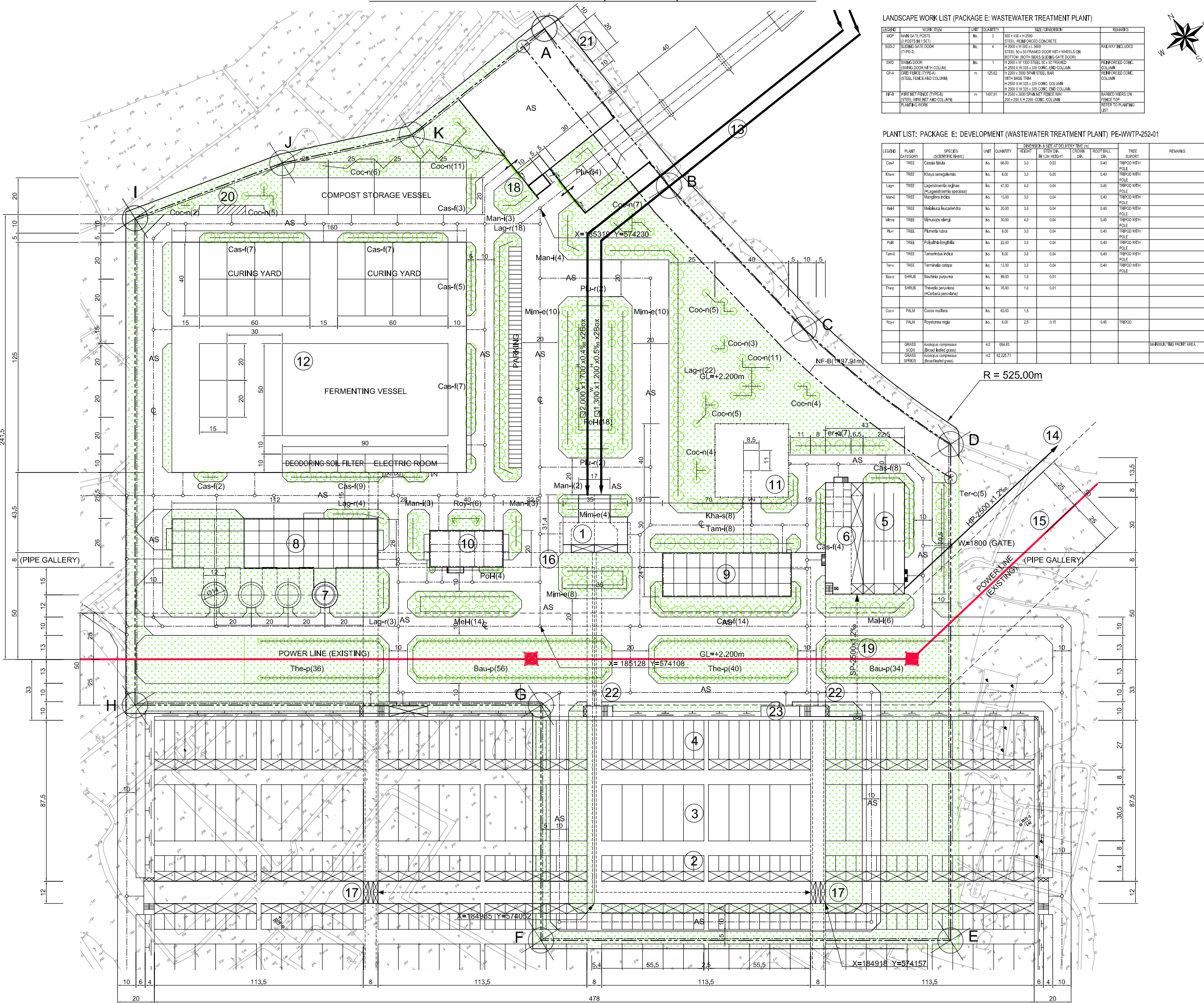


LAYOUT PLAN OF LANDSCAPE (PHASE I). Scale: 1/ 1000

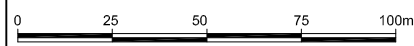


LANDSCAPE WORK LIST (PACKAGE E: WASTEWATER TREATMENT PLANT)

LEGEND	WORK ITEM	UNIT	QUANTITY	REMARKS
WSP	MINI GATE POSTS (2 POSTS IN 1 SET)	No.	2	Ø60 x H=2000 STEEL REINFORCED CONCRETE
SDG	SLIDING GATE DOOR (TYPE-A)	No.	4	STEEL 90 x 90 FRAMED DOOR WITH WHEELS ON BOTTOM (BOTH SIDES SLIDING GATE DOOR)
SWD	SLIDING DOOR (TYPE-B)	No.	1	H=2000 W=1300 STEEL 3/4 x 5/8 FRAMED DOOR WITH WHEELS ON BOTTOM (BOTH SIDES SLIDING GATE DOOR)
GF-C	GRID FENCE (TYPE-A) (STEEL FENCE AND COLUMN)	m	125.62	H=2000 W=1000 STEEL BAR WITH BASE TRAIL
WF-B	WIRE NET FENCE (TYPE-B) (STEEL WIRE NET AND COLUMN)	m	140.31	H=2000 W=335 x 335 CONC. END COLUMN H=2000 x 3000 SPAN NET FENCE WITH 200 x 200 W=2000 CONC. COLUMN

PLANT LIST: PACKAGE E: DEVELOPMENT (WASTEWATER TREATMENT PLANT) PE-WWTP-252-01

LEGEND	PLANT CATEGORY	SPECIES (SCIENTIFIC NAME)	UNIT	QUANTITY	HEIGHT (M)	STEM DIA. (CM)	CROWN DIA. (CM)	ROOT BALL DIA. (CM)	TREE SUPPORT	REMARKS
Cas-f	TREE	Cassia fistula	No.	60.00	3.0	0.03	0.40	0.40	TRIPOD WITH POLE	
Kha-s	TREE	Khaya senegalensis	No.	8.00	3.0	0.05	0.40	0.40	TRIPOD WITH POLE	
Lag-r	TREE	Lagerstroemia speciosa	No.	47.00	4.0	0.04	0.45	0.45	TRIPOD WITH POLE	
Man-f	TREE	Mangifera indica	No.	15.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
Mal-f	TREE	Malacca leucostoma	No.	20.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
Mim-e	TREE	Mimosa elengi	No.	30.00	4.0	0.04	0.45	0.45	TRIPOD WITH POLE	
Plu-r	TREE	Plumbago indica	No.	8.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
PoH	TREE	Polyalthia longituba	No.	22.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
Tam-f	TREE	Tamarindus indica	No.	8.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
Ter-c	TREE	Terminalia catappa	No.	12.00	3.0	0.04	0.40	0.40	TRIPOD WITH POLE	
Bau-p	SHRUB	Bauhinia purpurata	No.	80.00	1.0	0.01				
The-p	SHRUB	Thevetia peruviana (Cerbera peruviana)	No.	70.00	1.0	0.01				
Coc-n	PALM	Cocos nucifera	No.	60.00	1.5					
Roy-s	PALM	Roystonea regia	No.	6.00	2.5	0.15	0.45	0.45	TRIPOD	
GRASS	GRASS	Asiatica compressa (Broad leaved grass)	m ²	684.83						WATERBETTING FRONT AREA
SPRUS	SPRUS	Asiatica compressa (Broad leaved grass)	m ²	42,227.1						



- LEGEND
- ① LIFT PUMPING STATION
 - ② PRIMARY SEDIMENTATION TANK (5.0m x 13.0m x 3.0m x 160 waterway 80 tank)
 - ③ AERATION TANK (10.5m x 28.0m x 5.5m x 80 tank)
 - ④ FINAL SEDIMENTATION TANK (5.0m x 26.0m x 3.5m x 160 waterway 80 tank)
 - ⑤ DISINFECTION TANK (5.0m x 54.0m x 5.0m x 3 bend 4 waterway 1 tank)
 - ⑥ CHLORINE STORAGE BUILDING
 - ⑦ SAND FILTRATION EFFLUENT TANK, SECONDARY TREATMENT TANK
 - ⑧ GRAVITY THICKENER (14.0m x 3.5m x 4 tank)
 - ⑨ DEWATERING & CENTRIFUGAL THICKENER BUILDING
 - ⑩ BLOWER BUILDING
 - ⑪ MAIN BUILDING (Control Room, Electrical Room, etc.)
 - ⑫ MAIN SUBSTATION
 - ⑬ COMPOST PLANT FACILITY
 - ⑭ INLET PIPE (Ø1,300 x 1,200 x 0.5% x 2Box, Ø2,000 x 1,700 x 0.4% x 2Box)
 - ⑮ EFFLUENT PIPE (Ø2,500mm x 1.2%, HP)
 - ⑯ POWER LINE (EXISTING)
 - ⑰ PIPE GALLERY
 - ⑱ DISTRIBUTION TANK
 - ⑲ GUARD ROOM
 - ⑳ CONNECTION PIPE (Ø2,500mm x 1.2%, SP)
 - ㉑ TRUCK SCALE
 - ㉒ JETTY
 - ㉓ STAIRCASE
 - ㉔ WWTP ELECTRICAL ROOM
 - AS : ASPHALT CONCRETE

NO.	DATE	DESCRIPTIONS	BY	APRO.
REVISIONS				

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN STUDY ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT
LAYOUT PLAN OF LANDSCAPE
(PHASE I)

SCALE: 1 / 1000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KIMURA TORU CHECKED KONDO MASAMI

DATE : JUNE 2001 DWG. No. PE - WWTP - 201 - 06

GENERAL NOTES

I. GENERAL

1. THESE NOTES SHALL APPLY UNLESS SPECIFICALLY OTHERWISE INDICATED IN THE PLANS. IN CASE OF CONFLICT BETWEEN PLANS AND SPECIFICATION, SPECIFICATIONS SHALL GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED IN PLANS.
3. ALL ELEVATIONS ARE IN METERS UNLESS OTHERWISE NOTED IN PLANS.
4. VERTICAL DATUM IS BASED ON THE MEAN LOWER LOW WATER (MLLW) AS ESTABLISHED BY THE BUREAU OF CAST AND GEODETIC SURVEY (BCGS), THE 0.00 ELEVATION IN THE PLANS SHALL BE RECKONED FROM THE DATUM PLANS 10.00 METERS BELLOW MLLW.
5. ALL DIMENSIONS AND ELEVATIONS SHOWN IN THE PLANS SHALL BE VERIFIED BEFORE COMMENCEMENT OF THE WORKS.
6. ALL DIMENSIONS, ELEVATIONS AND LOCATIONS OF OPENING RELATING TO THE EQUIPMENT ARE TENTATIVE AND SUBJECT TO CHANGE AFTER THE EQUIPMENT DIMENSIONS HAVE BEEN ESTABLISHED.

II. CODES AND REFERENCES

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
3. VIETNAMESE STANDARD (TCVN)
4. DESIGN CRITERIA OF EXTERIOR AND PROJECT DRAINAGE NETWORKS NO. 20 TCN-51-84, MINISTRY OF CONSTRUCTION.
5. PROCEEDINGS OF VIETNAM CONSTRUCTION STANDARDS, VOLUME III (MINISTRY OF CONSTRUCTION 1997)
6. HAND BOOK FOR DESIGN OF ROAD AND BRIDGE (VIETNAM).
7. SEWERAGE FACILITIES PLANNING AND DESIGN MANUAL, JAPAN SEWERAGE WORKS AGENCY STANDARDS (JSWAS), 1994
8. JAPANESE INDUSTRIAL STANDARD (JIS).
9. REINFORCED CONCRETE SEWER PIPE, JAPAN SEWERAGE WORKS AGENCY STANDARDS (JSWAS), 1987
10. REINFORCED CONCRETE PIPE JACKING SEWER PIPE, JAPAN SEWERAGE WORKS AGENCY STANDARDS (JSWAS), 1999
11. SPECIFICATION OF HIGHWAY BRIDGES: PART 4 (JAPAN ROAD ASSOCIATION 1994)
12. STANDARD SPECIFICATION FOR DESIGN AND COSTRUCTION OF CONCRETE STRUCTURE (THE JAPAN SOCIETY OF CIVIL ENGINEERS 1996)
13. PROCEEDINGS OF COST ESTIMATE FOR SEWERAGE DESIGN (JAPAN SEWERAGE ASSOCIATION)
15. ROAD BRIDGE SUBSTRUCTURE DESIGN STANDARD (JAPAN ROAD ASSOCIATION 1994)
16. STANDARD SPECIFICATION FOR DESIGN AND CONSTRUCTION OF CONCRETE STRUCTURE (THE JAPAN SOCIETY OF CIVIL ENGINEERS 1996)
17. STRUCTURE DESIGN INDEX (JAPAN SEWAGE WORKS AGENCY 1998)
18. TEMPORARY STRUCTURE DESIGN INDEX (JAPAN SEWAGE WORKS AGENCY 1998).
19. SPECIFICATION FOR HIGHWAY BRIDGES: PART 4 (JAPAN ROAD ASSOCIATION 1990).
20. STANDARD SPECIFICATION FOR DESIGN AND CONSTRUCTION OF TUNNELING: OPEN CUT METHOD (THE JAPAN SOCIETY OF CIVIL ENGINEER 1996)
21. TEMPORARY STRUCTURE INDEX FOR EARTH WORKS OF ROAD (JAPAN ROAD ASSOCIATION 1990)
22. TEMPORARY STRUCTURE DESIGN INDEX (JAPAN SEWAGE WORKS AGENCY 1998).

III. CIVIL AND STRUCTURAL DESIGN

1. DESIGN LOAD:

1.1 DEAD LOAD

- STEEL 7850 Kg/m³
- PLAIN CONCRETE 2350 Kg/m³
- REINFORCE CONCRETE 2500 Kg/m³

1.2 LIVE LOAD

- CROWD LOAD 500 Kg/m²
- SURCHARGE 1000 Kg/m² (500Kg/cm²)
- TRUCK LOAD H30

1.3 SEISMIC LOAD

- SEISMIC COEFFICIENT 0.00

2. CONCRETE:

- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f_c) AFTER 28 DAYS BASED ON THE STANDARD CYLINDER TESTS AS FOLLOWS:

CLASS	USE OF EACH CLASS OF CONCRETE	STRENGTH*(kg/cm ²)
A	JACKING PIPES	500
B	PRESTRESSED CONCRETE FOR BRIDGE GIRDERS	420
C	DIAPHRAGM WALL	300
D	PRECAST CONCRETE	250
E	GENERAL USE REINFORCED CONCRETE	210
F	PLAIN (UNREINFORCED) CONCRETE	180
G	LEVELLING CONCRETE	100

- DESIGN ALLOWABLE STRESS:
+ BENDING COMPRESSIVE STRESS $\sigma_{ca} = 70 \text{ kg/cm}^2$

+ SHEARING STRESS $\tau_{ca} = 3.6 \text{ Kg/cm}^2$

* NOTE: Minimum 28-day compressive strength by cylinder test (300mm x150mm diameter).

3. REINFORCING BARS:

3.1 REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS EXCEPT THAT THE WEIGHTS OF THE STANDARD BAR SIZES WILL BE TAKEN AS PER TABLE 4.4.2.a AND TABLE 4.4.2.b, IRRESPECTIVE OF THE SPECIFICATION USED IN MANUFACTURE.

- DEFORMED BARS:

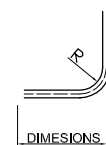
A-II (CT-5) 22TCN 18-79; OR
JIS G 3112 (GRADE SD 295A); OR
JIS G 3112 (GRADE SD 345); OR
ASTM A615

REINFORCING BARS SHALL BE KEPT OFF THE GROUND AND STORED WITHIN A BUILDING OR BROWNED WITH OIL BASES SHOWN ON THE PLANS, SPACING OF REINFORCING BARS SHALL BE FROM OR TO THE CENTERLINES OF THE BARS.

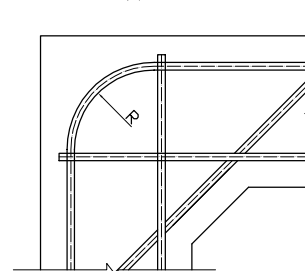
3.3 ALL BAR SPLICE LAPS AND BENDS SHALL CONFORM TO THE MINIMUM REQUIREMENT AS FOLLOWS:

BAR SIZE	LAP 35d (mm)	HOOK (mm) (3d); R	BEND (10,5d); R	L	UNIT WEIGHT (kg/m)	UNIT AREA (cm ²)
D10	350	30	110	173	0.617	0.785
D12	420	36	130	204	0.888	1.131
D14	490	42	150	236	1.21	1.540
D16	560	48	170	267	1.58	2.010
D18	630	54	190	300	2.00	2.545
D20	700	60	210	330	2.47	3.140
D22	770	66	240	377	2.98	3.800
D25	875	75	270	424	3.85	4.910
D28	980	84	300	471	4.83	6.160
D30	1050	90	320	503	5.55	7.070
D32	1120	96	340	534	6.31	8.040
D36	1260	108	380	597	7.99	10.180
D40	1400	120	420	660	9.89	12.570

HOOK



CORNER BEND



3.4 DESIGN ALLOWABLE STRESS:

- TENSILE STRESS AND COMPRESSIVE STRESS $\tau_{ca} = 1600 \text{ Kg/cm}^2$

4. STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 OR JIS G3101 OR EQUIVALENT WITH A MINIMUM YIELD STRENGTH OF 2.500 Kg/cm²

5. FALSE WORKS

ALL FALSE WORKS AND CENTERING SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER, IN A MANNER AS PRESCRIBED BY THE SPECIFICATIONS, THE REMONAL OF FALSE WORKS SHALL BE AS DIRECTED BY THE ENGINEER.

6. PILE

6.1 REINFORCED CONCRETE PILES SHALL HAVE A MINIMUM WORKING VERTICAL LOAD BEARING CAPACITY OF 30.000 Kg.

6.2 FINAL PIPE LENGTH SHALL BE DETERMINED AS PROVIDED IN THE SPECIFICATIONS.

6.3 SPLICING OF PILES IS NOT ANTICIPATED, HOWEVER, IF AND WHEN THE NECESSITY OCCURS, SPLICING SHALL BE MADE BY STANDARD PILE SPLICING METHOD SUBJECT TO PRIOR APPROVAL OF THE ENGINEER.

6.4 PILES SHALL BE SECURELY EMBEDDED AND ANCHORED INTO THE PILE CAPS AND PILE FOOTING BY STANDARD METHOD AS SHOWN IN THE DRAWINGS.

IV. MECHANICAL / ELECTRICAL DESIGN:

GENERAL NOTES ON MECHANICAL/ ELECTRICAL WORKS SHALL BE REFERRED TO THOSE OF RESPECTIVE DRAWINGS.

V. ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS

ALUM	ALUMINUM	GRD, GRND	GROUND
BH	BOREHOLE	HOR	HORIZONTAL
BM	BENCHMARK	H.W.L.	HIGH WATER LEVEL
Bm, B	BEAM	L	LENGTH
B.W.	BOTHWAYS	LN	LINE
B.B.	BOTTOM BARS	L.W.L.	LOW WATER LEVEL
B.I.	BLACK IRON	LVL	LEVEL
BR.	BRIDGE	m	METER
C	COLUMN	mm	MILLIMETER
C.I.	CAST IRON	M.S.L	MEAN SEA LEVEL
C.H.B.	CONCRETE HOLLOW BLOCK	MLLW	MEAN LOWER-LOW WATER
CONC.	CONCRETE	N	NORTH
cm	CENTIMETER	N.T.S	NOT TO SCALE
DWG	DRAWING	O.C.	ON CENTER
D	DOOR	OPN	OPERATION
D.E.G.	DIESEL ENGINE GENERATOR	P.F.	PILE FOOTING
DECOR	DECORATIVE	REQ'D	REQ UIRED
DS	DOWNSPOUT	R.C.	REINFORCED CONCRETE
EA	EACH	ST	STREET
E.F.	EACH FACE	SYN	SYNTHETIC
EPPCF	ELECTROSTATIC POLYESTER	STL	STEEL
	POWDER COATED FINISH	t, THK	THICKNESS
EL, ELEV	ELEVATION	TYP	TYPICAL
EQ	EQUAL	T.B.	TOP BAR
FLR	FLOOR	TEMP	TEMPERATURE
F.T.B.	FOOTING TIE BEAM	VERT	VERTICAL
GA	GAUGE	VIT	VITRIFIED
GALV	GALVANIZED	W/	WITH
G.L.	GROUND LEVEL	W/O	WITHOUT
G.I.	GALVANIZED IRON	W.P.	WATERPROOFING

NO.	DATE	DESCRIPTIONS	BY	APRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT
GENERAL NOTES

SCALE : N.T.S

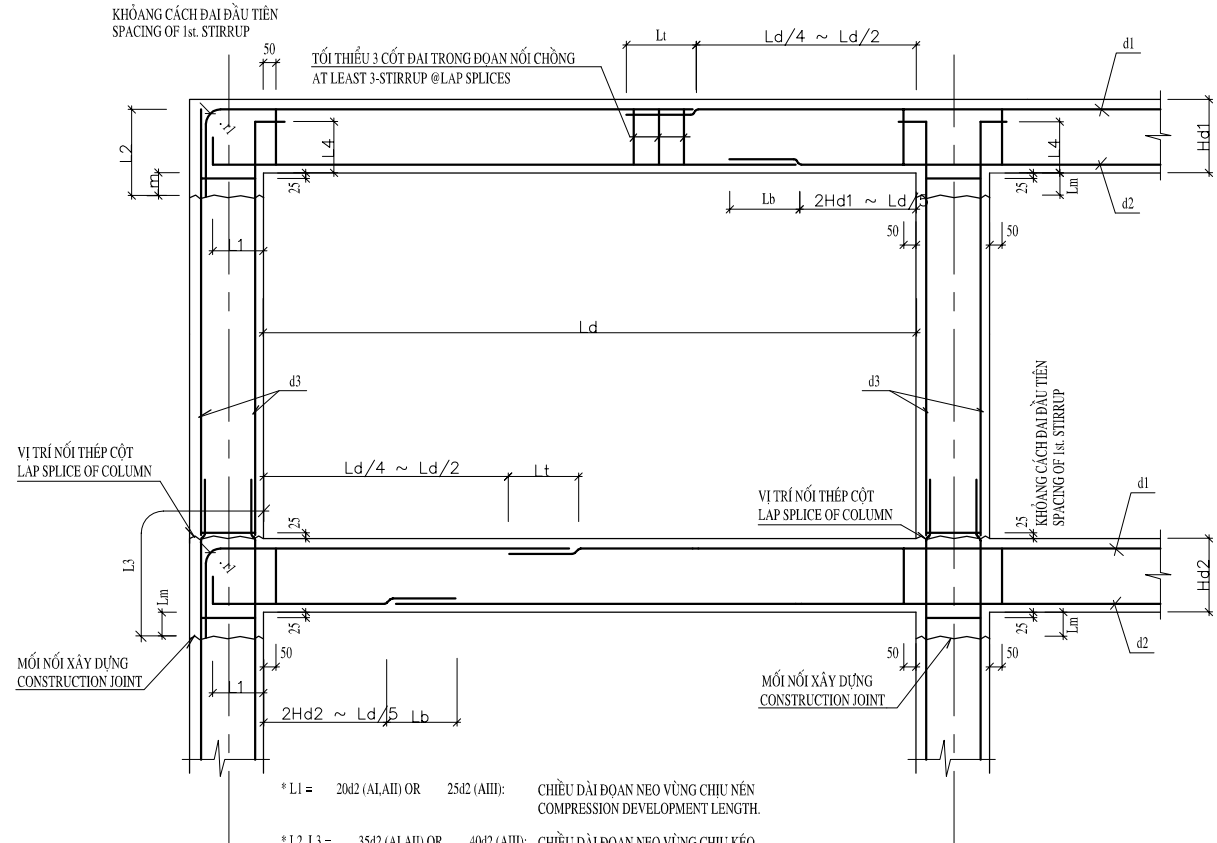
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
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DATE : JUNE 2001 DWG. No. PE - WWTP - 201-07

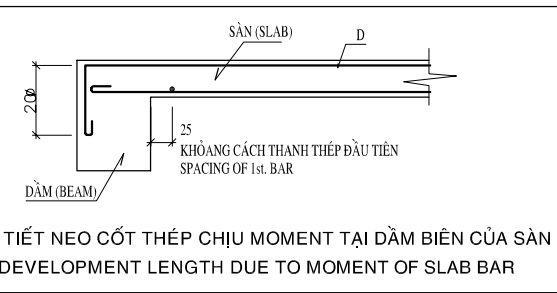
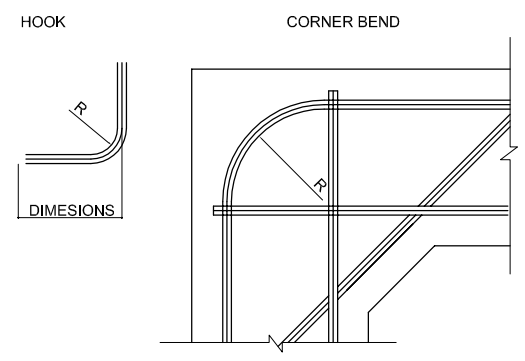
CHI TIẾT ĐOẠN NEO VÀ ĐOẠN NỐI CHỖNG CỐT THÉP
DEVELOPMENT & LAP SPlice LENGTH OF BEAMS



- * L1 = 20d2 (ALAI) OR 25d2 (AIII): CHIỀU DÀI ĐOẠN NEO VÙNG CHỊU NÉN COMPRESSION DEVELOPMENT LENGTH.
- * L2, L3 = 35d2 (ALAI) OR 40d2 (AIII): CHIỀU DÀI ĐOẠN NEO VÙNG CHỊU KÉO TENSION DEVELOPMENT LENGTH.
- * L4 ≥ 25d3.
- * Lt = 20d1 (ALAI) OR 30d1 (AIII): CHIỀU DÀI ĐOẠN NỐI CHỖNG VÙNG CHỊU NÉN, NHƯNG KHÔNG NHỎ HƠN 200mm COMPRESSION LAP SPlice LENGTH, BUT NOT LESS THAN 200mm.
- * Lb = 30d2 (ALAI) OR 40d2 (AIII): CHIỀU DÀI ĐOẠN NỐI CHỖNG VÙNG CHỊU KÉO, NHƯNG KHÔNG NHỎ HƠN 250mm TENSION LAP SPlice LENGTH, BUT NOT LESS THAN 250mm.
- * Lm = ĐẢM BẢO 1 KHOẢNG CÁCH TỐI THIỂU ĐỂ NEO CỐT THÉP VÙNG CHỊU KÉO (L2, L3), NHƯNG KHÔNG NHỎ HƠN 200mm PROVIDING MIN. 1 SPACE DISTANCE L2 OR L3 FOR TENSION, BUT NOT LESS THAN 200mm.

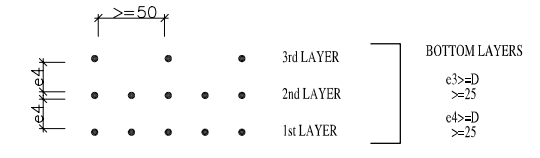
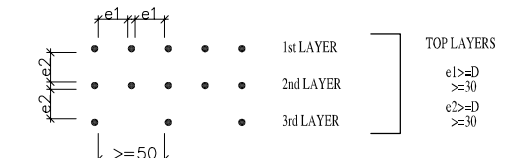
3.3 ALL BAR SPlice LAPS AND BENDS SHALL CONFORM TO THE MINIMUM REQUIREMENT AS FOLLOWS:

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D14	490	42	150	236	1.21	1.540
D16	560	48	170	267	1.58	2.010
D18	630	54	190	300	2.00	2.545
D20	700	60	210	330	2.47	3.140
D22	770	66	240	377	2.98	3.800
D25	875	75	270	424	3.85	4.910
D28	980	84	300	471	4.83	6.160
D30	1050	90	320	503	5.55	7.070
D32	1120	96	340	534	6.31	8.040
D36	1260	108	380	597	7.99	10.180
D40	1400	120	420	660	9.89	12.570

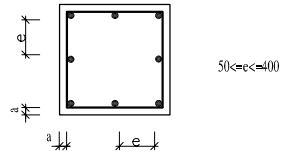


CHI TIẾT NEO CỐT THÉP CHỊU MOMENT TẠI DÀM BIÊN CỦA SÀN DEVELOPMENT LENGTH DUE TO MOMENT OF SLAB BAR

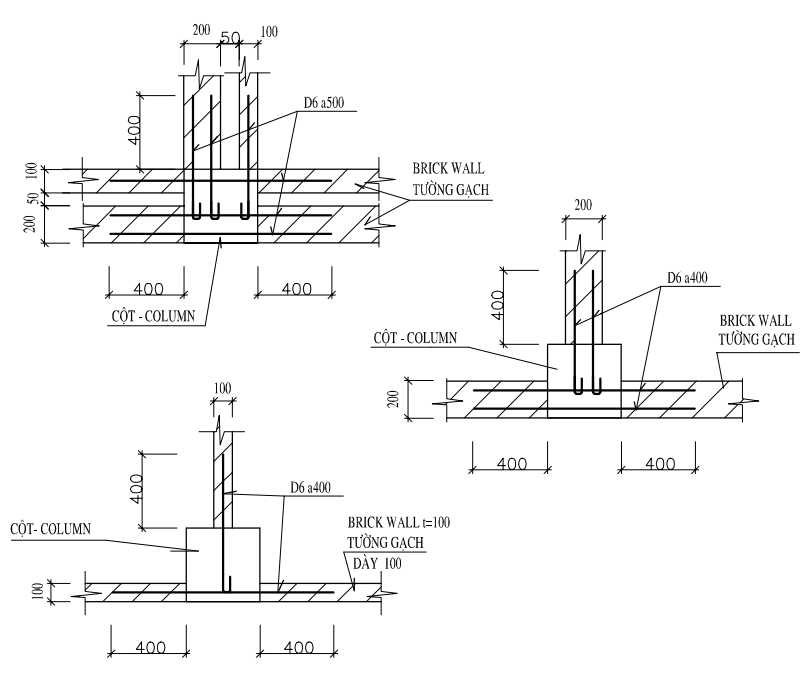
KHOẢNG CÁCH TỐI THIỂU GIỮA CÁC CỐT THÉP
REINFORCEMENT MINIMUM CLEAR DISTANCE



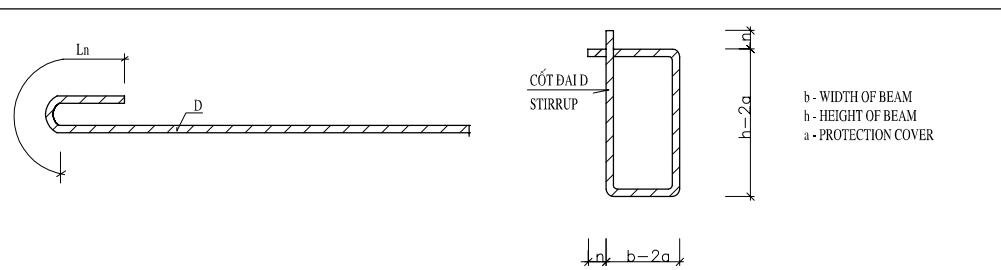
(D - ĐƯỜNG KÍNH CỐT THÉP) BEAM



COLUMN



CHI TIẾT LIÊN KẾT TƯỜNG GẠCH & CỘT, TRỤ BTCT CONNECTION OF BRICK WALL & RC. COLUMN



D	6	8	10	12	14	16	18	20	22	24	25	28
Ln	50	60	80	90	110	120	140	150	170	190	200	220

CHIỀU DÀI ĐOẠN UỐN MÓC CỦA THÉP AI & CỐT ĐAI STANDARD & STIRRUP HOOK (THÉP CỐ GỠ AII, AIII: KHÔNG CẦN UỐN MÓC)

NO.	DATE	DESCRIPTIONS	BY	APPRO.

REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN STUDY ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT

GENERAL INFORMATION (2/2)

SCALE : AS SHOW

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED: KIMURA TORU
CHECKED: KONDO MASAMI

DATE : JUNE 2001 DWG.No. PE - WWTP - 201 - 08