MATERIAL TESTING LABORATORY
IKRAM QA SERVICES SDN BHD (479565-A)
Block 7, Unipark Suria, Jalan Ikram-Uniten,
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(A member of Kumpulan IKRAM)

STANDARDS MALAYSIA ACCREDITED LABORATORY
MS ISO/IEC 17025
TESTING
SAMM NO. 347

TEST REPORT

Report No.	C/020/11	Date	14/06/2011
Total No of Pages	8	Page No.	1 / 8
Name And Address Of Recipient (As Given By Applicant)	Pengurus, IKRAM ENGINEERING SERVICES SDN. BHD, Structural Testing And Appraisal Department, Block 7, Unipark Suria, Jalan IKRAM - UNITEN, 43000 Kajang, Selangor Darul Ehsan. (Attn : En. Mahathir B. Kamarudin)		CUSTOMER'S COPY
Title Of The Report (As Given By Applicant)	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
Applicant's Reference	En. Mahathir Kamarudin - IKRAM ENGINEERING SERVICES SDN. BHD.		
Application Number	ML/A/29611	Application Date	08/06/2011
Job Number	CO1B16/302/11	Tested By	Shukri Ghazali
Testing Fees References	Invoice No : IQAS/11/ML/0262.		

Particulars Of Sample (As Given By Applicant)							IKRAM QA
No.	Material (s)	Grade	Size	Model	Qty.	Sample Markings	Sample References
1 - 16	Concrete Core.	-	Ø 100 mm & Ø 75 mm.	-	16 Nos.	Please refer to Page 2.	302-S1 to 302-S16.

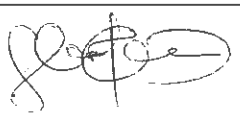
Testing (s)	
Test Carried Out	Test Method (s)
1) Compressive Strength. 2) Density.	1) MS 26: Part 2: 1991: Section 7. 2) MS 26: Part 2: 1991: Section 1.
Remarks	Testing was witnessed by Applicant.

Approved Signatory,
IKRAM QA Services Sdn. Bhd.

ENGR. HJ. YAHYA BIN HJ. ARIFFIN
DIRECTOR OF CERTIFICATION
IKRAM QA SERVICES SDN. BHD.

Summary of Samples

No	Sample References	Applicant's Supplied Information			
		Sample Markings	Structural Element	Sample Location	Sample Dimension (mm)
				Level	
1	302-S1	A02	Cross Head	-	-
2	302-S2	A03	Column	-	-
3	302-S3	A04	Cross Head	-	-
4	302-S4	A05	Column	-	-
5	302-S5	A06	Cross Head	-	-
6	302-S6	A07	Column	-	-
7	302-S7	A08	Column	-	-
8	302-S8	A09	Cross Head	-	-
9	302-S9	A10	Cross Head	-	-
10	302-S10	A11	Column	-	-
11	302-S11	A12	Cross Head	-	-
12	302-S12	A13	Cross Head	-	-
13	302-S13	A15	Column	-	-
14	302-S14	A16	Cross Head	-	-
15	302-S15	A17	Column	-	-
16	302-S16	A18	Cross Head	-	-

Report Prepared by	Verified by
Muhd Sharifuzan Tukijan	Mohd Hafizy Mat Zain
	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item					
1	Specimen Indentification	Sample No.	1	2	3
		Sample References	302-S1	302-S2	302-S3
		Sample Markings	A02	A03	A04
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
		Structure	Cross Head	Column	Cross Head
		Location	-	-	-
2	Condition of specimen when received		Good	Good	Good
3	Average diameter (mm)		99.6	75.0	99.5
4	Length as-received of concrete	Maximum (mm)	169.3	139.2	141.5
		Minimum (mm)	155.1	135.0	135.4
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2276**	**2303**	**2304**
6	Length after preparation, and location in relation to the length received (mm)		114.6	85.3	113.9
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.		
8	Compaction of concrete, distribution of materials, classification of voids and presence of cracks		20 mm ,Granite Medium Void No Cracks	20 mm ,Granite Small Void No Cracks	20 mm ,Granite Small Void No Cracks
9	Date of test		13/06/2011	13/06/2011	13/06/2011
10	Age of specimen, when known at date of test		unknown	unknown	unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48	48	48
12	Maximum load of failure (kN)		265.1	191.7	387.2
13	Measured compressive strength (N/mm^2)		34.0	43.5	50.0
14	**Estimated in-situ cube strength (N/mm^2)**		**36.0**	**45.5**	**52.5**
15	Appearance of concrete and type of fracture		Columnar	Columnar	Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement	No Reinforcement	No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73	0.73	0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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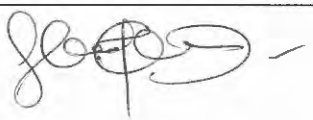	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item					
1	Specimen Indentification	Sample No.	4	5	6
		Sample References	302-S4	302-S5	302-S6
		Sample Markings	A05	A06	A07
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
		Structure	Column	Cross Head	Column
		Location	-	-	-
2	Condition of specimen when received		Good	Good	Good
3	Average diameter (mm)		75.0	99.7	74.8
4	Length as-received of concrete	Maximum (mm)	127.6	163.0	130.4
		Minimum (mm)	118.2	146.7	117.9
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2296**	**2319**	**2314**
6	Length after preparation, and location in relation to the length received (mm)		86.7	114.2	87.4
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.		
8	Compaction of concrete, distribution of materials, classification of voids and presence of cracks		20 mm ,Granite Small Void No Cracks	20 mm ,Granite Medium Void No Cracks	20 mm ,Granite Small Void No Cracks
9	Date of test		13/06/2011	13/06/2011	13/06/2011
10	Age of specimen, when known at date of test		unknown	unknown	unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48	48	48
12	Maximum load of failure (kN)		183.0	191.0	148.2
13	Measured compressive strength (N/mm²)		41.5	24.5	33.5
14	**Estimated in-situ cube strength (N/mm²)**		**44.0**	**26.0**	**36.0**
15	Appearance of concrete and type of fracture		Columnar	Columnar	Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement	No Reinforcement	No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73	0.73	0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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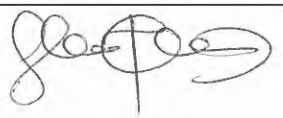	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item					
I	Specimen Indentification	Sample No.	7	8	9
		Sample References	302-S7	302-S8	302-S9
		Sample Markings	A08	A09	A10
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
		Structure	Column	Cross Head	Cross Head
		Location	-	-	-
2	Condition of specimen when received		Good	Good	Good
3	Average diameter (mm)		74.9	99.6	99.5
4	Length as-received of concrete	Maximum (mm)	142.3	145.8	160.5
		Minimum (mm)	135.4	141.6	148.7
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2316**	**2344**	**2278**
6	Length after preparation, and loeation in relation to the length received (mm)		85.4	116.3	116.4
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.		
8	Compaction of concrete, distribution of materials, elassification of voids and presence of cracks		20 mm ,Granite Medium Void No Cracks	20 mm ,Granite Small Void No Cracks	20 mm ,Granite Medium Void No Cracks
9	Date of test		13/06/2011	13/06/2011	13/06/2011
10	Age of specimen, when known at date of test		unknown	unknown	unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48	48	48
12	Maximum load of failure (kN)		113.6	374.3	382.6
13	Measured compressive strength (N/mm^2)		26.0	48.0	49.0
14	**Estimated in-situ cube strength (N/mm^2)**		**27.0**	**51.0**	**52.0**
15	Appearance of concrete and type of fracture		Columnar	Columnar	Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement	No Reinforcement	No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73	0.73	0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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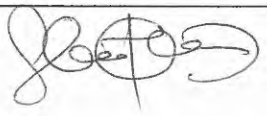	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item					
1	Specimen Indentification	Sample No.	10	11	12
		Sample References	302-S10	302-S11	302-S12
		Sample Markings	A11	A12	A13
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
		Structure	Column	Cross Head	Cross Head
		Location	-	-	-
2	Condition of specimen when received		Good	Good	Good
3	Average diameter (mm)		74.9	75.0	75.0
4	Length as-received of concrete	Maximum (mm)	139.6	125.1	119.2
		Minimum (mm)	134.6	112.1	109.0
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2267**	**2304**	**2300**
6	Length after preparation, and location in relation to the length received (mm)		84.4	85.3	86.4
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.		
8	Compaction of concrete, distribution of materials, classification of voids and presence of cracks		20 mm ,Granite Medium Void No Cracks	20 mm ,Granite Medium Void No Cracks	20 mm ,Granite Large Void No Cracks
9	Date of test		13/06/2011	13/06/2011	13/06/2011
10	Age of specimen, when known at date of test		unknown	unknown	unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48	48	48
12	Maximum load of failure (kN)		179.1	199.4	177.2
13	Measured compressive strength (N/mm²)		40.5	45.0	40.0
14	**Estimated in-situ cube strength (N/mm²)**		**42.5**	**47.5**	**42.5**
15	Appearance of concrete and type of fracture		Columnar	Columnar	Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement	No Reinforcement	No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73	0.73	0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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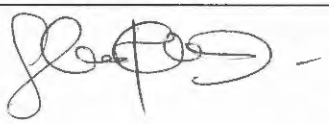	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item					
1	Specimen Indentification	Sample No.	13	14	15
		Sample References	302-S13	302-S14	302-S15
		Sample Markings	A15	A16	A17
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.		
		Structure	Column	Cross Head	Column
		Location	-	-	-
2	Condition of specimen when received		Good	Good	Good
3	Average diameter (mm)		75.0	99.5	74.8
4	Length as-received of concrete	Maximum (mm)	183.5	145.1	188.7
		Minimum (mm)	168.2	132.3	175.4
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2228**	**2336**	**2319**
6	Length after preparation, and location in relation to the length received (mm)		86.3	113.9	85.9
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.		
8	Compaction of concrete, distribution of materials, classification of voids and presence of cracks		20 mm ,Granite Large Void No Cracks	20 mm ,Granite Large Void No Cracks	20 mm ,Granite Medium Void No Cracks
9	Date of test		13/06/2011	13/06/2011	13/06/2011
10	Age of specimen, when known at date of test		unknown	unknown	unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48	48	48
12	Maximum load of failure (kN)		154.3	337.4	202.2
13	Measured compressive strength (N/mm^2)		35.0	43.5	46.0
14	**Estimated in-situ cube strength (N/mm^2)**		**37.0**	**45.5**	**48.5**
15	Appearance of concrete and type of fracture		Columnar	Columnar	Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement	No Reinforcement	No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73	0.73	0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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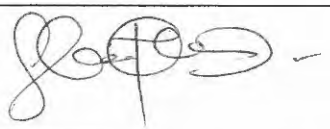	

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TEST REPORT

STRENGTH & DENSITY OF CONCRETE CORES

Item			
1	Specimen Indentification	Sample No.	16
		Sample References	302-S16
		Sample Markings	A18
		Building Name	An Independent Design Check Of The Pier At Viaduct On Federal Route FT 180/001/40 West Port - North Port, Selangor Darul Ehsan.
		Structure	Cross Head
		Location	-
2	Condition of specimen when received		Good
3	Average diameter (mm)		99.7
4	Length as-received of concrete	Maximum (mm)	153.8
		Minimum (mm)	135.8
5	**Density of specimen as received and Determination of the volume by calculation (kg/m^3)**		**2354**
6	Length after preparation, and location in relation to the length received (mm)		114.7
7	Method of end preparation		Ends of all cores were capped with high Alumina cement.
8	Compaction of concrete, distribution of materials, classification of voids and presence of cracks		20 mm ,Granite Medium Void No Cracks
9	Date of test		13/06/2011
10	Age of specimen, when known at date of test		unknown
11	Length of time specimen was stored in water before strength testing (Hours) at 27°C ± 2		48
12	Maximum load of failure (kN)		285.1
13	Measured compressive strength (N/mm^2)		36.5
14	**Estimated in-situ cube strength (N/mm^2)**		**38.5**
15	Appearance of concrete and type of fracture		Columnar
16	Size, position and spacing of any reinforcement (mm)		No Reinforcement
17	Uncertainty ± (N/mm^2)		0.73

The reported uncertainty is based on Standard Uncertainty of confidence level not less than 95 %.
Humidity/Temperature during testing (66 % / 26 °C).

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Muhd Sharifuzan Tukijan	Mohd Hafizy Mat Zain