ROAD DEVELOPMENT AUTHORITY
MINISTRY OF HIGHWAYS AND ROAD DEVELOPMENT
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

THE DETAILED DESIGN STUDY
ON
THE OUTER CIRCULAR HIGHWAY
TO
THE CITY OF COLOMBO

FINAL REPORT
(FOR NORTHERN SECTION 1)

VOLUME VI - 1/3: DRAWINGS - GENERAL 8 of 10

February 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

Oriental Consultants Company Limited
Pacific Consultants International

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INDEX OF DRAWINGS

GENERAL			
TITLE	DWG. NO.		
INDEX OF DRAWINGS			
A. GENERAL			
LOCATION MAP FOR THE OUTER CIRCULAR HIGHWAY	A-01		
LEGEND			
CURVE ELEMENTS			
B. ALIGNMENT LAYOUTS			
ALIGNMENT LAYOUT : SETTING OUT DATA			
ALIGNMENT LAYOUT - 1 : STA 6+500 TO STA. 14+000 : MAIN ROADWAY	B-02		
ALIGNMENT LAYOUT - 2 : STA 14+000 TO STA. 19+000 : MAIN ROADWAY	B-03		

HIGHWAY					
TITLE					
C. TYPICAL CROSS SECTION					
STANDARD DRAWING FOR EARTH WORKS	C-01				
TYPICAL CROSS SECTION FOR EMBANKMENT	C-02				
TYPICAL CROSS SECTION FOR EXCAVATION	C-03				
TYPICAL CROSS SECTION FOR EXCAVATION AT OVERPASS BRIDGE	C-04				
TYPICAL CROSS SECTION FOR PAVEMENT DETAILS	C-05				
SUPER ELEVATION AND SURFACE DOWN RUN-OFF	C-06				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT TYPE - A	C-07				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT TYPE - B, TYPE-C	C-08				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT TYPE - D, TYPE-E	C-09				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT TYPE - F, TYPE-G	C-10				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT TYPE - H	C-11				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT (SURCHAGE)	C-12				
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT (ABUTMENT & BOX CULVERT)	C-13				
D. PLAN AND PROFILE					
PLAN & PROFILE (STA 7+600.000 TO STA 8+300.000)	D-01				
то	то				
PLAN & PROFILE (STA 16+000.000 TO STA 16+700.000)	D-13				
E. PLAN OF FACILITIES					
PLAN OF FACILITIES (STA 7+600.000 TO STA 8+300.000)	E-01				
ТО	то				
PLAN OF FACILITIES (STA 16+000.000 TO STA 16+700.000)					
PLAN OF FACILITIES A1-IC					
PLAN OF FACILITIES A1-BP(01)					
PLAN OF FACILITIES A1-BP(02)					
PLAN OF FACILITIES A1 – BP(03)					
	E-17				
F. INTERCHANGE					
A-1 INTERCHANGE : LAYOUT	F-01				
A 1 INTERCHANGE : PLAN	F-02				
A-1 INTERCHANGE : RAMP-1 PROFILE	F-03				
A 1 INTERCHANGE : RAMP - 2 & RAMP - 3 PROFILE	F-04				
A-1 INTERCHANGE : RAMP-4 PROFILE	F-05				
A-1 INTERCHANGE : RAMP-5 & RAMP-6 PROFILE	F-06				
A-1 INTERCHANGE : A1-BYPASS PLAN-1	F-07				
A-1 INTERCHANGE : A1-BYPASS PLAN-2	F-08 F-09				
A-1 INTERCHANGE : A1-BYPASS PLAN-3					
A-1 INTERCHANGE : A1-BYPASS PROFILE-1					
A-1 INTERCHANGE : A1-BYPASS PROFILE-2					
A-1 INTERCHANGE : A1-BYPASS PROFILE-3					
A-1 INTERCHANGE : TYPICAL CROSS SECTION-1					
A-1 INTERCHANGE : TYPICAL CROSS SECTION-2					
A-1 INTERCHANGE : TYPICAL CROSS SECTION-2	F-14				

HIGHWAY	
TITLE	DWG. NO.
A-1 INTERCHANGE : TYPICAL CROSS SECTION-4	F-16
A-1 INTERCHANGE : CROSS SECTION-1	F-17
A-1 INTERCHANGE : CROSS SECTION-2	F-18
A-1 INTERCHANGE : CROSS SECTION-3	F-19
A-1 INTERCHANGE : CROSS SECTION-4	F-20
A-1 INTERCHANGE : CROSS SECTION-5	F-21
A-1 INTERCHANGE : CROSS SECTION-6	F-22
A-1 INTERCHANGE : CROSS SECTION-7	F-23
A-1 INTERCHANGE : MAINLINE CROSS SECTION	F-24
B-214 INTERCHANGE : LAYOUT	F-25
B-214 INTERCHANGE : PALN	F-26
B-214 INTERCHANGE : RAMP-1 & RAMP-2 PROFILE	F-27
B-214 INTERCHANGE : B-214 ROAD PROFILE	F-28
B-214 INTERCHANGE : TYPICAL CROSS SECTION - 1	F-29
B-214 INTERCHANGE : TYPICAL CROSS SECTION - 2	F-30

LOCAL ROAD	
TITLE	DWG. NO
G. APPROACH ROAD	
APPROACH ROAD : UNDERPASS AT STA. 0+100_0+300	G-01
APPROACH ROAD : OVERPASS AT STA. 0+100_0+300 - CROSS SECTIONS-(1 OF 2)	G-02
APPROACH ROAD : OVERPASS AT STA. 0+100_0+300 - CROSS SECTIONS-(2 OF 2)	G-03
APPROACH ROAD : UNDERPASS AT STA. 0+285	G-04
APPROACH ROAD : UNDERPASS AT STA. 0+285 - CROSS SECTIONS - (1 OF 2)	G-05
APPROACH ROAD : UNDERPASS AT STA. 0+285 - CROSS SECTIONS - (2 OF 2)	G-06
APPROACH ROAD : UNDERPASS AT STA. 8+805	G-07
APPROACH ROAD : UNDERPASS AT STA. 8+805 - CROSS SECTIONS - (1 OF 2)	G-08
APPROACH ROAD : UNDERPASS AT STA. 8+805 - CROSS SECTIONS - (2 OF 2)	G-09
APPROACH ROAD : OVERPASS AT STA. 9+415	G-10
APPROACH ROAD : OVERPASS AT STA. 9+415 - CROSS SECTIONS - (1 OF 2)	G-11
APPROACH ROAD : OVERPASS AT STA. 9+415 - CROSS SECTIONS - (2 OF 2)	G-12
APPROACH ROAD : OVERPASS AT STA. 10+210	G-13
APPROACH ROAD : OVERPASS AT STA. 10+210 - CROSS SECTIONS	G-14
APPROACH ROAD : UNDERPASS AT STA. 10+917	G-15
APPROACH ROAD : UNDERPASS AT STA. 10+917 - CROSS SECTIONS	G-16
APPROACH ROAD : UNDERPASS AT STA. 13+327	G-17
APPROACH ROAD : UNDERPASS AT STA. 13+327 - CROSS SECTIONS	G-18
APPROACH ROAD : OVERPASS AT STA. 14+619	G-19
APPROACH ROAD : OVERPASS AT STA. 14+619 - CROSS SECTIONS - (1 OF 2)	G-20
APPROACH ROAD : OVERPASS AT STA. 14+619 - CROSS SECTIONS - (2 OF 2)	G-21
APPROACH ROAD : OVERPASS AT STA. 14+843	G-22
APPROACH ROAD : OVERPASS AT STA. 14+843 - CROSS SECTIONS	G-23
APPROACH ROAD : UNDERPASS AT A1IC RAMP 2,3	G-24
APPROACH ROAD : UNDERPASS AT ATIC RAMP 2,3 - CROSS SECTIONS	G-25
H. FRONTAGE ROAD	
FRONTAGE ROAD STA. 8+808.486 TO STA. 9+020.000 MAIN LINE (LEFT) FRONTAGE ROAD STA. 8+970.000 TO STA. 9+080.000 MAIN LINE (RIGHT)	H-01
FRONTAGE ROAD STA. 9+550.000 TO STA. 9+700.000 (LEFT) FRONTAGE ROAD STA. 9+945.000 TO STA. 10+222.000 (LEFT) FRONTAGE ROAD STA. 9+960.000 TO STA. 10+185.000 (RIGHT)	H-02
FRONTAGE ROAD STA. 10+200.000 TO STA. 10+420.000 (RIGHT) FRONTAGE ROAD STA. 10+918.000 TO STA. 11+030.000 (LEFT) FRONTAGE ROAD STA. 11+260.000 TO STA. 11+610.000 (RIGHT)	H-03
FRONTAGE ROAD STA. 12+490.000 TO STA. 12+520.000 (LEFT) FRONTAGE ROAD STA. 12+520.000 TO STA. 12+725.000 (RIGHT) FRONTAGE ROAD STA. 12+590.000 TO STA. 12+870.000 (LEFT)	H-04

STRUCTURE	
TITLE	DWG. NO
I. CULVERT	
ROAD BOX CULVERT (STA. 10+917) GENERAL VIEW	I-01
ROAD BOX CULVERT (STA. 10+917) STEEL BAR SCHEDULE	I-02
ROAD BOX CULVERT (STA. 10+917) REINFORCEMENT OF APPROACH SLAB	I-03
ROAD BOX CULVERT (STA. 13+327) GENERAL VIEW	I-04
ROAD BOX CULVERT (STA. 13+327) STEEL BAR SCHEDULE	I-05
ROAD BOX CULVERT (STA. 14+619) GENERAL VIEW	1-06
ROAD BOX CULVERT (STA. 14+619) STEEL BAR SCHEDULE	I-07
ROAD BOX CULVERT (STA. 14+619) REINFORCEMENT OF APPROACH SLAB	I-08
ROAD BOX CULVERT (STA. 15+840) GENERAL VIEW	1-09
ROAD BOX CULVERT (STA. 15+840) STEEL BAR SCHEDULE	I-10
ROAD BOX CULVERT (STA. 15+840) REINFORCEMENT OF APPROACH SLAB	I-11
ROAD BOX CULVERT (STA. 0+136.297) GENERAL VIEW	I-12
ROAD BOX CULVERT (STA. 0+136.297) STEEL BAR SCHEDULE	I-13
ROAD BOX CULVERT (STA. 0+136.297) REINFORCEMENT OF APPROACH SLAB	I-14
ROAD BOX CULVERT (STA. 0+285) GENERAL VIEW	I-15
ROAD BOX CULVERT (STA. 0+285) STEEL BAR SCHEDULE	I-16
ROAD BOX CULVERT (STA. 0+285) REINFORCEMENT OF APPROACH SLAB	I-17
ROAD BOX CULVERT (STA. 1+293) GENERAL VIEW	I-18
ROAD BOX CULVERT (STA. 1+293) STEEL BAR SCHEDULE	I-19
ROAD BOX CULVERT (STA. 1+293) REINFORCEMENT OF APPROACH SLAB	I-20
WINGWALL / GUARD RAIL BASE DIMENSION / BAR SCHEDULE	I-21
DRAINAGE CULVERT (I CELL) DIMENSIONS	I-22
DRAINAGE CULVERT (2 CELLS) DIMENSIONS	I-23
DRAINAGE CULVERT (3 CELLS) DIMENSIONS	I-24
DRAINAGE CULVERT (5 CELLS) DIMENSIONS	I-25
DRAINAGE CULVERT (I CELL)(1/5) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-26
DRAINAGE CULVERT (I CELL)(2/5) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-27
DRAINAGE CULVERT (I CELL)(3/5) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-28
DRAINAGE CULVERT (I CELL)(4/5) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-29
DRAINAGE CULVERT (I CELL)(5/5) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-30
DRAINAGE CULVERT (2 CELL)(1/3) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-31
DRAINAGE CULVERT (2 CELL)(2/3) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-32
DRAINAGE CULVERT (2 CELL)(3/3) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	1-33
DRAINAGE CULVERT (3 CELL)(1/2) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	1-34
DRAINAGE CULVERT (3 CELL)(2/2) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-35
DRAINAGE CULVERT (5 CELL) DIMENSIONS DETAIL AND BAR BENDING DIAGRAM	I-36
INLET/OUTLET FOR BOX (IO-C(B)) DIMENSION / STEEL BAR SCHEDULE	I-37
INLET/OUTLET FOR BOX (IO-S(B)) DIMENSION / STEEL BAR SCHEDULE	I-38
INLET/OUTLET FOR BOX (IO-WCB) DIMENSIONS / STEEL BAR SCHEDULE	I-39
J. RETAINING WALL	
RUBBLE MASONARY WALL	J-01
MASS CONCRETE RETAINING WALL (1/2)	J-02
MASS CONCRETE RETAINING WALL (2/2)	J-03
MASS CONCRETE RETAINING WALL FOR RICHIMOND AREA	J-04

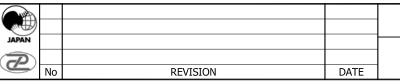
DRAINAGE	
TITLE	DWG. NO.
K. BRIDGE	
GENERAL NOTES FOR LONG SPAN BRIDGES	K-00
KELANI RIVER CROSSING BRIDGE-GENERAL VIEW(1)	K-01-00-A
KELANI RIVER CROSSING BRIDGE-TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-01-00-B
KELANI RIVER CROSSING BRIDGE-GENERAL VIEW(2)	K-01-00-0
KELANI RIVER CROSSING BRIDGE-GENERAL VIEW(3)	K-01-00-D
KELANI RIVER CROSSING BRIDGE-GENERAL VIEW(4)	K-01-00-E
KELANI RIVER CROSSING BRIDGE-GENERAL VIEW(5)	K-01-00-F
OVERPASS BRIDGE NO.8 STA.9+415.000 - GENERAL VIEW(1)	K-02-00-A

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority



JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL



DESIGNED BY: **COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** (NORTHERN SECTION 1) CHECKED BY: APPROVED BY: INDEX OF DRAWING

DWG. NO.

INDEX OF DRAWINGS

STRUCTURE	
TITLE	DWG. NO.
OVERPASS BRIDGE NO.8 STA.9+415.000 - GENERAL VIEW(2)	K-02-00-
OVERPASS BRIDGE NO.9 STA.10+210.000 - GENERAL VIEW(1)	K-03-00-
OVERPASS BRIDGE NO.9 STA.10+210.000 - GENERAL VIEW(2)	K-03-00-
OVERPASS BRIDGE NO.9 STA.10+210.000 - GENERAL VIEW(3)	K-03-00-
OVERPASS BRIDGE NO.10 STA.11+261.000 - GENERAL VIEW(1)	K-04-00-
OVERPASS BRIDGE NO.10 STA.11+261.000 - GENERAL VIEW(2)	K-04-00-
OVERPASS BRIDGE NO.10 STA.11+261.000 - GENERAL VIEW(3)	K-04-00-
OVERPASS BRIDGE NO.11 STA.12+518.921 - GENERAL VIEW(1)	K-05-00-
OVERPASS BRIDGE NO.11 STA.12+518.921 - GENERAL VIEW(2)	K-05-00-
OVERPASS BRIDGE NO.12 STA.14+843.000 - GENERAL VIEW(1)	K-06-00-
OVERPASS BRIDGE NO.12 STA.14+843.000 - GENERAL VIEW(2)	K-06-00-
A1 INTERCHANGE VIADUCT GENERAL VIEW	K-07-00-
A1 INTERCHANGE VIADUCT TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-07-00-
THE 1ST BIYAGAMA VIADUCT GENERAL VIEW	K-08-00-
THE 1ST BIYAGAMA VIADUCT TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-08-00-
THE 2ND BIYAGAMA VIADUCT GENERAL VIEW	K-09-00-
THE 2ND BIYAGAMA VIADUCT GENERAL VIEW	K-09-00-
THE 2ND BIYAGAMA VIADUCT TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-09-00-
KELANI RIVER ACCESS VIADUCT GENERAL VIEW	K-10-00-
KELANI RIVER ACCESS VIADUCT TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-10-00-
A1 IC RAMP-2 BRIDGE GENERAL VIEW	K-11-00-
A1 IC RAMP-2 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-11-00-
A1 IC RAMP-3 BRIDGE GENERAL VIEW	K-12-00-
A1 IC RAMP-3 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-12-00-
A1 IC RAMP-5 BRIDGE GENERAL VIEW	K-13-00-
A1 IC RAMP-5 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-13-00-
A1 IC RAMP-6 BRIDGE GENERAL VIEW	K-14-00-
A1 IC RAMP-6 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-14-00-
B214 IC RAMP-1 BRIDGE GENERAL VIEW	K-15-00-
B214 IC RAMP-1 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-15-00-
B214 IC RAMP-2 BRIDGE GENERAL VIEW	K-16-00-
B214 IC RAMP-2 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	K-16-00-

DRAINAGE				
TITLE	DWG. NO.			
L. DRAINAGE FACILITIES				
STANDARD DITCH DETAIL - 1	L-01			
STANDARD DITCH DETAIL - 2	L-02			
STANDARD DITCH DETAIL - 3	L-03			
STANDARD CHANNEL DROP STRUCTURE DETAIL (1/5)	L-03a			
STANDARD CHANNEL DROP STRUCTURE DETAIL (2/5)	L-03b			
STANDARD CHANNEL DROP STRUCTURE DETAIL (3/5)	L-03c			
STANDARD CHANNEL DROP STRUCTURE DETAIL (4/5)	L-03d			
STANDARD CHANNEL DROP STRUCTURE DETAIL (5/5)	L-03e			
STANDARD CATCH BASIN DETAIL - 1	L-04			
STANDARD CATCH BASIN DETAIL - 2	L-05			
STANDARD CATCH BASIN DETAIL - 3	L-06			
STANDARD CATCH BASIN DETAIL - 4	L-07			
GABIONS	L-08			
LOCATION OF MUDUN ELA IMPROVEMANT PLAN	L-09			
PALN AND PROFILE (RE-ROUTE)	L-10			
CROSS SECTION - 1/4 (RE-ROUTE)	L-11			
CROSS SECTION - 2/4 (RE-ROUTE)	L-12			
CROSS SECTION - 3/4 (RE-ROUTE)	L-13			
CROSS SECTION - 4/4 (RE-ROUTE)	L-14			
DETAILED DIMENSION (FLOOD GATE)	L-15			
REINFORCEMANT DETAIL (FLOOD GATE)	L-16			
BAR BENDING DIAGRAM (FLOOD GATE)	L-17			
BORED PILE REBAR DETAILS (FLOOD GATE)	L-18			

FACILITY						
TITLE	DWG. NO.					
M. LIGHTING & EMERGENCY TELEPHONE						
ABBREVIATION & GENERAL NOTES	M-01					
LIGHTING PROFILE						
SINGLE LINE DIAGRAM — POWER DISTRIBUTION — INTERCHAINGE A1						
SINGLE LINE DIAGRAM - POWER DISTRIBUTION - INTERCHAINGE B-214	M-04					
LIGHTING COLUMN & CIRCUIT ARRANGEMENT AT A1 INTERCHANGE	M-05					
LIGHTING COLUMN & CIRCUIT ARRANGEMENT AT A1 INTERCHANGE	M-06					
LIGHTING COLUMN & CIRCUIT ARRANGEMENT AT B-214 INTERCHANGE	M-07					
LIGHTING COLUMN DETAIL	M-08					
PANEL DETAIL	M-09					
INSTALLATION & FOUNDATION DETAIL - 1 AT GROUND LEVEL	M-10					
INSTALLATION & FOUNDATION DETAIL - 2 FOR I-GIRDER	M-11					
INSTALLATION & FOUNDATION DETAIL - 3 FOR BOX GIRDER	M-12					
INSTALLATION & FOUNDATION DETAIL - 4 FOR WINGWALL	M-13					
LIGHTING COLUMN LAYOUT - A-1 INTERCHAINGE	M-14					
LIGHTING COLUMN LAYOUT - A-1 INTERCHAINGE	M-15					
LIGHTING COLUMN LAYOUT - B-214 INTERCHAINGE	M-16					
EMERGENCY TELEPHONE INSTALLATION DETAIL	M-17					
EMERGENCY TELEPHONE LAYOUT DETAIL	M-18					
TRAFFIC SIGNAL DETAILS	M-19					
TRAFFIC LIGHTING LAYOUT A-1 INTERCHAINAGE	M-20					
TRAFFIC LIGHTING LAYOUT A-1 INTERCHAINAGE	M-21					
TRAFFIC LIGHTING LAYOUT A-1 INTERCHAINAGE	M-22					
TRAFFIC LIGHTING LAYOUT B-214 INTERCHAINAGE	M-23					
N. MISCELLANEOUS						
RIGHT OF WAY FENCE DETAILS - 1	N-01					
RIGHT OF WAY FENCE DETAILS - 2	N-02					
GUARD RAIL DETAILS - 1	N-03					
GUARD RAIL DETAILS - 2	N-04					
MEDIAN OPENING (EMERGENCY CROSSING)	N-05					
DELINEATORS	N-06					
ROAD MARKING 1 - STANDARD PAVEMENT & CHEVRON MARKINGS	N-07					
ROAD MARKING 2 - RAMP NOSE DETAILS	N-08					
CURBS, MEDIAN STRIP, MARKERS & KILOMETRE POST	N-09					
LAYOUT DRAWING - 1 - GUARD RAILS & DELINEATORS	N-10					
ТО	то					
LAYOUT DRAWING - 11 - GUARD RAILS & DELINEATORS	N-20					
O. TRAFFIC SIGNS						
TRAFIC SIGNS 1 - TYPICAL WARNING SIGNS	0-01					
TRAFIC SIGNS 2 - DIRECTION SIGNS	0-02					
TRAFIC SIGNS 3 — FIXING ARRANGEMENT OF TRAFFIC SIGNS	0-03					
TRAFIC SIGNS 4 - PANEL DETAILS & DIRECTION SIGN FOOTING DETAILS	0-04					
TRAFIC SIGNS 4 - FAMEL DETAILS & DIRECTION SIGN FOOTING DETAILS TRAFIC SIGNS 5 - FRAME DETAILS FOR OVERHEAD SIGN						
TRAFIC SIGNS 6 - FOOTING DETAILS FOR OVERHEAD SIGN						
TRAFIC SIGNS 7 — OVERHEAD SIGNS AND FRAME DETAILS						
TRAFIC SIGN LAYOUT - 1						
TO	0-08 TO					
TRAFIC SIGN LAYOUT - 8	0-15					
TRAFIC SIGN LAYOUT - 9 A1 BYPASS (1)	0-15					
TRAFIC SIGN LAYOUT - 10 A1 BYPASS (2)	0-16					
INDIO SIGN DATOUT - TO AT DIFASS (2)	1 0-17					

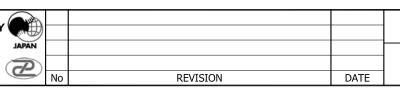
OTHERS				
TITLE	DWG. N			
P. EXISTING UTILITIES				
EXISTING UTILITIES - STA 7+600.000 TO STA 8+300.000	P-01			
ТО	то			
EXISTING UTILITIES - STA 16+000.000 TO STA 16+700.000				
EXISTING UTILITIES - A1 -BP (01)	P-14			
EXISTING UTILITIES - A1 -BP (02)	P-15			
EXISTING UTILITIES - A1 -BP (03)	P-16			
Q. GREENERY WORKS				
GREENERY PLAN (A) - FILL SECTION	Q-0			
GREENERY PLAN (B) - CUT SECTION	Q-02			
GREENERY PLAN (C) - A1 INTERCHANGE	Q-03			
GREENERY PLAN (D) - APPROACH ROAD	Q-04			
PLANTING DETAILS	Q-05			
TABLE OF RECOMMENDED SPECIES ect.	Q-06			
R. GEOLOGICAL PROFILE				
PLAN PROFILE - STA. 7+600.000 TO 8+300.000	R-01			
TO	то			
PLAN PROFILE - STA. 16+000.000 TO 16+700.000	R-13			
GEOLOGICAL PROFILE - A1 BYPASS - 1 (0+000 - 0+500)	R-14			
GEOLOGICAL PROFILE - A1 BYPASS - 2 (0+500 - 1+200)	R-15			
GEOLOGICAL PROFILE - A1 BYPASS - 3 (1+200 - 1+700)	R-16			
GEOLOGICAL PROFILE - A1 BYPASS - 4 (1+700 - 2+100)	R-17			
GEOLOGICAL PROFILE (RAMP 1) STA. 000.000 TO 0+300.000	R-18			
GEOLOGICAL PROFILE (RAMP 2) STA. 000.000 TO 0+280.000	R-19			
GEOLOGICAL PROFILE (RAMP 3) STA. 000.000 TO 0+200.000	R-20			
GEOLOGICAL PROFILE (RAMP 4) STA. 000.000 TO 0+400.000	R-21			
GEOLOGICAL PROFILE (RAMP 5) STA. 000.000 TO 0+300.000	R-22			
GEOLOGICAL PROFILE (RAMP 6) STA. 000.000 TO 0+300.000	R-23			
GEOLOGICAL PROFILE RAMP 1 (0+000 - 0+275.655)	R-24			
GEOLOGICAL PROFILE RAMP 2 (0+000 - 0+312.830)	R-25			
GEOLOGICAL PROFILE (APPROACH ROAD) UNDERPASS AT STA(09+415)	R-26			
S. RIGHT OF WAY ACQUISITION PLAN RIGHT OF WAY ACQUISITION PLAN - STA 7+600.000 TO STA 8+300.000	S-01			
TO	то			
RIGHT OF WAY ACQUISITION PLAN - STA 16+000.000 TO STA 16+700.000	S-13			
RIGHT OF WAY ACQUISITION PLAN - A1 -BP (01)	S-14			
RIGHT OF WAY ACQUISITION PLAN - A1 -BP (02)	S-15			
RIGHT OF WAY ACQUISITION PLAN - A1 -BP (03)	S-16			

REFERENCE	
TITLE	DWG. NO.
T. REFERENCE (CONCRETE BRIDGE FOR A1IC)	
A1 INTERCHANGE VIADUCT GENERAL VIEW	T-01
A1 INTERCHANGE VIADUCT TYPICAL CROSS SECTION OF ABUTMENT & PIER	T-02
A1 IC RAMP-2 BRIDGE GENERAL VIEW	T-03
A1 IC RAMP-2 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	T-04
A1 IC RAMP-3 BRIDGE GENERAL VIEW	T-05
A1 IC RAMP-3 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	T-06
A1 IC RAMP-5 BRIDGE GENERAL VIEW	T-07
A1 IC RAMP-5 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	T-08
A1 IC RAMP-6 BRIDGE GENERAL VIEW	T-09
A1 IC RAMP-6 BRIDGE TYPICAL CROSS SECTION OF ABUTMENT & PIER	T-10

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT



ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL



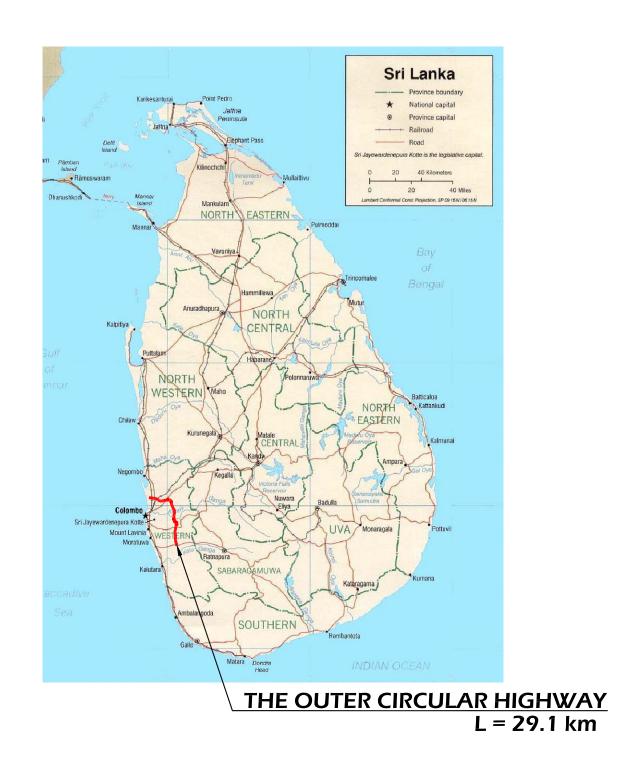
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

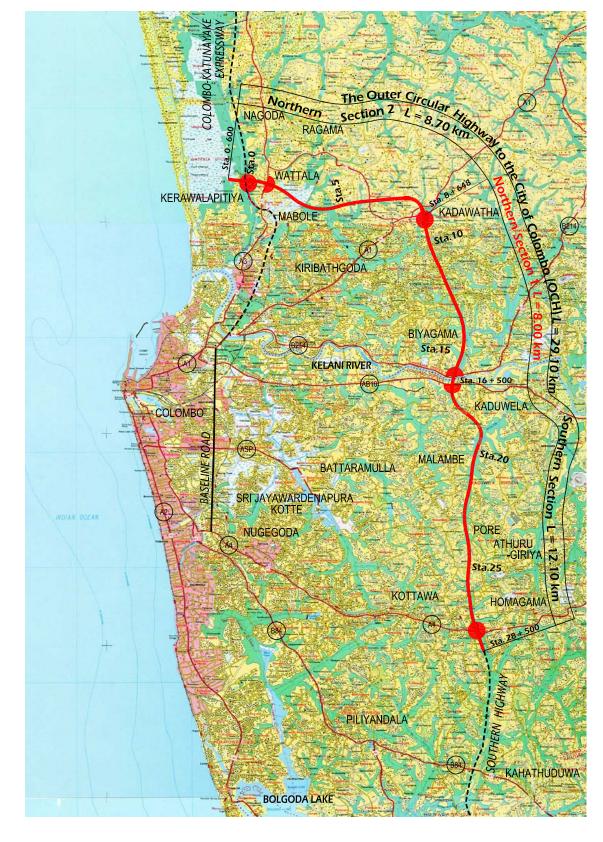
CHECKED BY:
APPROVED BY:
DWG. NO.

A. GENERAL

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT

LOCATION MAP FOR THE OUTER CIRCULAR HIGHWAY





THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY **ORIENTAL CONSULTANTS COMPANY LIMITED** in association with
PACIFIC CONSULTANTS INTERNATIONAL



REVISION

DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)

CHECKED BY: PPROVED BY: LOCATION MAP FOR THE OUTER CIRCULAR HIGHWAY DWG. NO.

DESIGNED BY:

L E G E N D

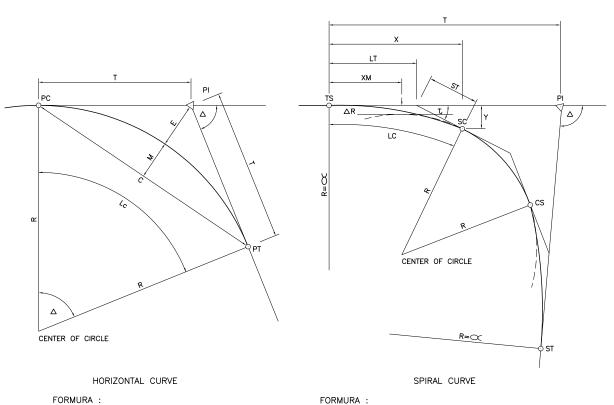
Ground	d Control Points	Ç	Structures		Structures		ion / Land Use
△ G 10 △ 21.651	GPS Control Points	HT &	High Tension Line with Pylon or Pole	Step	Stone or Concrete Step	Р	Paddy
BM 17 10.571	Benchmark	PS	Power Substation	Ews.	Large Tree (More 1.5m Diameter)	Mar	Marshy
О т 241	Traverse Point	EF	Electrical Transformer	TWO THE STATE OF T	Bo-Tree	Rb	Rubber
× 15.47	Spot Height	ECB	Electrical Cable Box	○ MH(E)	Manhole (Eiectricity)	Scr	Scrub/Bush
	Topography	ТВ	Telephone Box	O MH(T)	Manhole (Telecom)	Gn	Garden
	Intermediate Contour (0.5)	PB	Post BOX	O MH(D)	Manhole (Drainage)	Cin	Cinnamon
	Index Contour (0m,2.5m,5m,7.5m)	TS	Traffic Signal	WV	Water Valve	С	Coconut
	Suppiemental Contour	LP	Lamp Post	FH	Fire Hydrant	Tea	Tea
12.5	Contour Number	EP	Electric Post	VP	Vent Pipe	Pla. Cul	Plantation / Cultivated Land
<i>եկսեր</i> կիրիր իր	Steep Slope (Artifical)	TP	Telecom Post	○ W(E)	Well (Earth)	F	Forest
Rk	Rock/Outcrop	RDA	Road Boundary Stone	○ W(My)	Well (Masonry)	Cem	Cemetery
Road,	Road/Railway/Stream		Kilometer / Mile Post	○ W(Con)	Well (Concrete)	Oa	Open Area
<u>—A-1</u> ====	Existing Road / Track / Footpath	SB	Sign Board		Buildings	Су	Container Yard
	Side Walk	BS	Bus Shelter	TRH	Tiled Roofed House		
111111111111111111111111111111111111111	Railway	* * * * * * *	Wire Fence	TRS	Tiled Roofed Shop		
	Bridge		Hedges	TRB	Tiled Roofed Boutique		
■ ~	River/Stream	<u> </u>	Water Pipe Line	ARH	Asbestos Roofed House		
-	Irrigation Canal	<u> </u>	Oil Pipe Line	Toilet 🗌	Toilet		
	Weir / Dam	WT 🔵	Water Tank	Sha	Shanties		
===	Sluice Gate	от 🔘	Oil Tank	She	Shed (Structure without wall)		
$\Longrightarrow \longleftarrow$	Existing Pipe Culvert	Tow	Tower (Telecom.Bell.etc.)	CB2	Concrete Building		
\rightarrow	Existing Box Culvert	BW(My)	Boundary Wall (Masonry)	Und	Under Construction		
: : :	Drain of Road Side	BW(Wood)	Boundary Wall (Wooden)				
		RW(Con)	Retaining Wall (Concrete)				

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL

JAPAN			
(Z)			
	No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) DESIGNED BY: CHECKED BY: APPROVED BY: LEGEND



FORMURA: = Y+R Cost -F = XM+(R+ \triangle R)Tan \triangle (FOR EQAUL LC)

LEGEND

PI = POINT OF INTERSECTION

TS = TANGENT TO SPIRAL POINT

SC = SPIRAL TO CURVE POINT

CS = CURVE TO SPIRAL POINT ST = SPIRAL TO TANGENT POINT

R = RADIUS OF CURVE

 \triangle = TOTAL DELTA ANGLE

LT = LONG TANGENT

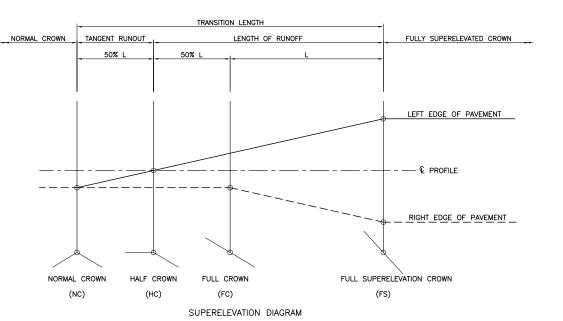
ST = SHORT TANGENT

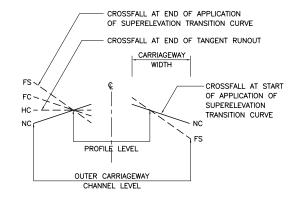
T = TOTAL TANGENT LENGTH

X = THE DISTANCE. IN THE DIRECTION OF THE TANGENT. FROM THE BEGINNING OF THE SPIRAL TO THE END

Y = THE DISTANCE, PERPENDICULAR TO THE TANGENT, FROM THE BEGINNING OF THE SPIRAL TO THE END

 ΔR = THE OFFSET OF THE TANGENT LINE TO THE PC OF THE SHIFTED CIRCULAR CURVE





VALUES FOR DESIGN SUPERELEVATION RELATED TO DESIGN SPEED AND HORIZONTAL CURVATURE

DESIGN SPEED (V) - 80 Km/h

DESIGN SPEED	(V) = 80 km/n
R (m.)	E (%)
1680	NC
1400	3.0
1190	3.5
1030	4.0
900	4.5
790	5.0
710	5.5
LESS THAN 710	6.0

LEGEND :

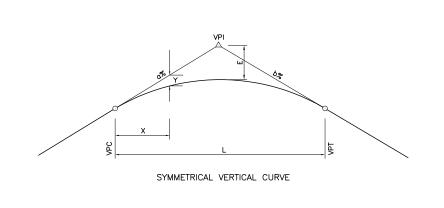
Cmax = 8.0%

NC = NORMAL CROWN SECTION

R = RADIUS OF CURVE

E = RATE OF SUPERELEVATION

SUPERELEVATION ELEMENT



LEGEND :

VPI = VERTICAL POINT OF INTERSECTION

VPC = VERTICAL POINT OF CURVATURE

VPT = VERTICAL POINT OF TANGENCY

L = LENGTH OF CURVE

K = K FACTOR

E = EXTERNAL DISTANCE

% = PERCENT GRADE

(b-a) = ALGEBRAIC DIFFERANECE OF PERCENT GRADIENT

HORIZONTAL CURVE ELEMENT

VERTICAL CURVE ELEMENT

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

 $T = R Tan \Delta$

LC= R $\frac{T}{180}\Delta$

 $C = 2R \sin \frac{\Delta}{2}$

LEGEND :

 $E = R(Sec \triangle -1)$ $M = R(1 - Cos \underline{\Delta})$

PI = POINT OF INTERSECTION

 \triangle = DEFLECTION ANGLE

R = RADIUS OF CURVE

E = EXTERNAL DISTANCE

M = MIDDLE ORDINATE

C = LENGTH OF CHORD

L = LENGTH OF CURVE

BP = BEGINNING POINT

EP = END POINT

Da = DEGREE OF CURVE (ARC DEFINITION)

PC = POINT OF CURVATURE PT = POINT OF TANGENCY T = TANGENT DISTANCE



JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL



REVISION DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)

CURVE ELEMENTS

DWG. NO. A-03

B. ALIGNMENT LAYOUTS (MAIN CARRIAGEWAY)

ELEMENTS OF CURVE

POINT	T STATION -	COORD	DINATES	A	R
FOINT		EAST	NORTH	A	K
				A=400	
SC	7+485.879	109,547.028	201,134.380	77—100	R=700
CS	8+258.026	110,117.153	200,672.737		K=700
ST	8+486.597	110,169.148	200,450.436	A=400	
PC (BACK)	9+148.416				R=∞
PC (AHEAD)	9+251.304	110,284.608	199,798.766	BREAK	
PRC	10+847.142	110,785.499	198,289.465		R=5,500
PRC	11+660.967	111,095.769	197,537.909		R=5,500
PRC	12+484.547	111,410.427	196,777.641		R=5,500
PCC	13+653.506	111,822.552	195,686.091		R=5,500
PT	15+503.261	111,663.500	193,879.286		R=2,700
PC	15+767.866	111,553.110	193,638.808		R=∞
cs	16+759.549	111,375.036	192,673.540		R=2,000
		,		A=750	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANK MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT OF APPROVED BY:

Road Development Authority

ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL

No REVISION DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)

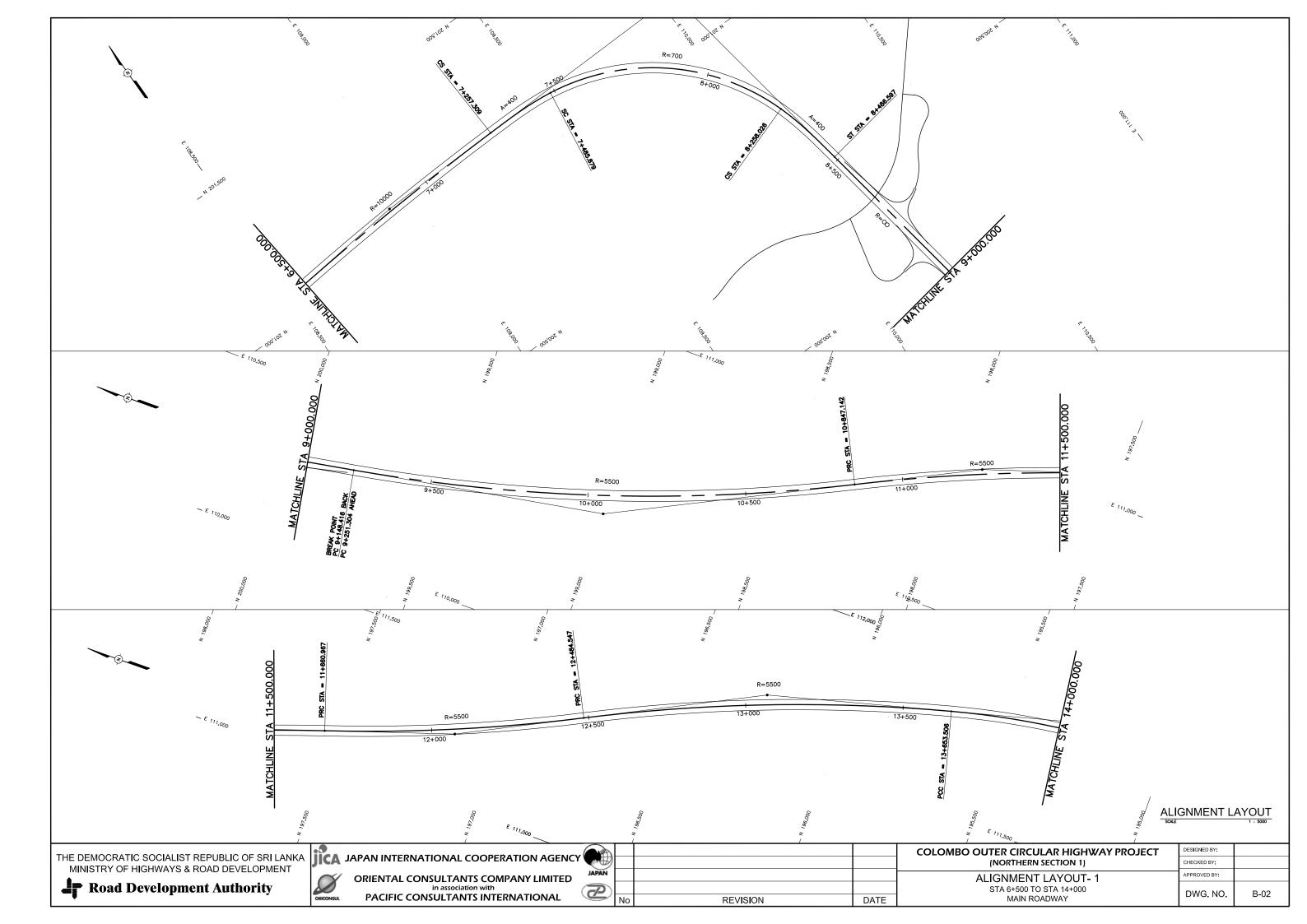
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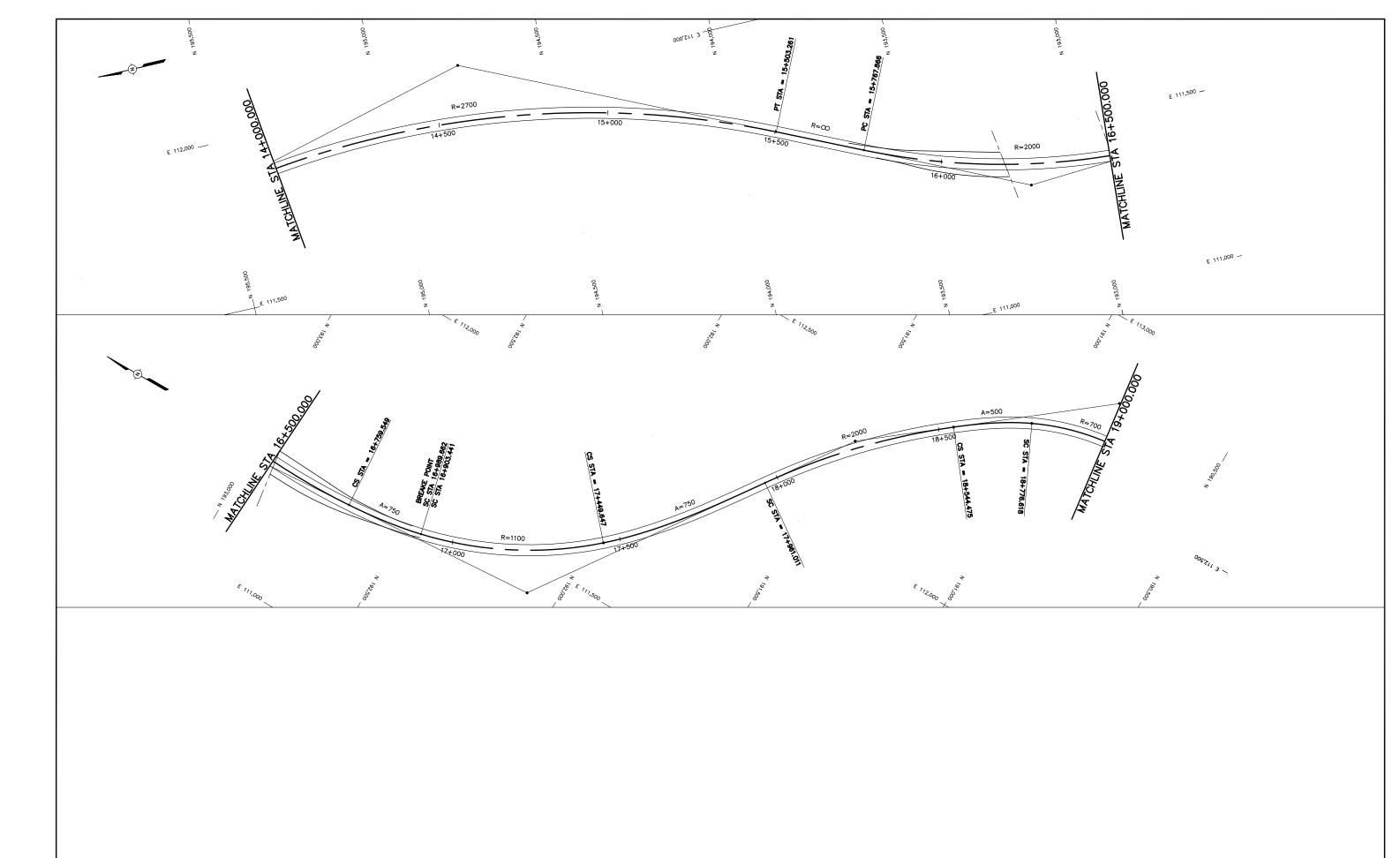
CHECKED BY:

CHECKED BY:

APPROVED BY:

DWG. NO. B-01





ALIGNMENT LAYOUT

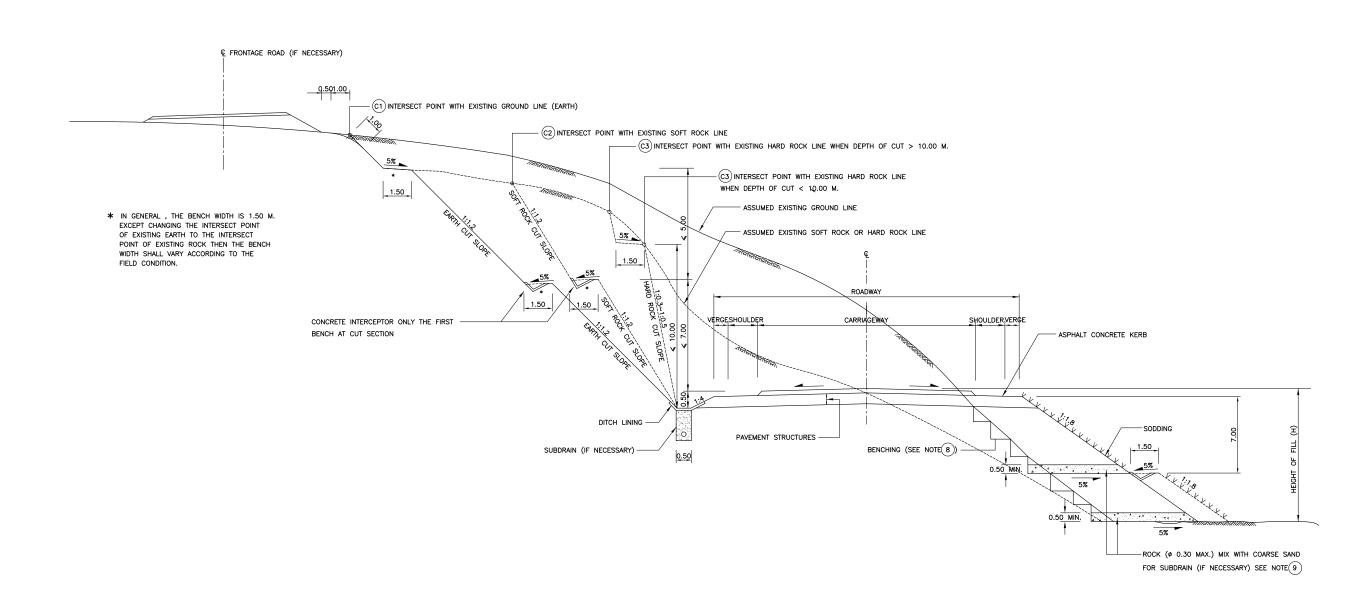
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OLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
ALIGNMENT LAYOUT- 2	APPROVED BY:	
STA 14+000 TO STA 19+000 MAIN ROADWAY	DWG. NO.	

C. TYPICAL CROSS SECTION (MAIN CARRIAGEWAY)



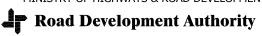
NOTES :

- 1. DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- THE CROSS SECTION OF CUT AND FILL HEREIN SHALL BE APPLIED ONLY WHEN THE DEPTH OF CUT IS OVER 7.50 METERS FROM THE BOTTOM OF THE SIDE DITCH , AND HILL SIDE FILL ALSO.
- PAVEMENT STRUCTURES AND OTHER DETAILS WHICH ARE NOT SPECIFIED IN THIS DRAWING SHALL BE REFERED TO THAT IN THE TYPICAL CROSS — SECTION DRAWING.
- 4. THE PROCESS OF RIPPING AND EXPOSING THE CUT MATERIALS SHALL BE MEASURED AS FOLLOWS:
- 4.1 IN CASE OF SOIL WITHOUT ANY ROCKS APPEAR ABOVE THE GROUND SURFACE, THE POINT (2) IN THE DRAWING WILL BE THE INTERSECTING POINT BETWEEN THE SLOPE OF CUT AND THE EXISTING GROUND LINE SO THE EXCAVATION SHALL START FROM THIS POINT.
- 4.2 AFTER THE EXCAVATION AS INDICATED IN SECTION 4.1 FOR A DISTANCE AND THE SOFT ROCK OR HARD ROCK WAS FOUND. THEN THE TOP POINT OF THE SLOPE SHALL BE CHANGED FROM POINT (2) TO POINT (2) OR (3) AS INDICATED ON THE DRAWING THE BERM WIDTH OF BENCHING SHALL BE DIRECTED BY THE ENGINEER THE STABILITY OF THE CUT SLOPE SHOULD BE CAREFULLY CONSIDERED AND THE UNSUITABLE TOP SOIL MATERIALS SHALL BE REMOVED.
- 4.3 THE CLASSIFICATION OF COMMON EXCAVATION(SOIL, SOFT ROCK) & HARD ROCK SHALL BE CONSIDERED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION AND ALSO SHALL BE AS DERECTED BY THE ENGINEER.
- 4.4 THE QUANTITIES SHALL BE CALCULATED FROM THE CROSS SECTION , SEPARATELY FOR COMMON EXCAVATION(SOIL , SOFT ROCK) & HARD ROCK.

 IN CASE OF MIXED MATERIALS FOR EACH CROSS SECTION, THEN THE NEGOTIATION BETWEEN THE OWNER AND THE CONTRACTOR SHOULD BE ARRANGED.

- CONCRETE INTERCEPTOR ON CUT SLOPE SHALL BE CONSTRUCTED ON SILTY SAND, GRAVEL LATERITE. SOFT ROCK OR SHALE. BUT BE NOT NECESSARY ON SOLID ROCK AREA.
- THE LONGITUDINAL SLOPE OF CONCRETE INTERCEPTOR IN NOTE 5 SHALL NOT BE LESS
 THAN 0.3 PERCENT.
- 7. THE INTERVAL OF 0.5 cm. WIDE MORTARED JOINT SHALL NOT BE MORE THAN 15.0 m. FOR THE CONCRETE INTERCEPTOR.
- 8. BENCHING SHALL BE REQUIRED ON EXISTING GROUND SLOPE OR EXISTING ROADBED IN THE PORTION OF EMBANKMENT. THE NUMBER OF STEPS FOR BENCHING DEPENDS UPON THE HEIGHT OF SLOPE. THE HEIGHT OF EACH STEP SHALL BE DIRECTED BY THE ENGINEER, AND THE WIDTH SHALL BE PERMITED FOR COMPACTION EQUIPMENT, AND THE DENSITY OF THE COMPACTED MATERIAL SHALL BE NOT LESS THAN 95 PERCENT OF STANDARD PROCTOR.
- BEFORE CONSTRUCTING PAVEMENT STRUCTURES, IF GROUND WATER SEEPAGE APPEARS
 ON CUT SLOPE OR HILL SIDE FILL AND SEEMS TO DAMAGE THE ROADWAY, THE SUBDRAIN
 AS SHOWN ON THE DRAWING SHALL BE APPLIED.
- 10. CONCRETE FOR INTERCEPTORS AND DITCH LIVING SHALL BE GRADE 20.

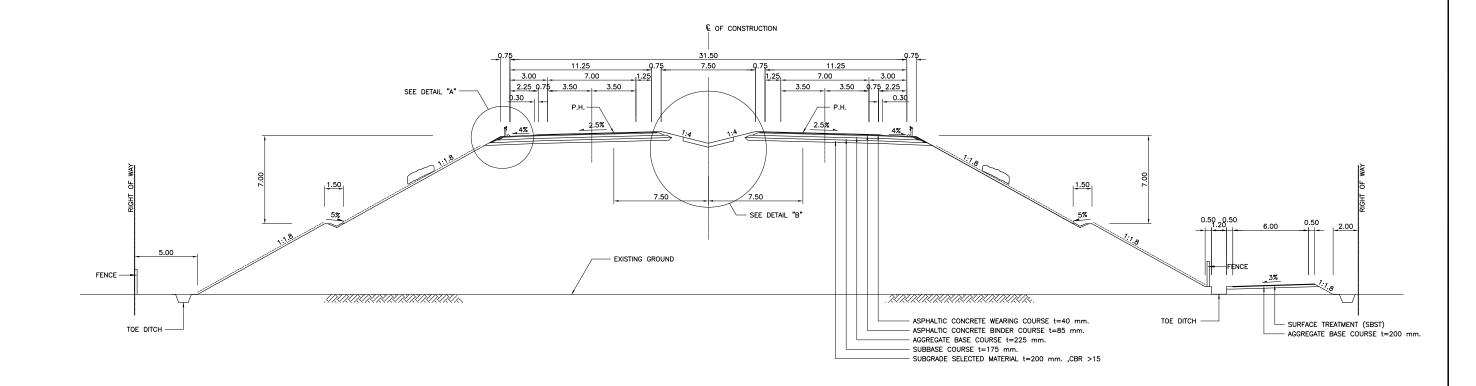
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT





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DATE	
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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
	APPROVED BY:	
STANDARD DRAWING FOR EARTH WORKS	DWG. NO.	C-01



TYPICAL CROSS SECTION (EMBANKMENT)

- 1. ALL DIMENSION ARE METERS UNLESS OTHERWISE INDICATED.
- 2. THE SLOPE RATIO SHALL BE DECIDED TAKING INTO ACCOUNT THE SOIL PROPERTIES.
- 3. DISTANCE FROM THE TOE OF SLOPE TO THE RIGHT OF WAY TO BE 5.00 m. EXCEPT 2.00 m. FROM THE RIGHT OF WAY AT THE FRONTAGE ROAD.
- 4. IN URBAN AND HIGHLY BUILT UP AREAS, DISTANCE FROM OUTER EDGE OF DRAIN, OUTER EDGE OF DIVISION CANAL OR TOE TO THE RIGHT OF WAY TO BE 0.50 m.

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority



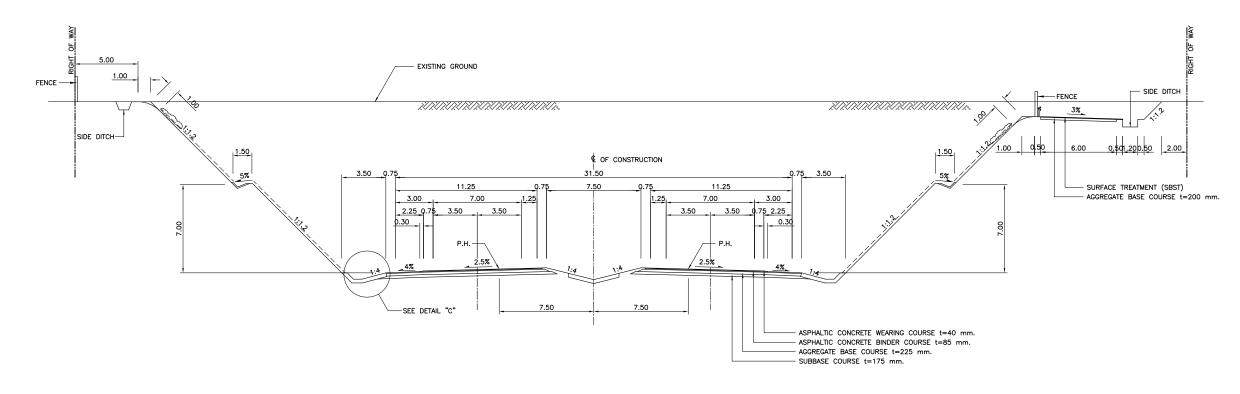
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	No	REVISION	DATE	

DESIGNED BY: **COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** (NORTHERN SECTION 1) TYPICAL CROSS SECTION

FOR EMBANKMANT

CHECKED BY: APPROVED BY: DWG. NO. C-02



TYPICAL CROSS SECTION (CUT)

NOTES:

- 1. ALL DIMENSION ARE METERS UNLESS OTHERWISE INDICATED.
- 2. THE SLOPE RATIO SHALL BE DECIDED TAKING INTO ACCOUNT THE SOIL PROPERTIES.
- 3. DISTANCE FROM THE EDGE OF ROUNDING AT THE TOP SLOPE TO THE RIGHT OF WAY TO BE 5.00 m. EXCEPT 2.00 m. FROM THE RIGHT OF WAY AT THE FRONTAGE ROAD
- 4. IN URBAN AND HIGHLY BUILT UP SECTIONS MINIMUM DISTANCE FROM THE EDGE OF THE ROUNDING AT THE TOP SLOPE TO THE RIGHT OF WAY TO BE 1.00 m.

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Road Development Authority



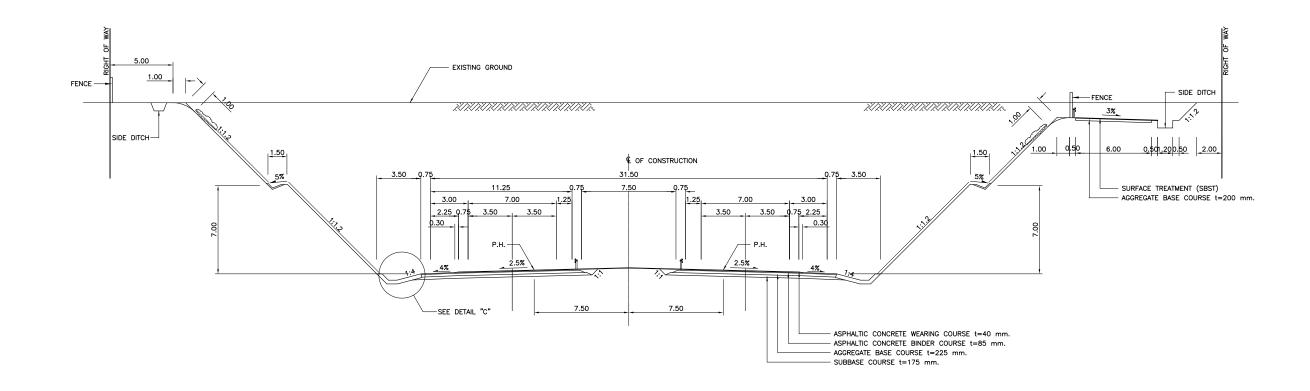
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DWG. NO. C-03



TYPICAL CROSS SECTION (CUT) AT OVERPASS BRIDGE

NOTES:

- 1. ALL DIMENSION ARE METERS UNLESS OTHERWISE INDICATED.
- 2. THE SLOPE RATIO SHALL BE DECIDED TAKING INTO ACCOUNT THE SOIL PROPERTIES.
- 3. DISTANCE FROM THE EDGE OF ROUNDING AT THE TOP SLOPE TO THE RIGHT OF WAY TO BE 5.00 m. EXCEPT 2.00 m. FROM THE RIGHT OF WAY AT THE FRONTAGE ROAD
- 4. IN URBAN AND HIGHLY BUILT UP SECTIONS MINIMUM DISTANCE FROM THE EDGE OF THE ROUNDING AT THE TOP SLOPE TO THE RIGHT OF WAY TO BE 1.00 m.

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

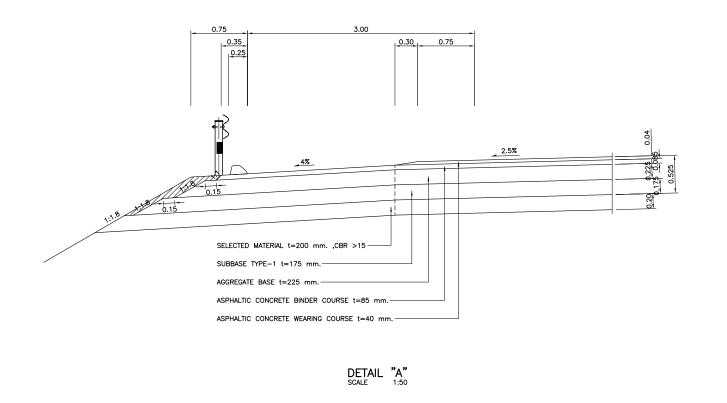


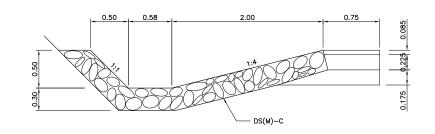
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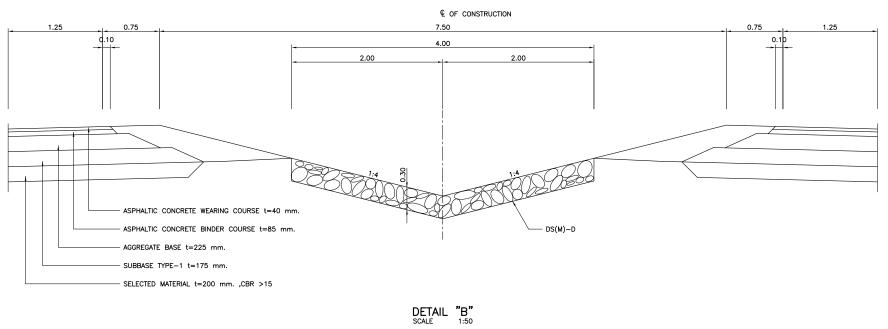
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DESIGNED BY: **COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** (NORTHERN SECTION 1) CHECKED BY: APPROVED BY: TYPICAL CROSS SECTION DWG. NO. C-04 FOR EXCAVATION AT OVERPASS BRIDGE





DETAIL "C" SCALE 1:50

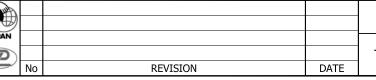


- ALL DIMENSION ARE METERS UNLESS OTHERWISE INDICATED.
 THE SLOPE RATIO SHALL BE DECIDED TAKING INTO ACCOUNT THE SOIL PROPERTIES.

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

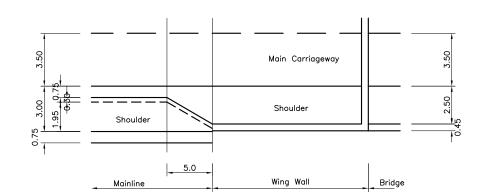


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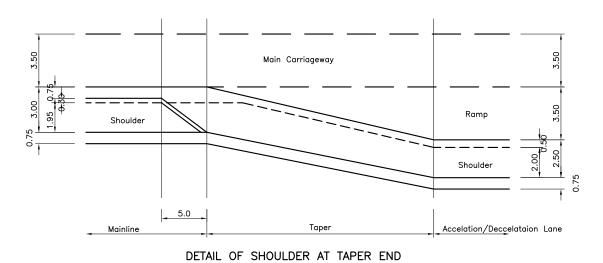


DESIGNED BY: COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) CHECKED BY: TYPICAL CROSS SECTIONS FOR PAVEMENT DETAILS DWG. NO.

SELECTED MATERIAL t=200 mm. CBR >15 SUBBASE TYPE-1 t=175 mm. ACGRECATE BASE t=225 mm. ASPHALTIC CONCRETE BINDER COURSE t=85 mm. ASPHALTIC CONCRETE WEARING COURSE t=40 mm. DETAIL OF PAVEMENT



DETAIL OF SHOULDER AT BRIDGE END



LIST OF SUPERELEVATION AND SURFACEDOWN RUN-OFF

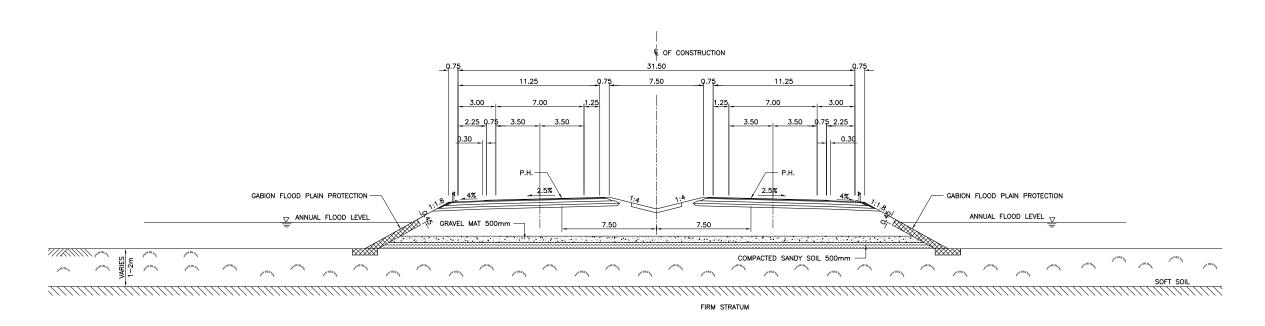
SHOULDER	LE	STATION No.			LEFT		SHOULDER	
SURFASE DOWN	SHOULDER CARRIAGEWAY					CARRIAGEWAY	SHOULDER	SURFASE DOV
	-2.000	6.000	8	+	200.000	-6.000	-6.000	
	-2.000	6.000	8	+	260.000	-6.000	-6.000	
	-2.000	4.000	8	+	334.286	-4.000	-4.000	
DOWN	-3.500	2.500	8	+	390.000			DOWN
	-4.000	2.000	8	+	400.000			
	-4.000	0.000	8	+	440.000			
			8	+	490.000			
			8	+	520.000	-2.500	-4.000	
	-4.000	-2.500	8	+	525.000			
	1.000	2.000	8	+	615.000			
			8	+	620.000			
NODMAI			8	+	625.000			
NORMAL	-2.500	-2.500	8	+	630.000	-2.500	-2.500	
	-2.500	-2.500	8	+	980.000	-2.500	-2.500	NOBIAN
			8	+	985.000			NORMAL
			9	+	040.000			
	-4.000	-2.500	9	+	045.000			
	-4.000	-2.500	9	+	130.000			
			9	+	135.000	-2.500	-4.000	
2011			13	+	600.000	-2.500	-4.000	
DOWN	-4.000	0.000	13	+	650.000			50000
	-4.000	2.000	13	+	690.000			DOWN
	-3.500	2.500	13	+	700.000			
	-3.500	2.500	13	+	740.000			
NORMAL	2.500	2.500	13	+	745.000	-2.500	-2.500	NORMAL
NONMAL	2.500	2.500	14	+	080.000	-2.500	-2.500	NORMAL
DOWN	-3.500	2.500	14	+	085.000	-2.500	-4.000	DOWN
DOMIN	-3.500	2.500	15	+	080.000	-2.500	-4.000	DOWN
	2.500	2.500	15	+	085.000			
NORMAL	2.500	2.500	15	+	460.000	-2.500	-2.500	NORMAL
NORMAL	0.000	0.000	15	+	510.000	2.000	2.000	NORMAL
	-1.000	-1.000	15	+	530.000			
	-4.000	-1.250	16	+	535.000			
			15	+	560.000			DOWN
DOWN			15	+	680.000			
DOMIN			15	+	685.000	-2.500	-4.000	
			15	+	710.000			
	-4.000	-2.500	15	+	725.000	-1.750	-4.000	
	-4.000	_2.500	15	+	730.000	-1.500	-4.000	
			15	+	760.000	0.000	-4.000	
			15	+	800.000	2.000	-4.000	NOBIAN
NORMAL			15	+	810.000	2.500	-3.500	NORMAL
HONWINE			15	+	880.000	2.500	-3.500	
	-2.500	-2.500	15	+	885.000	2.500	2.500	
	-2.500	-2.500	16	+	535.000	2.500	2.500	
	-4.000	-2.500	16	+	540.000	2.500	-4.000	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

ORIENTAL CONSULTANTS COMPANY LIMITED in association with
PACIFIC CONSULTANTS INTERNATIONAL

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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
	APPROVED BY:	
SUPER ELEVATION AND SURFACE DOWN RUN-OFF	DWG. NO.	C-06

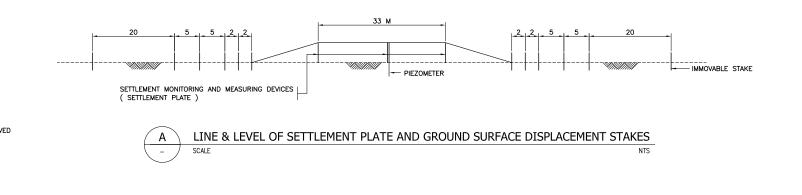


TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT
TYPE - A GRAVEL MAT

1:300

NOTES

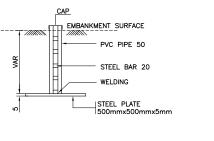
1. THE CONTRACTOR SHALL REVIEW THE SOIL PROFILE DRAWINGS AND PLAN THE REQUIRED ADDITIONAL SOIL INVESTIGATION IN COOPERATION WITH THE ENGINEER. THE REQUIRED SOFT GROUND TREATMENT INCLUDING TRIAL AREAS SHALL BE PLANNED AND PROPOSED BY THE CONTRACTOR AND AGREED BY THE ENGINEER.



STEEL BAR 20 3 NOS TRIANGULAR PLATES WELDED TO PLATE & BAR



STABILITY MONITORING DEVICE (GROUND SURFACE DISPLACEMENT STAKES)





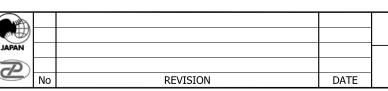
NOTES .

- 1. SETTLEMENT MONITORING DEVICE SHALL BE INSTALLED IN INTERVALS DISTANCE OF 50 m.
- 2. SLIDING MONITORIG DEVICE SHALL BE INSTALLED AT INTERVALS DISTANSE OF 50 m.
- 3. ALL DIMENSIONS IN MILLIMETRES.

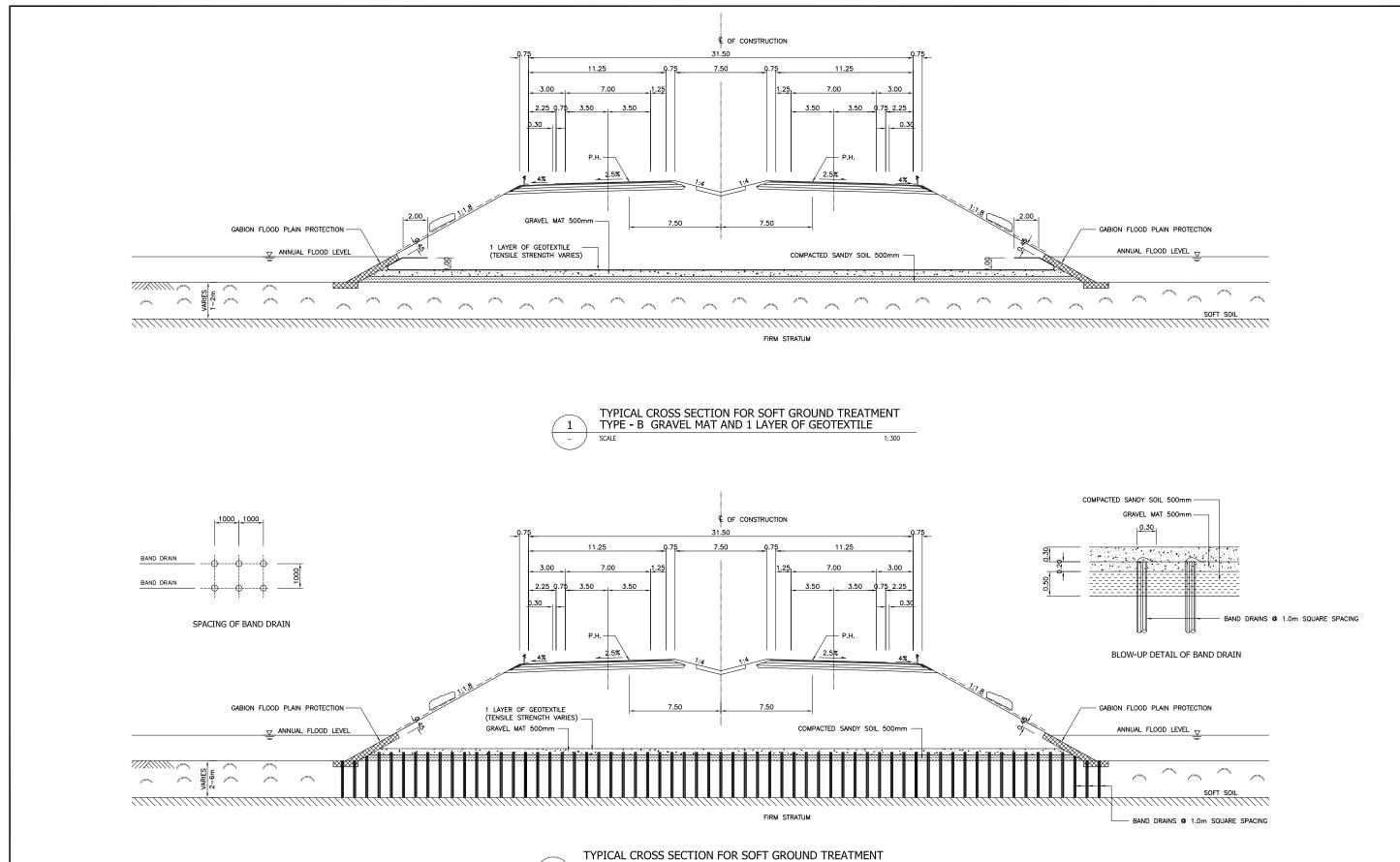
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT







COLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
TYPICAL CROSS SECTION	APPROVED BY:	
FOR SOFT GROUND TREATMENT TYPE - A	DWG. NO.	C-07



TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT
TYPE - C GRAVEL MAT, 1 LAYER OF GEOTEXTILE AND BAND DRAINS

SCALE

1:300

NOTES :

1. THE CONTRACTOR SHALL REVIEW THE SOIL PROFILE DRAWINGS AND PLAN THE REQUIRED ADDITIONAL SOIL INVESTIGATION IN COOPERATION WITH THE ENGINEER. THE REQUIRED SOFT GROUND TREATMENT INCLUDING TRIAL AREAS SHALL BE PLANNED AND PROPOSED BY THE CONTRACTOR AND AGREED BY THE ENGINEER.

C-08

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority

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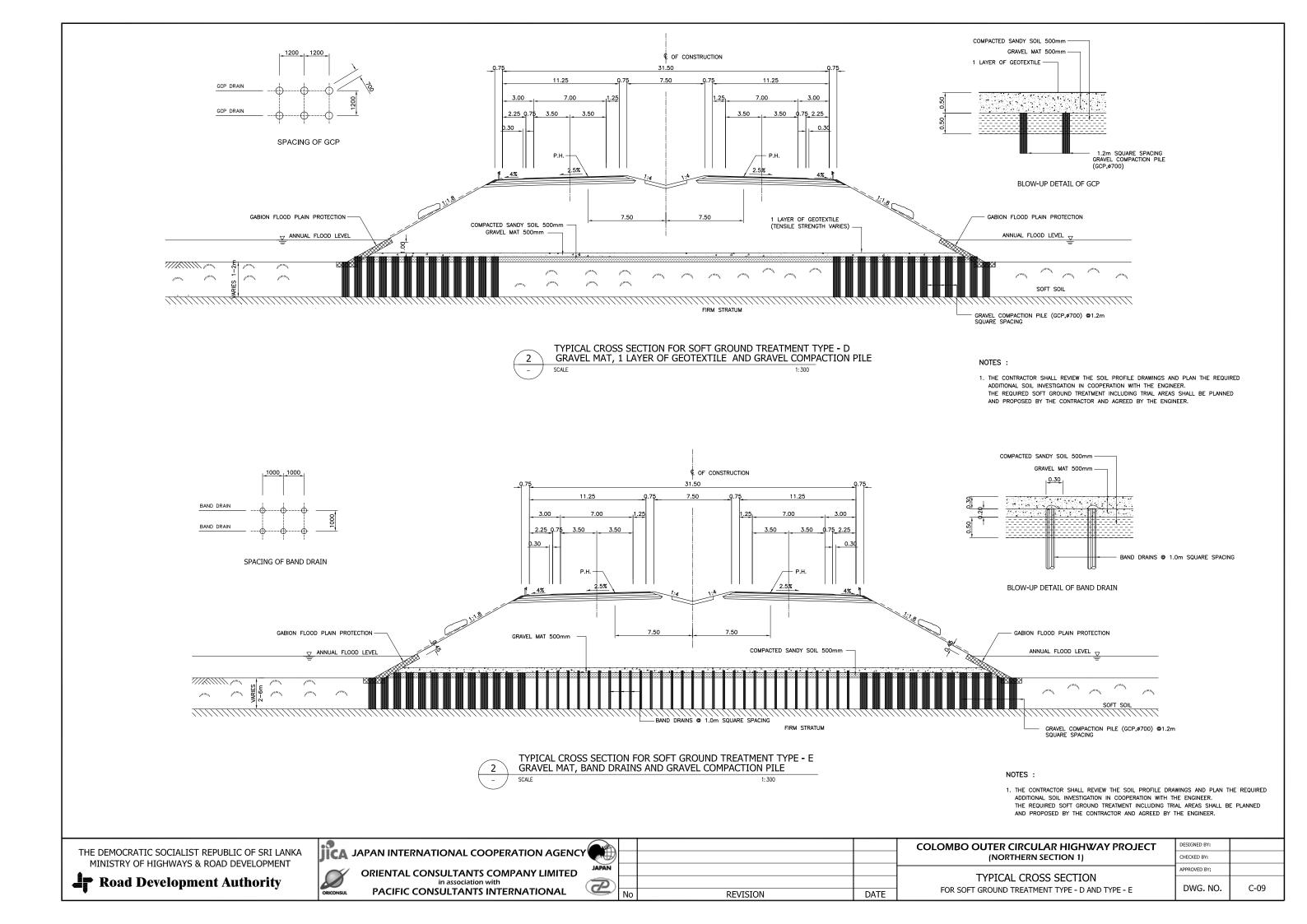
ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL

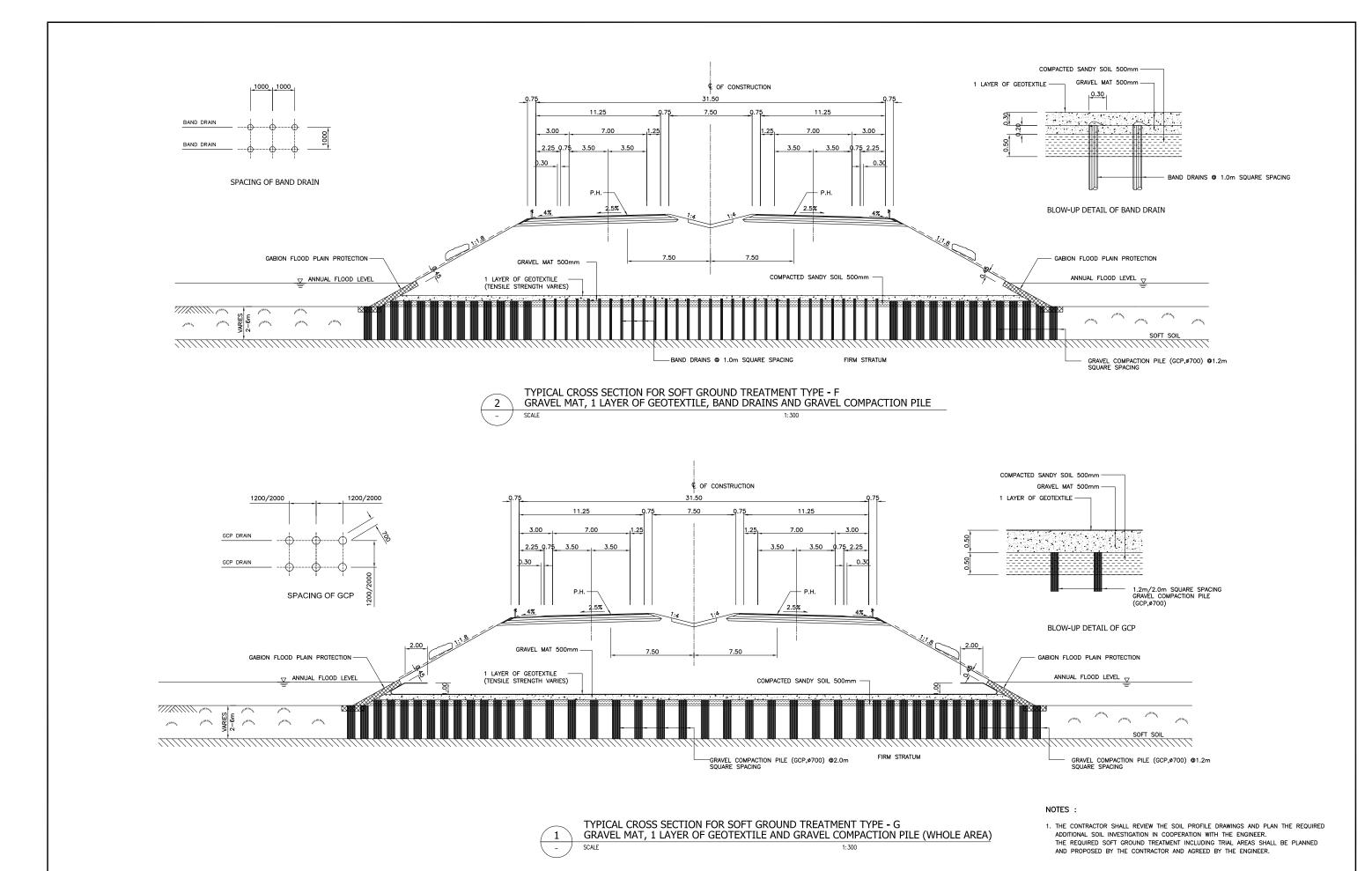
No	REVISION	DATE	
	No	No REVISION	No REVISION DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

TYPICAL CROSS SECTION
FOR SOFT GROUND TREATMENT TYPE - B AND TYPE - C

DESIGNED BY:
CHECKED BY:
APPROVED BY:
DWG. NO.





THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority





REVISION

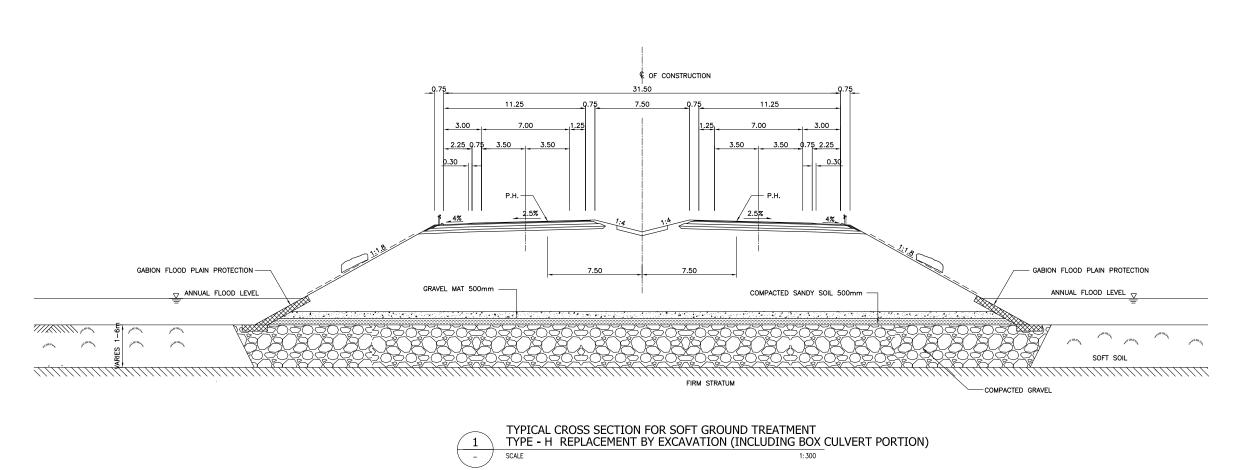
DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)

CHECKED BY: APPROVED BY: DWG. NO. C-10

DESIGNED BY:

ORIENTAL CONSULTANTS COMPANY LIMITED



1. THE CONTRACTOR SHALL REVIEW THE SOIL PROFILE DRAWINGS AND PLAN THE REQUIRED ADDITIONAL SOIL INVESTIGATION IN COOPERATION WITH THE ENGINEER. THE REQUIRED SOFT GROUND TREATMENT INCLUDING TRIAL AREAS SHALL BE PLANNED

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with

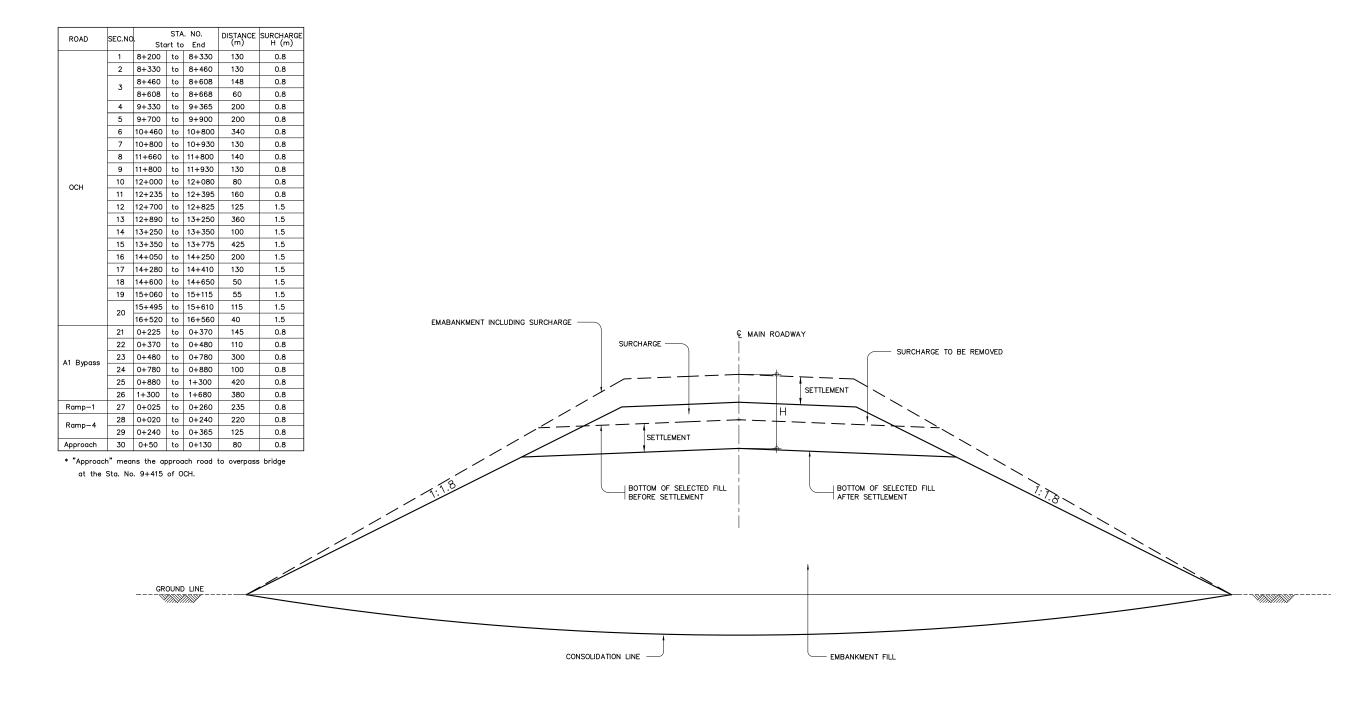
PACIFIC CONSULTANTS INTERNATIONAL

REVISION DATE

DESIGNED BY: **COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** (NORTHERN SECTION 1) CHECKED BY: APPROVED BY: TYPICAL CROSS SECTION

DWG. NO. FOR SOFT GROUND TREATMENT TYPE - H

C-11



TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT (SURCHARGE)

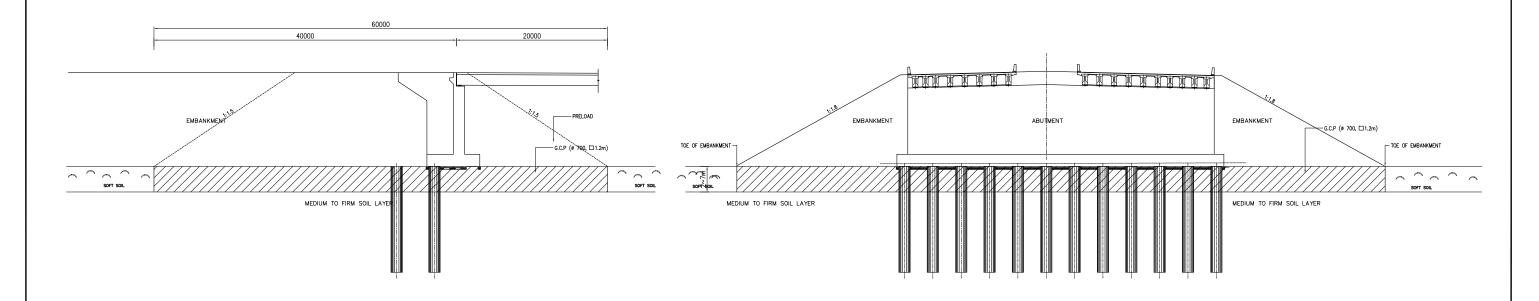
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

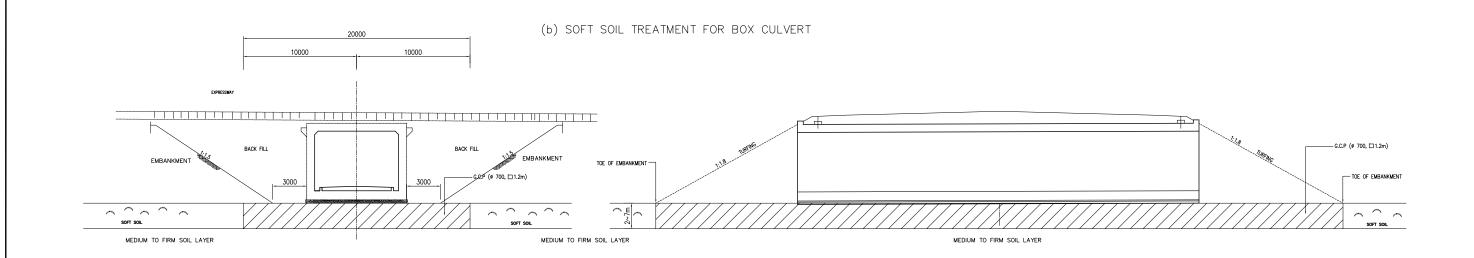


Ann				co
PAN				
	No	REVISION	DATE	

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
TYPICAL CROSS SECTION WITH SOFT GROUND TREATMENT (SURCHARGE)	APPROVED BY:	
	DWG. NO.	C-12

(a) SOFT SOIL TREATMENT FOR ABUTMENT OF VIADUCTS





THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT

Road Development Authority

ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE	
	No	No REVISION	No REVISION DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT	DESIGNED BY:	
(NORTHERN SECTION 1)	CHECKED BY:	
TYPICAL CROSS SECTION FOR SOFT GROUND TREATMENT (ABUTMENT & BOX CULVERT)	APPROVED BY:	
	DWG. NO.	C-′

D. PLAN AND PROFILE

