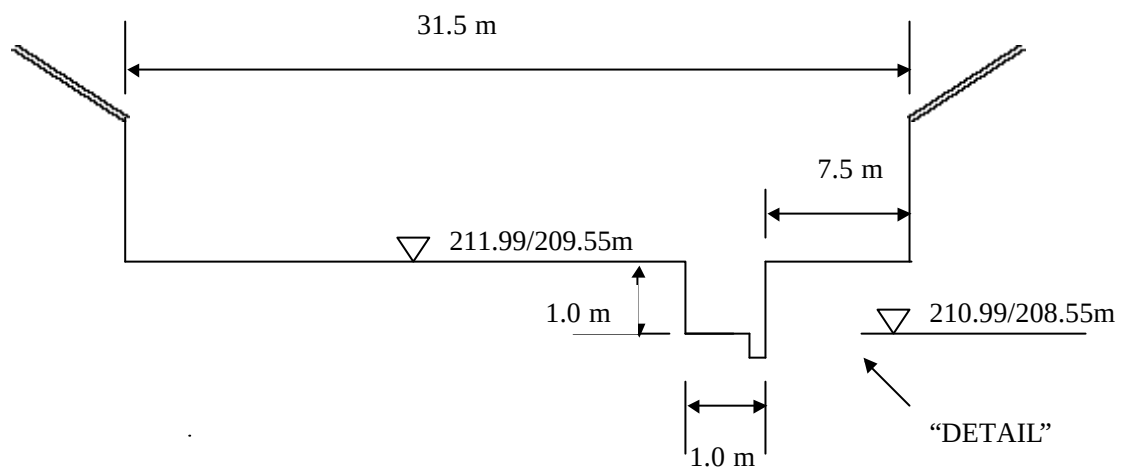
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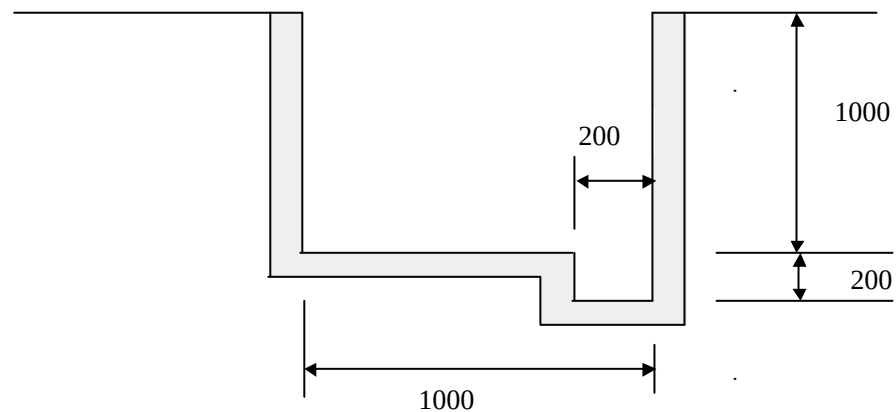
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	29
LENGTH	260 M
TYPE & DIMENSION	U 1000 X 1000
GRADIENT	9.4 ‰
SEWER INVERT ELEVATION START/END	210.99/208.55
GROUND LEVEL START / END	211.99/209.55



“DETAIL”



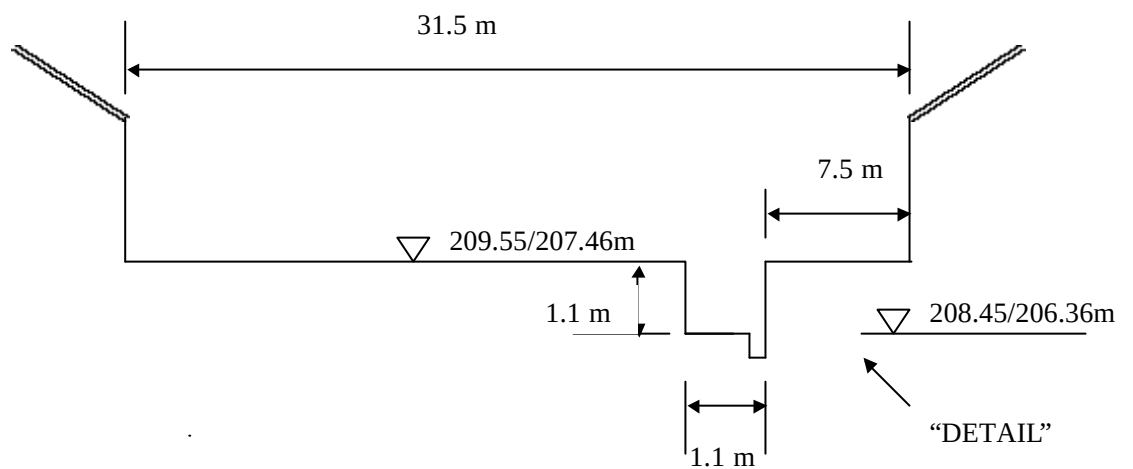
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A-124

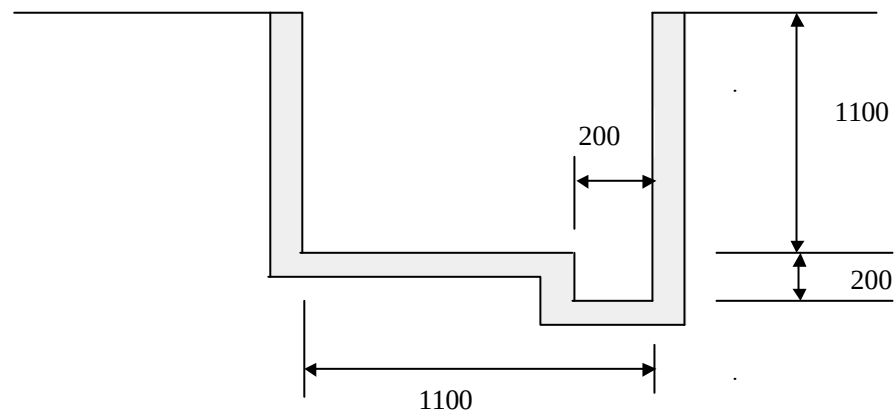
TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	30
LENGTH	210 M
TYPE & DIMENSION	U 1100 X 1100
GRADIENT	10.0 ‰
SEWER INVERT ELEVATION START/END	208.45/206.36
GROUND LEVEL START / END	209.55/207.46



“DETAIL”



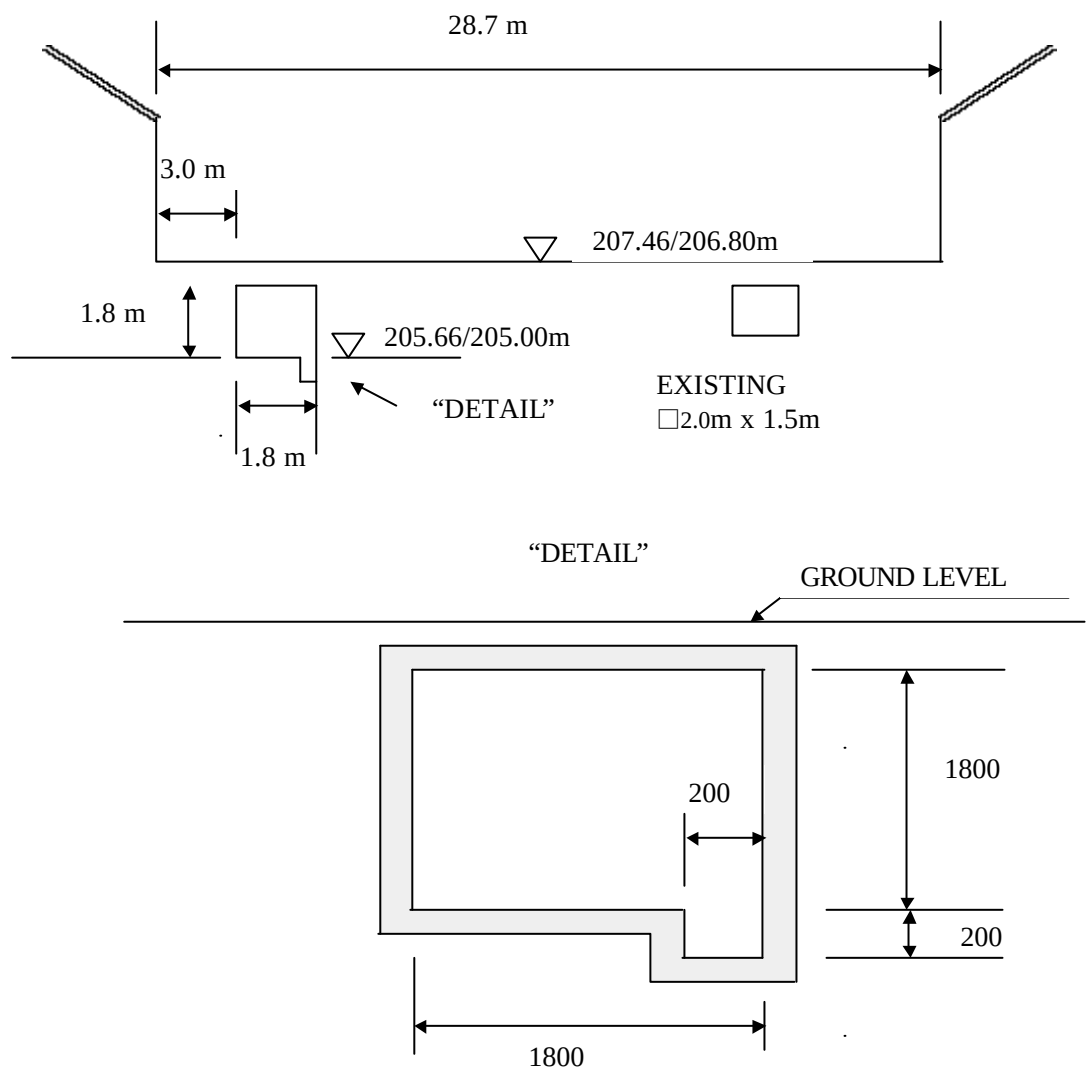
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	B31
LENGTH	150 M
TYPE & DIMENSION	□1800 X 1800
GRADIENT	4.4 ‰
SEWER INVERT ELEVATION START/END	205.66/205.00
GROUND LEVEL START / END	207.46/206.80



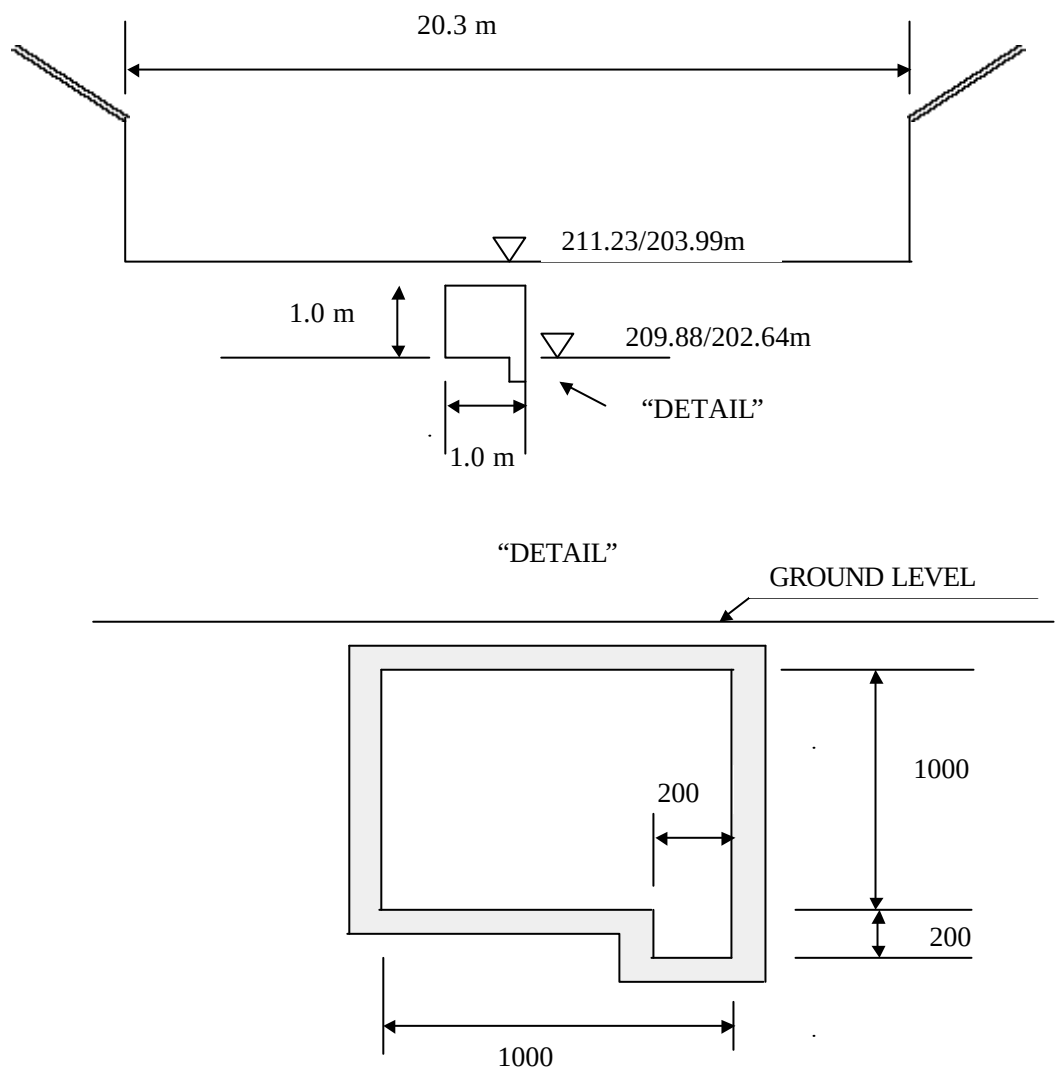
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A-126

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	38
LENGTH	270 M
TYPE & DIMENSION	□1000 X 1000
GRADIENT	26.8 ‰
SEWER INVERT ELEVATION START/END	209.88/202.64
GROUND LEVEL START / END	211.23/203.99



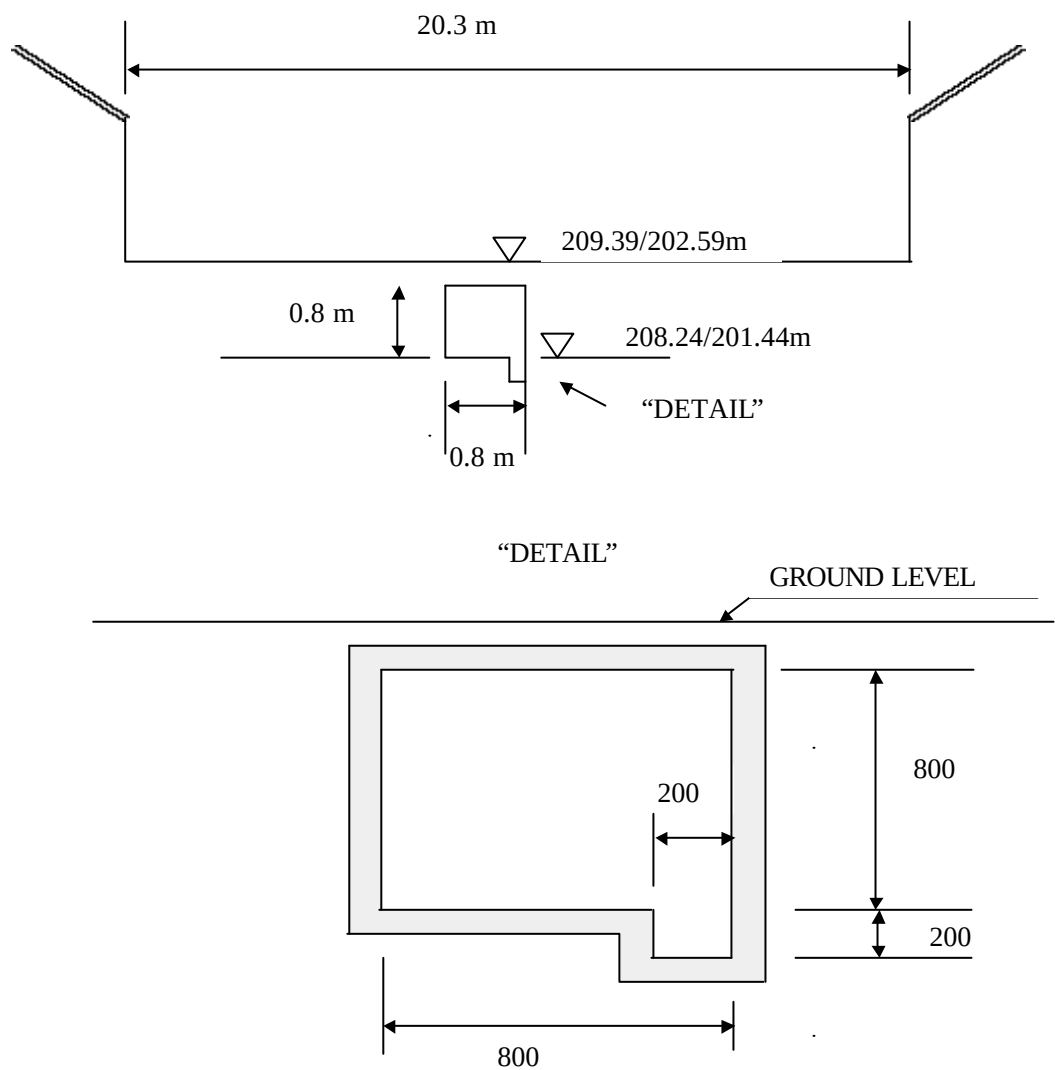
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	39
LENGTH	350 M
TYPE & DIMENSION	□800 X 800
GRADIENT	19.4 ‰
SEWER INVERT ELEVATION START/END	208.24/201.44
GROUND LEVEL START / END	209.39/202.59

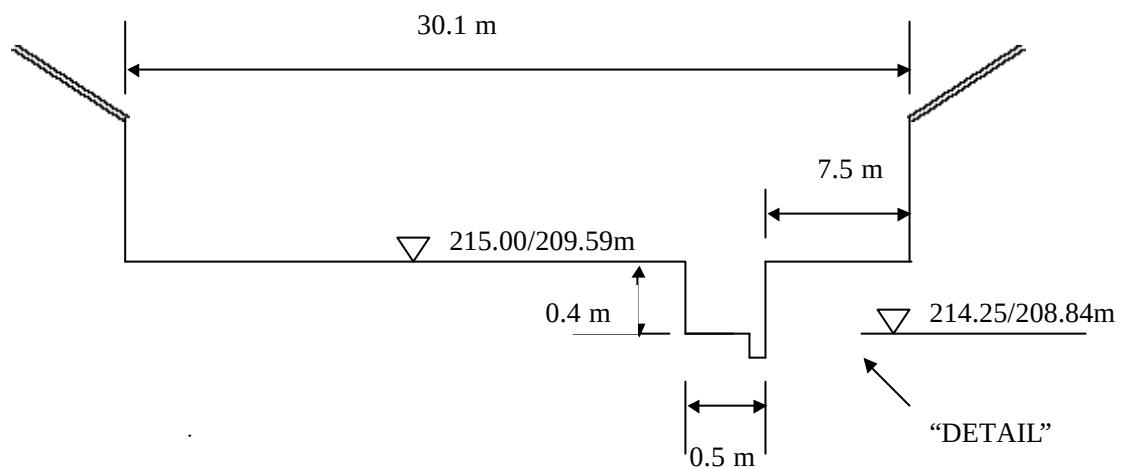


The Study on Sanitation Improvement for the Niamey City in the Republic of Niger

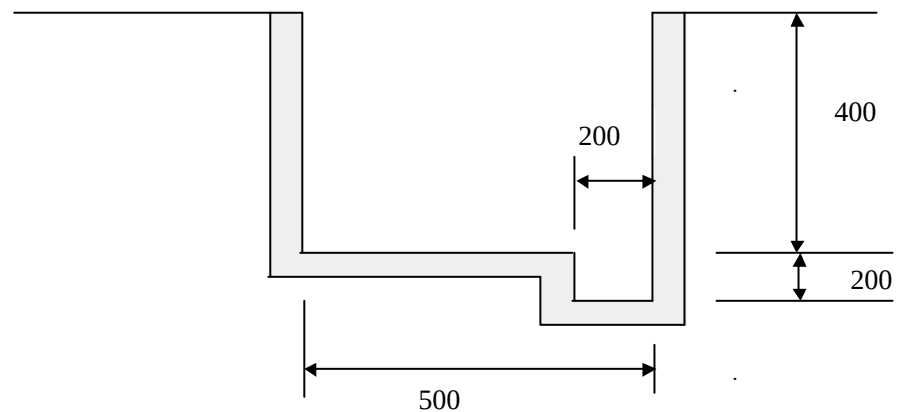
A-128

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

LINE NO.	40
LENGTH	300 M
TYPE & DIMENSION	U 500 X 400
GRADIENT	18.0 ‰
SEWER INVERT ELEVATION START/END	214.25/208.84
GROUND LEVEL START / END	215.00/209.59



“DETAIL”



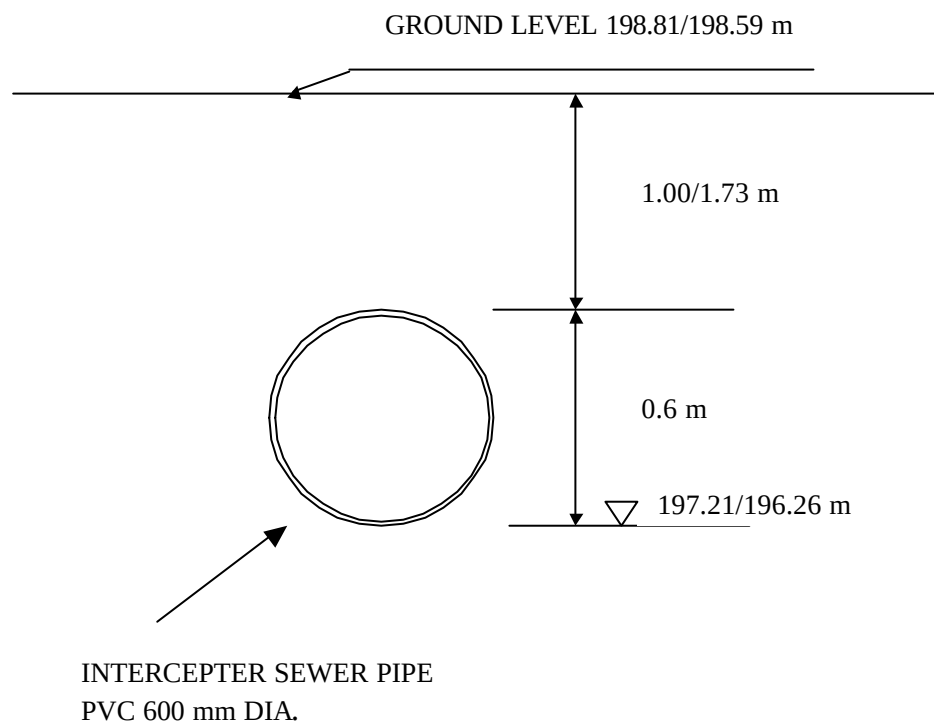
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	S1
LENGTH	380 M
TYPE & DIMENSION	φ 600
GRADIENT	2.5 ‰
SEWER INVERT ELEVATION START/END	197.21/196.26
GROUND LEVEL START / END	198.81/198.59



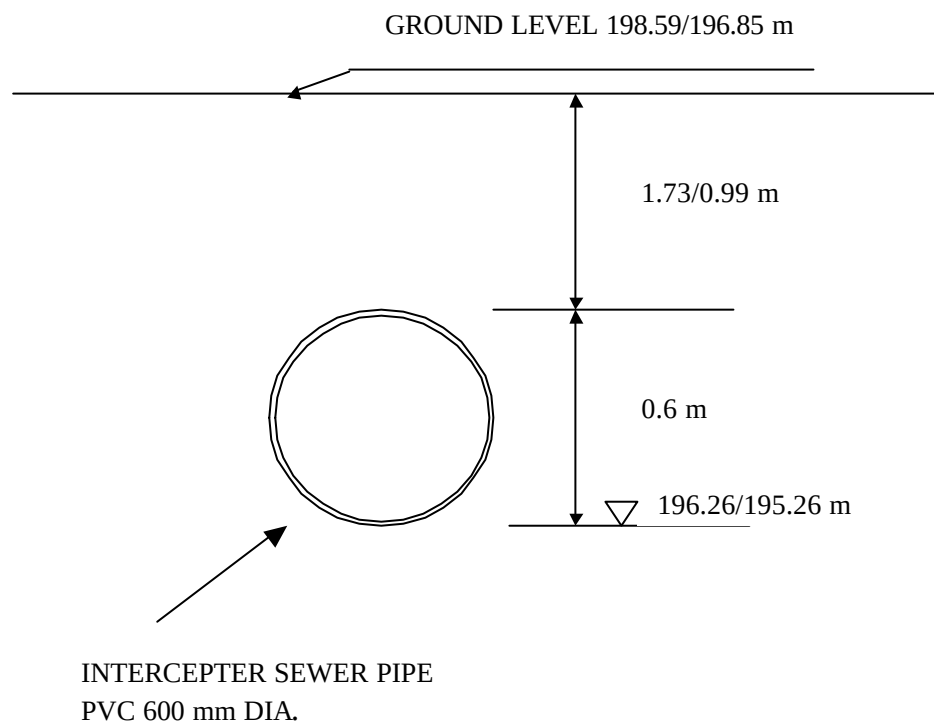
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

A-130

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	S2
LENGTH	400 M
TYPE & DIMENSION	φ 600
GRADIENT	2.5 ‰
SEWER INVERT ELEVATION START/END	196.26/195.26
GROUND LEVEL START / END	198.59/196.85



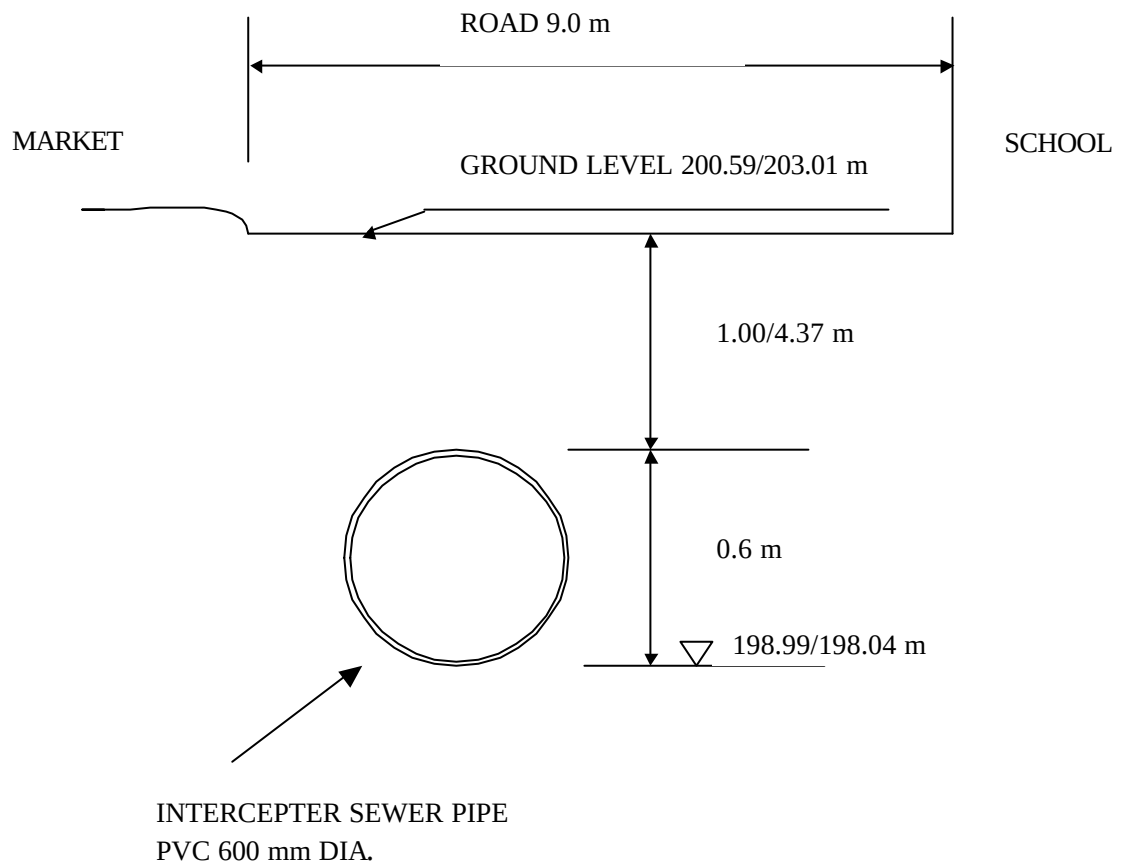
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TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY

LINE NO.	S3
LENGTH	380 M
TYPE & DIMENSION	φ 600
GRADIENT	2.5 ‰
SEWER INVERT ELEVATION START/END	198.99/198.04
GROUND LEVEL START / END	200.59/203.01

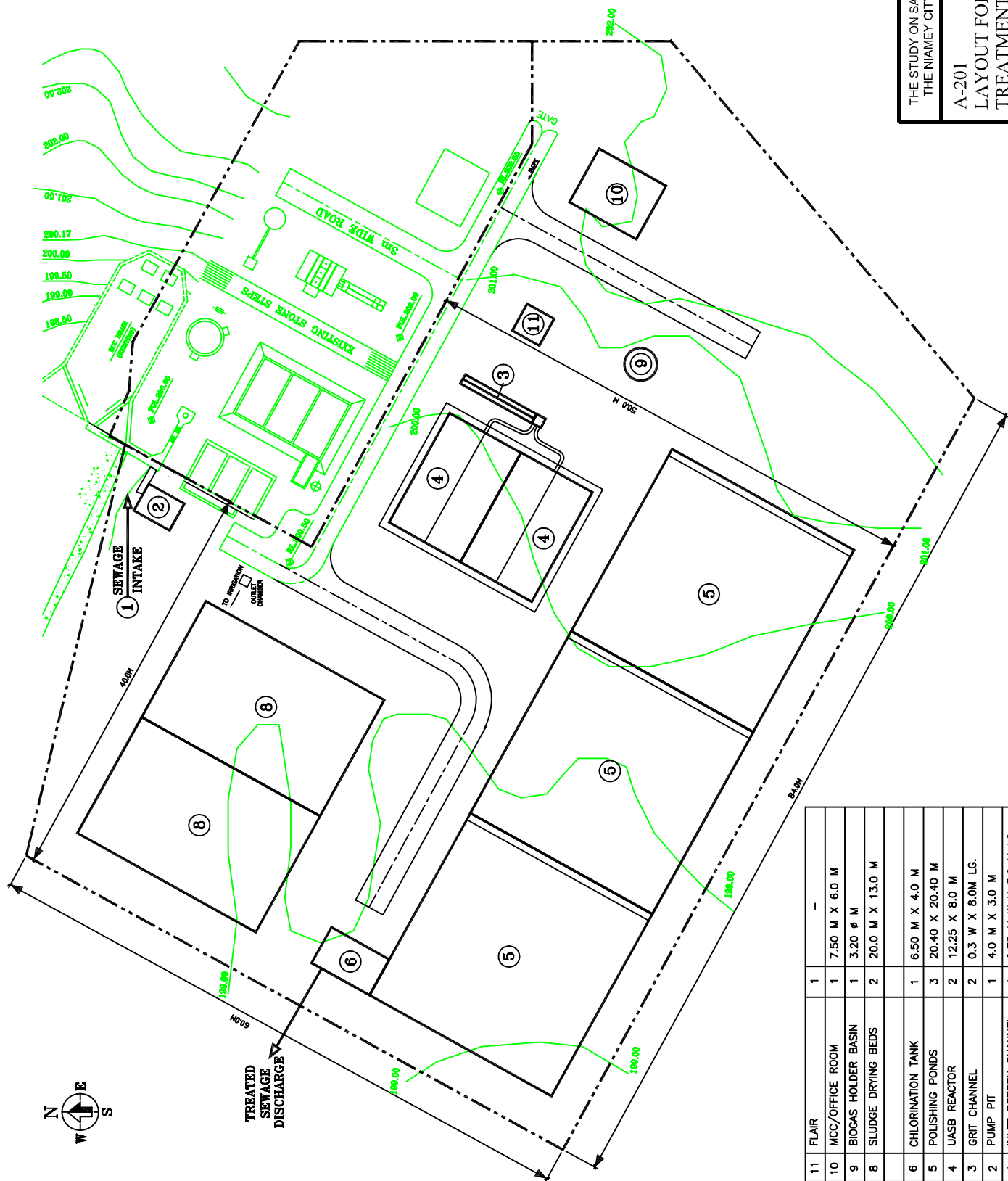


THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

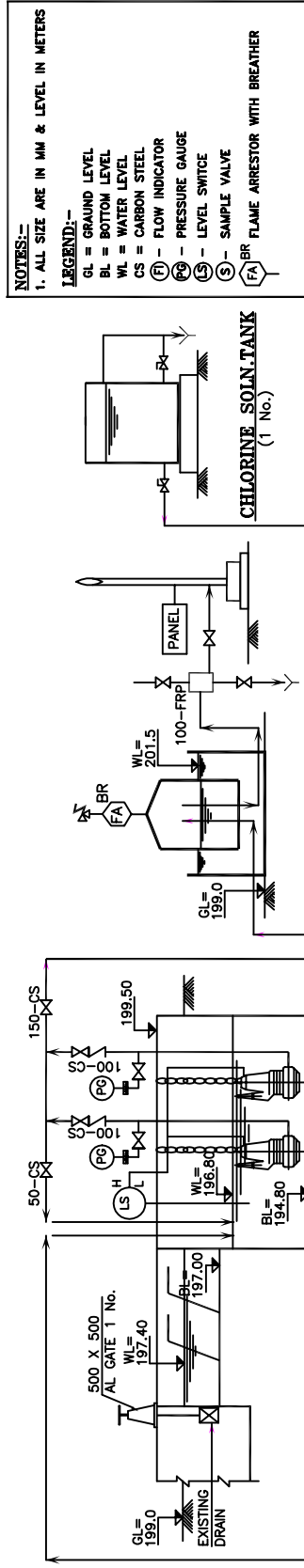
A-132

TYPICAL CROSS SECTION FOR DRAINAGE/SEWAGE PIPE

JAPAN INTERNATIONAL COOPERATION AGENCY



NO. SR.	DESCRIPTION	QTY.	SIZE (M X M)
11	FLAIR	1	-
10	MCC/OFFICE ROOM	1	7.50 M X 6.0 M
9	BIOGAS HOLDER BASIN	1	3.20 Ø M
8	SLUDGE DRYING BEDS	2	20.0 M X 13.0 M
6	CHLORINATION TANK	1	6.50 M X 4.0 M
5	POLISHING PONDS	3	20.40 X 20.40 M
4	UASB REACTOR	2	12.25 X 8.0 M
3	GRIT CHANNEL	2	0.3 W X 8.0M LG.
2	PUMP PIT	1	4.0 M X 3.0 M
1	INLET SCREEN CHANNEL	1	0.75 M W X 3.0 M LG.



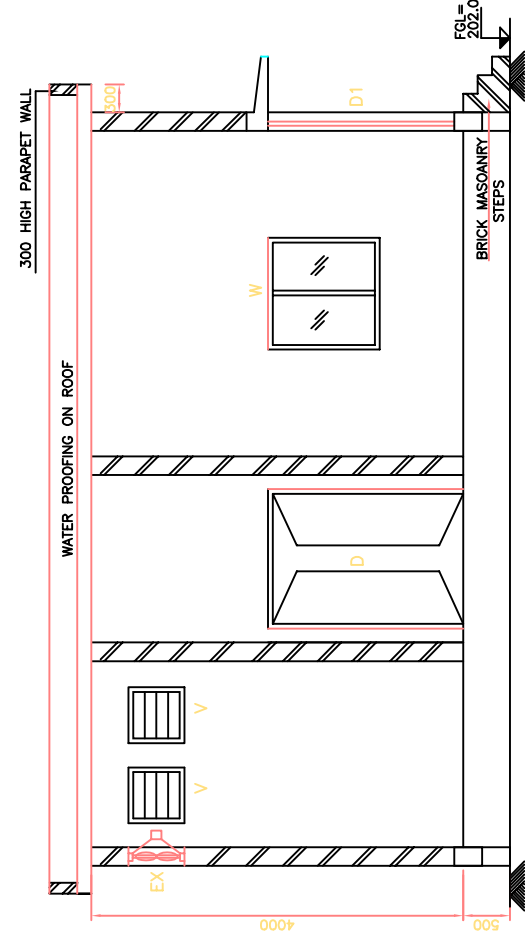
CHLORINE CONTACT TANK

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

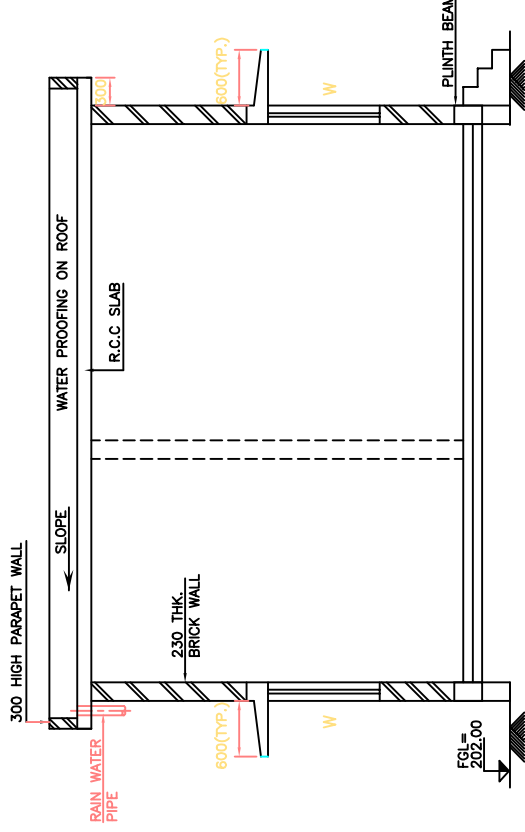
A-202
FLOW DIAGRAM FOR WASTEWATER
TREATMENT PLANT

SCALE

JAPAN INTERNATIONAL COOPERATION AGENCY



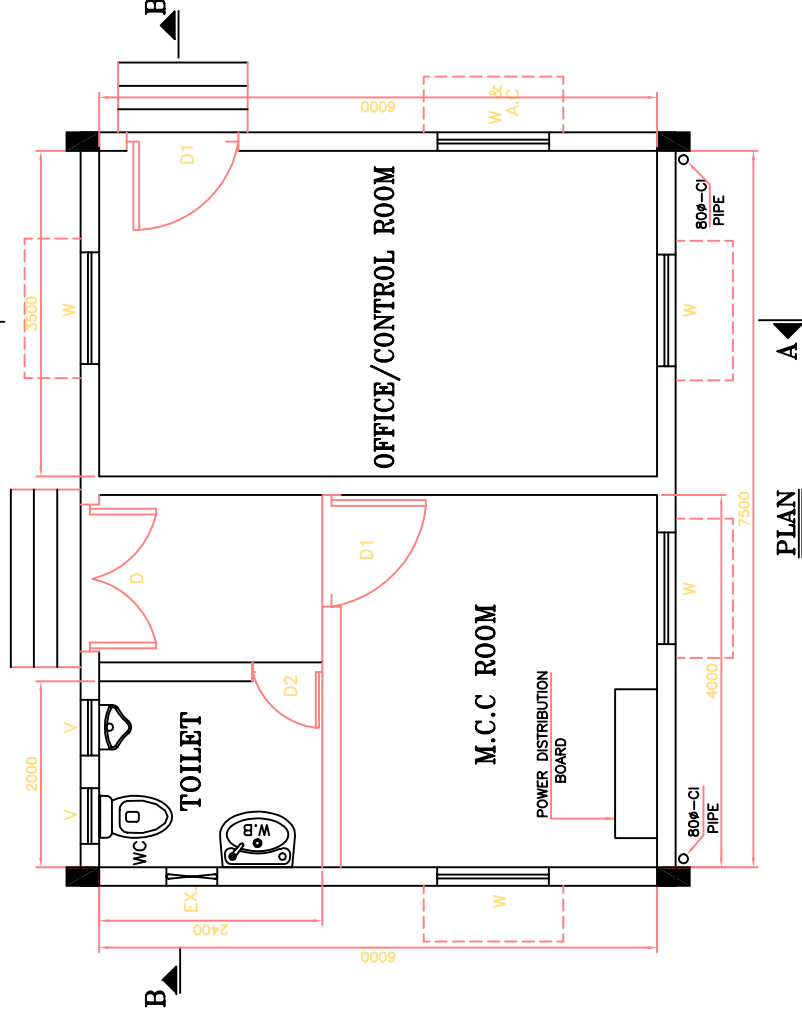
SECTION B-B

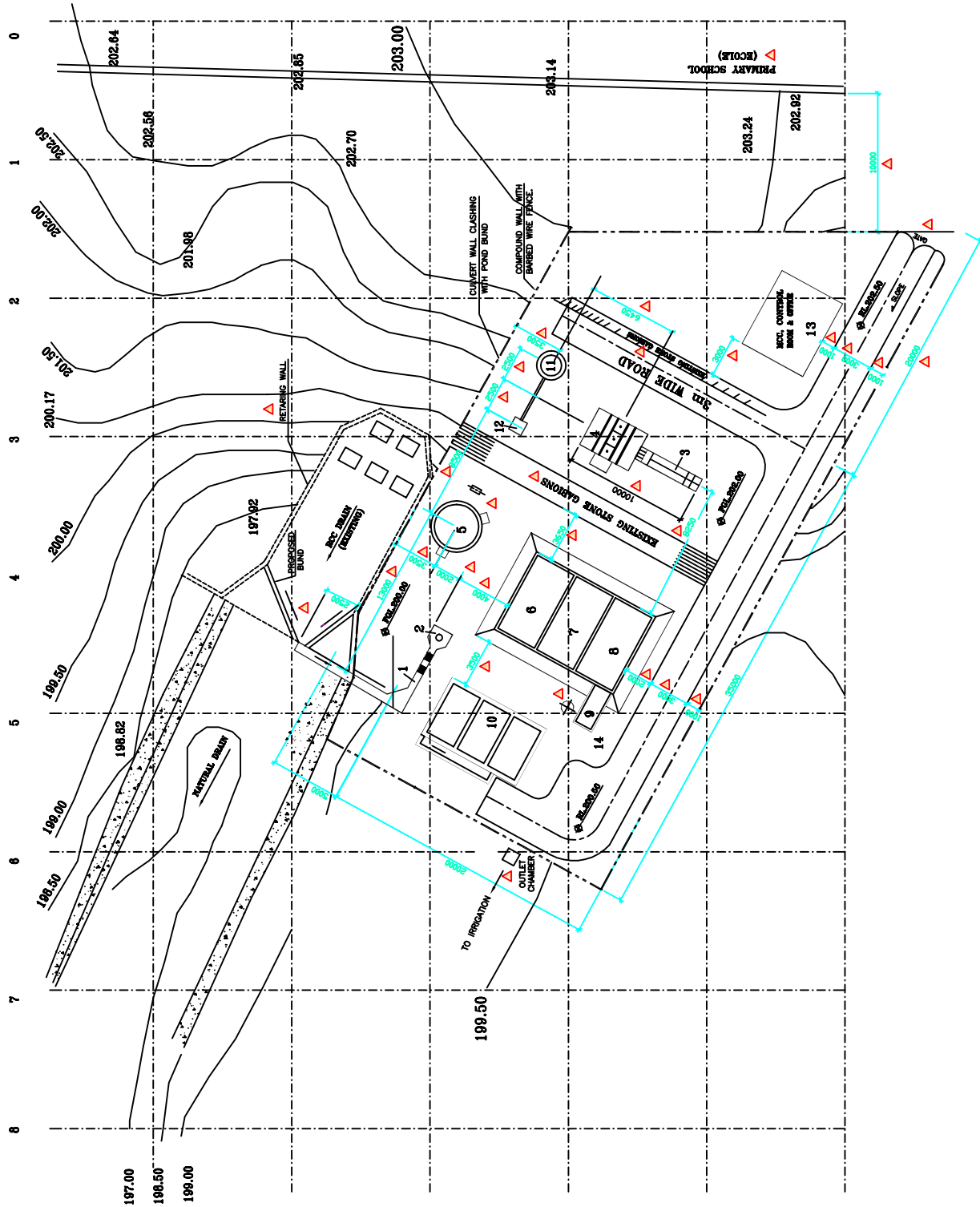


SECTION A-A

SCHEDULE OF OPENINGS

TYPE	DESCRIPTION	No.	SIZE (mm)
D	FULLY PANELLED DOOR (DOUBLE SHUTTER)	1	1500x2100
D1	SINGLE SHUTTER DOOR	2	1200x2100
D2	SINGLE SHUTTER DOOR	1	750x2100
W	GLASS WINDOW OPENABLE FROM INSIDE	5	1200x1200
V	VENTILATORS WITH FIXED GLASS	2	600x600
EX.	EXHAUST FAN	1	450#
AC	AIR CONDITIONING 2 T	1	STD.





S.NO.	REFERENCE DRAWING	DRAWING No.
1	P & I DIAGRAM	PL/337/P-01

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.

1001

EXISTING STRUCTURES

PROPOSED STRUCTURES

QTY.	SIZE	DESCRIPTION
1	5.0 x 0.5 m	1 INLET CHANNEL & SCREENS
2	1.25 m x 1.5 m	2 PUMP PIT
3	4.0 x 0.5 m	3 PUMP MOTOR
2	4.0 x 0.5 m	2 LIFT PUMP
5	1.25 m x 1.5 m	5 BROWER
6	4.0 x 3.0 m (AK. SIZE)	6 POND-1
7	4.0 x 3.0 m (AK. SIZE)	7 POND-2
8	4.0 x 3.0 m (AK. SIZE)	8 POND-3
9	4.0 x 3.0 m (AK. SIZE)	9 CHLORINATION CHAMBER
1	3.0 m x 1.5 m	10 SLUDGE DRYING BED
2	4.00 m x 2.20 m	2 SLUDGE PUMP
1	1.5 m x 1.5 m	1 FINE STRAIN
13	4.0 x 0.5 m	13 VALVE
1	4.0 x 0.5 m	14 MC & CONTROL PAK
1	-	1 CHLORINE SHALLUM

AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

PILOT PLANT FOR SEWAGE TREATMENT

M/S. TOKYO ENGINEERING.

PIANT LAYOUT	SCALE	1:300	SUPPLEMENT NO. NO.
	DESIGNED	Y.S.T	P/537/L-01
	DRAWN	Y.S.T	(Rev.)
	CHECKED	Y.S.T	SUPPLEMENT BY DRG NO.
	APPROVED	A.G.S	
	DATE	16.11.00	
DRAWING NO.			REV.
P/537/L-01			4

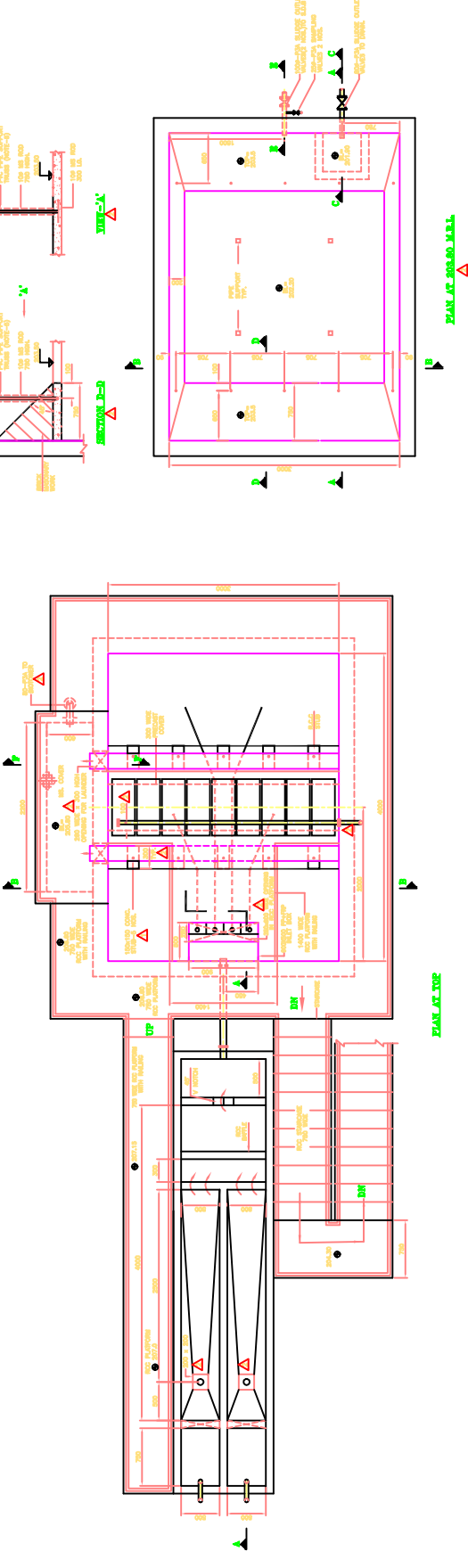
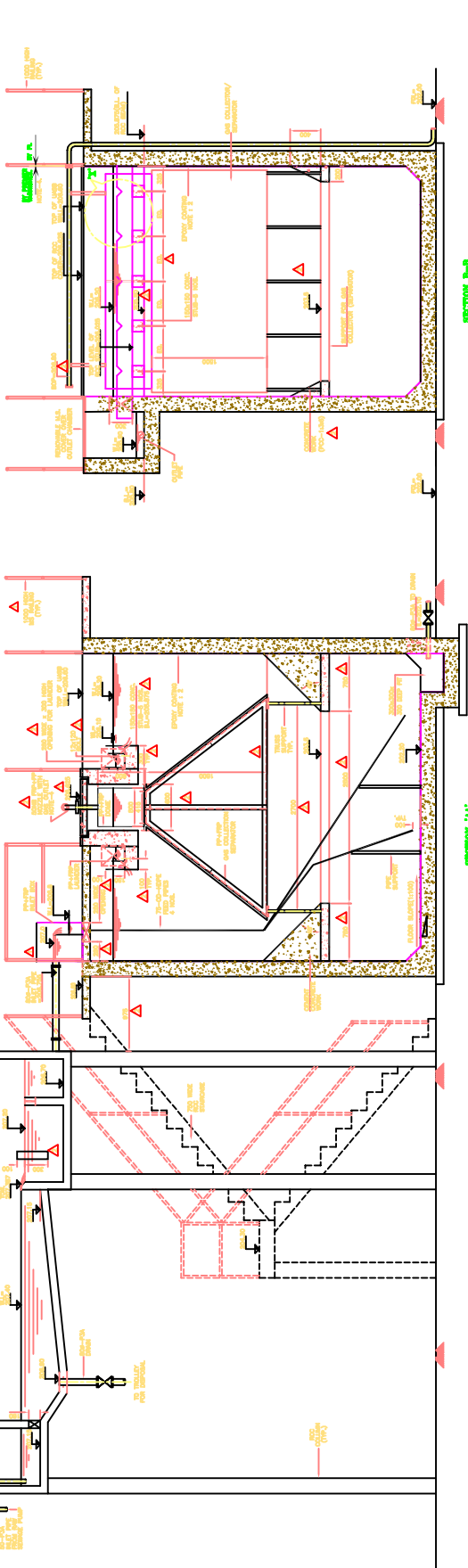
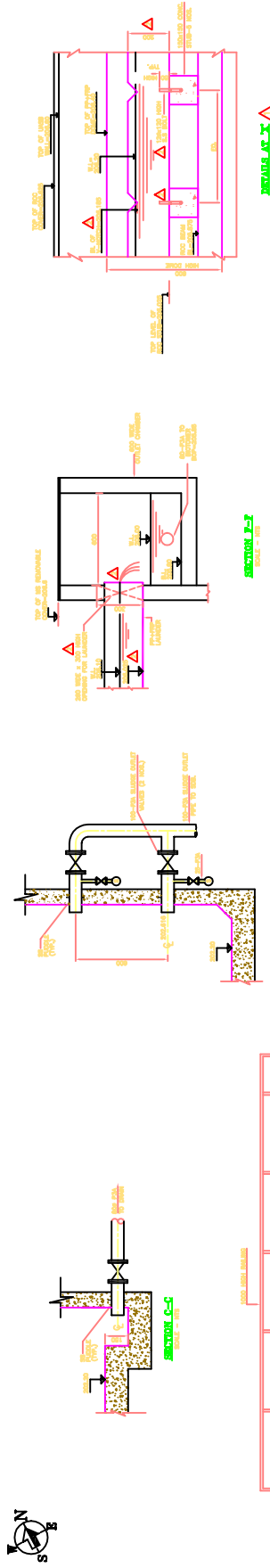


NO.	DATE	REVISION	DWG. NO.
1	03/12/20	ISSUED FOR TENDERING	PL/4597/01
2	03/12/20	FOR COMMENTS	PL/4597/02
3	03/12/20	FOR TENDER FINAL	PL/4597/03
4	15/07/21	AS BUILT	PL/4597/04

S.NO.	REFERENCE DRAWING	DRAWING NO.
1	LAYOUT	PL/4597/01
2	PIPE WITH THICKER WALLS	PL/4597/02

NOTES-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.
2. INSIDE ALL CONCRETE SURFACE WILL BE WITH EPOXY COATING 350 MICRON THICK.
3. FOR SUPPORT DETAIL OF PIPE, DISTRIBUTOR BOX, GAS COLLECTION DOME & SEPARATOR, OUTLET LAUNDRY, P.L. REFER DRAWING OF M/S. PREMIER WARRIERS.
4. FRP-PP GAS OUTLET WITH TWO NOZZLES & PIPE UP TO REACTOR END SHALL BE SUPPLIED BY M/S. PREMIER WARRIERS.
5. THE PVC PIPE SUPPORT TO BE GROUTED WITH CONCRETE AFTER SLING OVER THE MS ROD.



AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR THE NAMEY CITY IN THE REPUBLIC OF NIGER	
PILOT PLANT FOR SEWAGE TREATMENT (100m ³ /day) - NIGER	
RAM NIAMEY - NIGER (JICA STUDY)	
GA DRAWING FOR GRIT CHANNEL AND UASB SYSTEM	PL/4597/04-02
SCALE: 1:50	DATE: 15/07/21
DESIGNED BY: [Name]	CHECKED BY: [Name]
APPROVED BY: [Name]	DATE: 15/07/21
REVISION NO.	REV.
1	3

NO.	DATE	REVISION	CHD. APPD.
1.	02/01/01	SUBMITTED FOR ENGINEERING.	PCA/PCA
2.	02/01/01	REDESIGNED FOR ENGINEERING.	PCA/PCA
3.	02/07/01	AS BUILT	

S.NO.	REFERENCE DRAWING	DRAWING NO.
1.	P&I DIAGRAM WITH HYDRAULIC LEVELS	PL/537/P-01
2.	LAYOUT	PL/537/L-01

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.
2. DELETED
3. ALL MEMBERS OF DHS FRAME WILL BE IN SS-316 MATERIAL.
4. FOR DETAILS OF MEDIA FRAME PLEASE REFER STRUCTURAL BOWTHER MEDIA DRAWING NO. PL/228/RCC-03.
5. M.S. BRIDGE SHALL BE SUCH SO AS TO ENABLE TO REMOVE AND REINSTALL THE SAME WHENEVER DHS MEDIA IS TO BE TAKEN FOR MAINTENANCE.
6. ERECTION OF BRIDGE IS TO BE TAKEN UP AFTER INSTALLATION OF MEDIA FRAME.
7. SLOPE OF SLAB AT RL-201.55 IS TO BE PROVIDED TOWARDS CENTRE & TO THE OUTLET.
8. THE TOLERANCES FOR ALL SIZES OF 20 x 20 x 20 SPONGE CUBES SHALL BE ±1.5mm.

AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR THE NAMEY CITY IN THE REPUBLIC OF NIGER

PLOT PLANT SEWAGE TREATMENT (100m³/day) - NIGER.

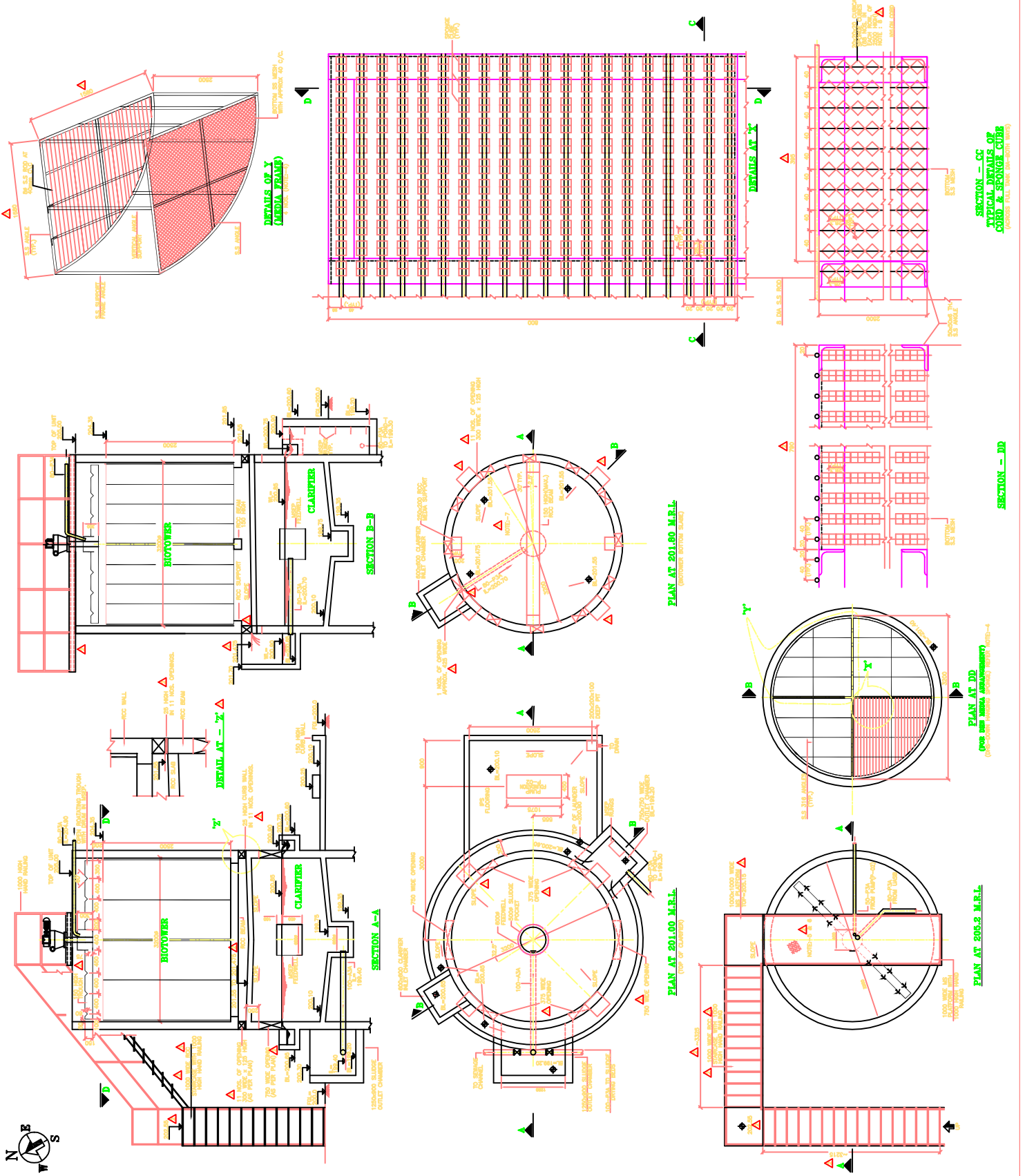
EAM NAMEY - NIGER. (J.I.C.A. STUDY)

G.A DETAILS OF BIOTOWER

SCALE: 1:30
DESIGNED: J.A.P.
CHECKED: S.B.H.
APPROVED: PCA
DATE: 2-12-00

REVISIONS: 3

PL/537/GA-03



NO.	DATE	REVISION	CHD.	APPD.
0	02.11.00	SUBMITTED FOR APPROVAL		
1	28.07.01	AS BUILT		

S.NO.	REFERENCE DRAWING	DRAWING NO.
1	LAYOUT	PL/537/L-01
2	P&I WITH HYDRAULIC LEVELS	PL/537/P-01

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.

2. MEDIA DETAIL

SAND

EFFECTIVE SIZE=0.5 TO 0.75 mm.

UNIFORMITY COEFFICIENT = NOT MORE THAN 3.0

GRAVEL

SIZE=25 TO 50 mm.

GRADED BIGGER TO SMALLER FROM BOTTOM TO TOP

AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

PILOT PLANT SEWAGE TREATMENT
(100m³/day) – NIGER.

M/S. NIAMEY – NIGER.
(J.I.C.A. STUDY)

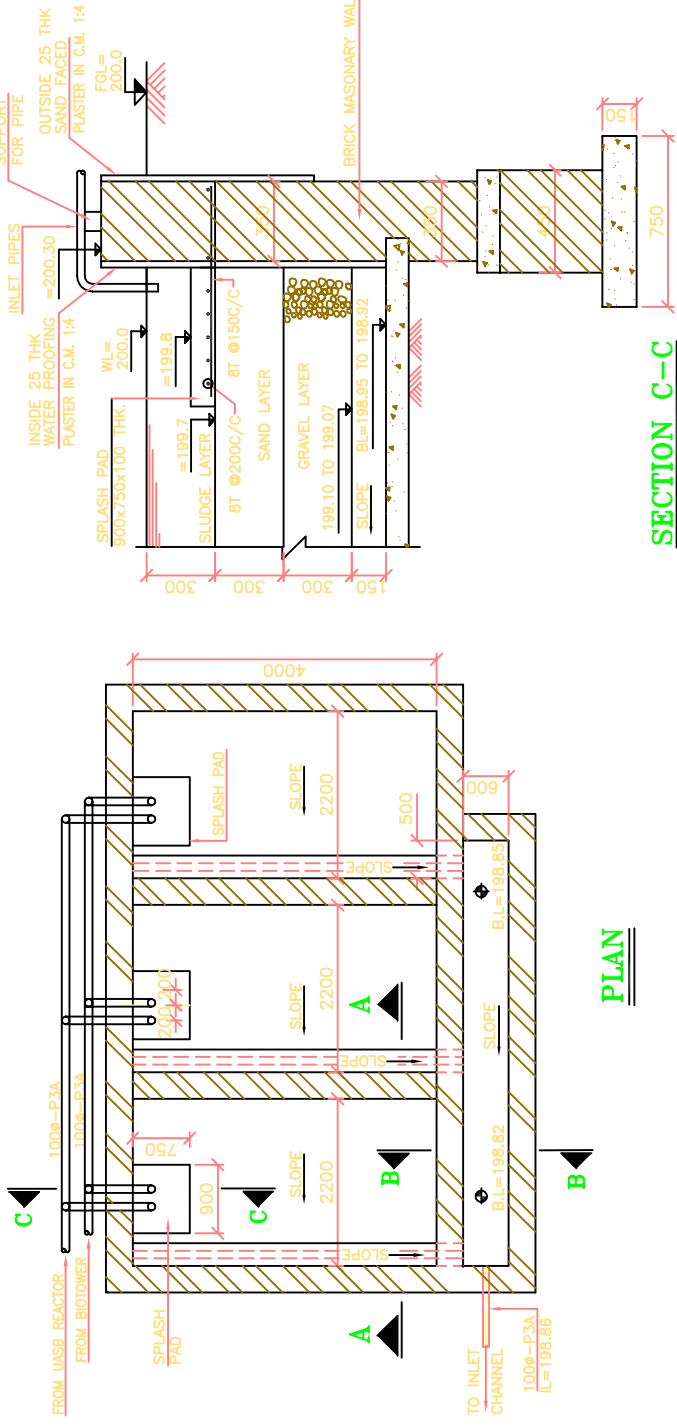
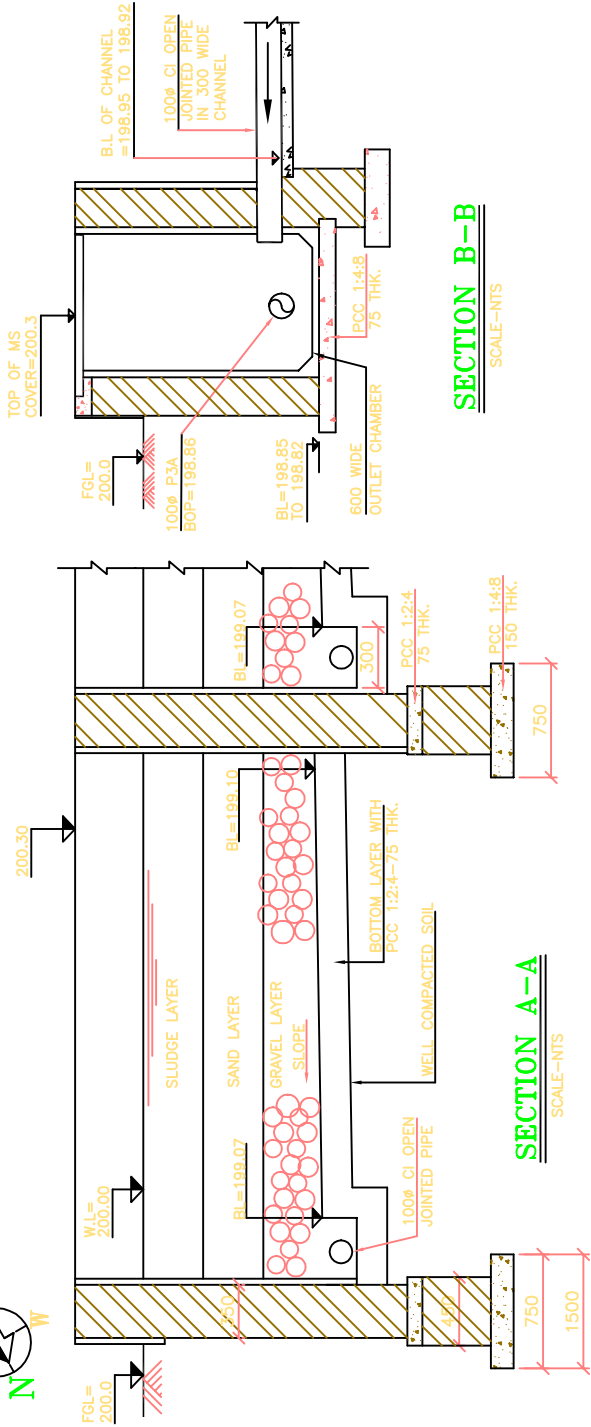
G.A DETAILS OF
SLUDGE DRYING
BEDS

DRAWING NO.

PL/537/GA-05

REV.

1



PLAN

SECTION C-C

SCALE-1:25

NO.

DATE

REVISION

CHD.

APPD.

0

4-11-00

SUBMITTED FOR INFORMATION

PGA

PGA

1

05.01.01

REVISED AS MARKED

PGA

PGA

2

20.07.01

AS BUILT

S.NO.

REFERENCE DRAWING

DRAWING NO.

1

LAYOUT

PL/537/L-01

2

P&I WITH HYDRAULIC LEVELS

PL/537/P-01

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.

PAINING:-
OUTSIDE -- WATER PROOF PAINT
INSIDE -- WHITE WASH

PLASTER:-
OUTSIDE -- 20mm THK. SAND FACE
INSIDE -- 15mm THK.
CEILING -- 6mm THK.

FLOORING:-
PSF -- POLISHED STONE FLOORING
CIT -- CERAMIC TILES FLOORING

SCHEDULE OF OPENINGS

TYPE	DESCRIPTION	No.	SIZE
D	FULLY PANELED DOOR WITH T/W FRAME (DOUBLE SHUTTER)	1	1200x2100
D1	M.S SINGLE SHUTTER DOOR	1	750x2100
W	STEEL GLASS WINDOW OPENABLE FROM INSIDE	5	1200x1200
V	STEEL VENTILATORS WITH FIXED GLASS	2	600x600
EX.	EXHAUST FAN	1	450#
AC	AIR CONDITIONING 1.5 T	2	STD.

AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

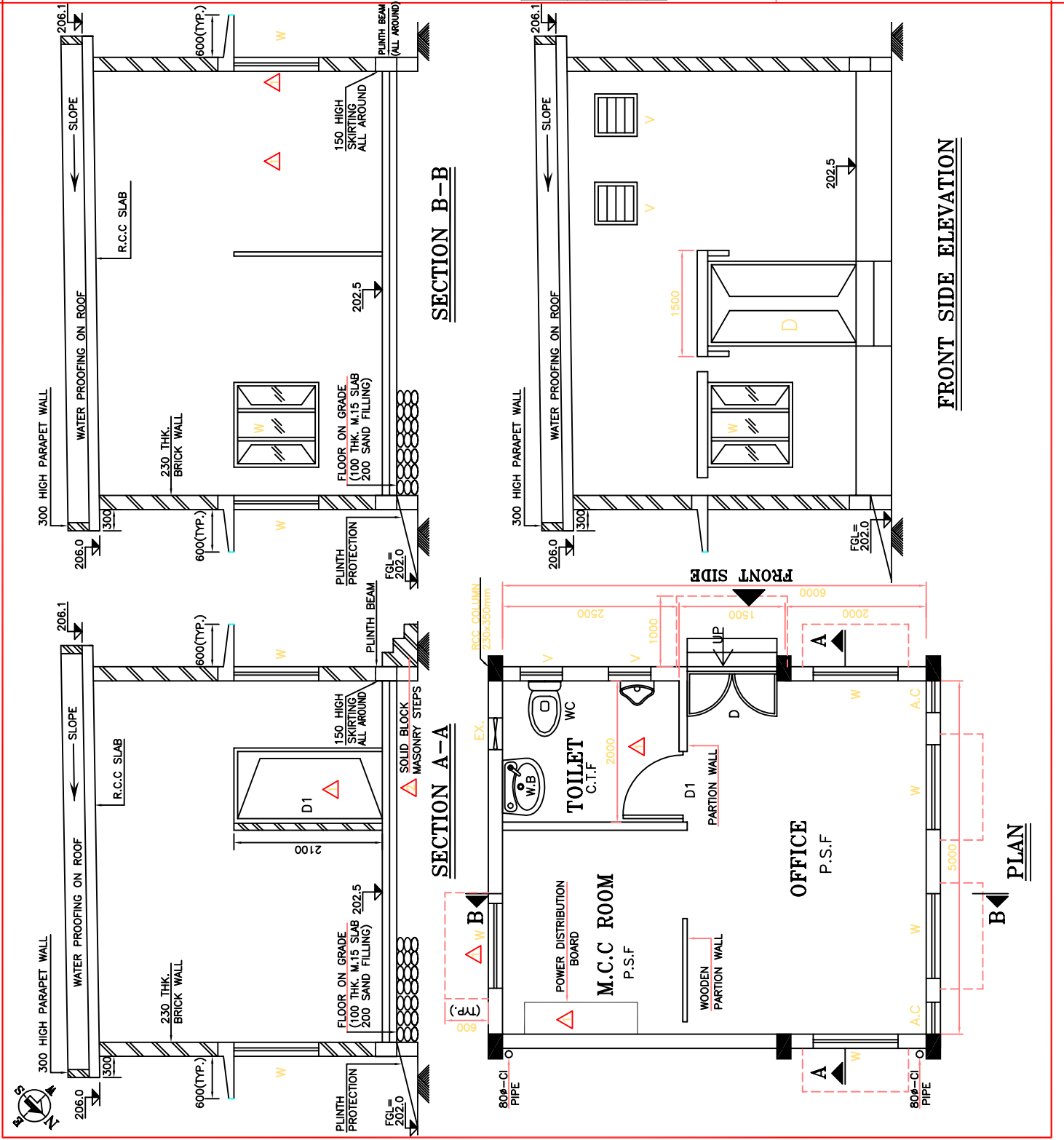
PILOT PLANT SEWAGE TREATMENT (100m³/day) – NIGER.

EAM NIAMEY – NIGER. (J.I.C.A. STUDY)

G.A DETAILS OF OFFICE & M.C.C ROOM

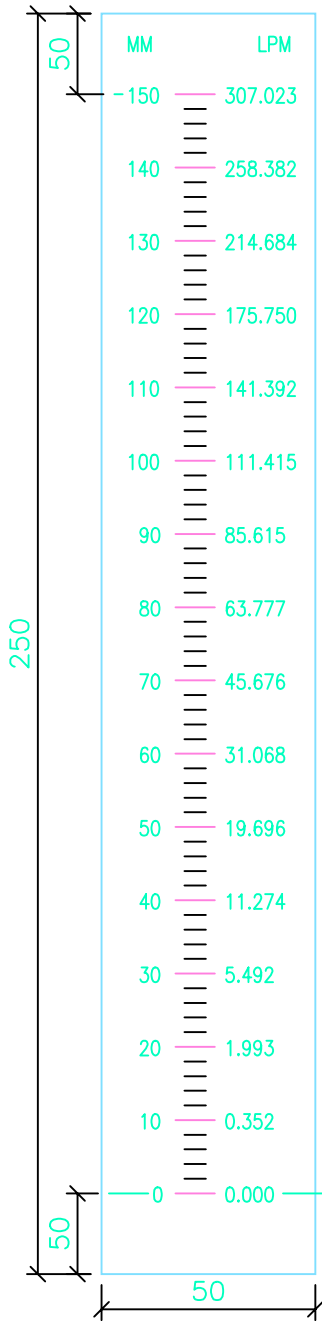
SCALE 1:50
DESIGNED M.A.B
DRAWN L.S.RABARI
CHECKED PGA
APPROVED PGA
DATE 4-11-00

REV. 2

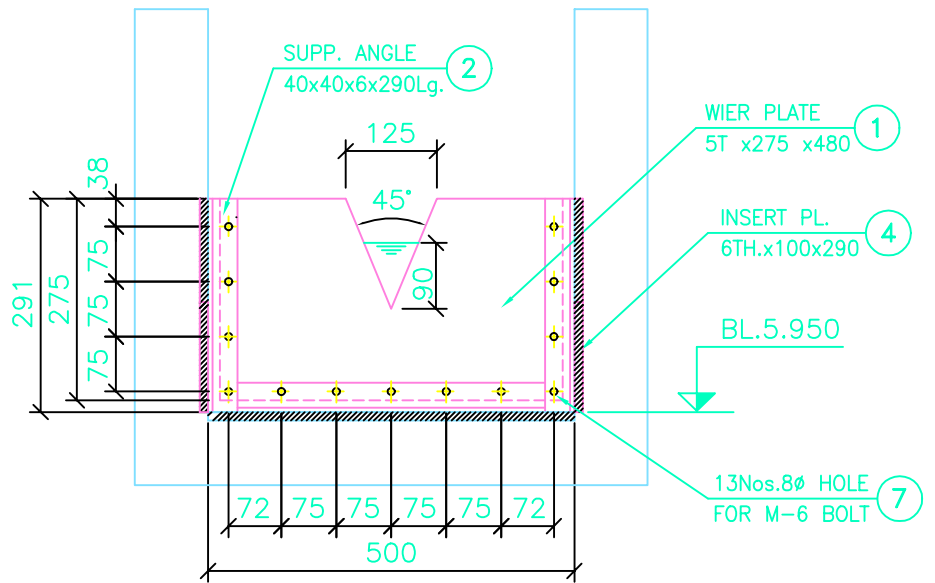


BILL OF MATERIAL

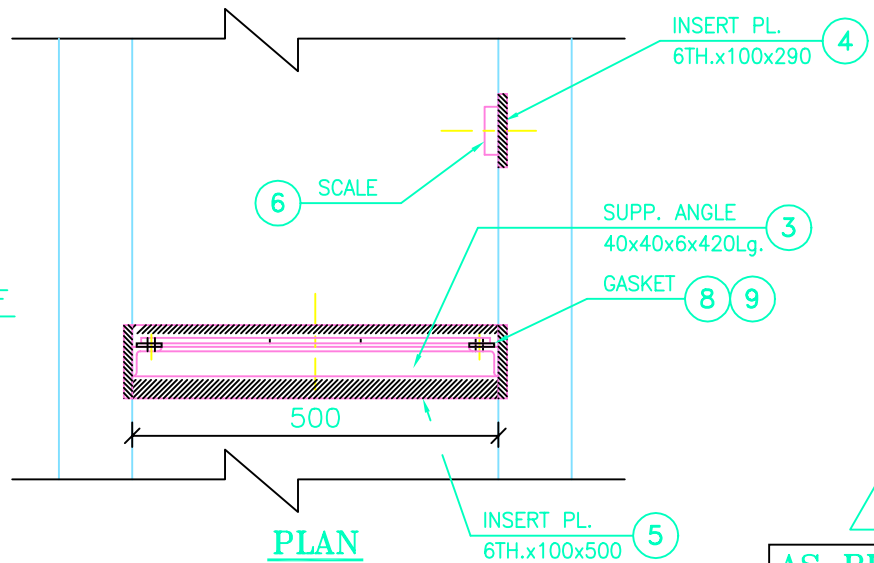
SR. NO.	DESCRIPTION	SIZE	QTY.	MATL.	RMK.
1	WIER PLATE	5Thk x275 x480	1	SS 316	
2	SUPP. ANGLE	40 x40 x6T x290Lg.	2	IS 2062	
3	SUPP. ANGLE	40 x40 x6T x420Lg.	1	IS 2062	
4	INSERT PL.	6TH x100 x290	3	IS 2062	
5	BOTTOM INSERT PL.	6TH x100 x500	1	IS 2062	
6	SCALE	5TH x50 x275	1	SS 316	
7	NUT WITH BOLT	M-6 x25Lg.	13	IS 1367	
8	GASKET	3TH x35 x300	2	RUBBER	
9	GASKET	3TH x35 x500	1	RUBBER	



SCALE



ELEVATION



PLAN

AS BUILT

THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER

TITLE

DETAIL OF WIER PLATE

SCALE NTS DATE 29/11/00

DRN. N.D.RAVAL DESIGN K.J.D

CHKD KJD APPD. AGS

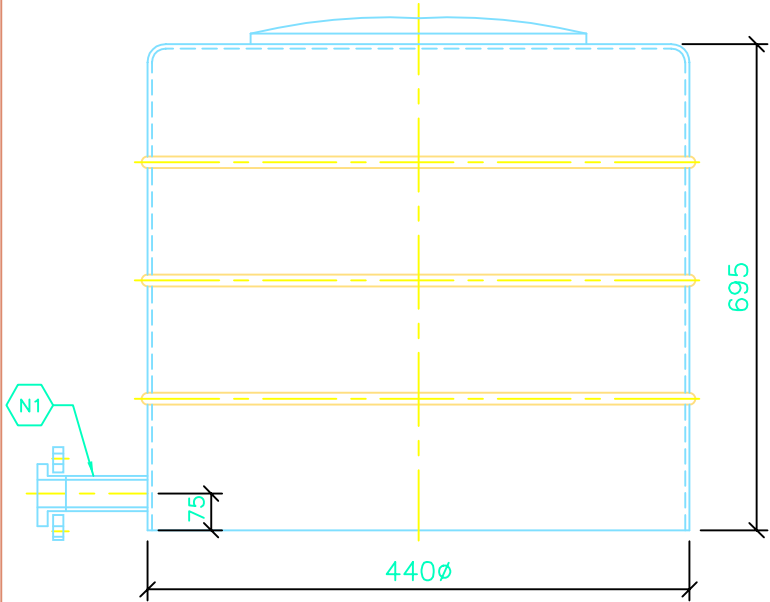
DRG.No. PL/528/ME-02

REV. 2

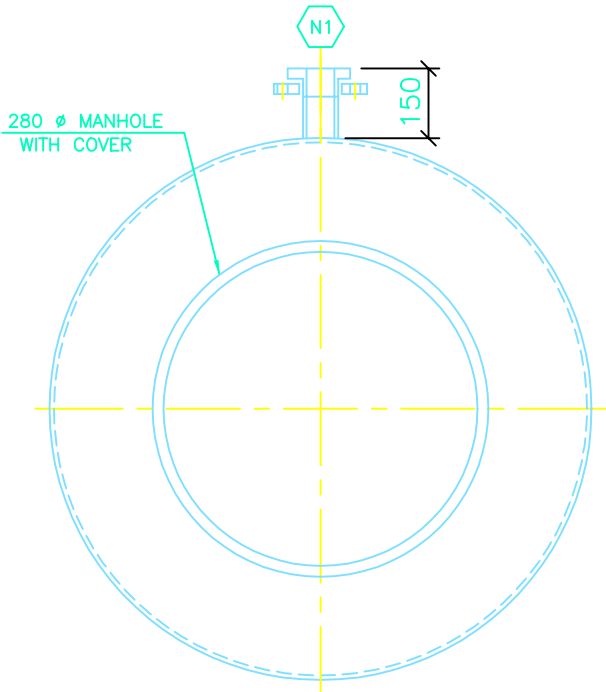
proj. PILOT PLANT SEWAGE TREATMENT

Client M/s. TOKYO ENGINEERING

BILL OF MATERIAL					
SR. No.	DESCRIPTION	SIZE	QTY.	MATL.	RMRK.
1	PIPE FOR N1	50 O/Dx10 Kg./CM ²	1	HDPE	
2	PIPE END FOR N1	50 O/D	1	HDPE	
3	FLANGE FOR N1	40 NBxLJFFx150#	1	IS 2062	



ELEVATION



ORIENTATION PLAN

NOTES:-

- 1) THICKNESS TO BE SUGGESTED BY VENDOR
- 2) DRILLING ON FLANGES SHALL BE AS PER ANSI B16.5

QTY. 1No.

MOC :- HDPE
CAPACITY :- 100 LTR.
CENTRAL AGITATION :- FRP ROD.(20øx1000Lg.)
CODE No.:- HD-10.01

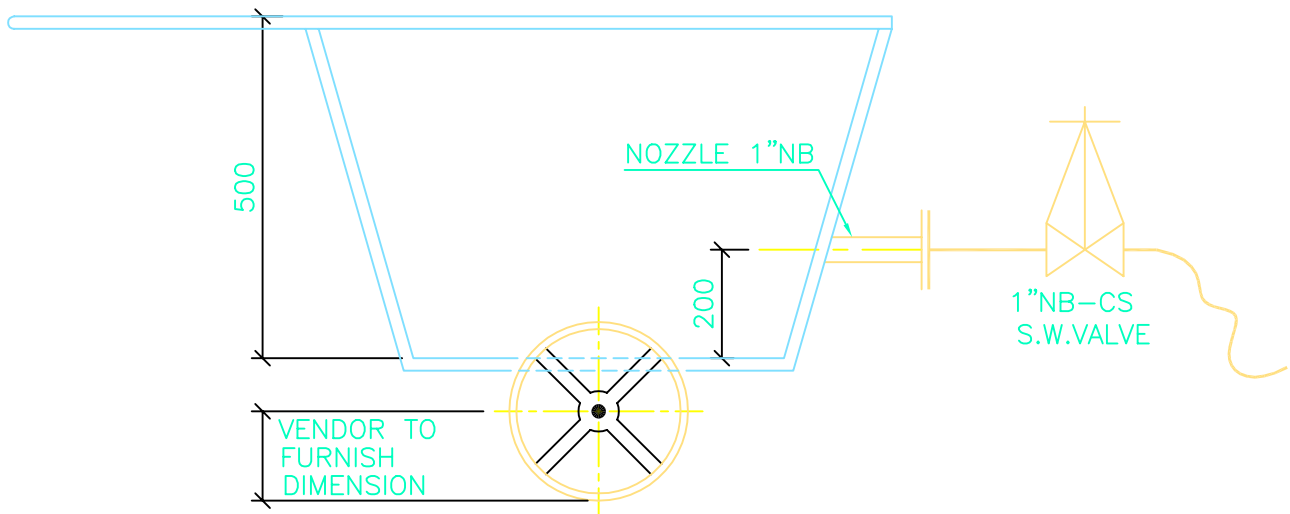
AS BUILT 2

NOZZLE SCHEDULE				
NOZZ MARK	NO. OFF	PIPE SIZE	FLANGE	SERVICE
N1	1	40 NB	ANSI B 16.5 150 # SOFF	OUTLET

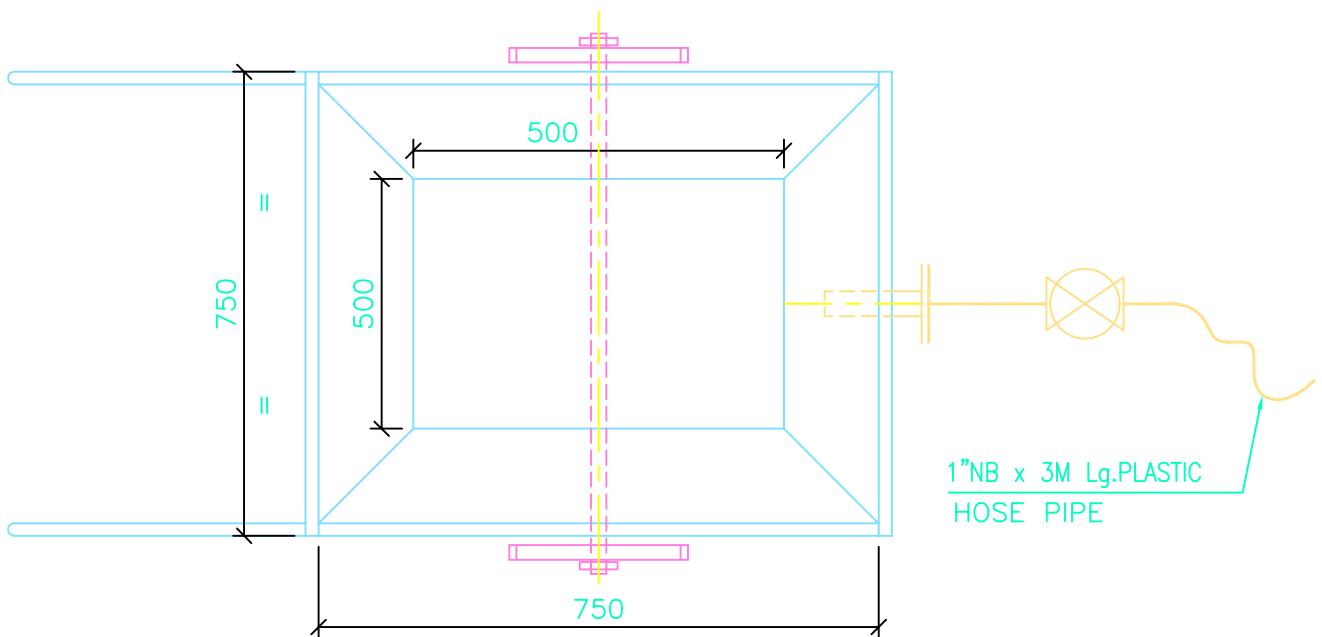
THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER PILOT PLANT SEWAGE TREATMENT M/s. TOKYO ENGINEERING		TITLE DETAIL OF CHLORINE SOLN. TANK WITH COVER	SUPERSEDES PL/528/ME-06, REV. 0			
			SCALE	NTS	DATE	29/11/00
			DRN.	N.D.RAVAL	DESIGN	N.H.P
			CHKD	K.J.D.	APPD.	A.G.S.
		DRG.No.				
		PL/528/ME-06		REV.	2	

NOTE :-

1) VENDOR TO FURNISH FRAME ANGLE/PIPE SIZE.



ELEVATION



PLAN

M.O.C. :- IS:2062, 16 SWG WITH ANGLE/PIPE FRAME
CAPACITY :- $0.3M^3$
QTY :- 1 No.

AS BUILT

1

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

TITLE

SCALE

NTS

DATE

02.11.00

proj.

PILOT PLANT SEWAGE TREATMENT

TROLLEY FOR
GRIT COLLECTION

CHKD

K.J.D

DESIGN

K.J.D

DRG.No.

PL/528/ME/
SK-01

APPD.

A.G.S.

Client

M/s. TOKYO ENGINEERING

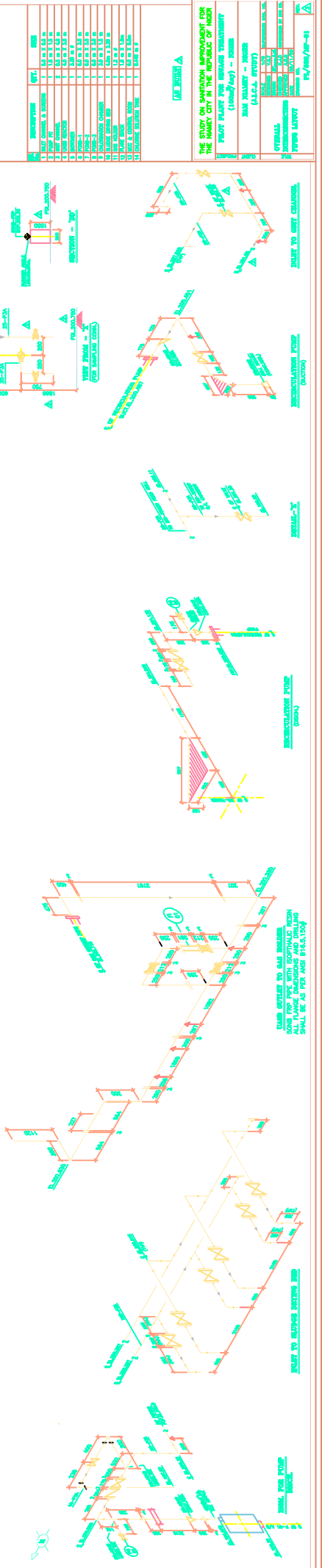
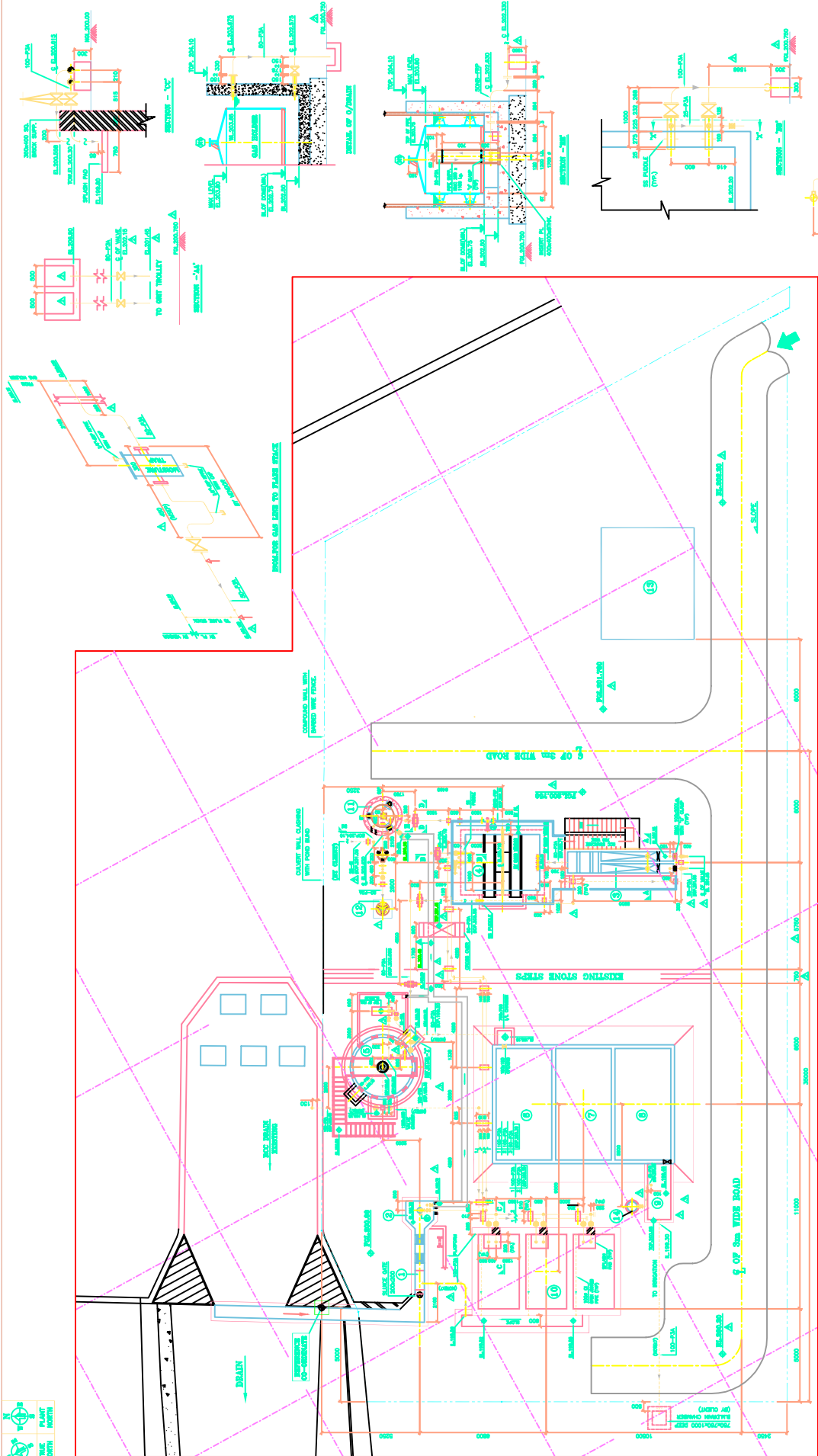
REV.

1

NO.	DATE	REVISION	BY
1	10/10/2018	ISSUED FOR PERMIT	WJ
2	10/10/2018	FOR COMMENTS	WJ
3	10/10/2018	FOR COMMENTS	WJ
4	10/10/2018	FOR COMMENTS	WJ
5	10/10/2018	FOR COMMENTS	WJ
6	10/10/2018	FOR COMMENTS	WJ
7	10/10/2018	FOR COMMENTS	WJ
8	10/10/2018	FOR COMMENTS	WJ
9	10/10/2018	FOR COMMENTS	WJ
10	10/10/2018	FOR COMMENTS	WJ

NOTES:

1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
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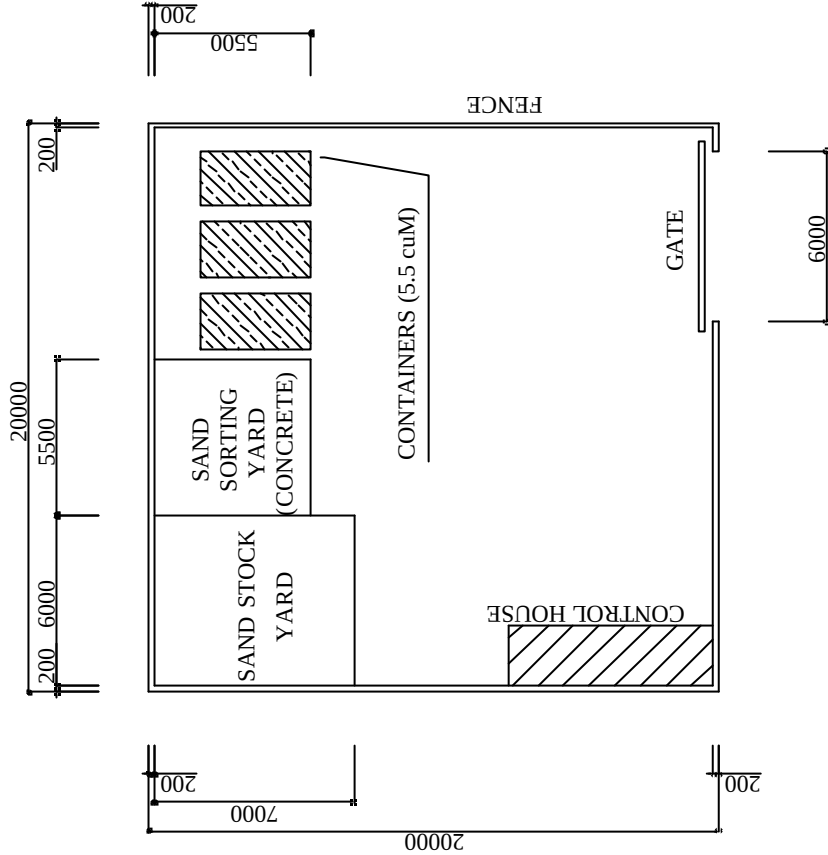


NO.	DATE	REVISION	BY
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2	10/10/2018	FOR COMMENTS	WJ
3	10/10/2018	FOR COMMENTS	WJ
4	10/10/2018	FOR COMMENTS	WJ
5	10/10/2018	FOR COMMENTS	WJ
6	10/10/2018	FOR COMMENTS	WJ
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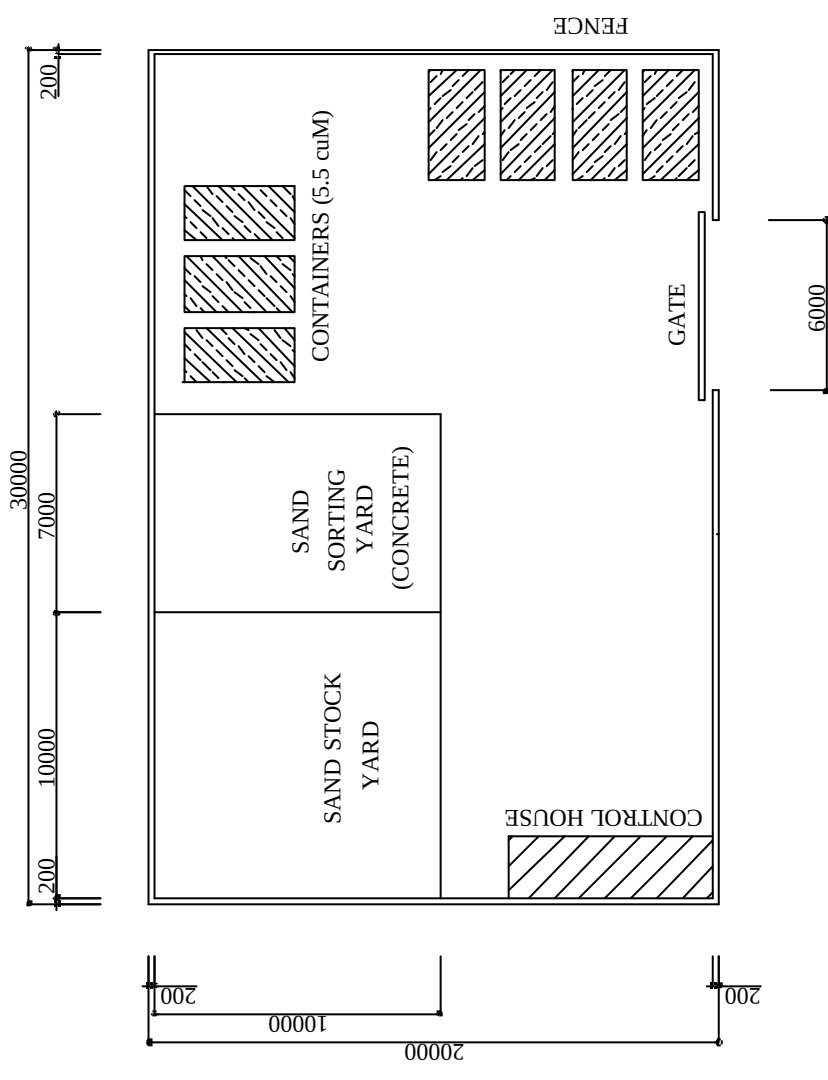
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4	10/10/2018	FOR COMMENTS	WJ
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8	10/10/2018	FOR COMMENTS	WJ
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10	10/10/2018	FOR COMMENTS	WJ

NO.	DATE	REVISION	BY
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4	10/10/2018	FOR COMMENTS	WJ
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7	10/10/2018	FOR COMMENTS	WJ
8	10/10/2018	FOR COMMENTS	WJ
9	10/10/2018	FOR COMMENTS	WJ
10	10/10/2018	FOR COMMENTS	WJ

**DRAWING B. SOLID WASTE
MANAGEMENT**



TYPE 1 (400 sqM)

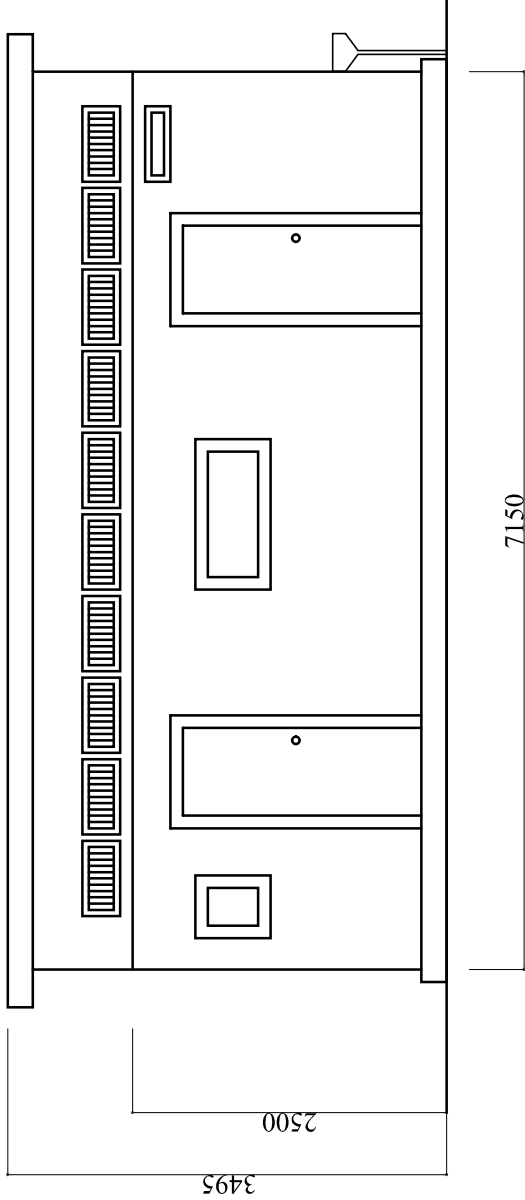


TYPE 2 (600 sqM)

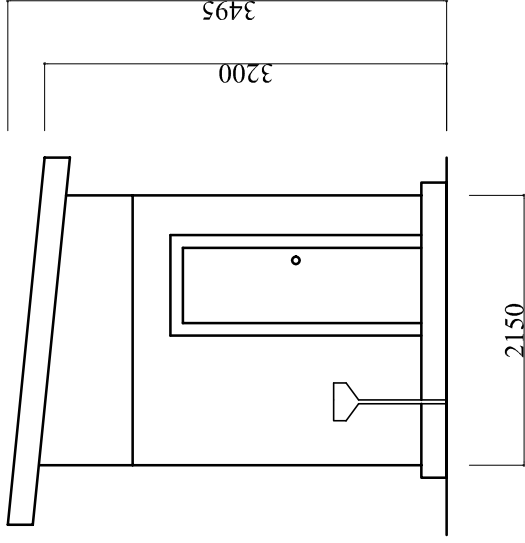


THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER	
DRAWING B-101 STANDARD PLAN OF RECYCLING CENTER	
SCALE	1:200
JAPAN INTERNATIONAL COOPERATION AGENCY	

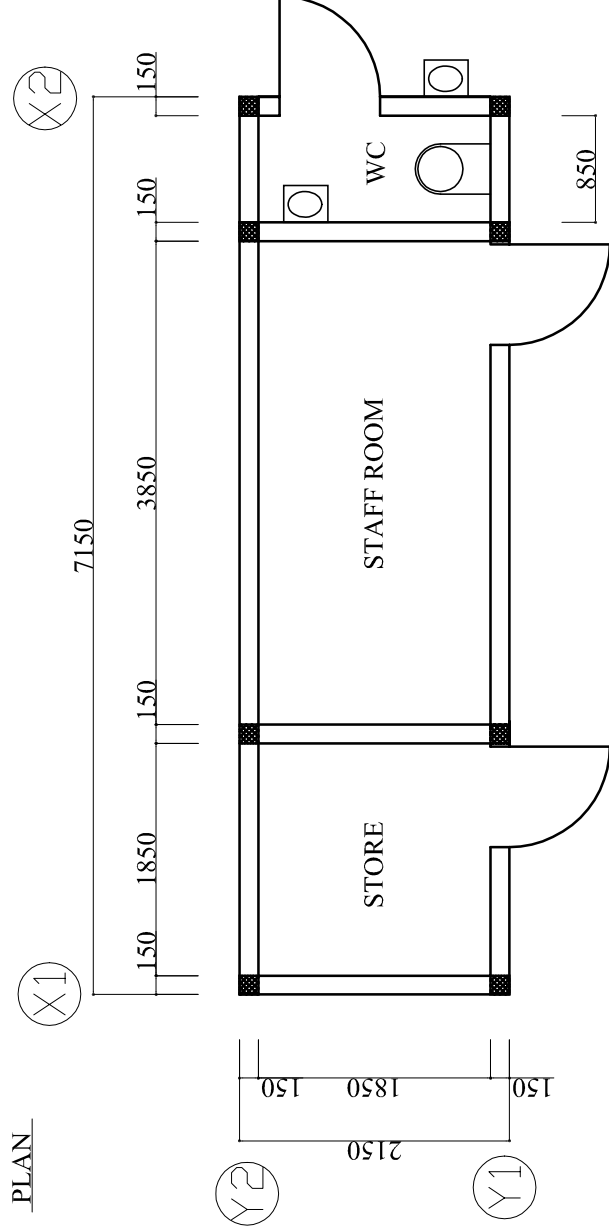
ELEVATION Y1



ELEVATION X2

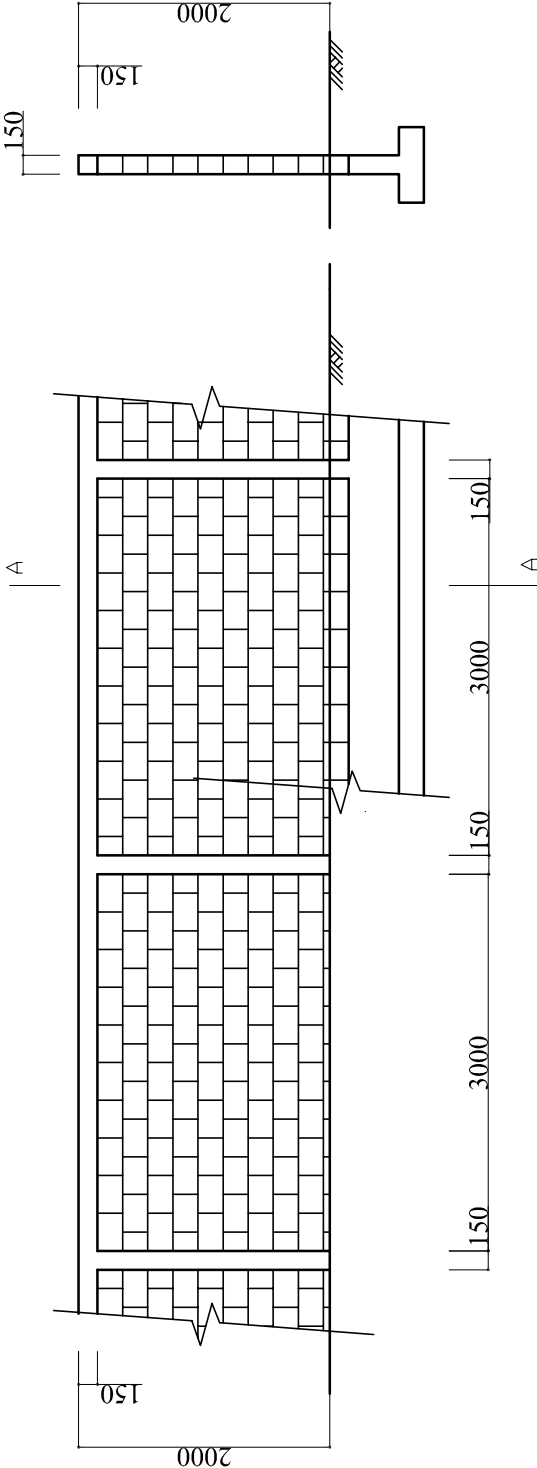


PLAN



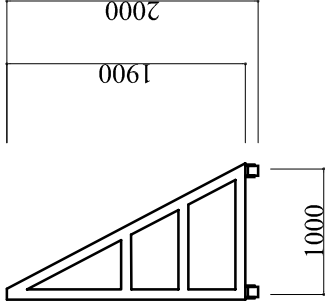
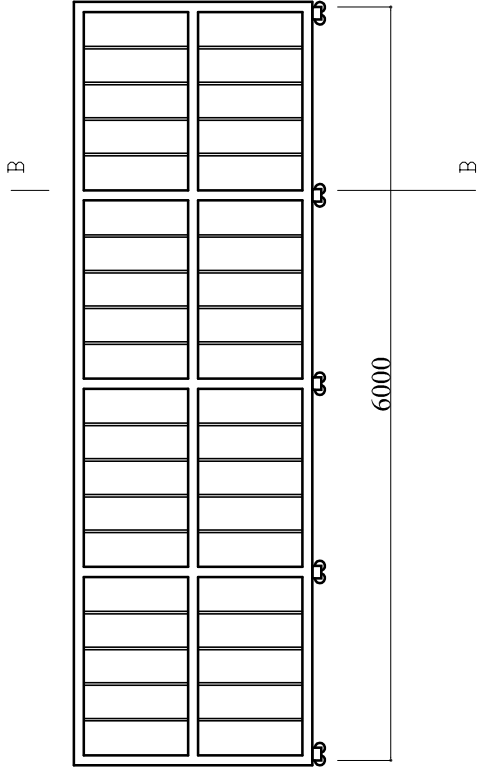
FENCE

SECTION OF SAND SORTING YARD



GATE

B-B SECTION



2 m

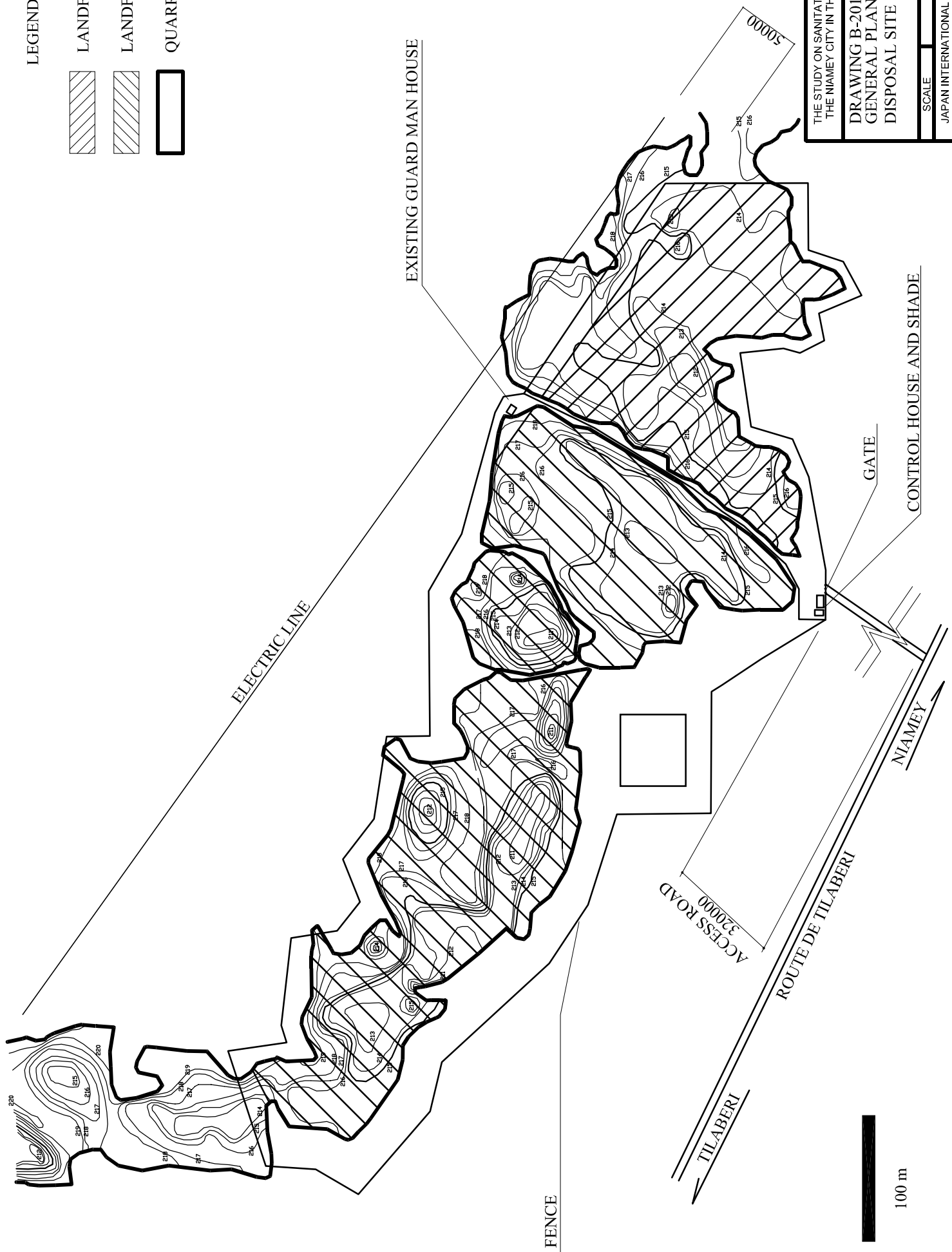
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-103
PLAN OF FENCE, GATE, SORTING
YARD: RECYCLING CENTER

SCALE

1:50

JAPAN INTERNATIONAL COOPERATION AGENCY



LEGEND

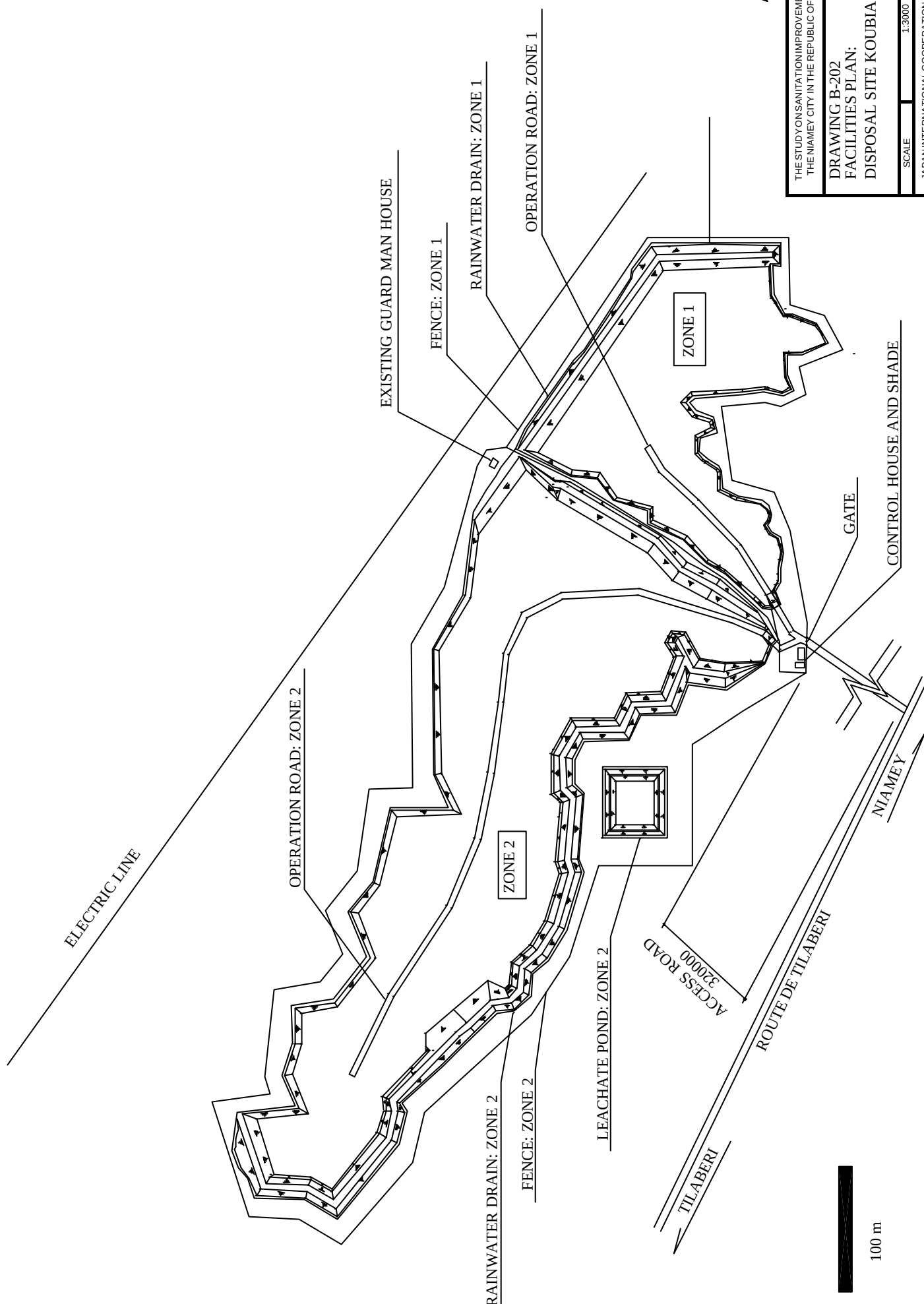
- LANDFILL ZONE 1
- LANDFILL ZONE 2
- QUARRY

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-201
GENERAL PLAN OF
DISPOSAL SITE KOUUBIA

SCALE 1:3000

JAPAN INTERNATIONAL COOPERATION AGENCY



THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIA MEY CITY IN THE REPUBLIC OF NIGER

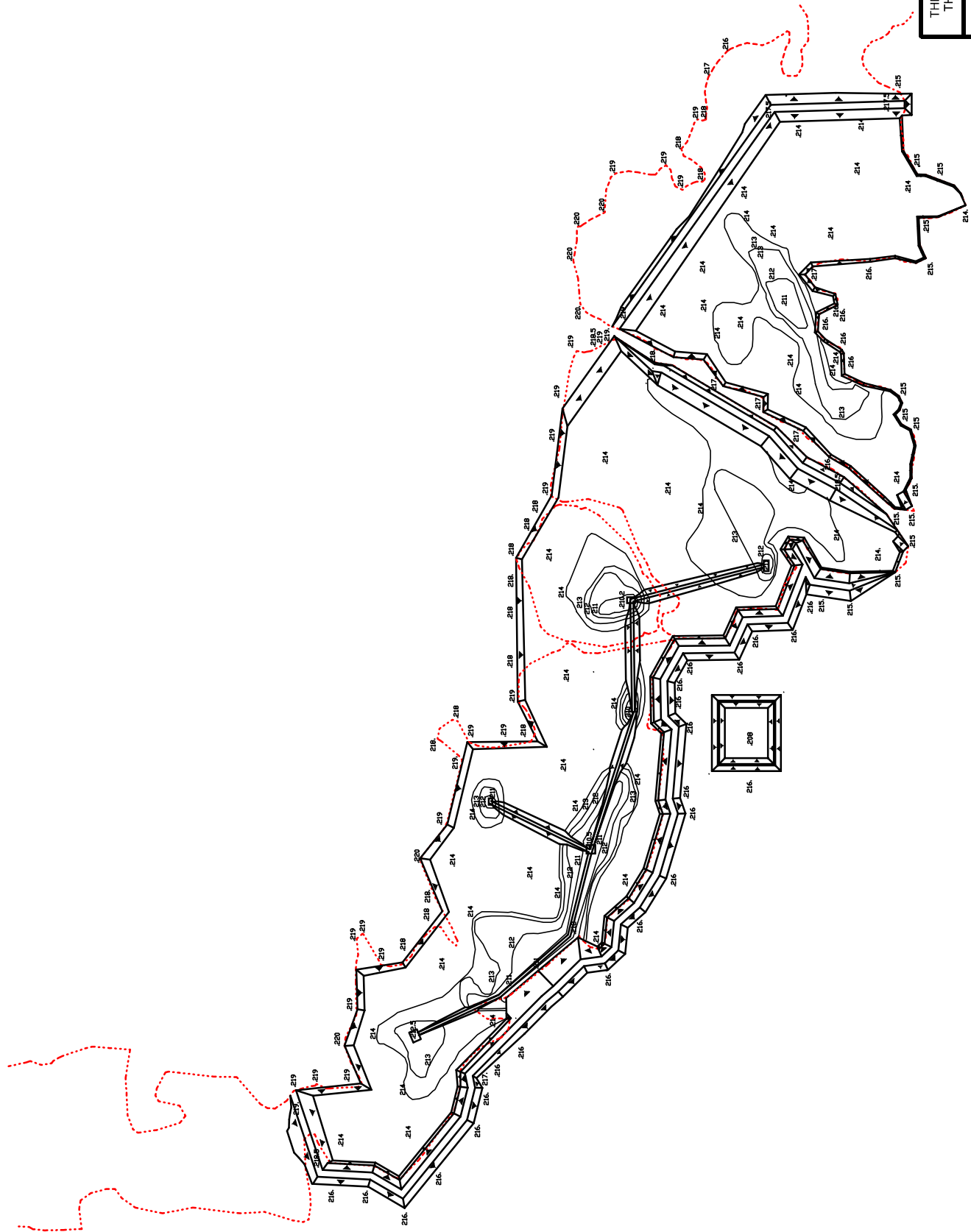
DRAWING B-202
FACILITIES PLAN:
DISPOSAL SITE KOUBIA

SCALE 1:3000

JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND

QUARRY

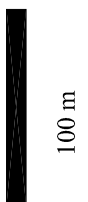


THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

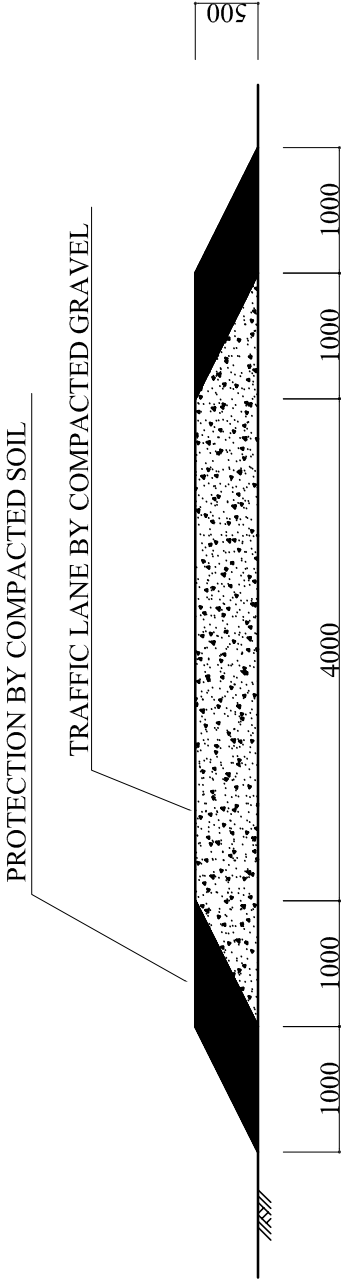
DRAWING B-203
EARTH WORK PLAN:
DISPOSAL SITE KOUBIA

SCALE 1:3000

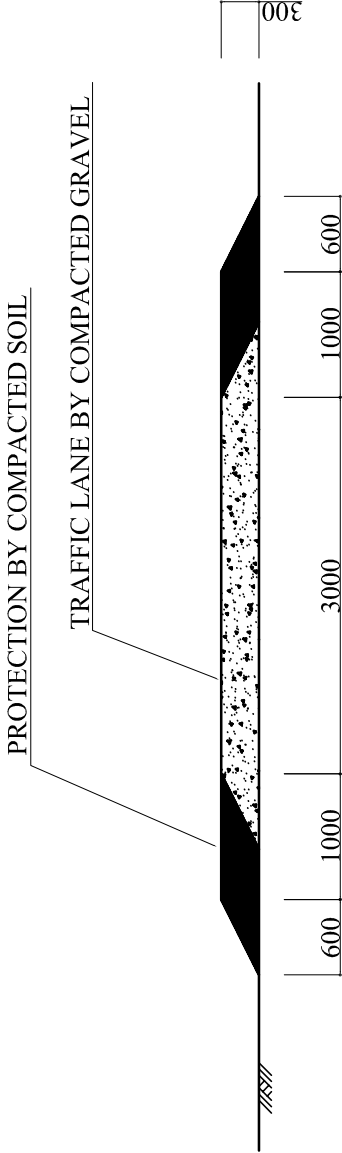
JAPAN INTERNATIONAL COOPERATION AGENCY



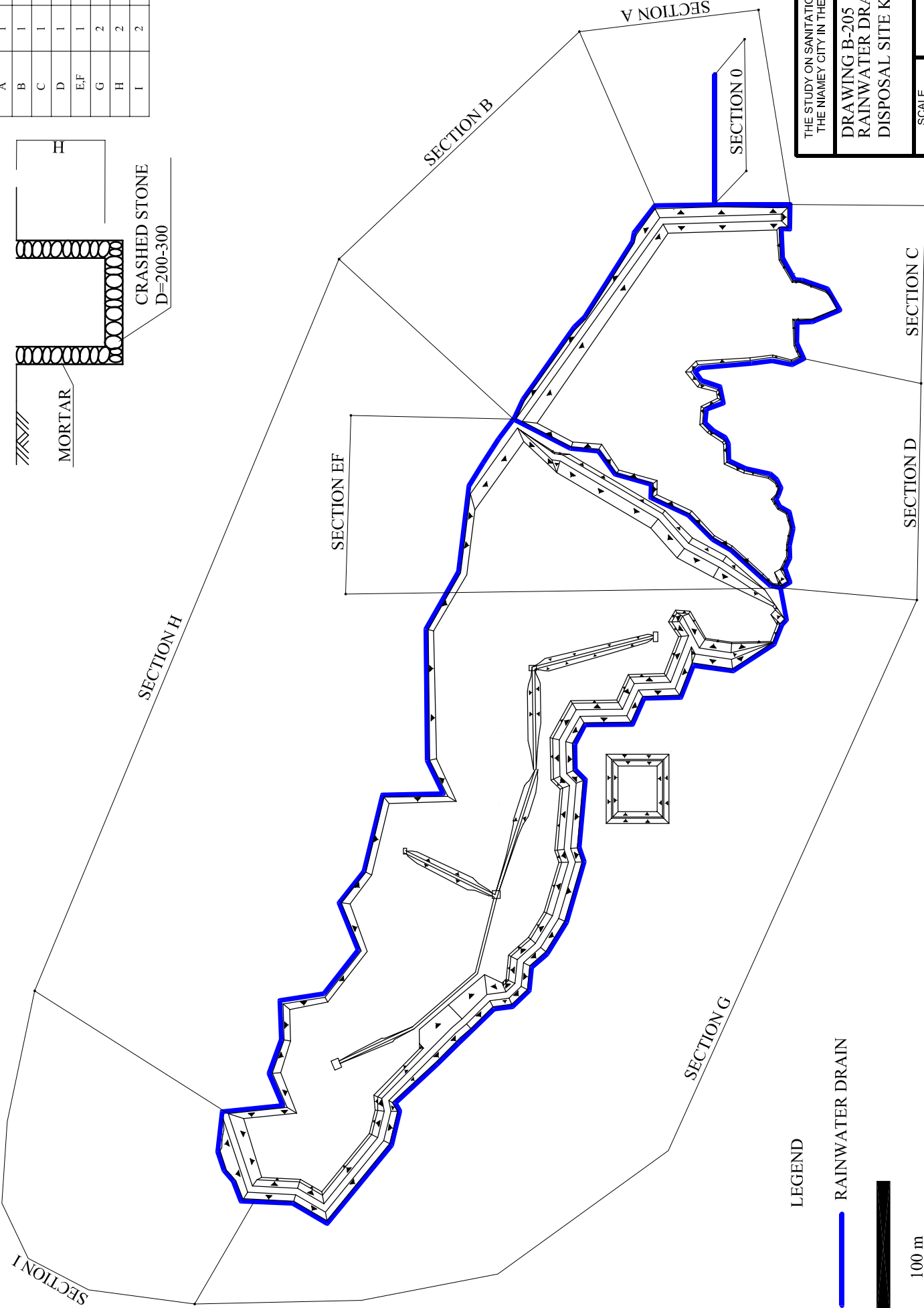
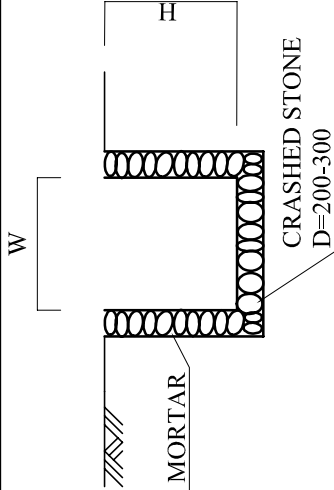
SECTION OF ACCESS ROAD



SECTION OF OPERATION ROAD

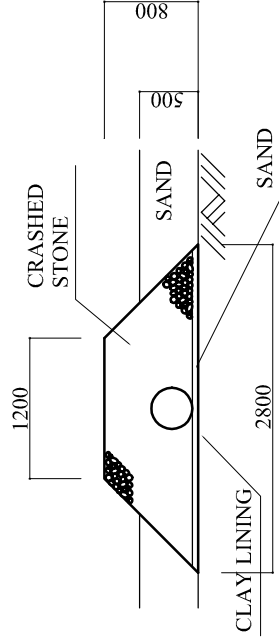


SECTION	ZONE	W(mm)	H(mm)	L(m)
0	1	800	800	100
A	1	800	800	75
B	1	400	400	165
C	1	800	800	150
D	1	800	800	225
E,F	1	500	500	180
G	2	600	600	480
H	2	500	500	450
I	2	300	300	110

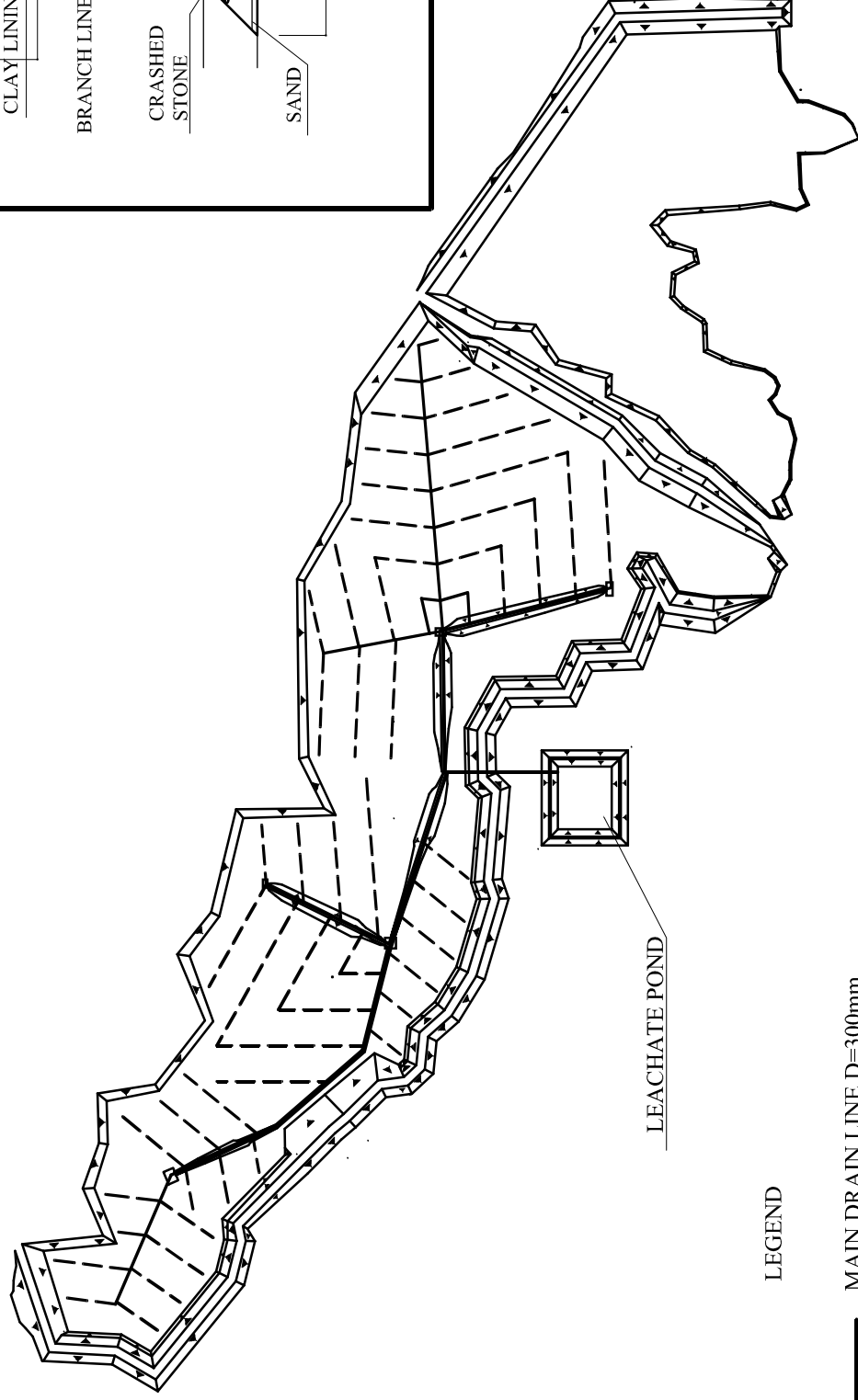
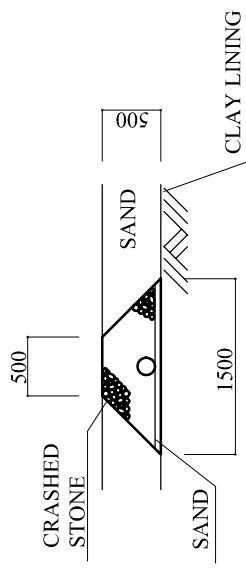


PLAN OF PIPE INSTALLATION (1:50)

MAIN LINE (D=300mm)



BRANCH LINE (D=150mm)

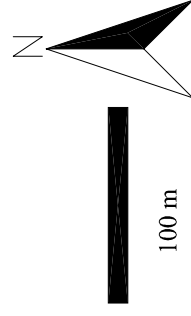


LEGEND

— MAIN DRAIN LINE D=300mm

- - - BRANCH DRAIN LINE D=150mm

LEACHATE POND

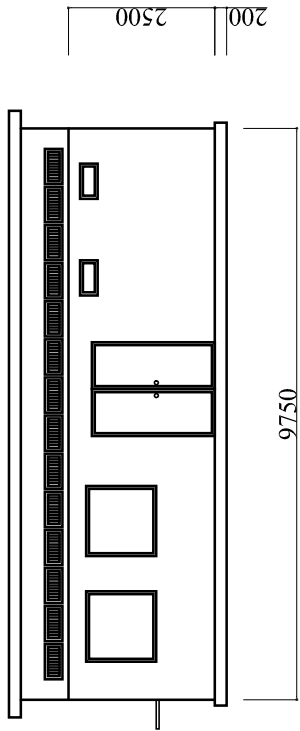


THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

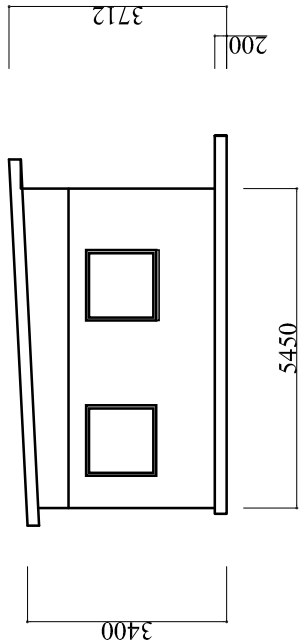
DRAWING B-206
LEACHATE COLLECTION PLAN:
DISPOSAL SITE KOUBIA

SCALE 1:3000
JAPAN INTERNATIONAL COOPERATION AGENCY

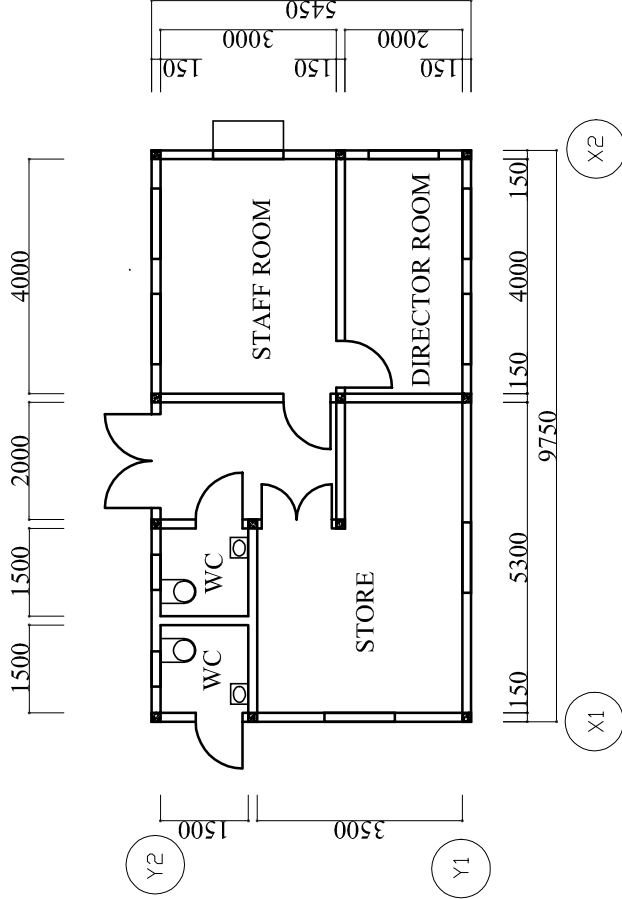
ELEVATION Y2



ELEVATION X2



PLAN



2m

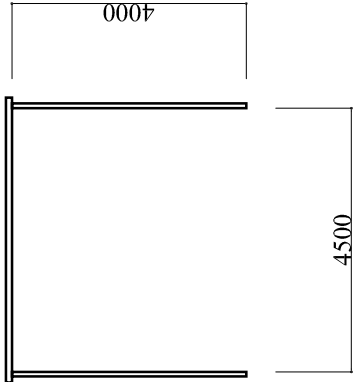
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-207
CONTROL HOUSE PLAN:
DISPOSAL SITE KOUBIA

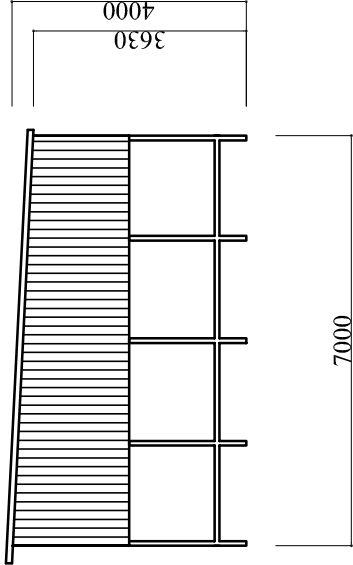
SCALE 1:100

JAPAN INTERNATIONAL COOPERATION AGENCY

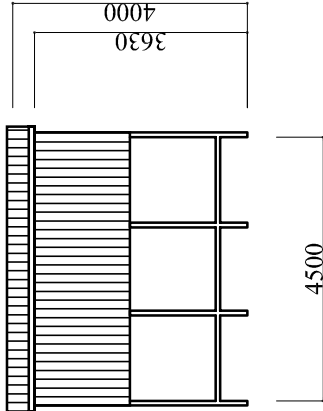
FRONT VIEW



SIDE VIEW



BACK VIEW



2m

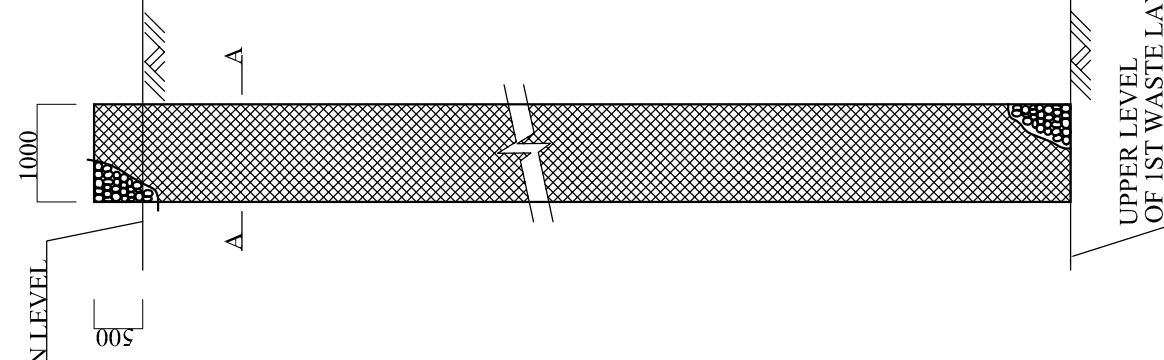
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-208
SHADE PLAN FOR BULLDOZER:
DISPOSAL SITE KOUUBIA

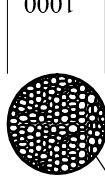
SCALE 1:100
JAPAN INTERNATIONAL COOPERATION AGENCY

DETAIL PLAN: GAS EXHAUST (1:60)

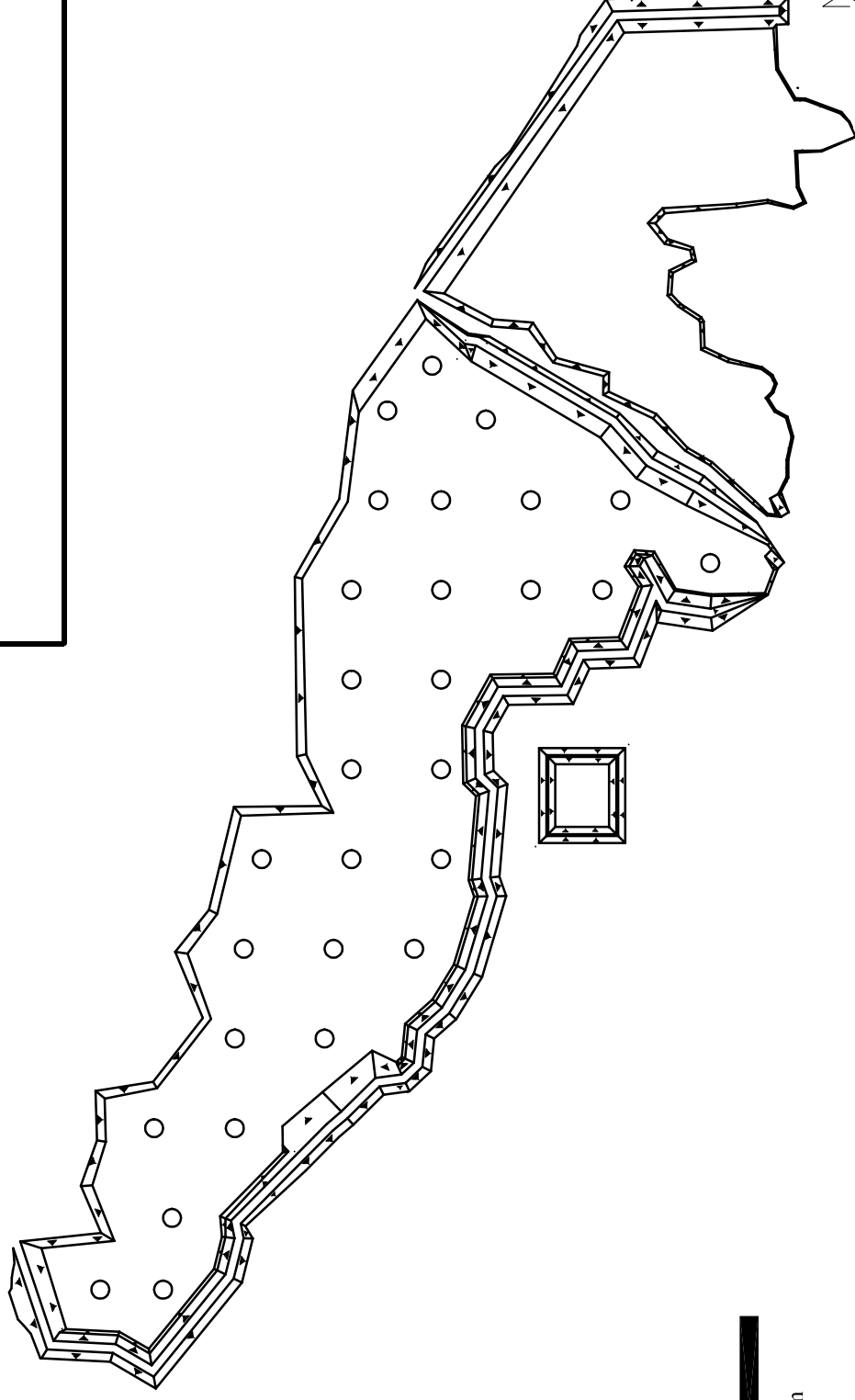
LANDFILL
COMPLETION LEVEL



SECTION A-A



STEEL WIRE BASKET D=1000
(FILLED BY CRASHED STONE)



100 m

LEGEND

○ LOCATION OF GAS EXHAUST

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

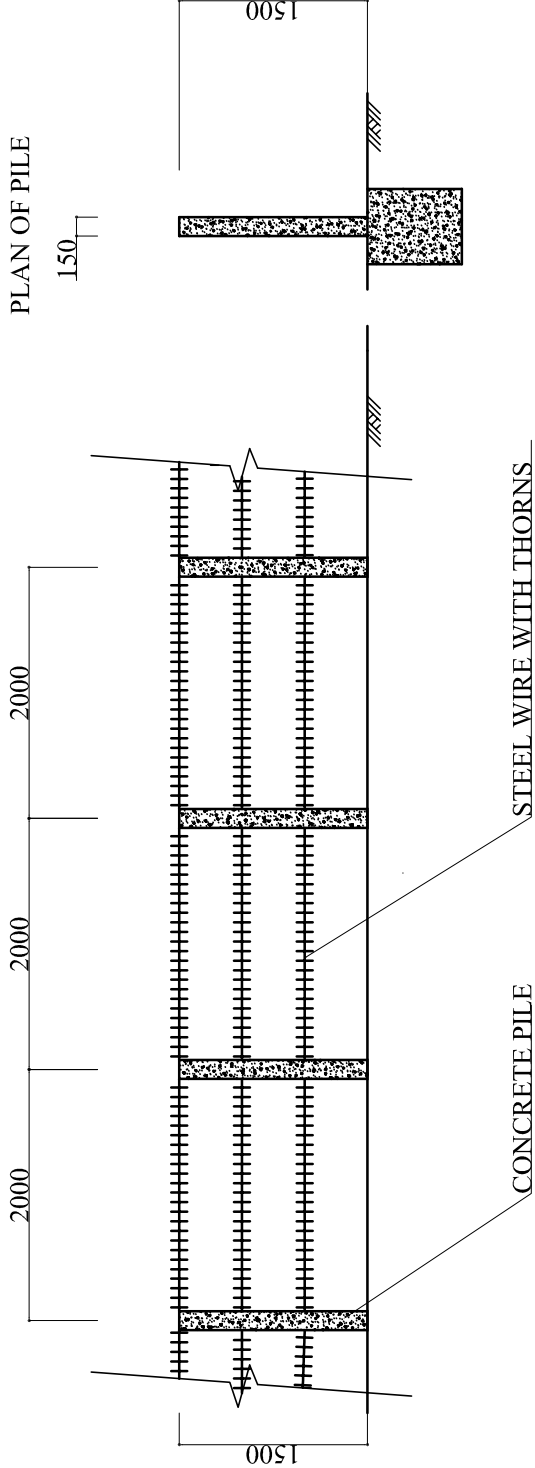
DRAWING B-209
GAS EXHAUST FACILITIES PLAN:
DISPOSAL SITE KOUUBIA

SCALE

1:3000

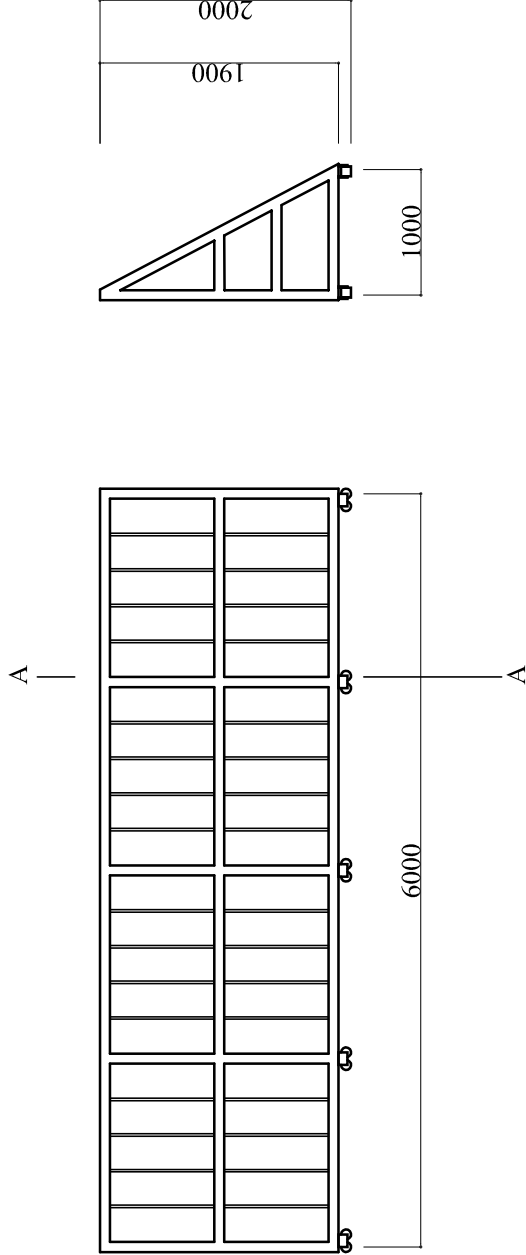
JAPAN INTERNATIONAL COOPERATION AGENCY

FENCE



GATE

SECTION A-A



THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

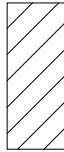
DRAWING B-210
FENCE AND GATE PLAN:
DISPOSAL SITE KOUUBIA

SCALE

1:50

JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND



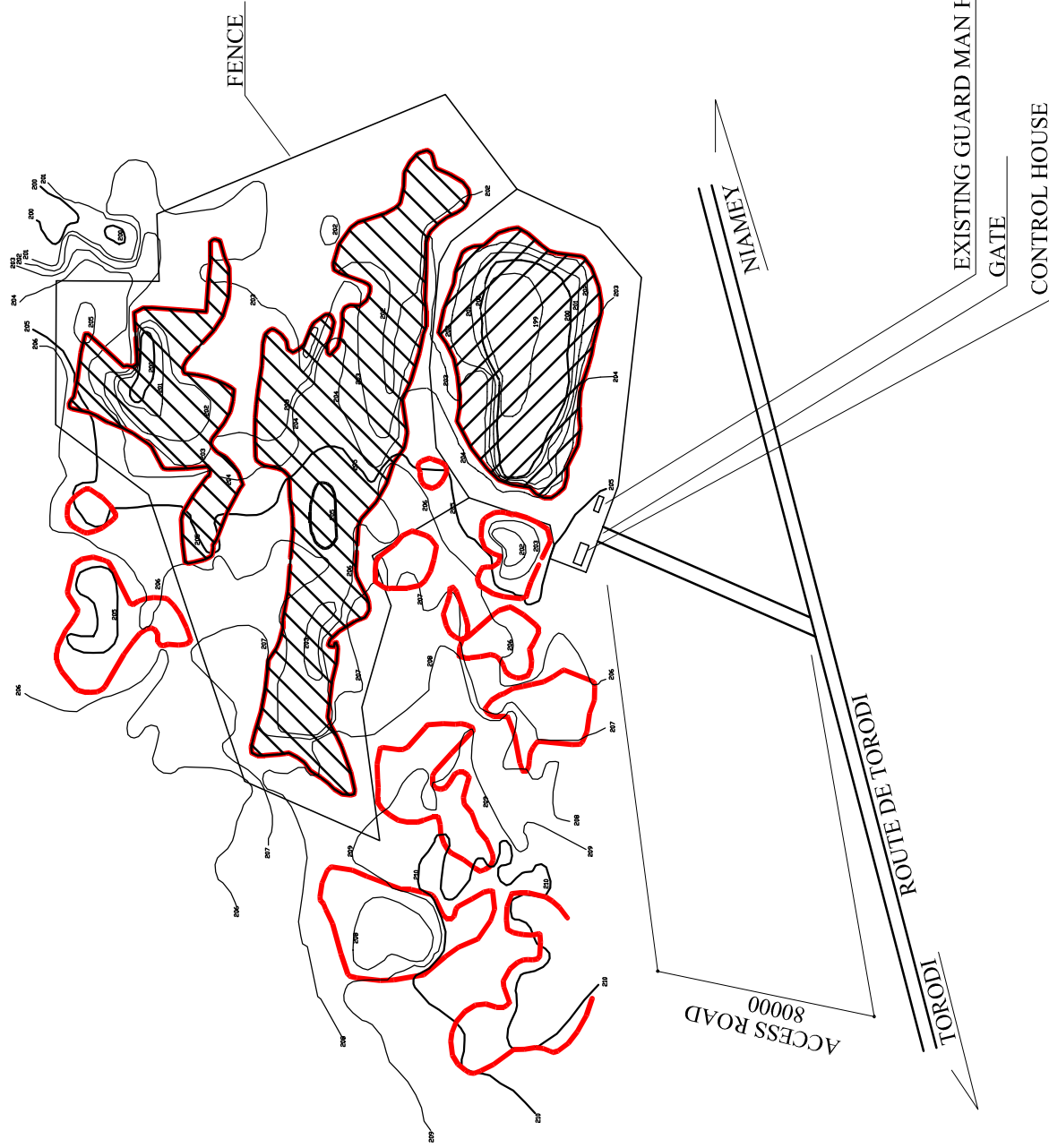
LANDFILL ZONE 1



LANDFILL ZONE 2



QUARRY



THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

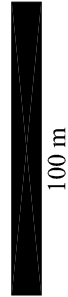
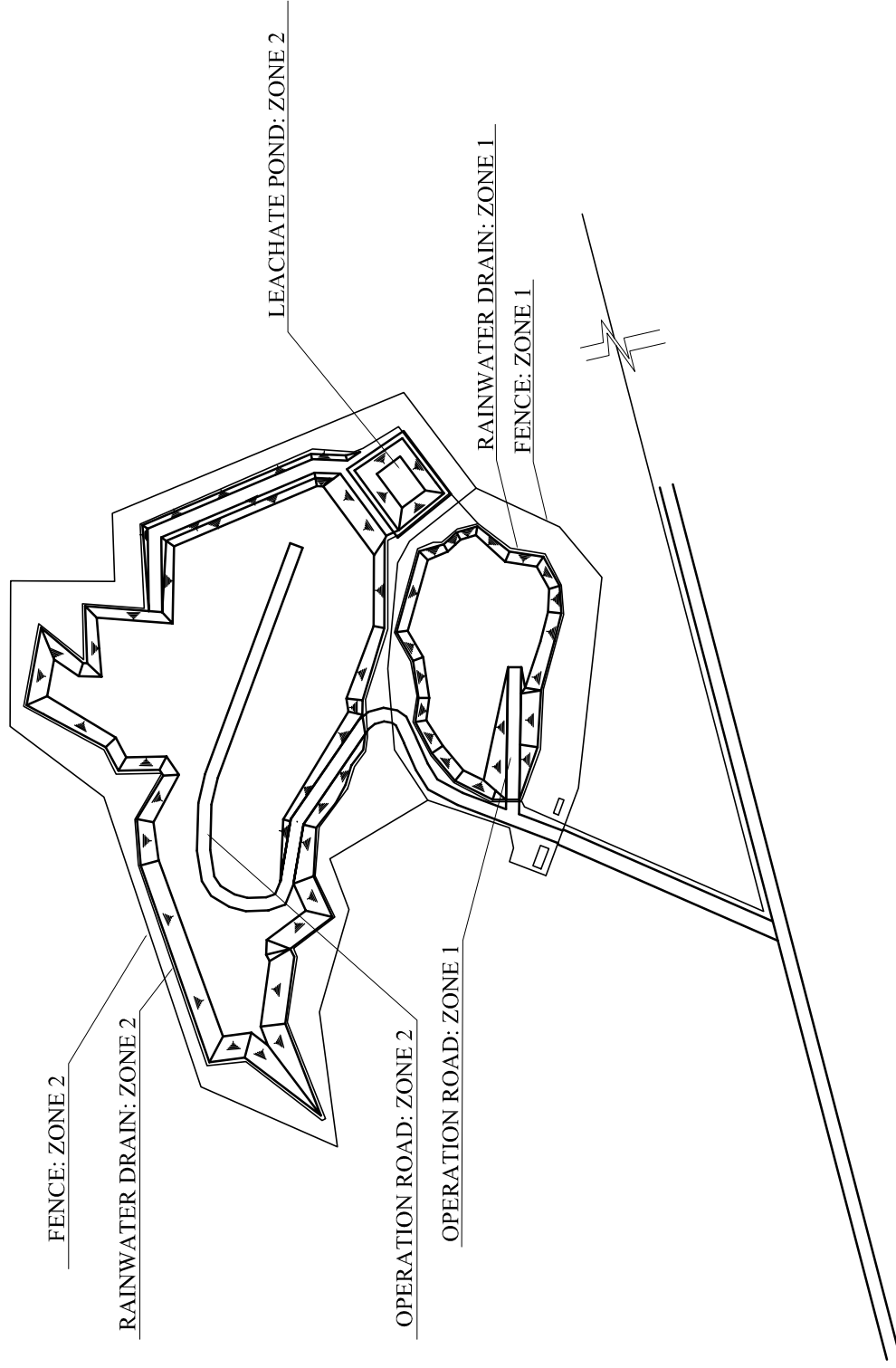
DRAWING B-301
GENERAL PLAN OF
DISPOSAL SITE
BENGALÉ TOROMBI

SCALE 1:2000

JAPAN INTERNATIONAL COOPERATION AGENCY



100 m

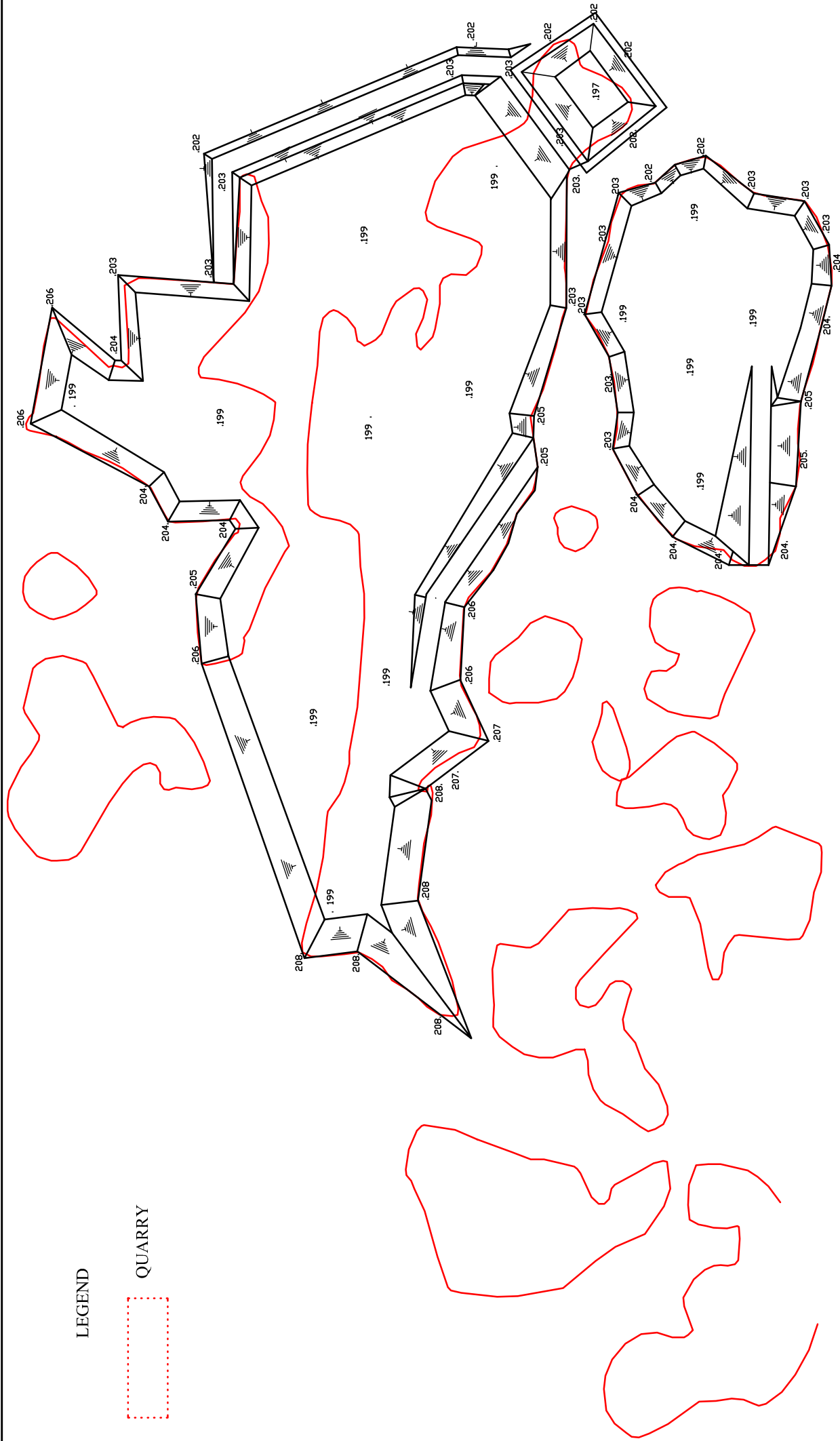


THE STUDY ON SANITATION IMPROVEMENT FOR THE NIAMEY CITY IN THE REPUBLIC OF NIGER	
DRAWING B-302	
FACILITIES PLAN:	
DISPOSAL SITE	
BENGALÉ TOROMBI	
SCALE	1:2000
JAPAN INTERNATIONAL COOPERATION AGENCY	

LEGEND



QUARRY



50 m

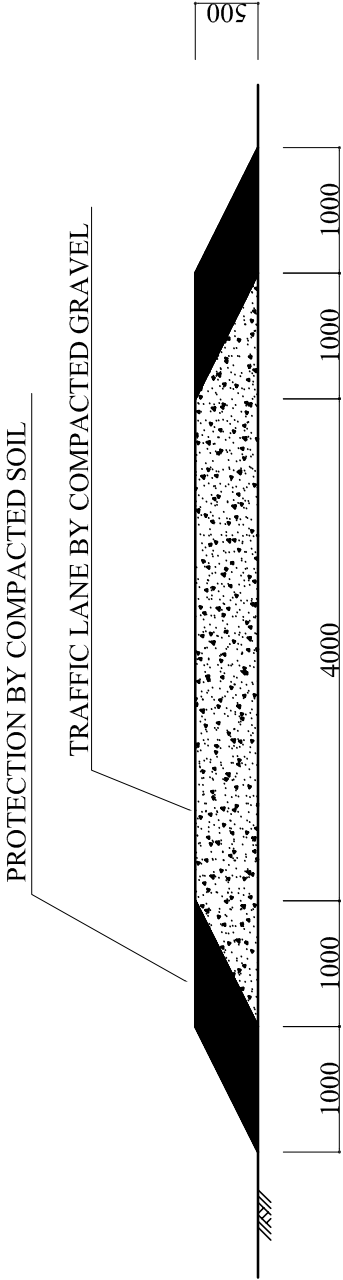
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-303
EARTH WORK PLAN:
DISPOSAL SITE
BENGALE TOROMBI

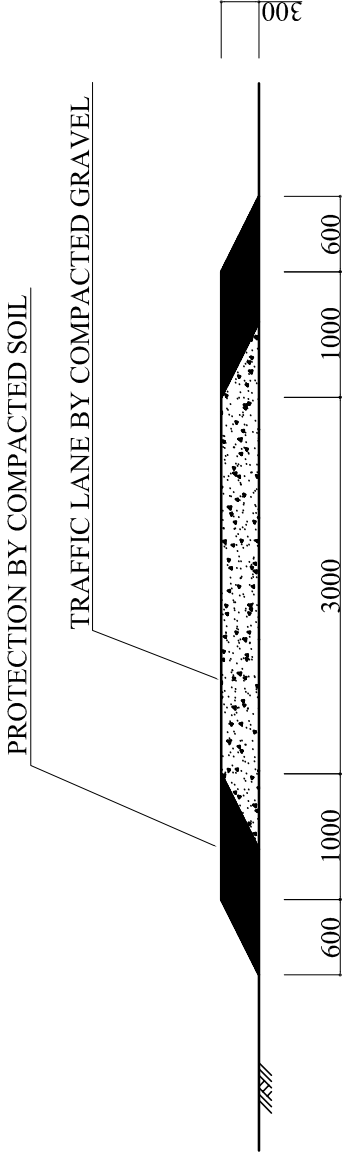
SCALE 1:1000

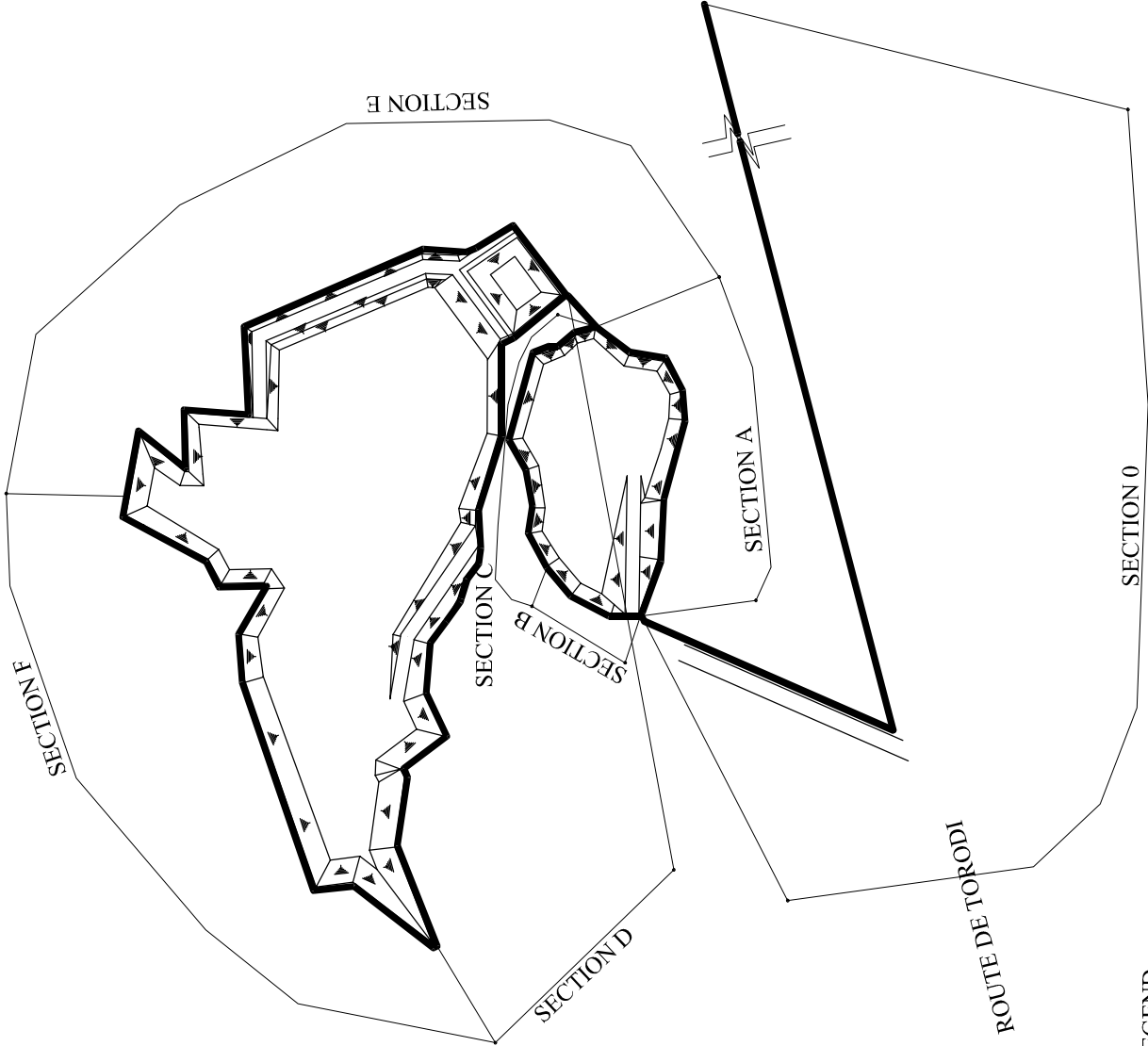
JAPAN INTERNATIONAL COOPERATION AGENCY

SECTION OF ACCESS ROAD



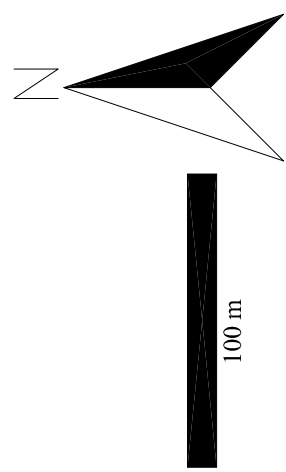
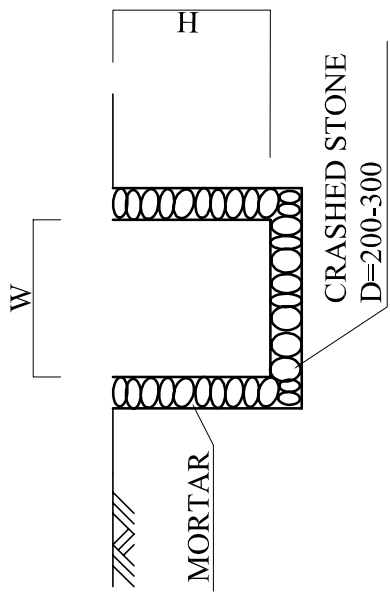
SECTION OF OPERATION ROAD





LEGEND

RAINWATER DRAIN



SECTION	ZONE	W(mm)	H(mm)	L(m)
0	1	800	800	250
A	1	700	700	135
B	1	300	300	45
C	1	300	300	102
D	2	300	300	263
E	2	400	400	225
F	2	300	300	248

THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

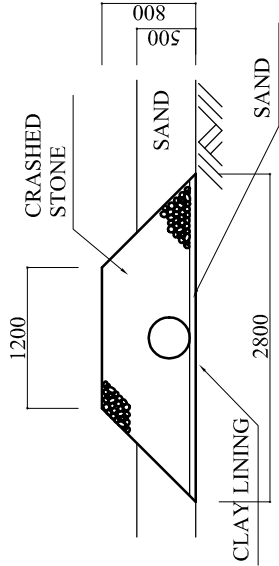
DRAWING B-305
RAINWATER DRAIN PLAN:
DISPOSAL SITE
BENGALE TOROMBI

SCALE1:2000

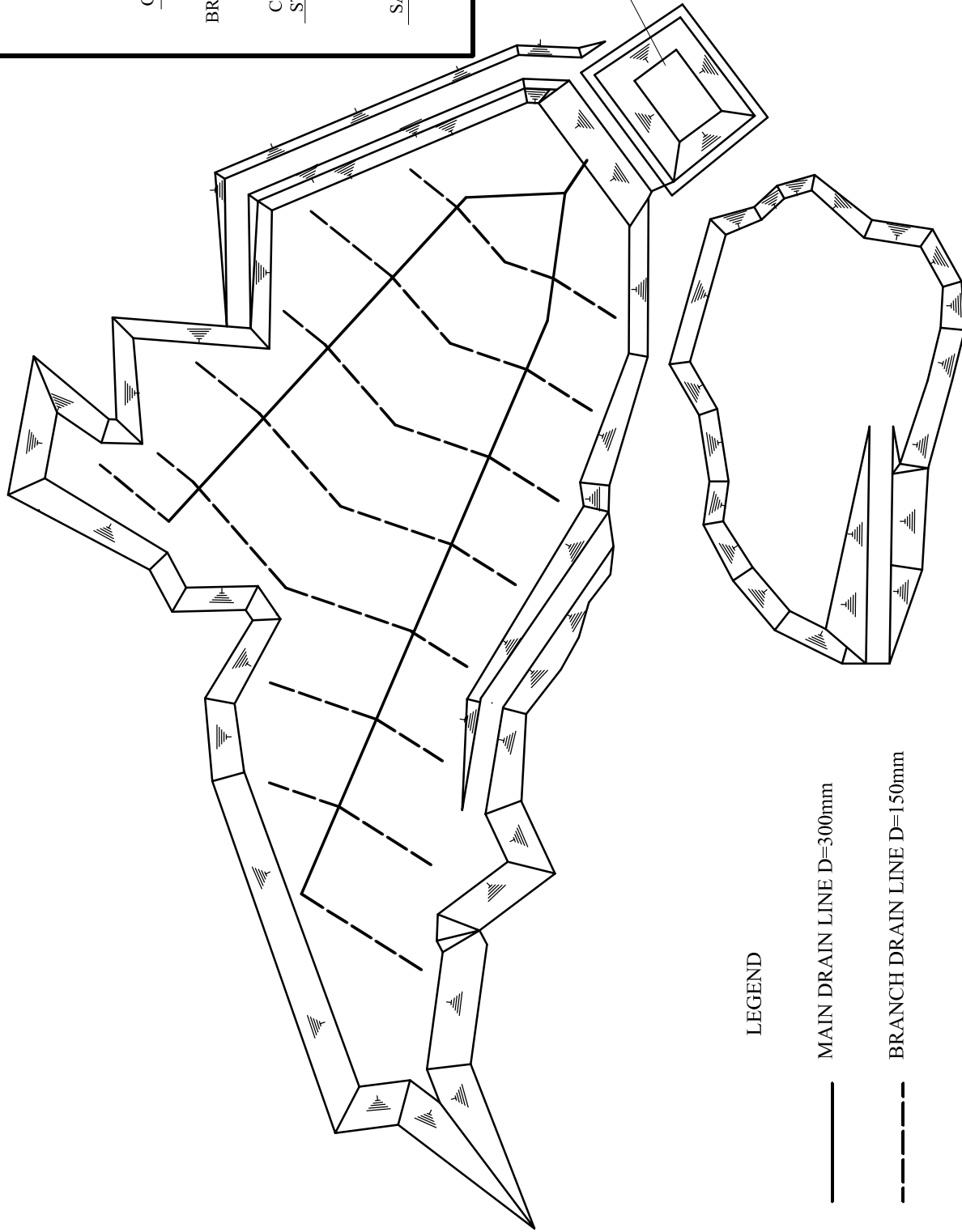
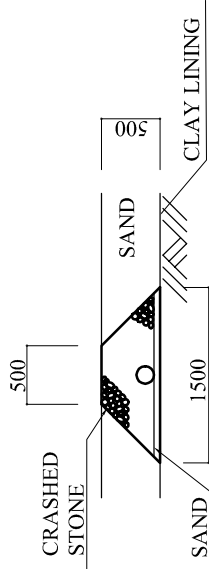
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN OF PIPE INSTALLATION (1:50)

MAIN LINE (D=300mm)



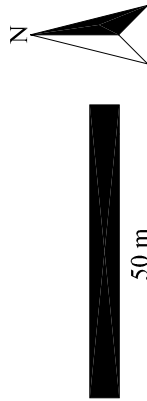
BRANCH LINE (D=150mm)



LEGEND

— MAIN DRAIN LINE D=300mm

- - - BRANCH DRAIN LINE D=150mm



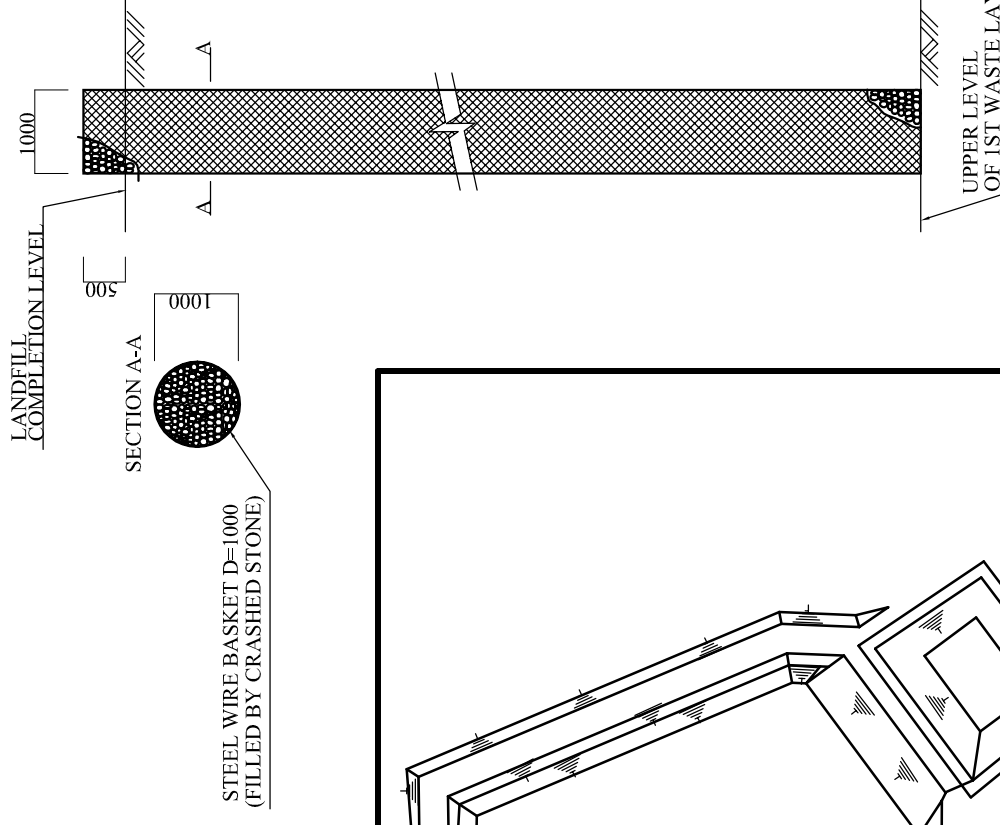
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-306
LEACHATE COLLECTION PLAN:
DISPOSAL SITE
BENGALÉ TOROMBI

SCALE 1:1000

JAPAN INTERNATIONAL COOPERATION AGENCY

DETAIL PLAN: GAS EXHAUST (1:70)



50 m

LEGEND

○ LOCATION OF GAS EXHAUST

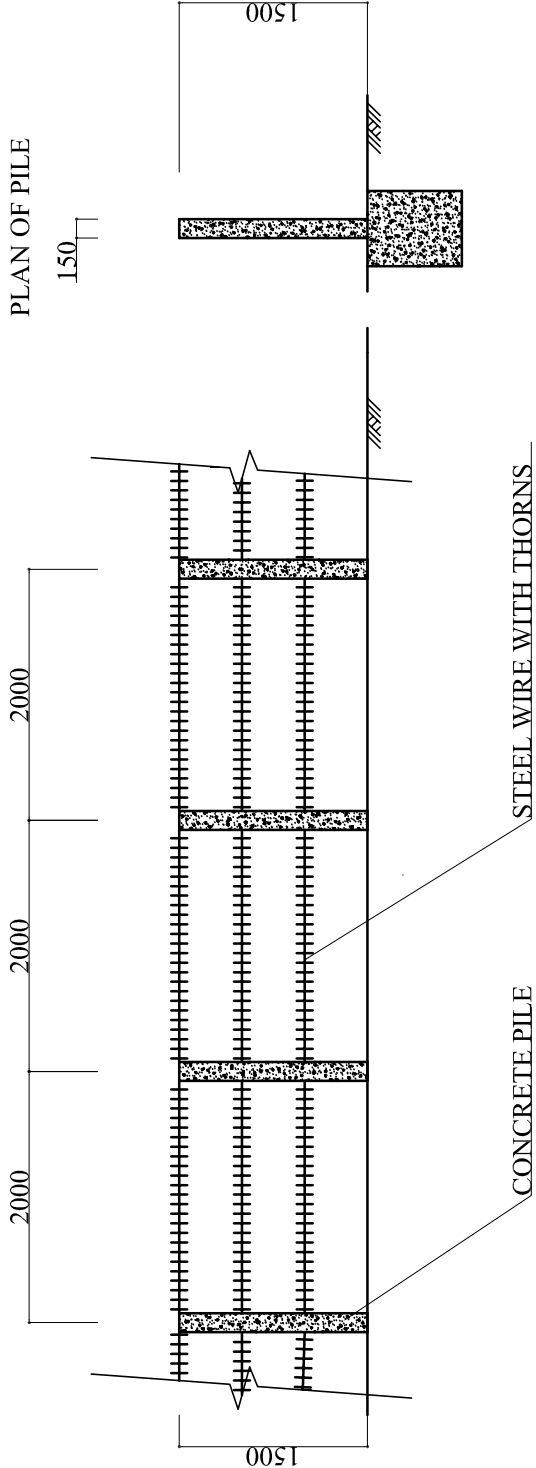
THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-308
GAS EXHAUST FACILITIES PLAN:
DISPOSAL SITE
BENGALÉ TOROMBI

SCALE 1:1000

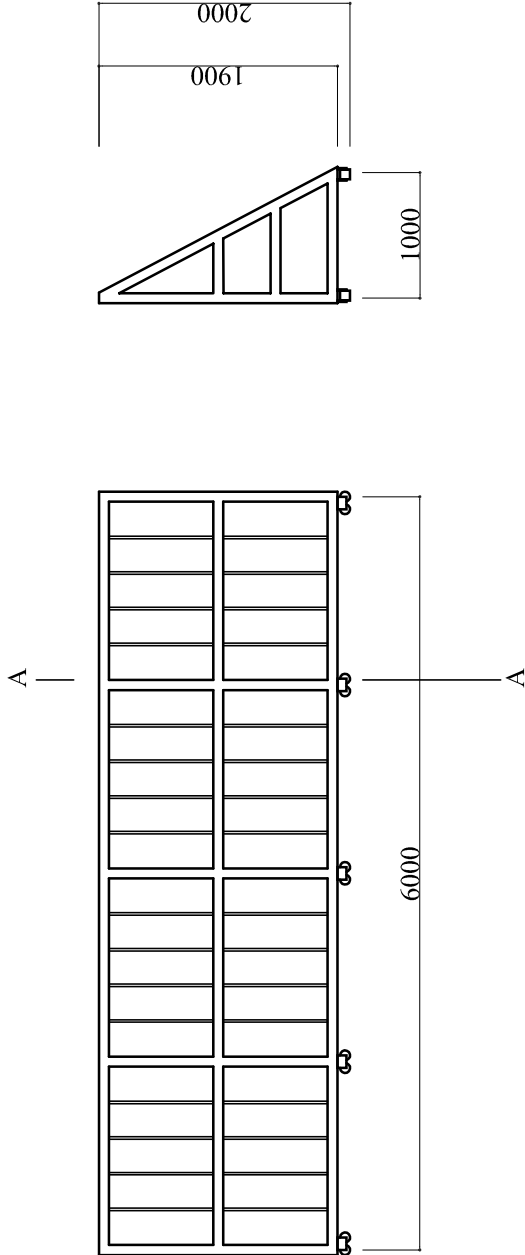
JAPAN INTERNATIONAL COOPERATION AGENCY

FENCE



GATE

SECTION A-A



THE STUDY ON SANITATION IMPROVEMENT FOR
THE NIAMEY CITY IN THE REPUBLIC OF NIGER

DRAWING B-309
FENCE AND GATE PLAN:
DISPOSAL SITE
BENGALE TOROMBI

SCALE

1:50

JAPAN INTERNATIONAL COOPERATION AGENCY