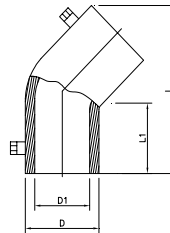


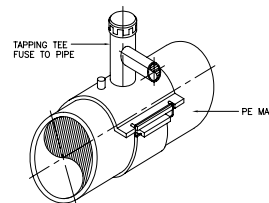
MALE TRANSITION COUPLER

MALE TRANSITION COUPLER				
FITTING SIZE	L (mm)	L1 (mm)	L2 (mm)	D1 (mm)
25 x 3/4"	114	79	34	17
32 x 1/2"	114	79	34	23
32 x 3/4"	114	79	34	23
32 x 1"	114	79	34	23
32 x 1 1/4"	114	79	34	23
32 x 1 1/2"	114	79	34	23
50 x 1"	134	86	34	38
50 x 1 1/4"	136	88	36	38
50 x 1 1/2"	136	88	36	38
50 x 2"	141	93	41	38
63 x 1 1/4"	154	97	36	48
63 x 1 1/2"	154	97	36	48
63 x 2"	159	102	41	48

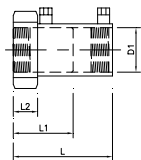


45° ELBOW

45° ELBOW				
PE PIPE OD (mm)	L (mm)	L1 (mm)	D1 (mm)	D1 (mm)
32	95	39	44	32
40	108	44	56	40
50	124	49	68	50
63	145	54	82	63
75	165	62	97	75
90	192	82	117	90
110	213	75	137	110
125	240	81	154	125
160	320	105	217	160
180	320	105	217	180

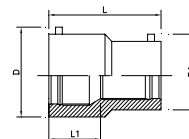


ISOMETRIC VIEW OF TAPPING DETAILS FOR PE PIPE



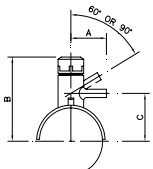
FEMALE TRANSITION COUPLER

FEMALE TRANSITION COUPLER				
FITTING SIZE	L (mm)	L1 (mm)	L2 (mm)	D1 (mm)
25 x 3/4"	106	68	26	17
32 x 1"	106	68	26	23
40 x 1"	116	73	26	29
40 x 1 1/4"	116	73	26	29
40 x 1 1/2"	116	73	26	29
50 x 1 1/2"	126	78	26	38
50 x 2"	126	78	26	38
63 x 1 1/2"	148	91	30	48
63 x 2"	148	91	30	48



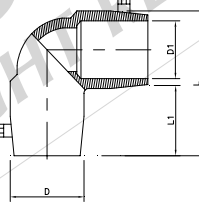
REDUCING COUPLER

TABLE FOR REDUCING COUPLER				
PE OD (mm)	L	L1	D	D1
25 x 20	77	38.5	34	20
32 x 20	77	38.5	43	20
32 x 25	77	38.5	43	25
40 x 32	84	41	52	32
50 x 32	84	40	67	32
50 x 40	85	40	67	40
63 x 32	97	47	82	32
63 x 40	98	47	83	40
63 x 50	98	48	84	50
90 x 63	154	79	117	63
110 x 90	136.5	70	134	90
125 x 90	181	89	156	90
180 x 125	221	101	216	125



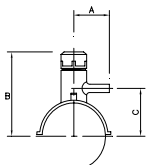
TAPPING TEE STACKLOADING

TABLE FOR TAPPING TEE STACKLOADING				
PE PIPE OD (mm)	A	B	C	WEIGHT (kg)
110 x 32	105	117	87	0.37
125 x 32	105	117	95	0.38
160 x 32	105	122	112	0.39
180 x 32	105	122	122	0.38
225 x 32	105	122	145	0.36
250 x 32	105	122	158	0.36
280 x 32	85	100	173	0.27
315 x 32	85	100	190	0.26
355 x 32	85	100	210	0.26
110 x 63	165	176	105	0.87
125 x 63	165	182	137	0.85
180 x 63	165	183	147	0.85
315 x 63	165	183	214	0.85
355 x 63	165	183	334	0.85



90° ELBOW

90° ELBOW				
PE PIPE OD (mm)	L (mm)	L1 (mm)	D1 (mm)	D (mm)
20	82	44	64	36
25	82	44	64	36
32	84	40	62	44
40	116	50	83	67
50	116	50	83	67
63	139	59	98	82
75	150	53	102	97
90	194	77	131	116
110	205	71	135	137
125	228	72	152	154
160	320	104	211	213
180	320	104	211	213



TAPPING TEE UNDERCLAMP

TABLE FOR TAPPING TEE UNDERCLAMP				
PE PIPE OD (mm)	A	B	C	WEIGHT (kg)
110 x 32	105	117	87	0.68
125 x 32	105	117	95	0.67
160 x 32	105	122	112	0.69
180 x 32	105	122	122	0.68
200 x 32	114	79	34	0.73
110 x 63	165	176	105	0.89
125 x 63	165	112	112	0.90
160 x 63	165	182	157	0.90
180 x 63	165	183	147	1.15
225 x 63	165	183	169	1.13
250 x 63	165	183	182	1.13

- NOTE:
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DWG NO. SYASTD001.
 - ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
 - ACTUAL LENGTH OF PE COMMUNICATION PIPES SHALL BE DETERMINED ON SITE.
 - ONLY AUTOMATIC MACHINES ARE ALLOWED IN JOINING OF PE PIPES. PE PIPES WHICH ARE NOT JOINED BY ELECTROFUSION WILL BE REJECTED.
 - ALL ELECTROFUSION COUPLERS AND FITTINGS NOT ACCORDING TO THE ABOVE SCHEDULE SHALL BE SUBMITTED TO THE S.O. REPRESENTATIVE FOR APPROVAL.
 - ALL BENDS, TEES, REDUCERS AND CLOSING LENGTHS IN TRENCHES SHALL BE BY ELECTROFUSION COUPLERS.
 - ALL ENDS, ELBOWS, REDUCER AND STUB ENDS ARE PRODUCE SQUARE.
 - ALL DIMENSIONS FOR FITTING SUPPLIED BY CONTRACTOR SHALL BE SUBMITTED IN THE SCHEDULE OF PARTICULAR.
 - PE PIPE SPECIALS ARE BASED ON MS 1058

ALL RIGHTS RESERVED

REV.	DESCRIPTION	DATE



SYARIKAT BEKALAN AIR SELANGOR SDN BHD
 PETI SURAT 5001,
 JALAN PANTAI BAHIRU,
 59900 KUALA LUMPUR.
 TEL NO : 03 - 2282 6244 / 03 - 2283 1111
 FAX NO : 03 - 2282 5498
 LAMAN WEB : www.syabas.com.my
 EMAIL : pusp@syabas.com.my

PROJECT :

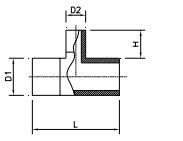
DRAWING TITLE :
 PE PIPE SPECIALS - (SHEET 1 OF 2)

DRAWN BY : SHAHRUL DESIGNED : SAT

CHECKED : HS APPROVED : LPL

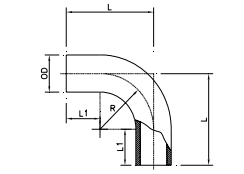
SCALE : NTS DATE : OCT 2005

DRAWING NO :
 SYA / PE / STD / 001



SPIGOT REDUCING TEE

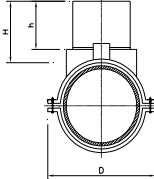
FITTING SIZE OD (mm)	L*	L1*	H*
D1			
D2			
110	63		
125	63		
125	90		
160	63		
160	90		
160	110		
180	90		
180	110		
280	110		
280	160		
280	180		
280	225		
355	110		
355	160		
355	180		
355	280		



90° SEAMLESS FORMED ELBOW

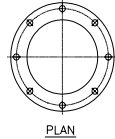
PE PIPE OD (mm)	R=1.6d	90°		60°		45°		22°		11°	
		L	L1	L	L1	L	L1	L	L1	L	L1
32	48	148	80	128	80	120	80	113	80	113	80
40	60	160	80	135	80	120	80	116	80	116	80
63	94.5	220	100	173	100	161	100	150	100	150	100
90	135	260	100	193	100	177	100	160	100	160	100
110	165	340	150	270	150	243	150	219	150	219	150
125	188	363	150	283	150	253	150	225	150	225	150
160	240	415	150	313	150	274	160	239	150	239	150
180	270	445	150	330	150	287	150	247	150	247	150
225	338	513	150	370	150	315	150	266	150	266	150
250	375	650	250	500	250	440	250	385	250	385	250
280	420	695	250	530	250	460	250	400	250	400	250
315	473	803	250	612	250	535	250	460	250	460	250
355	533	900	300	690	300	620	300	540	300	540	300
400	600	980	300	730	300	650	300	560	300	560	300
450	675	1070	300	780	300	680	300	580	300	580	300

45° SEAMLESS FORMED ELBOW

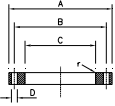


BRANCH SADDLES UNDERPART

FITTING SIZE OD (mm)	H	h	D	WIDTH
90 x 90	124	84	154	144
110 x 90	121	84	180	165
125 x 90	114	84	180	165
160 x 90	110	84	236	215
180 x 90	100	84	236	215
200 x 90	115	84	263	165
225 x 90	113	84	291	165
250 x 90	120	84	317	165
160 x 110	131	98	236	217
180 x 110	121	98	236	217
180 x 125	121	98	236	217
225 x 125	123	98	327	310
250 x 125	110	98	327	310
250 x 225	*	*	320	310
315 x 280	*	*	385	420
355 x 280	*	*	425	420



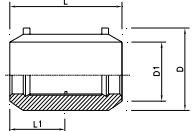
PLAN



SECTION

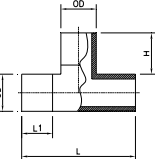
FLANGE

PE PIPE OD (mm)	NOMINAL FLANGE SIZE	A	C	BCD B	HOLES D	r	5	8	No. OF HOLES
110	100	220	128	180	18	3.5	3.5	8	
160	150	305	195	240	22	3.5	8		
225	200	340	238	295	22	4.5	12		
280	250	405	294	355	26	5.0	12		
315	300	460	358	410	26	5.5	12		
355	350	520	375	460	26	6.0	16		
400	400	580	430	525	30	6.0	16		
450	450	640	465	585	30	6.5	20		
500	500	715	533	650	33	7.0	20		
560	550	730	575	675	36	8.0	20		



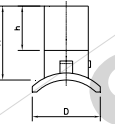
COUPLER

PE PIPE OD (mm)	L	L1	D	D1
20	77	37.5	29	20
25	77	37.5	33.5	25
32	77	37.5	43	32
40	90	44	51.5	40
50	91	44	61.5	50
63	102	49	77	63
75	125	61	100	75
90	122	60	110	90
110	144	70	133	110
125	154	75	161	125
140	181	89	176	140
160	176	86	195	160
180	185	91	220	180
200	186	92	243	200
225	222	109	276	225
250	220	108	301	250
280	260	127	345	280
315	261	128	386	315
355	260	126	437	355
400	260	126	437	355



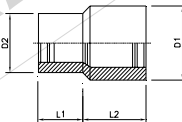
SPIGOT EQUAL TEE

FITTING SIZE OD (mm)	L	L1	H
D1			
20	106	37	54
25	120	40	60
32	136	44	68
40	160	49	79
50	184	57	92
63	214	60	108
75	246	67	123
90	272	77	135
110	318	87	159
125	344	97	172
140	392	100	196
160	408	101	205
180	525	140	260
200	500	122	250
225	555	127	276
250	575	127	288
280	615	132	308
315	695	150	346
355	820	165	410
400	915	195	460



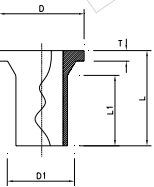
BRANCH SADDLES STACKLOADING

FITTING SIZE OD (mm)	H	h	D	WIDTH
63 x 63	107	75	77	118
75 x 63	107	75	88	125
90 x 63	98	75	96	118
110 x 63	110	75	106	118
125 x 63	102	75	106	118
160 x 63	114	75	112	118
180 x 63	104	75	112	118
200 x 63	104	75	112	118
225 x 63	104	75	112	118
250 x 63	104	75	112	118
280 x 63	104	75	112	118
315 x 63	104	75	112	118
355 x 63	104	75	112	118



SPIGOT REDUCER

FITTING SIZE OD (mm)	L1*	L2*
50 x 25		
63 x 32		
63 x 40		
63 x 50		
75 x 63		
90 x 63		
90 x 75		
110 x 90		
125 x 90		
125 x 110		
160 x 110		
160 x 125		
180 x 125		
180 x 160		
250 x 180		
250 x 200		
250 x 225		
280 x 225		
280 x 250		
315 x 225		
315 x 250		
315 x 280		
355 x 225		
355 x 250		
355 x 280		



LONG STUB END

PE PIPE OD	NOMINAL FLANGE SIZE NO	D1	D	L1	L	T
25	20	32	58	40	85	9
32	25	40	68	60	85	10
40	32	50	78	62	85	11
50	40	61	88	75	104	12
63	50	73	101	88	120	14
90	80	102	138	103	140	17
110	100	124	158	100	140	18
125	100	129	157	140	180	25
160	150	173	212	130	180	25
180	150	180	211	140	195	30
225	200	234	268	135	200	32
280	250	291	320	140	225	35
315	300	334	370	150	235	35
355	300	370	430	165	255	40
400	450	423	480	180	285	45

- NOTE: 1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE DWG NO. SYASTD001.
2. ALL DIMENSION ARE IN MILLIMETRE AND LEVELS ARE IN METRE UNLESS OTHERWISE STATED.
3. ACTUAL LENGTH OF PE COMMUNICATION PIPES SHALL BE DETERMINED ON SITE.
4. ALL ELECTROFUSION COUPLERS AND FITTINGS NOT ACCORDING TO THE ABOVE SCHEDULE SHALL BE SUBMITTED TO THE S.O REPRESENTATIVE FOR APPROVAL.
5. ALL JOINING OF BEND, TEES, REDUCERS AN CLOSING LENGTH IN TRENCHES SHALL BE BY ELECTROFUSION COUPLERS.
6. ALL ENDS OF ELBOWS, REDUCERS AND SUB-ENDS ARE PRODUCED SQUARE.
7. ALL DIMENSIONS FOR FITTING SUPPLIED BY CONTRACTOR SHALL BE SUBMITTED IN THE SCHEDULE OF PARTICULAR.
8. * DIMENSIONS TO BE FILLED UP TENDERERS.

REV.	DESCRIPTION	DATE



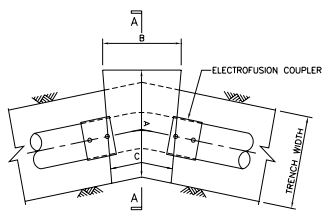
SYARIKAT BEKALAN AIR SELANGOR SDN BHD
 PETI SURAT 5001,
 JALAN PANTAI BAHRU,
 59900 KUALA LUMPUR.
 TEL NO : 03 - 2282 6244 / 03 - 2283 1111
 FAX NO : 03 - 2282 5498
 LAMAN WEB : www.syabas.com.my
 EMAIL : puspel@syabas.com.my

PROJECT :

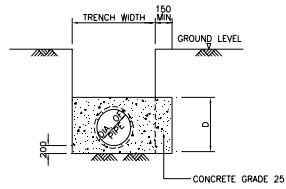
 DRAWING TITLE :
 PE PIPE SPECIALS - (SHEET 2 OF 2)

DRAWN BY : SHAHRUL DESIGNED : SAT
 CHECKED : HS APPROVED : LPL
 SCALE : NTS DATE : OCT 2005

DRAWING NO :
 SYA / PE / TD / 002

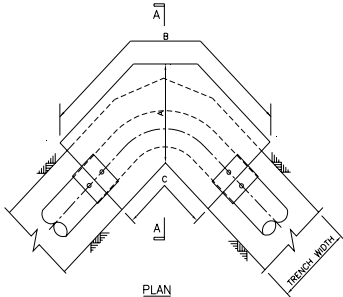


PLAN
LESS THAN 30° BEND

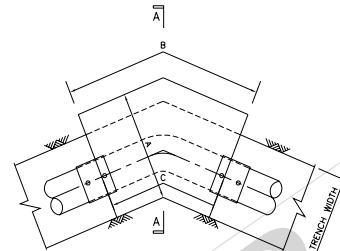


SECTION A-A

PIPE OD (mm)	PIPE ND (mm)	BEND											
		UP TO 30°				OVER 30° TO 60°				OVER 60° TO 90°			
		A	B	C	D	A	B	C	D	A	B	C	D
450	400	1100	1700	1000	900	1200	2900	1200	1200	1200	4000	1300	1200
400	350	1000	1300	600	750	1000	2350	750	850	1000	3200	800	900
355	300	950	1050	350	700	950	2050	600	700	950	2800	600	700
280	250	900	800	300	650	900	1600	350	650	900	2250	350	650
225	200	850	600	300	600	850	1150	300	600	850	1600	300	600
180	150	800	400	200	550	800	800	200	550	800	1200	200	550
125	100	750	300	200	500	750	700	200	500	750	1100	200	500



PLAN
61° to 90° BEND



PLAN
31° - 60° BEND

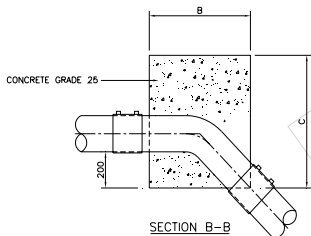
TYPICAL CONCRETE THRUST BLOCK FOR HORIZONTAL BEND

TABLE FOR CONCRETE THRUST BLOCK FOR VERTICAL BENDS (ACTING DOWNWARD)

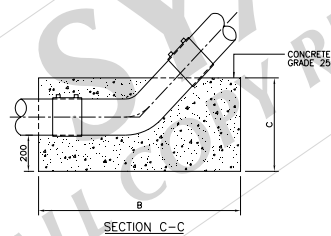
PIPE OD (mm)	PIPE ND (mm)	BEND								
		UP TO 15°			OVER 15° TO 30°			OVER 30° TO 45°		
		A	B	C	A	B	C	A	B	C
450	400	1000	1000	900	1200	1600	900	1300	2200	1200
400	350	850	750	750	1000	1200	750	1100	1600	1000
355	300	800	600	700	800	1100	700	900	1400	900
280	250	750	400	650	750	800	650	750	1100	650
225	200	700	300	600	700	650	600	700	750	600
180	150	650	300	550	650	350	550	650	450	550
125	100	600	300	500	600	300	500	600	300	500

TABLE FOR CONCRETE THRUST BLOCK FOR VERTICAL BENDS (ACTING UPWARD)

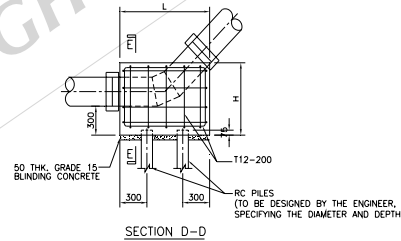
PIPE OD (mm)	PIPE ND (mm)	BEND								
		UP TO 15°			OVER 15° TO 30°			OVER 30° TO 45°		
		A	B	C	A	B	C	A	B	C
450	400	1000	1100	900	1200	1700	1100	1300	2300	1200
400	350	850	750	750	1000	1200	750	1100	1600	1000
355	300	800	600	700	800	1100	700	900	1400	900
280	250	750	400	650	750	800	650	750	1100	650
225	200	700	300	600	700	650	600	700	750	600
180	150	650	300	550	650	350	550	650	450	550
125	100	600	300	500	600	300	500	600	300	500



SECTION B-B



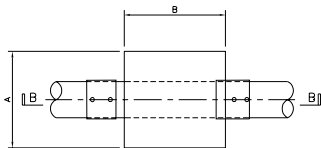
SECTION C-C



SECTION D-D

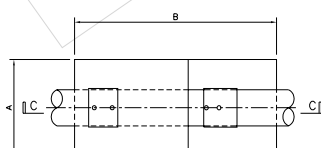
TABLE FOR CONCRETE THRUST BLOCK WITH RC PILE FOR OVER-CROSSING

No. OF PILE	PIPE OD (mm)	PIPE ND (mm)	H	L	A
2 Nos.	450	450	900	1200	1000
	400	400	850	1200	900
	355	350	800	1200	850
	280	300	750	1000	800
	225	250	700	1000	750
	180	200	650	1000	700
125	150	600	1000	600	



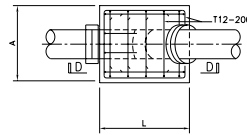
PLAN

THRUST BLOCK FOR VERTICAL BEND (ACTING UPWARD)



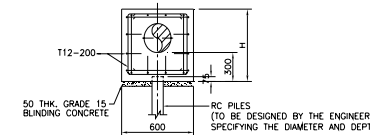
PLAN

THRUST BLOCK FOR VERTICAL BEND (ACTING DOWNWARD)



PLAN

THRUST BLOCK WITH RC PILE FOR OVER-CROSSING



SECTION E-E

- NOTE:
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
 2. REINFORCED CONCRETE GRADE 20/25.
 3. BLINDING CONCRETE GRADE 15.
 4. DESIGN PRESSURE FOR THRUST BLOCKS IS BASED ON 70% HEAD OF WATER.
 5. ALLOWABLE BEARING PRESSURE = 75 kN/m²
 6. DIMENSIONS OF THRUST BLOCK TO BE INCREASED IF ACTUAL BEARING PRESSURE IS FOUND TO BE LESS THAN 75 kN/m².
 7. DIMENSIONS 'A' OF THRUST BLOCK TO BE ADJUSTED BY THE S.O. IF NECESSARY TO SUIT TRENCH WIDTH.
 8. WHERE THE THRUST BLOCK REQUIRE REINFORCEMENT, THE ENGINEER SHALL SUBMIT HID DETAILS.

REV.	DESCRIPTION	DATE



SYARIKAT BEKALAN AIR SELANGOR SDN BHD
 PETI SURAT 5001,
 JALAN PANTAI BAHRU,
 59990, KUALA LUMPUR.
 TEL NO : 03 - 2282 6244 / 03 - 2283 1111
 FAX NO : 03 - 2282 5498
 LAJARAN WEB : www.syabas.com.my
 EMAIL : papai@syabas.com.my

PROJECT :

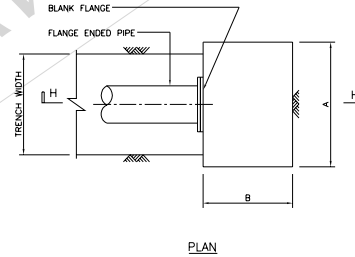
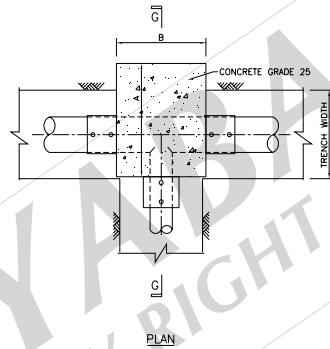
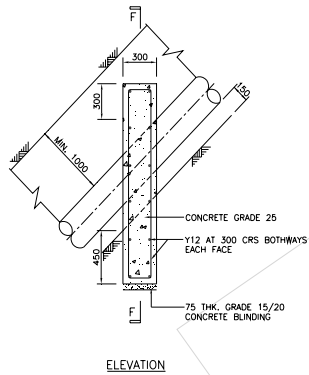
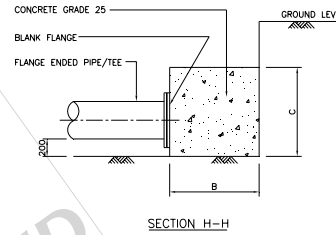
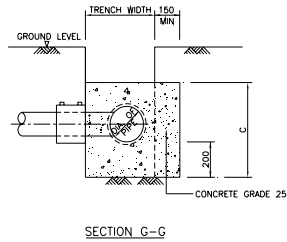
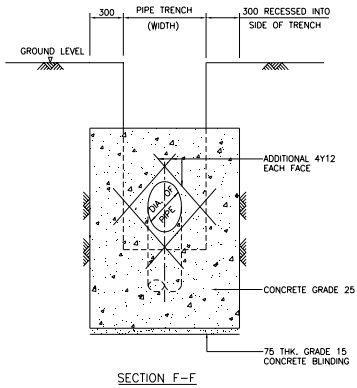
DRAWING TITLE :
 DETAILS OF THRUST BLOCKS - (SHEET 1 OF 2)

DRAWN BY : SHAHRUL DESIGNED : SAT

CHECKED : HS APPROVED : LPL

SCALE : NTS DATE : OCT 2005

DRAWING NO :
 SYA / PE / STD / 003



DETAILS OF ANCHOR BLOCK

DETAILS OF THRUST BLOCK FOR TEE

DETAILS OF THRUST BLOCK FOR END CAP

GRADIENT EXCEEDING	ANCHOR BLOCK
1 : 12	EVERY THIRD PIPE
1 : 8	EVERY SECOND PIPE
1 : 5	EVERY PIPE

PIPE OD (mm)	PIPE ND (mm)	A (mm)	B (mm)	C (mm)
125 x 125	100 x 100	750	500	500
180 x 125	150 x 100	800	550	550
180 x 180	150 x 150	800	700	650
225 x 125	200 x 100	850	600	600
225 x 180	200 x 150	850	700	600
225 x 225	200 x 200	850	950	850
280 x 125	250 x 100	900	650	650
280 x 180	250 x 150	900	850	650
280 x 225	250 x 200	900	900	800
280 x 280	250 x 250	1000	1300	1000
355 x 125	300 x 100	950	700	700
355 x 180	300 x 150	950	700	700
355 x 225	300 x 200	950	850	800
355 x 280	300 x 250	950	1300	950
355 x 355	300 x 300	1100	1700	1100

PIPE OD (mm)	PIPE ND (mm)	A (mm)	B (mm)	C (mm)
125	100	600	300	500
180	150	700	350	600
225	200	900	450	900
280	250	1250	650	950
355	300	1600	800	1000

- NOTE :
- FOR LEGEND ABBREVIATIONS AND GENERAL NOTES, SEE DWG NO. SYA/STD001.
 - ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
 - REINFORCED CONCRETE GRADE 20/25.
 - BLINDING CONCRETE GRADE 15.
 - DESIGN PRESSURE FOR THRUST BLOCKS IS BASED ON 70m HEAD OF WATER.
 - ALLOWABLE BEARING PRESSURE = 75 kN/m²
 - DIMENSIONS OF THRUST BLOCK TO BE INCREASED IF ACTUAL BEARING PRESSURE IS FOUND TO BE LESS THAN 75 kN/m²
 - DIMENSIONS 'A' OF THRUST BLOCK TO BE ADJUSTED BY THE S.O. IF NECESSARY TO SUIT TRENCH WIDTH.
 - WHERE THE THRUST BLOCK REQUIRE REINFORCEMENT, THE ENGINEER SHALL SUBMIT HID DETAILS.

REV	DESCRIPTION	DATE



SYARIKAT BEKALAN AIR SELANGOR SDN BHD
 PETI SURAT 5001,
 JALAN PANTAI BAHRU,
 59990, KUJALAJA LUMPUR.
 TEL NO : 03 - 2282 4244 / 03 - 2283 1111
 FAX NO : 03 - 2282 5498
 LAMAN WEB : www.syabas.com.my
 EMAIL : puspel@syabas.com.my

PROJECT :

DRAWING TITLE :
 DETAILS OF THRUST BLOCK - (SHEET 2 OF 2)

DRAWN BY : SHAHRUL DESIGNED : SAT

CHECKED : HS APPROVED : LPL

SCALE : NTS DATE : OCT 2005

DRAWING NO :
 SYA / PE / STD / 004