PART VII

SPECIFIC GRAVITY TEST RESULTS

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: TM-1 Sabo Dam BORING NO.: 1 DATE TESTED: July 5, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-5				ss-9	
Depth (m)	4.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.30	368.80			363.00	369.20
Temperature, °C	31	31			32	32
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	47.30	47.60			47.00	47.80
Wt. of Water, Ww = Ws + Wbw - Wbws	18.40	18.70			18.40	18.50
Specific Gravity, Gs = Ws / Ww	2.57	2.55			2.55	2.58
Viscosity Correction	0.9971	0.9971			0.9968	0.9968
Specific Gravity corrected for Temp.	2.56	2.54			2.54	2.57

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: TM-1 Sabo Dam BORING NO.: 2 DATE TESTED: July 5, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-5				ss-9	
Depth (m)	4.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.00	368.90			363.00	368.80
Temperature, °C	32	32			32	32
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	47.30	48.00			47.20	47.30
Wt. of Water, Ww = Ws + Wbw - Wbws	18.70	19.00			18.60	18.40
Specific Gravity, Gs = Ws / Ww	2.53	2.53			2.54	2.57
Viscosity Correction	0.9968	0.9968			0.9968	0.9968
Specific Gravity corrected for Temp.	2.52	2.52			2.53	2.56

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: TM-1 Sabo Dam
BORING NO.: 3
DATE TESTED: July 5, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-6				ss-9	
Depth (m)	5.55				9.55	
Volume of Flask @ 20° , ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.70	369.50			363.50	369.50
Temperature, °C	29	29			30	30
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	48.80	49.30			48.50	48.30
Wt. of Water, Ww = Ws + Wbw - Wbws	19.50	19.70			19.40	18.70
Specific Gravity, Gs = Ws / Ww	2.50	2.50			2.50	2.58
Viscosity Correction	0.9977	0.9977			0.9974	0.9974
Specific Gravity corrected for Temp.	2.49	2.49			2.49	2.57

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Sabo Dam #6
BORING NO.: 1
DATE TESTED: July 5, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-4				ss-8	
Depth (m)	5.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	361.90	367.50			362.30	367.20
Temperature, °C	31	31			31	31
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	44.50	44.60			46.50	48.30
Wt. of Water, Ww = Ws + Wbw - Wbws	17.00	17.00			18.60	21.00
Specific Gravity, Gs = Ws / Ww	2.62	2.62			2.50	2.30
Viscosity Correction	0.9971	0.9971			0.9971	0.9971
Specific Gravity corrected for Temp.	2.61	2.61			2.49	2.29

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Sabo Dam #6
BORING NO.: 2
DATE TESTED: July 5, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-6				ss-9	
Depth (m)	5.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	362.80	369.40			368.50	369.50
Temperature, °C	31	31			31	31
Wt. of Flask + Water = Wbw	334.40	339.90			339.40	339.90
Wt. of Dry Soil = Ws	47.00	49.10			47.50	48.60
Wt. of Water, Ww = Ws + Wbw - Wbws	18.60	19.60			18.40	19.00
Specific Gravity, Gs = Ws / Ww	2.53	2.51			2.58	2.56
Viscosity Correction	0.9971	0.9971			0.9971	0.9971
Specific Gravity corrected for Temp.	2.52	2.50			2.57	2.55

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: Sabo Dam #6 BORING NO.: 3 DATE TESTED: July 5, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-3				ss-8	
Depth (m)	4.55				9.55	
Volume of Flask @ 20° , ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.00	368.70			363.00	368.80
Temperature, °C	31	31			31	31
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	50.00	49.50			48.50	49.50
Wt. of Water, Ww = Ws + Wbw - Wbws	21.40	20.70			19.90	20.60
Specific Gravity, Gs = Ws / Ww	2.34	2.39			2.44	2.40
Viscosity Correction	0.9971	0.9971			0.9971	0.9971
Specific Gravity corrected for Temp.	2.33	2.38			2.43	2.39

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:

It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Sabo Dam #9
BORING NO.: 1
DATE TESTED: June 17, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-6				ss-9	
Depth (m)	5.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	365.20	370.00			365.00	370.00
Temperature, °C	31	31			28	28
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.10	49.80			49.10	49.80
Wt. of Water, Ww = Ws + Wbw - Wbws	18.30	19.70			18.50	19.70
Specific Gravity, Gs = Ws / Ww	2.68	2.53			2.65	2.53
Viscosity Correction	0.9971	0.9971			0.9980	0.9980
Specific Gravity corrected for Temp.	2.67	2.52			2.64	2.52

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: Sabo Dam #9 BORING NO.: 2 DATE TESTED: June 17, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-5				ss-9	
Depth (m)	4.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	365.20	370.60			360.20	370.00
Temperature, °C	26	26			27	27
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.20	49.80			42.50	49.30
Wt. of Water, Ww = Ws + Wbw - Wbws	18.40	19.10			16.70	19.20
Specific Gravity, Gs = Ws / Ww	2.67	2.61			2.54	2.57
Viscosity Correction	0.9986	0.9986			0.9983	0.9983
Specific Gravity corrected for Temp.	**2.67**	**2.61**			**2.54**	**2.57**

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: Sabo Dam #9 BORING NO.: 3 DATE TESTED: June 17, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-5				ss-9	
Depth (m)	4.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.50	369.90			364.30	369.50
Temperature, °C	27	27			27	27
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.60	49.50			50.10	50.40
Wt. of Water, Ww = Ws + Wbw - Wbws	20.50	19.50			20.20	20.80
Specific Gravity, Gs = Ws / Ww	2.42	2.54			2.48	2.42
Viscosity Correction	0.9983	0.9983			0.9983	0.9983
Specific Gravity corrected for Temp.	**2.42**	**2.54**			**2.48**	**2.42**

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: Maskup Consolidation Dam BORING NO.: 1 DATE TESTED: June 24, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-6				ss-9	
Depth (m)	5.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	362.80	368.20			362.80	369.00
Temperature, °C	33	33			32	32
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.30	48.40			48.90	49.20
Wt. of Water, Ww = Ws + Wbw - Wbws	20.90	20.10			20.50	20.10
Specific Gravity, Gs = Ws / Ww	2.36	2.41			2.39	2.45
Viscosity Correction	0.9971	0.9971			0.9980	0.9980
Specific Gravity corrected for Temp.	2.35	2.40			2.39	2.45

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Maskup Consolidation Dam
BORING NO.: 2
DATE TESTED: June 24, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-5				ss-8	
Depth (m)	4.55				8.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.40	369.10			362.30	368.30
Temperature, °C	31	31			30	30
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.40	49.20			47.60	47.90
Wt. of Water, Ww = Ws + Wbw - Wbws	20.40	20.00			19.70	19.50
Specific Gravity, Gs = Ws / Ww	2.42	2.46			2.42	2.46
Viscosity Correction	0.9971	0.9971			0.9974	0.9974
Specific Gravity corrected for Temp.	**2.41**	**2.45**			**2.41**	**2.45**

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS	LOCATION: Maskup Consolidation Dam BORING NO.: 3 DATE TESTED: June 24, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

Sample Number	ss-5				ss-9	
Depth (m)	4.55				9.55	
Volume of Flask @ 20°, ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.70	369.50			368.80	362.80
Temperature, °C	31	31			31	31
Wt. of Flask + Water = Wbw	334.40	339.90			340.40	334.30
Wt. of Dry Soil = Ws	49.50	47.60			46.30	49.00
Wt. of Water, Ww = Ws + Wbw - Wbws	20.20	18.00			17.90	20.50
Specific Gravity, Gs = Ws / Ww	2.45	2.64			2.59	2.39
Viscosity Correction	0.9971	0.9971			0.9971	0.9971
Specific Gravity corrected for Temp.	2.44	2.63			2.58	2.38

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY & ABSORPTION FOR FINE & COARSE AGGREGATES

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Dolores Consolidation Dam
BORING NO.: 1
SAMPLE NO. / DEPTH (m): ss-5/4.55
DATE TESTED: June 27, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

COARSE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

$$\text{ABSORPTION} = \frac{W_1 - W_2}{W_2} \times 100$$

$$\text{BULK SPECIFIC GRAVITY, (SSD)} = \frac{W_1}{W_1 - W_3}$$

$$\text{BULK SPECIFIC GRAVITY, (Dry)} = \frac{W_2}{W_1 - W_3}$$

$$\text{APPARENT SPECIFIC GRAVITY} = \frac{W_2}{W_2 - W_3}$$

TRIAL NO.			
1	2	3	Average

FINE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

Weight of Pycnometer Bottle, Water and Sample, W_4, g

$$\text{ABSORPTION} = \frac{W_1 - W_2}{W_2} \times 100$$

$$\text{BULK SPECIFIC GRAVITY, (SSD)} = \frac{W_1}{W_1 + W_3 - W_4}$$

$$\text{BULK SPECIFIC GRAVITY, (Dry)} = \frac{W_2}{W_1 + W_3 - W_4}$$

$$\text{APPARENT SPECIFIC GRAVITY} = \frac{W_2}{W_2 + W_3 - W_4}$$

TRIAL NO.			
1	2	3	Average
500.00	500.00		500.00
475.10	460.50		467.80
669.00	669.00		669.00
915.60	909.20		912.40
5.24	8.58		6.91
1.97	1.92		1.95
1.87	1.77		1.82
2.08	2.09		2.09

Remarks:
It was observed during the test that some lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY & ABSORPTION FOR FINE & COARSE AGGREGATES	LOCATION: Dolores Consolidation Dam BORING NO.: 1 SAMPLE NO. / DEPTH (m): ss-9 / 9.55 DATE TESTED: June 27, 1995 TESTED BY: J. Castro SHEET NO. 1 of 1
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	

COARSE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

ABSORPTION = $\frac{W_1 - W_2}{W_2} \times 100$

BULK SPECIFIC GRAVITY, (SSD) = $\frac{W_1}{W_1 - W_3}$

BULK SPECIFIC GRAVITY, (Dry) = $\frac{W_2}{W_1 - W_3}$

APPARENT SPECIFIC GRAVITY = $\frac{W_2}{W_2 - W_3}$

TRIAL NO.			
1	2	3	Average

FINE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

Weight of Pycnometer Bottle, Water and Sample, W_4, g

ABSORPTION = $\frac{W_1 - W_2}{W_2} \times 100$

BULK SPECIFIC GRAVITY, (SSD) = $\frac{W_1}{W_1 + W_3 - W_4}$

BULK SPECIFIC GRAVITY, (Dry) = $\frac{W_2}{W_1 + W_3 - W_4}$

APPARENT SPECIFIC GRAVITY = $\frac{W_2}{W_2 + W_3 - W_4}$

TRIAL NO.			
1	2	3	Average
500.00	500.00		500.00
482.10	496.00		489.05
678.20	669.00		673.60
946.20	941.20		943.70
3.71	0.81		2.26
2.16	2.19		2.18
2.08	2.18		2.13
2.25	2.22		2.24

Remarks:

It was observed during the test that some lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY OF SOIL SOLIDS

PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT

LOCATION: Dolores Consolidation Dam
BORING NO.: 2
DATE TESTED: June 27, 1995
TESTED BY: J. Castro
SHEET NO. 1 of 1

Sample Number	ss-6				ss-9	
Depth (m)	5.55				9.55	
Volume of Flask @ 20° , ml	250	250			250	250
Wt. of Flask + Water + Soil = Wbws	363.00	368.30			360.80	367.50
Temperature, °C	32	32			31	31
Wt. of Flask + Water = Wbw	334.40	339.90			334.40	339.90
Wt. of Dry Soil = Ws	49.10	49.50			47.40	48.00
Wt. of Water, Ww = Ws + Wbw - Wbws	20.50	21.10			21.00	20.40
Specific Gravity, Gs = Ws / Ww	2.40	2.35			2.26	2.35
Viscosity Correction	0.9968	0.9968			0.9971	0.9971
Specific Gravity corrected for Temp.	2.39	2.34			2.25	2.34

Sample Number						
Depth (m)						
Volume of Flask @ 20°C						
Wt. of Flask + Water + Soil = Wbws						
Temperature, °C						
Wt. of Flask + Water = Wbw						
Wt. of Dry Soil = Ws						
Wt. of Water, Ww = Ws + Wbw - Wbws						
Specific Gravity, Gs = Ws / Ww						
Viscosity Correction						
Specific Gravity corrected for Temp.						

Remarks:
It was observed during the test that lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY & ABSORPTION FOR FINE & COARSE AGGREGATES	LOCATION: Dolores Consolidation Dam BORING NO.: 3 SAMPLE NO. / DEPTH (m): ss-6 / 5.55 DATE TESTED: June 27, 1995
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	TESTED BY: J. Castro SHEET NO. 1 of 1

COARSE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

ABSORPTION = $\frac{W_1 - W_2}{W_2}$ x 100

BULK SPECIFIC GRAVITY, (SSD) = $\frac{W_1}{W_1 - W_3}$

BULK SPECIFIC GRAVITY, (Dry) = $\frac{W_2}{W_1 - W_3}$

APPARENT SPECIFIC GRAVITY = $\frac{W_2}{W_2 - W_3}$

TRIAL NO.			
1	2	3	Average

FINE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

Weight of Pycnometer Bottle, Water and Sample, W_4, g

ABSORPTION = $\frac{W_1 - W_2}{W_2}$ x 100

BULK SPECIFIC GRAVITY, (SSD) = $\frac{W_1}{W_1 + W_3 - W_4}$

BULK SPECIFIC GRAVITY, (Dry) = $\frac{W_2}{W_1 + W_3 - W_4}$

APPARENT SPECIFIC GRAVITY = $\frac{W_2}{W_2 + W_3 - W_4}$

TRIAL NO.			
1	2	3	Average
500.00	500.00		500.00
493.00	494.70		493.85
678.20	669.00		673.60
978.50	963.90		971.20
1.42	1.07		1.25
2.50	2.44		2.47
2.47	2.41		2.44
2.56	2.48		2.52

Remarks:

It was observed during the test that some lightweight, medium-grained sand (pyroclastic materials) floats in water.

SPECIFIC GRAVITY & ABSORPTION FOR FINE & COARSE AGGREGATES	LOCATION: Dolores Consolidation Dam BORING NO.: 3 SAMPLE NO. / DEPTH (m): ss-9 / 9.55 DATE TESTED: June 27, 1995
PROJECT : GEOMECHANICAL SURVEY FOR THE MT. PINATUBO PROJECT	TESTED BY: J. Castro SHEET NO. 1 of 1

COARSE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

$$\text{ABSORPTION} = \frac{W_1 - W_2}{W_2} \times 100$$

$$\text{BULK SPECIFIC GRAVITY, (SSD)} = \frac{W_1}{W_1 - W_3}$$

$$\text{BULK SPECIFIC GRAVITY, (Dry)} = \frac{W_2}{W_1 - W_3}$$

$$\text{APPARENT SPECIFIC GRAVITY} = \frac{W_2}{W_2 - W_3}$$

TRIAL NO.			
1	2	3	Average

FINE AGGREGATE:

Weight of Saturated Surface Dry Sample in Air, W_1, g

Weight of Oven-Dry Sample in Air, W_2, g

Weight of Saturated Sample in Water, W_3, g

Weight of Pycnometer Bottle, Water and Sample, W_4, g

$$\text{ABSORPTION} = \frac{W_1 - W_2}{W_2} \times 100$$

$$\text{BULK SPECIFIC GRAVITY, (SSD)} = \frac{W_1}{W_1 + W_3 - W_4}$$

$$\text{BULK SPECIFIC GRAVITY, (Dry)} = \frac{W_2}{W_1 + W_3 - W_4}$$

$$\text{APPARENT SPECIFIC GRAVITY} = \frac{W_2}{W_2 + W_3 - W_4}$$

TRIAL NO.			
1	2	3	Average
500.00	500.00		500.00
495.20	495.00		495.10
669.00	678.80		673.90
964.10	978.50		971.30
0.97	1.01		0.99
2.44	2.50		2.47
2.42	2.47		2.45
2.47	2.53		2.50

Remarks:

It was observed during the test that some lightweight, medium-grained sand (pyroclastic materials) floats in water.

PART VIII

CBR TEST RESULTS

Note: **CBR Test was carried out for lahar materials sampled along Magalang-Concepcion Road (Route 329)**

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN:

PROJECT: Informational/JICA STUDY TEAM

DATE OF REPORT: 9-30-95

SPECIFICATION:

PURPOSE OF MATERIAL: Grading

SAMPLED BY AND DATE: 9-11-95

SAMPLED AT (stockpile, batch plant, place, etc.):

SOURCE: River, quarry, etc.)

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
2662	2171	1975			

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8	0	0	100	100	100	
1-1/2"	08.1	63.8	2.94	97.06	97	-	
1"	25.4	58.7	2.70	94.36	94	60-85	
3/4"	19.1	46.5	2.14	92.22	92	-	
1/2"	12.7	61.8	2.85	89.37	89	35-65	
3/8"	0.52						
No. 4	4.75	191.0	8.80	80.57	81	20-50	
No. 8	2.38						
No. 10	2.00						
No. 12	1.65						
No. 16	1.10						
No. 20	0.84						
No. 30	.59						
No. 40	.42	601.8	27.72	52.85	53	5-20	
No. 50	297						
No. 60	280						
No. 80	177						
No. 100	149						
No. 200	074	891.3	41.05	11.80	12	0-12	
PAN		60.1					
WASH		196					
TOTAL							

FINENESS MODULUS:

UNIT WEIGHT PCF.:

TESTED BY: Simbillo C.J./Cunan M. DATE: 9-11-95

DRY LOOSE:

Checked by : N.C. Pelayo DATE: 9-12-95

DRY RODDED:

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

CONSISTENCY LIMITS

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL
			Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

LIQUID LIMIT DETERMINATION				
TRIAL NO.	1	2	3	4
A. No. of Blows				
B. Wt. of Can + Wet Soil, gr.				
C. Wt. of Can + Dry Soil, gr.				
D. Wt. of Water, (B-C)				
E. Can Number				
F. Wt. of Can				
G. Wt. of Dry Soil, gr. (C-F)				
H. Moisture Content, - % ($\frac{D}{G}$ x100)				

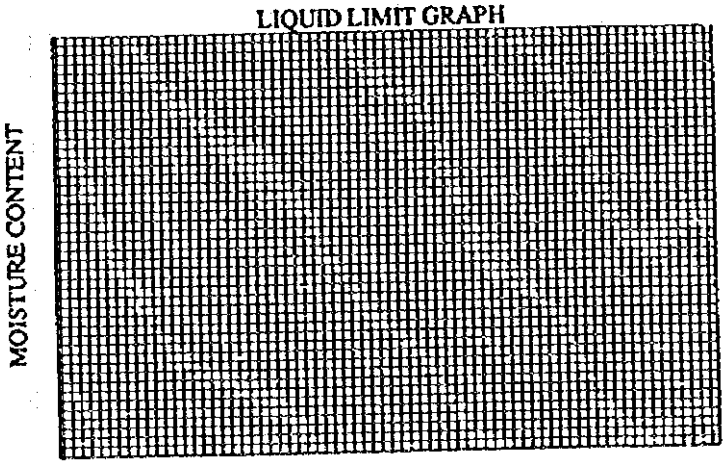
PLASTIC LIMIT DETERMINATION		
TRIAL NO.	1	2
A. Wt. of Can + Wet Soil, gr.		
B. Wt. of Can + Dry Soil, gr.		
C. Wt. of Water(A-B)gr.		
D. Can Number		
E. Wt. of Can, gr.		
F. Wt. of Dry Soil, gr. (B-E)		
G. Plastic Limit % $\frac{C}{G}$ x100		
H. Ave. Plastic limit		

SUMMARY OF PHYSICAL TEST CONSTANTS

1. Liquid Limit N.P.
2. Plastic Limit N.P.
3. Plasticity Index N.P.
   LL - PL

*N.P.- Non-Plastic

LIQUID LIMIT GRAPH



TESTED BY: Simbillo C.J./Cunan M.
DATE: 9-12-95

CERTIFY BY: N.C. Pelayo
DATE: 9-20-95

RDPCI-92-032

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

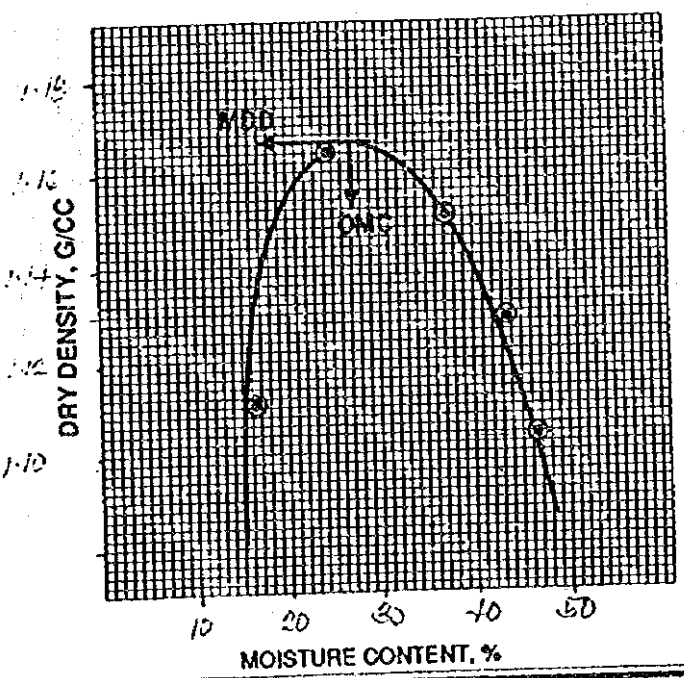
MOISTURE-DENSITY RELATIONS OF SOILS

ASSHTO DESIGNATION: T-99, T-180
ASTM DESIGNATION: D-698 D-1457 D-1557

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL: Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

TEST WATER	1	2	3	4	5	6
WATER ADDED - CC						
CYLINDER AND WET EARTH	8400	8723	9000	9060	9040	
CYLINDER	5756	5756	5756	5756	5756	
WET EARTH	2644	2967	3244	3304	3284	
WET DENSITY / G/ CC.	1.295	1.476	1.589	1.618	1.608	
CAN NUMBER	1	3	4	5	6	
CAN AND WET SOIL	273.4	305.1	374.1	476.1	509.4	
CAN AND DRY SOIL	241.6	253.4	283.8	346.2	363.6	
WATER	31.8	51.7	90.3	129.9	145.8	
CAN	45.6	45.2	43.3	46.1	45.2	
DRY SOIL	196.0	208.2	240.5	300.1	318.4	
MOIST CONT. % DRY WEIGHT	16.22	24.83	37.55	43.28	45.79	
DRY DENSITY, G/CC.	1.114	1.164	1.155	1.129	1.103	



HEIGHT	11.67	CM.
VOLUME	2042.06	CC
HAMMER WEIGHT	4535.15	GR
HAMMER DROP	45.15	CM.
BLOWS / LAYER	56	
NO. OF LAYERS	3	
MAX. DRY DENSITY	1.166	G/CC
OPT. MOISTURE CONTENT	27.0	%

TESTED BY: C.J.Simbillo/M. Cuñan
DATE TESTED: 9-12-95
COMPUTED BY: N.C. Pelayo
CHECKED BY: N.C. Pelayo
REPORTED:
AASHTO DESIGNATION: T-180 Method D

RDPCI-92- 028

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

CALIFORNIA BEARING RATIO
AASHTO T-193 ASTM D-1883

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL
			Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

DRY DENSITY	AS MOLDED			AFTER SOAKING		
A. Blows	10	30	65	10	30	65
B. Mold No.	A	B	C	A	B	C
C. Wt. of mold + Wet Soil	10300	11198	10526	10561	11291	10530
D. Wt. of mold	7368	8086	7326	7368	8086	7326
E. Wt. of wet soil	2932	3112	3200	3193	3205	3204
F. Wet Density	1.318	1.412	1.459	1.436	1.454	1.461
G. Moisture content	24.50	26.27	24.56	29.62	25.13	23.86
H. Dry Density	1.059	1.118	1.171	1.108	1.162	1.179

MOISTURE CONTENT	AS MOLDED			AFTER SOAKING		
A. Bowls	10	30	65	10	30	65
B. Wt. of can + wet soil	274.9	294.5	312.6	263.1	276.2	270.7
C. Wt. of can + dry soil	230.5	242.7	259.9	213.1	229.6	227.3
D. Wt. of water	44.4	51.8	52.7	50.0	46.6	43.4
E. Can No.	18	19	13	1	21	17
F. Wt. of can	49.3	45.5	45.3	44.3	44.2	45.4
G. Wt. of dry soil	181.2	197.2	214.6	168.8	185.4	181.9
H. Moisture content	24.50	26.27	24.56	29.62	25.13	23.86

RDPCI-92-029

SOAKED C.B.R. PENETRATION DATA:

PENET RATION	MACHINE LOAD (LBS.)			SPECIFIC LOAD (PSI)			C.B.R. VALUE		
	10 B	30 B	65 B	10 B	30 B	65 B	10 B	30 B	65 B
0.025	76	101	127	25	34	42			
0.050	152	203	279	51	68	93			
0.075	279	330	457	93	110	152			
0.100	406	584	737	135	195	246	13.5	19.5	24.6
0.125	508	838	1066	169	279	356			
0.150	610	1067	1270	203	356	423			
0.175	711	1219	1422	237	406	474			
0.200	762	1372	1524	254	357	508	16.9	30.5	33.9
0.225									
0.250									
0.275									
0.300									
0.325									
0.350									
0.375									
0.400									

CORRECTED C.B.R. VALUE:

Penetration	Blows	10	30	65
0.100		13.7	20.0	24.8
0.200		15.1	24.1	26.5

SWELL,

10	30	65
0	0	0

REMARKS:

Wt. of surcharge; - 10 lbs.
Number of layers = 3
Volume of molded specimen = A-2223.72
B-2204.51
C-2193.40

area of piston = 3 sq. in.
Number of blows 10,30,65

TESTED BY:

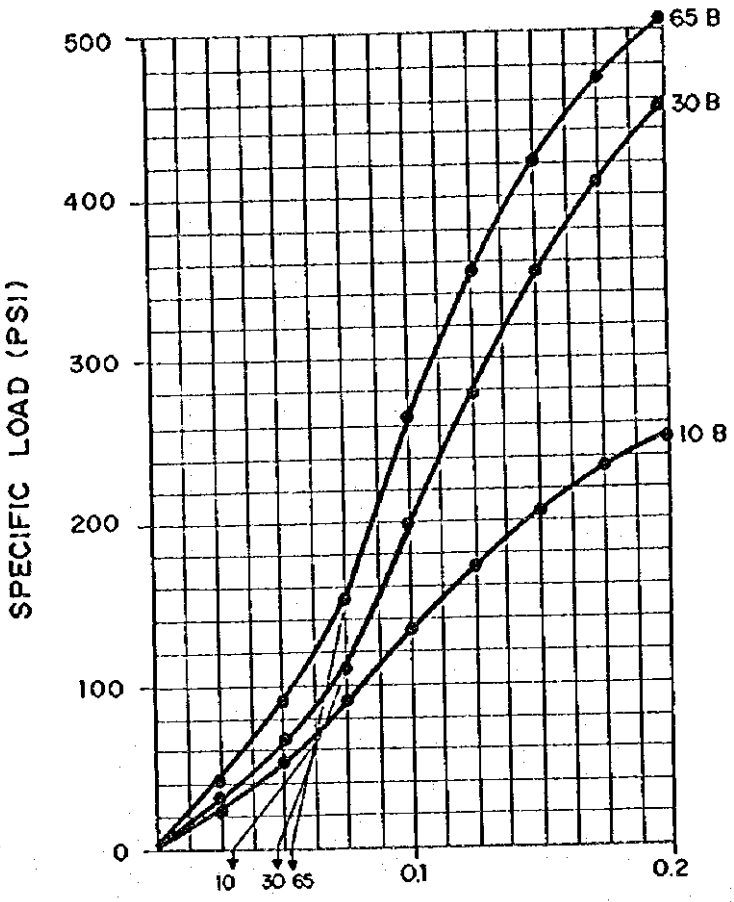
C.J. Simbillo/Cunan M.

DATE: 9-13-95

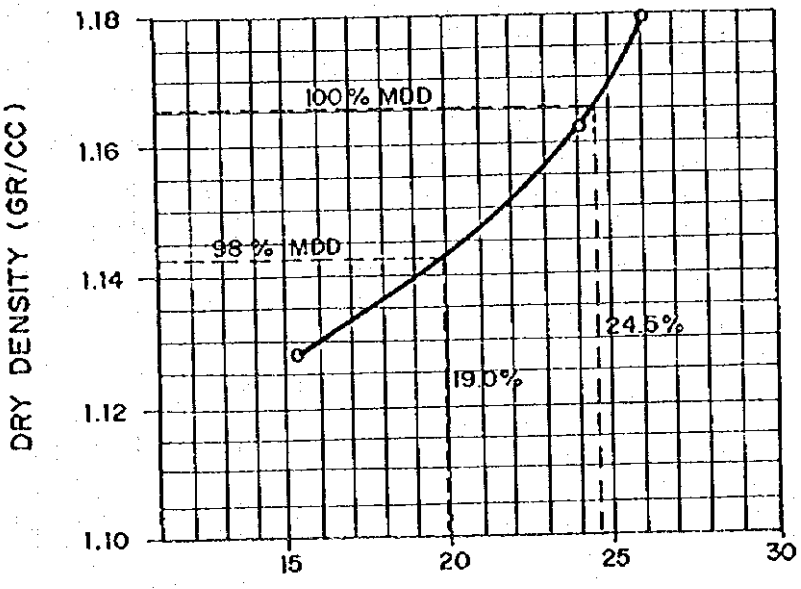
CHECKED BY:

N.C. Pelayo

DATE: 9-18-95



PENETRATION CURVE (CBR)



CBR VALUE CURVE

THE GOVERNMENT OF THE PHILIPPINES
THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
THE STUDY ON FLOOD AND MUDFLOW CONTROL FOR SACOBIA-BAMBAN/ABACAN RIVER DRAINING FROM MT.PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

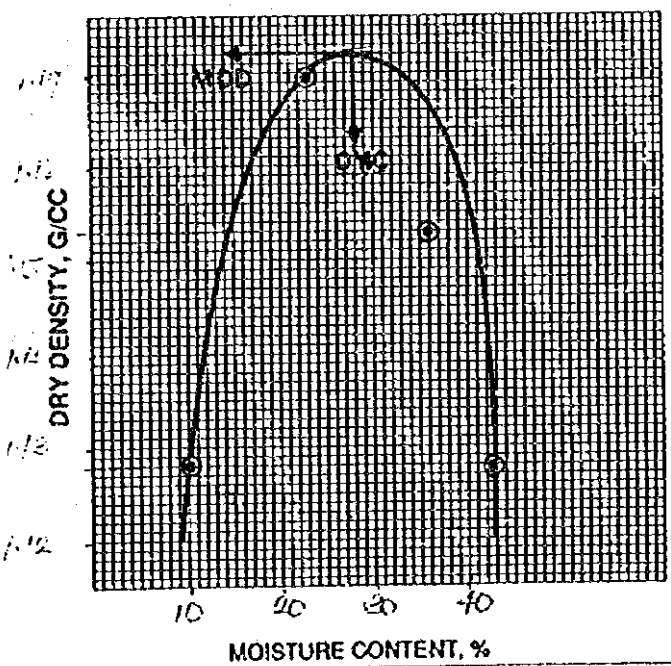
MOISTURE-DENSITY RELATIONS OF SOILS

ASSHTO DESIGNATION: T-99, T-180
ASTM DESIGNATION: D-698 D-1457 D-1557

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL: Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

TEST WATER	1	2	3	4	5	6
WATER ADDED - CC	Moist	300	600	900		
CYLINDER AND WET EARTH	8302	8699	8956	9013		
CYLINDER	5756	5756	5756	5756		
WET EARTH	2546	2943	3200	3257		
WET DENSITY / G/CC.	1.247	1.441	1.567	1.595		
CAN NUMBER	5	B	4	A		
CAN AND WET SOIL	327.70	378.70	334.70	378.0		
CAN AND DRY SOIL	300.50	318.40	258.60	281.80		
WATER	27.20	60.30	76.10	96.20		
CAN	43.20	57.71	46.47	45.14		
DRY SOIL	257.30	260.69	212.13	236.66		
MOIST CONT. % DRY WEIGHT	10.57	23.13	35.87	40.65		
DRY DENSITY, G/CC.	1.128	1.170	1.153	1.134		



HEIGHT	11.67	CM.
VOLUME	2042.06	CC.
HAMMER WEIGHT	4535.15	GR.
HAMMER DROP	45.15	CM.
BLOWS / LAYER	56	
NO. OF LAYERS	3	
MAX. DRY DENSITY	1.175	G/CC.
OPT. MOISTURE CONTENT	28.00	%
TESTED BY	Simbillo C.J./Cunan M.	
DATE TESTED	9-18-95	
COMPUTED BY	N.C. Pelayo	
CHECKED BY	N.C. Pelayo	
REPORTED		
AASHTO DESIGNATION	T-180 Method D	

RDPCI-92- 028

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

CALIFORNIA BEARING RATIO
AASHTO T-193 ASTM D-1883

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL
			Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

DRY DENSITY	AS MOLDED			AFTER SOAKING		
A. Blows	10	30	65	10	30	65
B. Mold No.	A	B	C	A	B	C
C. Wt. of mold + Wet Soil	10455	11280	10603	10590	11327	10642
D. Wt. of mold	7368	8086	7326	7368	8086	7326
E. Wt. of wet soil	3087	3194	3277	3222	3241	3316
F. Wet Density	1.388	1.149	1.494	1.449	1.470	1.512
G. Moisture content	27.49	28.09	26.70	29.37	28.59	27.88
H. Dry Density	1.089	1.131	1.179	1.120	1.143	1.182

MOISTURE CONTENT	AS MOLDED			AFTER SOAKING		
A. Bowls	10	30	65	10	30	65
B. Wt. of can + wet soil	331.20	395.6	382.40	387.80	386.80	354.90
C. Wt. of can + dry soil	269.10	321.50	311.60	310.00	310.40	290.10
D. Wt. of water	62.10	74.10	70.80	77.80	76.40	64.80
E. Can No.	5	B	4	A	5	B
F. Wt. of can	43.20	57.71	46.47	45.14	43.20	57.71
G. Wt. of dry soil	225.90	263.79	265.13	264.86	267.20	232.39
H. Moisture content	27.49	28.09	26.70	29.37	28.59	27.88

RDPCI-92- 029

SOAKED C.B.R. PENETRATION DATA:

PENET RATION	MACHINE LOAD (LBS.)			SPECIFIC LOAD (PSI)			C.B.R. VALUE		
	10 B	30 B	65 B	10 B	30 B	65 B	10 B	30 B	65 B
0.025	57	84	132	19	28	44			
0.050	159	216	306	53	72	102			
0.075	294	354	492	98	118	164			
0.100	420	582	789	140	194	263	14	19.4	26.3
0.125	534	792	1113	178	264	371			
0.150	660	1104	1299	220	368	433			
0.175	753	1236	1452	251	412	484			
0.200	816	1404	1560	272	468	520	18.10	31.2	34.7
0.225									
0.250									
0.275									
0.300									
0.325									
0.350									
0.375									
0.400									

CORRECTED C.B.R. VALUE:

Penetration	Blows	10	30	65
0.100		13.0	18.4	26.5
0.200		15.8	27.5	30.8

SWELL,

10	30	65
0	0	0

REMARKS:

. Wt. of surcharge; - 10 lbs.
Number of layers = 3
Volume of molded specimen =
A-2223.72
B-2204.51
C-2193.40

area of piston = 3 sq.in.
Number of blows 10,30,65

TESTED BY:

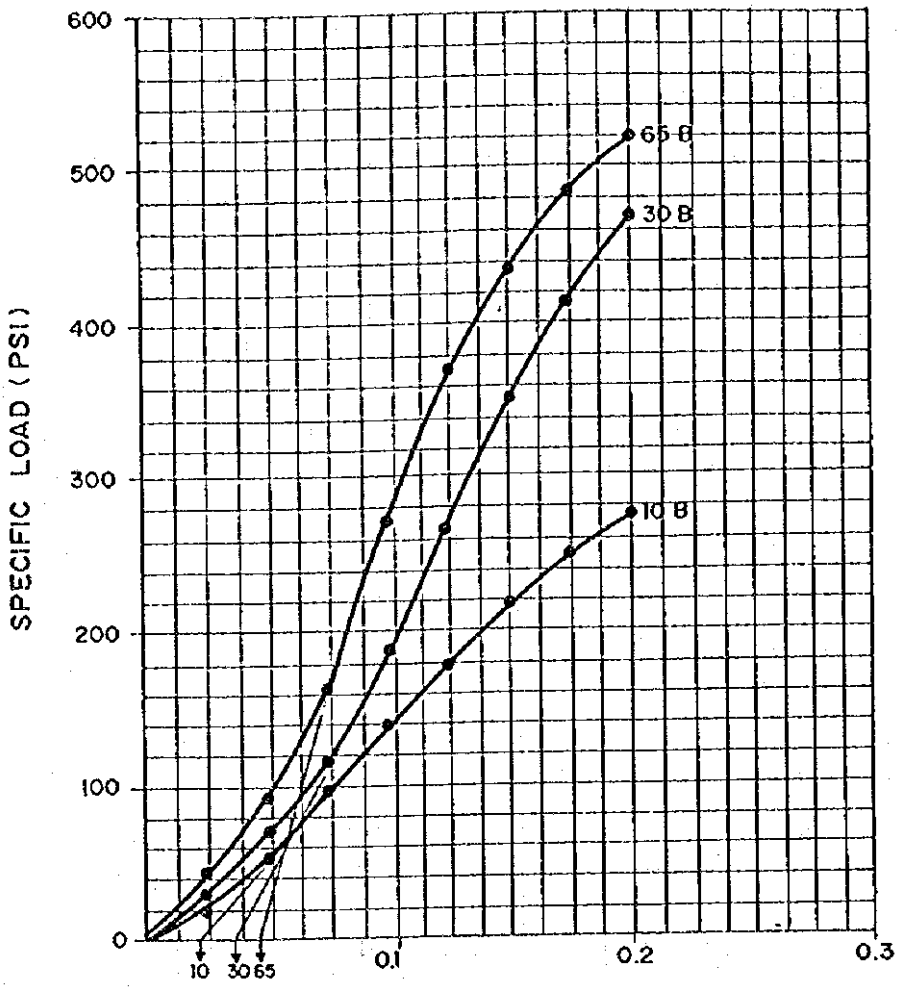
Simbillo C.J./Cunan M.

DATE: 9-19-95

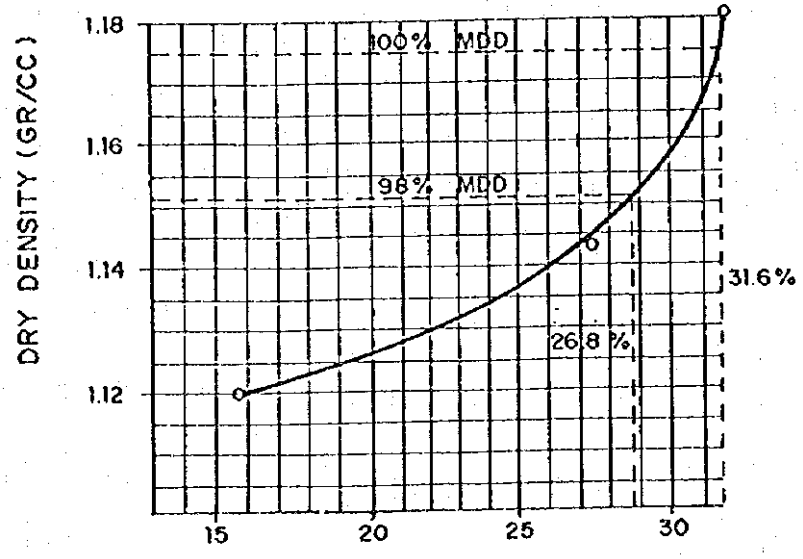
CHECKED BY:

N.C. Pelayo

DATE: 9-23-95



PENETRATION CURVE (CBR)



CBR VALUE CURVE

THE GOVERNMENT OF THE PHILIPPINES THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
THE STUDY ON FLOOD AND MUDFLOW CONTROL FOR SACOBIA-BAMBAN/ABACAN RIVER DRAINING FROM MT.PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

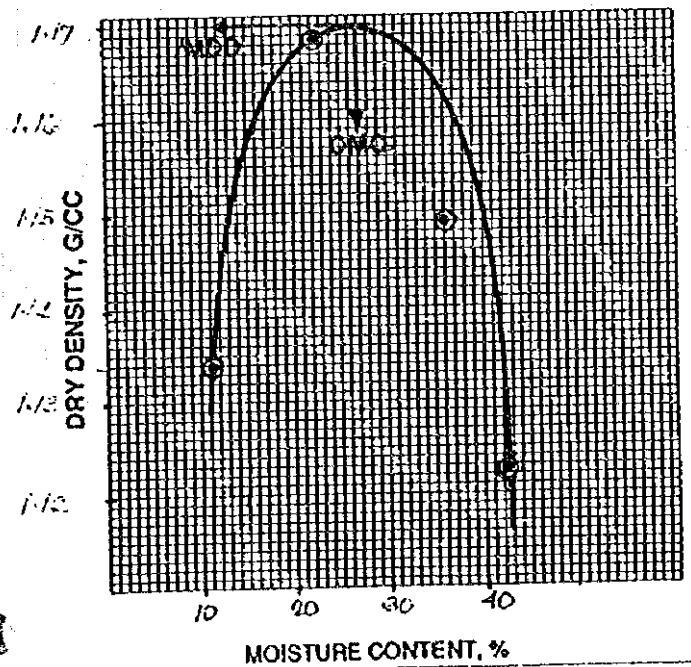
MOISTURE-DENSITY RELATIONS OF SOILS

ASSHTO DESIGNATION: T-99, T-180
ASTM DESIGNATION: D-698 D-1457 D-1557

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL: Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

TEST WATER	1	2	3	4	5	6
WATER ADDED - CC	Moist	300	600	900		
CYLINDER AND WET EARTH	8331	8684	8950	9025		
CYLINDER	5756	5756	5756	5756		
WET EARTH	2575	2928	3194	3269		
WET DENSITY/G/CC.	1.261	1.434	1.564	1.601		
CAN NUMBER	8	1	15	3		
CAN AND WET SOIL	329.60	314.70	367.40	414.20		
CAN AND DRY SOIL	301.10	264.70	281.90	304.30		
WATER	28.50	50.0	85.50	109.90		
CAN	47.0	43.85	45.00	46.00		
DRY SOIL	254.10	220.85	236.90	258.30		
MOIST CONT. % DRY WEIGHT	11.22	22.64	36.09	42.55		
DRY DENSITY, G/CC.	1.134	1.169	1.149	1.123		



HEIGHT	11.67	CM.
VOLUME	2042.06	CC
HAMMER WEIGHT	4535.15	GR.
HAMMER DROP	45.15	CM.
BLOWS / LAYER	56	
NO. OF LAYERS	3	
MAX. DRY DENSITY	1.170	G/CC.
OPT. MOISTURE CONTENT	27.00	%
TESTED BY	Simbillo C.J./Cunan M.	
DATE TESTED	9-25-95	
COMPUTED BY	N.C. Pelayo	
CHECKED BY	N.C. Pelayo	
REPORTED		
AASHTO DESIGNATION	T-180 Method D	

RDPCI-92- 028

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

CALIFORNIA BEARING RATIO
AASHTO T-193 ASTM D-1883

TRN: _____

PROJECT		DATE SAMPLED	DATE OF REPORT
Informational/JICA STUDY TEAM		9-11-95	9-30-95
SPECIFICATION	PURPOSE OF MATERIAL	ITEM NO.	TYPE OF MATERIAL
			Lahar
SAMPLED AT (stockpile, batch plant, place, etc.)		SOURCE: (River, quarry, etc.)	

DRY DENSITY	AS MOLDED			AFTER SOAKING		
A. Blows	10	30	65	10	30	65
B. Mold No.	A	B	C	A	B	C
C. Wt. of mold + Wet Soil	10528	11276	10607	10592	11333	10642
D. Wt. of mold	7368	8086	7326	7368	8086	7326
E. Wt. of wet soil	3160	3190	3281	3224	3247	3316
F. Wet Density	1.421	1.447	1.496	1.450	1.473	1.512
G. Moisture content	26.33	27.05	26.54	28.10	28.01	27.39
H. Dry Density	1.125	1.139	1.182	1.132	1.151	1.187

MOISTURE CONTENT	AS MOLDED			AFTER SOAKING		
A. Bowls	10	30	65	10	30	65
B. Wt. of can + wet soil	410.20	404.70	364.20	369.90	372.90	382.80
C. Wt. of can + dry soil	334.10	328.30	297.40	298.50	301.10	310.40
D. Wt. of water	76.10	76.40	66.80	71.40	71.80	72.40
E. Can No.	15	20	11	21	19	2
F. Wt. of can	45.0	46.0	45.62	44.33	44.87	45.98
G. Wt. of dry soil	289.1	282.3	251.78	254.17	256.23	264.42
H. Moisture content	26.33	27.05	26.54	28.10	28.01	27.39

RDPCI-92-029

SOAKED C.B.R. PENETRATION DATA:

PENETRATION	MACHINE LOAD (LBS.)			SPECIFIC LOAD (PSI)			C.B.R. VALUE		
	10 B	30 B	65 B	10 B	30 B	65 B	10 B	30 B	65 B
0.025	76	96	127	25	32	42			
0.050	152	234	279	51	78	93			
0.075	306	360	486	102	120	162			
0.100	432	564	840	144	188	280	12.4	18.8	28.0
0.125	540	840	1134	180	280	378			
0.150	654	1080	1350	218	360	450			
0.175	744	1260	1470	248	420	490			
0.200	792	1380	1530	264	460	510	17.6	30.7	34.0
0.225									
0.250									
0.275									
0.300									
0.325									
0.350									
0.375									
0.400									

CORRECTED C.B.R. VALUE:

Penetration	Blows	10	30	65
0.100		13.0	14.5	22.0
0.200		15.2	25.5	28.0

SWELL,

10	30	65
0	0	0

REMARKS:

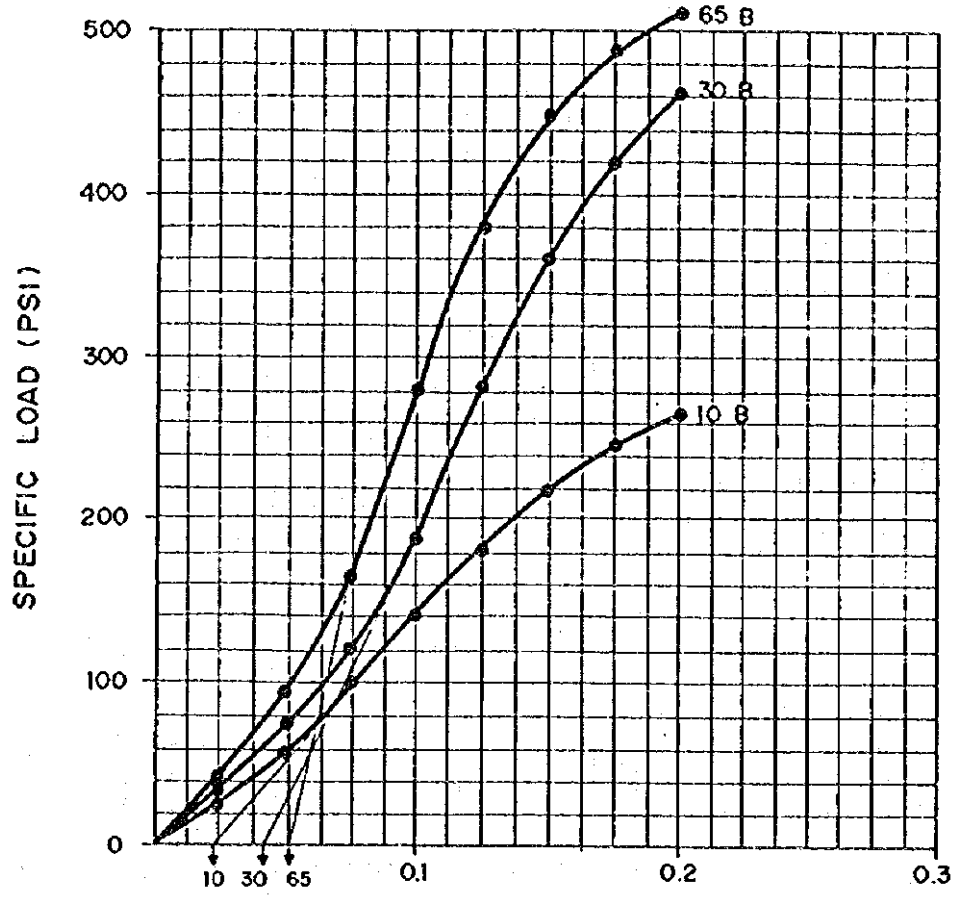
Wt. of surcharge; -
Number of layers =
Volume of molded specimen =
area of piston =
Number of blows

TESTED BY: Simbillo C.J./Cunan M.

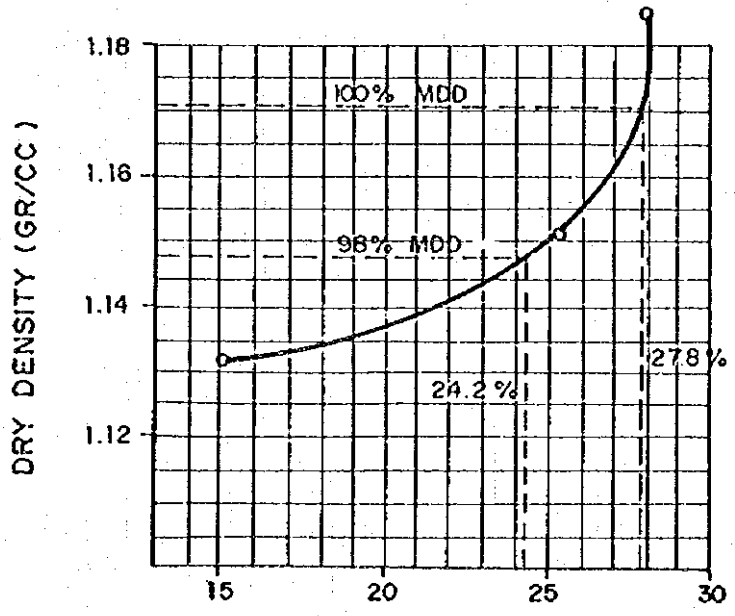
DATE: 9-26-95

CHECKED BY: N.C. Pelayo

DATE: 9-30-95



PENETRATION CURVE (CBR)



CBR VALUE CURVE

THE GOVERNMENT OF THE PHILIPPINES
THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
THE STUDY ON FLOOD AND MUDFLOW CONTROL
FOR SACOBIA-BAMBAN/ABACAN RIVER
DRAINING FROM MT.PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

DATABOOK

SEDIMENT SURVEY

(DB.4)

DATABOOK (DB.4)

SEDIMENT SURVEY

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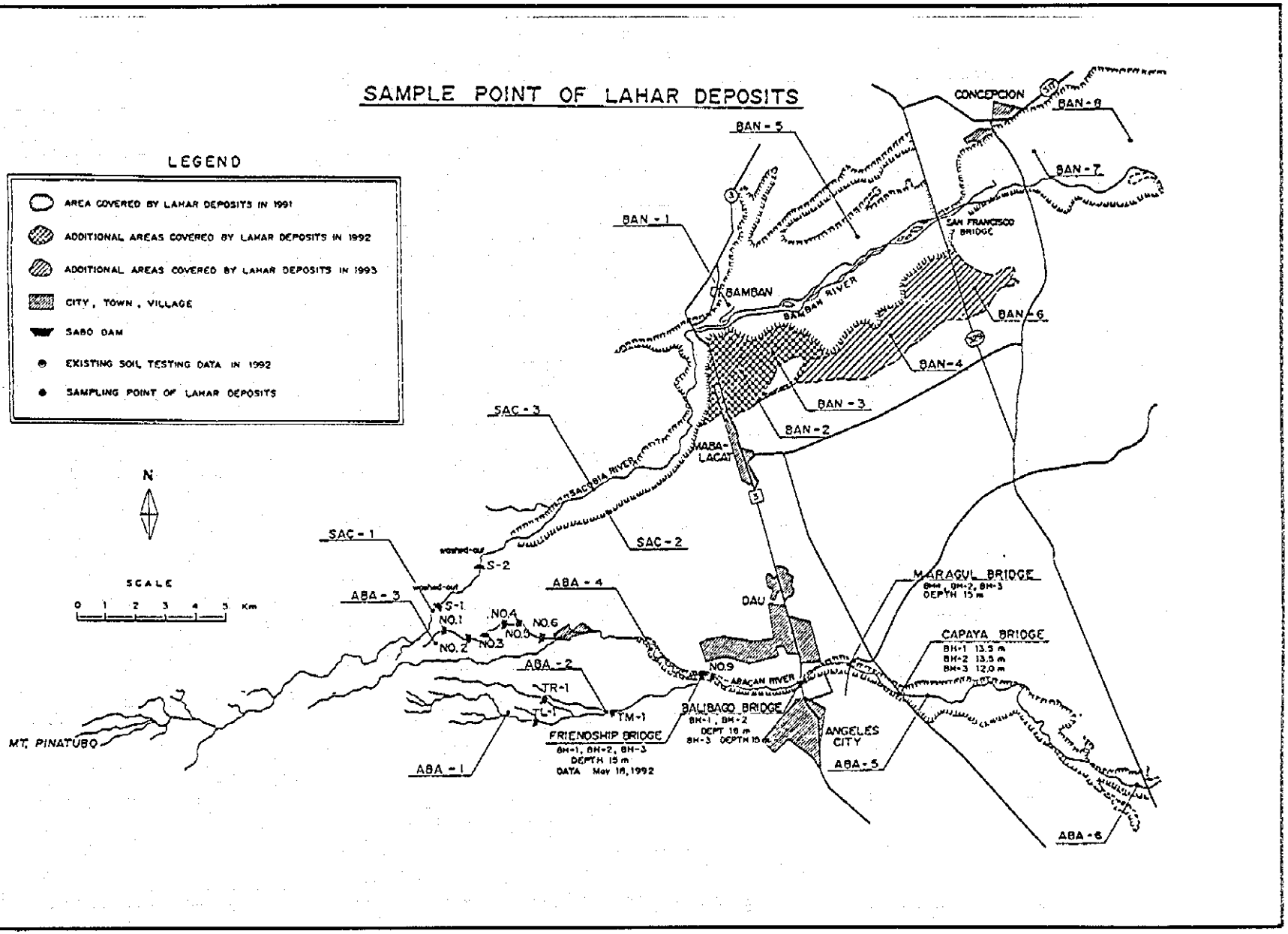
PART I

GRAIN SIZE ANALYSIS FOR LAHAR DEPOSIT



THE GOVERNMENT OF THE PHILIPPINES
THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
THE STUDY ON FLOOD AND MUDFLOW CONTROL
FOR SACOBIA-BAMBAN/ABACAN RIVER
DRAINING FROM MT. PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

SACOBIA RIVER

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAC-1
LOCATION : 10m upstream from Sabo Dam S-1	DATE : 5-09-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Sacobia River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	97.46	100	97.73
19.0 mm	97.46	99.31	97.31
12.5 mm	97.46	99.31	96.00
9.5 mm	96.86	98.35	95.33
4.75 mm	95.03	95.22	92.52
2.36 mm	90.08	89.62	87.50
1.18 mm	74.10	75.89	71.93
0.60 mm	36.11	43.35	36.35
0.30 mm	7.89	11.46	8.69
0.150 mm	0.30	1.85	1.58
0.075 mm	0.22	0.95	1.00
SPECIFIC GRAVITY	2.58	2.75	2.54
ABSORPTION (%)	8.11	9.72	8.60
UNIT WEIGHT (kg/m3)			
Rodded	1461.66	1477.19	1514.38
Loose	1209.34	1206.99	1204.63

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAG-1
LOCATION : 10m upstream from Saso Dam (S-1)	DATE : 5-10-94
TYPE OF MATERIALS : Lahar Material (PA)	SOURCE : SAGOBIA RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water , gr	680.60	680.60	680.50
3. WT. of pycnometer + sample + water, gr	963.70	970.40	959.90
4. WT. of water, gr, (3-2)	283.10	289.80	279.30
5. WT. of oven-dry sample, gr	462.50	455.70	460.40
6. Bulk specific gravity (dry), 5/(500-4)	2.13	2.17	2.09
7. Bulk specific gravity (SSD), 1/(500-4)	2.31	2.38	2.27
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	2.58	2.75	2.54
9. Absorption, %, (1-5)/5 x 100	8.11	9.72	8.60

R.D. POLICARPIO & CO., INC.

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MECHANICAL ANALYSIS

TRN: SA-0046-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION:	PURPOSE OF MATERIAL:
SAMPLED BY AND DATE: RDPCI/04-26-94	
SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 1, SAMPLE # 1	SOURCE: River, quarry, etc.: SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	487.30		2.61		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	12.20	2.54	97.46	97		
3/4"	19.1	0.00	0.00	97.46	97		
1/2"	12.7	0.00	0.00	97.46	97		
3/8"	0.52	2.90	0.60	96.86	97		
No. 4	4.75	8.80	1.83	95.03	95		
No. 8	2.38	23.80	4.95	90.08	90		
No. 10	2.00						
No. 12	1.65						
No. 16	1.19	76.80	15.98	74.10	74		
No. 20	0.84						
No. 30	.59	182.80	37.99	36.11	36		
No. 40	.42						
No. 50	297	135.60	28.22	7.89	8		
No. 60	280						
No. 80	177	36.50	7.59	0.30	0		
No. 100	149						
No. 200	074	0.40	0.08	0.22	0		
PAN		1.10					
WASH							
TOTAL		481.20					

FINENESS MODULUS: _____

UNIT WEIGHT PCF.: _____

TESTED BY: MC MIRASOL — DATE: 05-07-94

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY LOOSE: 1209.34

DRY RODDED: 1461.86

R.D. POLICARPIO & CO., INC.

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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 10m upstream from Sabo Dam (S-1)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-046-94
DATE: 5-10-94
SOURCE: SACORIA-1, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	963.7		
4.	WT. OF WATER GR. (3-2)	283.1		
5.	WT. OF OVEN-DRY SAMPLE GR.	462.5		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.13		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.31		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.58		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	8.11		

TESTED BY: M.C. Miresol
DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zorrilla

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN SA-0047-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-26-94	
SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 1, SAMPLE # 2	SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	483.60		3.39		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8	0.00	0.00	100.00	100		
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	3.30	0.69	99.31	99		
3/4"	19.1	0.00	0.00	99.31	99		
1/2"	12.7	4.60	0.96	98.35	98		
3/8"	0.52	15.00	3.13	95.22	95		
No. 4	4.75	26.80	5.60	89.62	90		
No. 8	2.38						
No. 10	2.00						
No. 12	1.65	65.70	13.73	75.89	76		
No. 16	1.10						
No. 20	0.84	155.70	32.54	43.35	43		
No. 30	.59						
No. 40	.42	152.60	31.89	11.46	11		
No. 50	297						
No. 60	280						
No. 80	177	46.00	9.61	1.85	2		
No. 100	149	4.30	0.90	0.95	1		
No. 200	074	4.50					
PAN							
WASH							
TOTAL		478.50					

FINENESS MODULUS: _____

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL — DATE: 05-09-94

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY LOOSE: 1206.99

DRY RODDED: 1477.19

R.D. POLICARPIO & CO., INC.

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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 10m upstream from Sabo Dam (S-1)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-047-94
DATE: 5-10-94
SOURCE: SACOBIA-1, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	970.4		
4.	WT. OF WATER GR. (3-2)	289.8		
5.	WT. OF OVEN-DRY SAMPLE GR.	455.7		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.17		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.38		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.75		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	9.72		

TESTED BY: K.C. Miraflor
CHECKED AND NOTED BY: G.L. Zervoulakos

DATE REPORTED 6-01-94

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0048-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-26-94

SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 1, SAMPLE # 3

SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	484.50		3.20		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8	0.00	0.00	100.00	100		
1-1/2"	08.1						
1"	25.4	10.90	2.27	97.73	98		
3/4"	19.1	2.00	0.42	97.31	97		
1/2"	12.7	6.30	1.31	96.00	96		
3/8"	0.52	3.20	0.67	95.33	95		
No. 4	4.75	13.50	2.81	92.52	93		
No. 8	2.38	24.10	5.02	87.50	88		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	74.70	15.57	71.93	72		
No. 20	0.84						
No. 30	.59	170.70	35.58	36.35	36		
No. 40	.42						
No. 50	297	132.70	27.66	8.69	9		
No. 60	280						
No. 80	177						
No. 100	149	34.10	7.11	1.58	2		
No. 200	074	2.80	0.58	1.00	1		
PAN		4.70					
WASH							
TOTAL		479.70					

FINENESS MODULUS:

UNIT WEIGHT PCF.:

TESTED BY: MC MIRASOL — DATE: 05-09-94

DRY LOOSE: 1204.63

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1514.38

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 10m upstream from Sabo Dam (S-1)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-048-94
DATE: 5-10-94
SOURCE: SACOBIA-1, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.5		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	959.9		
4.	WT. OF WATER GR. (3-2)	279.30		
5.	WT. OF OVEN-DRY SAMPLE GR.	460.40		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.09		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.27		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.54		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	8.60		

TESTED BY: M.C. Kirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Tervoulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAC-2
LOCATION : Right bank @ 5Km downstream from Sabo Dam (S-2)	DATE : 5-12-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Sacobia River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100.	100
25.0 mm	100	100	100
19.0 mm	100	100	100
12.5 mm	100	100	99.45
9.5 mm	99.74	99.22	99.35
4.75 mm	96.86	96.05	96.65
2.36 mm	89.89	90.11	91.32
1.18 mm	70.64	66.94	74.69
0.60 mm	39.98	34.19	50.24
0.30 mm	11.69	9.37	22.84
0.150 mm	1.88	1.79	2.41
0.075 mm	1.23	1.20	0.76
SPECIFIC GRAVITY	2.52	2.39	2.58
ABSORPTION (%)	7.76	6.27	6.43
UNIT WEIGHT (kg/m3)			
Rodded	1442.83	1458.36	1351.03
Loose	1228.64	1210.28	1216.40

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAC-2
LOCATION : Right bank at 5km downstream from Sabo Dam (S-2)	DATE : 5-12-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : SACORIA RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water , gr	680.60	680.60	680.50
3. WT. of pycnometer + sample + water, gr	960.50	954.30	968.20
4. WT. of water, gr, (3-2)	279.90	273.70	287.70
5. WT. of oven-dry sample, gr	464.00	470.50	469.80
6. Bulk specific gravity (dry), 5/(500-4)	2.11	2.08	2.21
7. Bulk specific gravity (SSD), 1/(500-4)	2.27	2.21	2.36
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	2.52	2.39	2.58
9. Absorption, %, (1-5)/5 x 100	7.76	6.27	6.43

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0049-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-26-94	
SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 2, SAMPLE # 1	SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	497.00		0.60		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	1.30	0.26	99.74	100		
No. 4	4.75	14.20	2.88	96.86	97		
No. 8	2.38	34.40	6.97	89.89	90		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	95.00	19.25	70.64	71		
No. 20	0.84						
No. 30	.59	151.30	30.66	39.98	40		
No. 40	.42						
No. 50	297	139.60	28.29	11.69	12		
No. 60	280						
No. 80	177						
No. 100	149	48.40	9.81	1.88	2		
No. 200	074	3.20	0.65	1.23	1		
PAN		6.10					
WASH							
TOTAL		493.50					

FINENESS MODULUS: _____

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL — DATE: 05-11-94

DRY LOOSE: 1228.64

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1442.83

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Right Bank at 5km downstream from ~~Saco Dam (S-2)~~
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-049-94
DATE: 5-12-94
SOURCE: SACOBIA-2, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3\text{-}6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3\text{-}6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3\text{-}6)-(3\text{-}7)}$			
11.	ABSORPTION % $\frac{(3\text{-}7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	960.5		
4.	WT. OF WATER GR. (3-2)	279.9		
5.	WT. OF OVEN-DRY SAMPLE GR.	464.0		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.11		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.27		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500\text{-}4)-(1\text{-}5)}$	2.52		
9.	ABSORPTION % $\frac{(1\text{-}5)}{5} \times 100$	7.76		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0050-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-26-94

SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 2, SAMPLE # 2

SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	495.00		1.01		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	3.80	0.78	99.22	99		
No. 4	4.75	15.50	3.17	96.05	96		
No. 8	2.38	29.10	5.94	90.11	90		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	113.40	23.17	66.94	67		
No. 20	0.84						
No. 30	.59	160.30	32.75	34.19	34		
No. 40	.42						
No. 50	297	121.50	24.82	9.37	9		
No. 60	280						
No. 80	177						
No. 100	149	37.10	7.58	1.79	2		
No. 200	074	2.90	0.59	1.20	1		
PAN		5.90					
WASH							
TOTAL		489.50					

FINENESS MODULUS:

UNIT WEIGHT PCF.:

TESTED BY: MC MIRASOL — DATE: 05-11-94

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY LOOSE: 1210.28

DRY RODDED: 1458.36

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Right Bank at 5km downstream from Sabo Dam (S-2)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-050-94
DATE: 5-12-94
SOURCE: SACOBIA-2, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3\text{-}6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3\text{-}6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3\text{-}6)-(3\text{-}7)}$			
11.	ABSORPTION % $\frac{(3\text{-}7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	954.3		
4.	WT. OF WATER GR. (3-2)	273.7		
5.	WT. OF OVEN-DRY SAMPLE GR.	470.50		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.08		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.21		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500\text{-}4)-(1\text{-}5)}$	2.39		
9.	ABSORPTION % $\frac{(1\text{-}5)}{5} \times 100$	6.27		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0051-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-26-94

SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 2, SAMPLE # 3

SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	496.10		0.79		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	2.70	0.55	99.45	99		
3/8"	0.52	0.50	0.10	99.35	99		
No. 4	4.75	13.20	2.70	96.65	97		
No. 8	2.38	26.10	5.33	91.32	91		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	81.40	16.63	74.69	75		
No. 20	0.84						
No. 30	.59	119.70	24.45	50.24	50		
No. 40	.42						
No. 50	297	134.10	27.40	22.84	23		
No. 60	280						
No. 80	177						
No. 100	149	100.00	20.43	2.41	2		
No. 200	074	8.10	1.65	0.76	1		
PAN		3.70					
WASH							
TOTAL		489.50					

FINENESS MODULUS:

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL DATE: 05-11-94

DRY LOOSE: 1216.40

CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY RODDED: 1351.03

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Right Bank at 5km downstream from Saco Dam (S-2)
TYPE OF MATERIALS:

TEST REPORT NO.: SG-051-94
DATE: 5-12-94
SOURCE: SACOBIA-2, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.5		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	968.2		
4.	WT. OF WATER GR. (3-2)	287.70		
5.	WT. OF OVEN-DRY SAMPLE GR.	469.80		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.21		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.36		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.58		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	6.43		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAC-3
LOCATION : Left bank @ 5km downstream from Sabo Dam (S-2)	DATE : 5-02-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Sacobia River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	100	100
12.5 mm	99.61	98.90	100
9.5 mm	99.13	95.94	99.61
4.75 mm	96.36	93.12	96.52
2.36 mm	90.72	85.64	91.23
1.18 mm	78.15	72.09	77.39
0.60 mm	51.78	50.59	50.83
0.30 mm	21.71	18.71	21.12
0.150 mm	2.43	1.78	3.27
0.075 mm	1.21	0.33	1.40
SPECIFIC GRAVITY	2.57	2.68	2.70
ABSORPTION (%)	5.24	8.51	6.38
UNIT WEIGHT (kg/m3)			
Rodded	1396.70	1420.70	1353.39
Loose	1167.44	1179.68	1148.61

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. SAC-3
LOCATION : Left bank at 5km downstream form Sabo Dam (S-2)	DATE : 5-04-94
TYPE OF MATERIALS : Lahar Matorial (FA)	SOURCE : SACOBIA RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water , gr	680.60	680.60	680.60
3. WT. of pycnometer + sample + water, gr	971.00	969.20	976.40
4. WT. of water, gr, (3-2)	290.40	288.60	295.80
5. WT. of oven-dry sample, gr	475.10	460.80	470.00
6. Bulk specific gravity (dry), 5/(500-4)	2.27	2.18	2.30
7. Bulk specific gravity (SSD), 1/(500-4)	2.39	2.37	2.45
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	2.57	2.68	2.70
9. Absorption, %, (1-5)/5 x 100	5.64	8.51	6.38

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0037-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-20-94

SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 3, SAMPLE # 1

SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	488.50		2.35		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	1.90	0.38	99.61	100		
3/8"	0.52	2.30	0.48	99.13	99		
No. 4	4.75	13.40	2.77	96.36	96		
No. 8	2.38	27.30	5.64	90.72	91		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	60.80	12.57	78.15	78		
No. 20	0.84						
No. 30	.59	127.60	26.37	51.78	52		
No. 40	.42						
No. 50	297	145.50	30.07	21.71	22		
No. 60	280						
No. 80	177						
No. 100	149	93.30	19.28	2.43	2		
No. 200	074	5.90	1.22	1.21	1		
PAN		5.80					
WASH							
TOTAL		483.80					

FINENESS MODULUS:

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL — DATE: 05-02-94

DRY LOOSE: 1167.44

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1396.70

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Left Bank, at 5km downstream from Saho Dam (S-2)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-037-94
DATE: 5-04-94
SOURCE: SACOBIA-3, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	971.0		
4.	WT. OF WATER GR. (3-2)	290.4		
5.	WT. OF OVEN-DRY SAMPLE GR.	475.1		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.27		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.39		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.68		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	8.51		

TESTED BY: M.C. Kirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zerpoulasco

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0038-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-20-94	
SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 3, SAMPLE # 2	SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	488.70		2.31		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	5.30	1.10	98.90	99		
3/8"	0.52	14.30	2.96	95.94	96		
No. 4	4.75	13.60	2.82	93.12	93		
No. 8	2.38	36.10	7.48	85.64	86		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	65.40	13.55	72.09	72		
No. 20	0.84						
No. 30	.59	103.80	21.50	50.59	51		
No. 40	.42						
No. 50	297	153.90	31.88	18.71	19		
No. 60	280						
No. 80	177						
No. 100	149	81.70	16.93	1.78	2		
No. 200	074	7.00	1.45	0.33	0		
PAN		1.60					
WASH							
TOTAL		482.70					

FINENESS MODULUS: _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 05-02-94

CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE: 1179.60

DRY RODDED: 1420.70

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Left Bank at 5km downstream from Sabo Dam (S-2)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-038-94
DATE: 5-04-94
SOURCE: SACOBIA-3, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	969.2		
4.	WT. OF WATER GR. (3-2)	288.6		
5.	WT. OF OVEN-DRY SAMPLE GR.	460.8		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.18		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.37		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.68		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	8.51		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: Gaile Zervoulakos

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN SA-0039-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-20-94

SAMPLED AT (stockpile, batch plant, place, etc.): SACOBIA # 3, SAMPLE # 3

SOURCE: River, quarry, etc.): SACOBIA RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	489.20		2.21		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH OC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	1.90	0.39	99.61	100		
No. 4	4.75	15.00	3.09	96.52	97		
No. 8	2.38	25.70	5.28	91.23	91		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	67.20	13.84	77.39	77		
No. 20	0.84						
No. 30	.59	129.00	26.56	50.83	51		
No. 40	.42						
No. 50	297	144.30	29.71	21.12	21		
No. 60	280						
No. 80	177						
No. 100	149	86.70	17.85	3.27	3		
No. 200	074	9.10	1.87	1.40	1		
PAN		6.80					
WASH							
TOTAL		485.70					

FINENESS MODULUS:

UNIT WEIGHT PCF.:

TESTED BY: MC MIRASOL — DATE: 05-02-94

DRY LOOSE: 1148.61

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1353.39

R.D. POLICARPIO & CO., INC.

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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: Left Bank at downstream from Sabo Dam (S-2)
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-039-94
DATE: 5-04-94
SOURCE: SACOBIA-3, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.6		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	976.4		
4.	WT. OF WATER GR. (3-2)	295.8		
5.	WT. OF OVEN-DRY SAMPLE GR.	470.0		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.30		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.45		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.70		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	6.38		

TESTED BY: M.C. Miresol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Serpoulakos

BAMBAN RIVER

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAH-1
LOCATION : 1Km southeast of Bamban Town	DATE : 4-25-94
TYPE OF MATERIALS : Lahar Materials (FA)	SOURCE : Bamban River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	98.58	100
12.5 mm	99.76	98.58	100
9.5 mm	97.71	96.69	100
4.75 mm	95.58	94.16	97.39
2.36 mm	95.12	88.81	91.75
1.18 mm	87.69	75.31	78.00
0.60 mm	40.80	44.63	50.22
0.30 mm	18.99	19.57	26.26
0.150 mm	3.04	4.46	4.95
0.075 mm	2.86	4.42	4.75
SPECIFIC GRAVITY	2.46	2.44	2.50
ABSORPTION (%)	4.01	5.35	3.22
UNIT WEIGHT (kg/m3)			
Rodded	1446.57	1433.64	1376.35
Loose	1209.12	1198.32	1167.81

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAN-1
LOCATION : 1km southeast of Bamban town	DATE : 4-26-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : BAMBAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water , gr	680.40	680.50	680.50
3. WT. of pycnometer + sample + water, gr	965.60	960.30	971.40
4. WT. of water, gr, (3-2)	285.20	279.80	290.90
5. WT. of oven-dry sample, gr	480.70	474.60	484.40
6. Bulk specific gravity (dry), 5/(500-4)	2.24	2.16	2.32
7. Bulk specific gravity (SSD), 1/(500-4)	2.33	2.27	2.39
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	2.46	2.44	2.5
9. Absorption, %, (1-5)/5 x 100	4.01	5.35	3.22

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0022-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 1, SAMPLE # 1	SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	498.40		0.12		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	1.20	0.24	99.76	100		
3/8"	0.52	10.20	2.05	97.71	98		
No. 4	4.75	10.60	2.13	95.58	96		
No. 8	2.38	2.30	0.46	95.12	95		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	36.90	7.43	87.69	88		
No. 20	0.84						
No. 30	.59	232.80	46.89	40.80	41		
No. 40	.42						
No. 50	297	108.30	21.81	18.99	19		
No. 60	280						
No. 80	177						
No. 100	149	79.20	15.95	3.04	3		
No. 200	074	0.90	0.18	2.86	3		
PAN		14.10					
WASH							
TOTAL		496.50					

FINENESS MODULUS: _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL _____ DATE: 04-25-94

CHECKED BY: GL ZERVOULAKOS _____ DATE: 05-20-94

DRY LOOSE: 1209.12

DRY RODDED: 1446.57

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 1km southeast of Bamban town
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-022-94
DATE: 4-26-94
SOURCE: Bamban-1, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.40		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	965.60		
4.	WT. OF WATER GR. (3-2)	285.20		
5.	WT. OF OVEN-DRY SAMPLE GR.	480.70		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.24		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.33		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.46		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	4.01		

TESTED BY: M.C. Miraflor
DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.B. Zorrilakos

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0023-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION:	PURPOSE OF MATERIAL:
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 1, SAMPLE # 2	SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	498.10		0.38		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	7.00	1.42	98.58	99		
1/2"	12.7	0.00	0.00	98.58	99		
3/8"	0.52	9.30	1.89	96.69	97		
No. 4	4.75	12.50	2.53	94.16	94		
No. 8	2.38	26.40	5.35	88.81	89		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	66.60	13.50	75.31	75		
No. 20	0.84						
No. 30	.59	151.30	30.68	44.63	45		
No. 40	.42						
No. 50	297	123.60	25.06	19.57	20		
No. 60	280						
No. 80	177						
No. 100	149	74.50	15.11	4.46	4		
No. 200	074	0.20	0.04	4.42	4		
PAN		21.80					
WASH							
TOTAL		493.20					

FINENESS MODULUS:

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL DATE: 04-25-94

CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE: 1198.32

DRY RODDED: 1433.64

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 1km southeast of Bamban town
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-023-94
DATE: 4-26-94
SOURCE: Bamban-1, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.50		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	960.30		
4.	WT. OF WATER GR. (3-2)	279.80		
5.	WT. OF OVEN-DRY SAMPLE GR.	474.60		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.16		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.27		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.44		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	5.35		

TESTED BY: N.O. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoudakos

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0024-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 1, SAMPLE # 3	SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	499.10		0.18		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	0.00	0.00	100.00	100		
No. 4	4.75	12.90	2.61	97.39	97		
No. 8	2.38	27.90	5.64	91.75	92		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	68.00	13.75	78.00	78		
No. 20	0.84						
No. 30	.59	137.40	27.78	50.22	50		
No. 40	.42						
No. 50	297	118.50	23.96	26.26	26		
No. 60	280						
No. 80	177						
No. 100	149	105.40	21.31	4.95	5		
No. 200	074	1.00	0.20	4.75	5		
PAN		23.50					
WASH							
TOTAL		494.60					

FINENESS MODULUS: _____

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL DATE: 04-25-84

DRY LOOSE: 1167.81

CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY RODDED: 1376.35

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 1km southeast of Bamban bridge
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-024-94
DATE: 4-26-94
SOURCE: Bamban-1, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3\text{-}6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3\text{-}6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3\text{-}6)-(3\text{-}7)}$			
11.	ABSORPTION % $\frac{(3\text{-}7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.50		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	971.40		
4.	WT. OF WATER GR. (3-2)	290.90		
5.	WT. OF OVEN-DRY SAMPLE GR.	484.40		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.32		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.39		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500\text{-}4)-(1\text{-}5)}$	2.5		
9.	ABSORPTION % $\frac{(1\text{-}5)}{5} \times 100$	3.22		

TESTED BY: R.C. Miresol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAM-3
LOCATION : 3 Km southeast of Bamban Town	DATE : 4-28-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Bamban River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	100	100
12.5 mm	100	100	100
9.5 mm	99.53	99.72	100
4.75 mm	97.85	97.61	99.25
2.36 mm	92.92	92.36	93.55
1.18 mm	77.79	72.96	77.21
0.60 mm	48.09	41.24	46.62
0.30 mm	25.79	14.53	16.92
0.150 mm	7.15	2.80	3.16
0.075 mm	2.67	1.14	1.61
SPECIFIC GRAVITY	2.63	2.67	2.61
ABSORPTION (%)	4.87	5.62	4.04
UNIT WEIGHT (kg/m3)			
Rodded	1518.62	1507.32	1567.58
Loose	1293.13	1274.30	1275.71

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAB-3
LOCATION :3km southeast of Bamban town	DATE : 4-29-94
TYPE OF MATERIALS :Lahar Material (FA)	SOURCE : BAMBAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + woter , gr	680.70	680.50	680.70
3. WT. of pycnometer + sample + water, gr	976.20	976.40	977.40
4. WT. of water, gr, (3-2)	295.50	295.90	296.70
5. WT. of oven-dry sample, gr	976.80	473.40	480.60
6. Bulk specific gravity (dry), 5/(500-4)	2.33	2.32	2.36
7. Bulk specific gravity (SSD), 1/(500-4)	2.44	2.45	2.46
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	2.63	2.67	2.61
9. Absorption, %, (1-5)/5 x 100	4.87	5.62	4.04

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0028-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 3, SAMPLE # 1	SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	495.50		0.91		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	2.30	0.47	99.53	100		
No. 4	4.75	8.30	1.68	97.85	98		
No. 8	2.38	24.30	4.93	92.92	93		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	74.60	15.13	77.79	78		
No. 20	0.84						
No. 30	.59	146.40	29.70	48.09	48		
No. 40	.42						
No. 50	297	109.90	22.30	25.79	26		
No. 60	280						
No. 80	177						
No. 100	149	91.90	18.64	7.15	7		
No. 200	074	22.10	4.48	2.67	3		
PAN		13.10					
WASH							
TOTAL		492.90					

FINENESS MODULUS

UNIT WEIGHT PCF.

TESTED BY: MC MIRASOL DATE 04-28-94

DRY LOOSE 1293.13

CHECKED BY: GL ZERVOULAKOS DATE 05-20-94

DRY RODDED 1518.62

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 3km southeast of Bamban
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-028-94
DATE: 4-29-94
SOURCE: BAMBAN-3, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3\text{-}6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3\text{-}6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3\text{-}6)\text{-}(3\text{-}7)}$			
11.	ABSORPTION % $\frac{(3\text{-}7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.70		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	976.20		
4.	WT. OF WATER GR. (3-2)	295.50		
5.	WT. OF OVEN-DRY SAMPLE GR.	476.80		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500\text{-}4}$	2.33		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500\text{-}4}$	2.44		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500\text{-}4)\text{-}(1\text{-}5)}$	2.63		
9.	ABSORPTION % $\frac{(1\text{-}5)}{5} \times 100$	4.87		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0029-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION:	PURPOSE OF MATERIAL:
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 3, SAMPLE # 2	SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	494.90		1.03		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	1.40	0.28	99.72	100		
No. 4	4.75	10.40	2.11	97.61	98		
No. 8	2.38	25.90	5.25	92.36	92		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	95.70	19.40	72.96	73		
No. 20	0.84						
No. 30	.59	156.50	31.72	41.24	41		
No. 40	.42						
No. 50	297	131.80	26.71	14.53	15		
No. 60	280						
No. 80	177						
No. 100	149	57.90	11.73	2.80	3		
No. 200	074	8.20	1.66	1.14	1		
PAN		5.60					
WASH							
TOTAL		493.40					

FINENESS MODULUS:

UNIT WEIGHT PCF.

TESTED BY: HC HIRASOL — DATE: 04-28-94

DRY LOOSE: 1274.30

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1507.32

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 3km southeast of Bamban town
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-029-94
DATE: 4-29-94
SOURCE: BAMBAN-3, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.50		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	976.40		
4.	WT. OF WATER GR. (3-2)	295.50		
5.	WT. OF OVEN-DRY SAMPLE GR.	473.40		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.32		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.45		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4)-(1-5)}$	2.67		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	5.62		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94

CHECKED AND NOTED BY: C.L. Zafrvoulakos

R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0030-94

PROJECT: LAHAR MATERIAL SURVEY

DATE OF REPORT: 06-01-94

SPECIFICATION:

PURPOSE OF MATERIAL:

SAMPLED BY AND DATE: RDPCI/04-18-94

SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 3, SAMPLE # 3

SOURCE: River, quarry, etc.): BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	493.80		1.26		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	0.52	0.00	0.00	100.00	100		
No. 4	4.75	3.70	0.75	99.25	99		
No. 8	2.38	28.00	5.70	93.55	94		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	80.30	16.34	77.21	77		
No. 20	0.84						
No. 30	.59	150.30	30.59	46.62	47		
No. 40	.42						
No. 50	297	145.90	29.70	16.92	17		
No. 60	280						
No. 80	177						
No. 100	149	67.60	13.76	3.16	3		
No. 200	074	7.60	1.55	1.61	2		
PAN		7.90					
WASH							
TOTAL		491.30					

FINENESS MODULUS:

UNIT WEIGHT PCF.:

TESTED BY: MC MIRASOL — DATE: 04-28-94

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY LOOSE: 1275.71

DRY RODDED: 1567.58

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
LOCATION: 3km southeast of Bamban town
TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-030-94
DATE: 4-29-94
SOURCE: BAMBAN-3, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHD)

1.	WT OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3\text{-}6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3\text{-}6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3\text{-}6)\text{-}(3\text{-}7)}$			
11.	ABSORPTION % $\frac{(3\text{-}7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.70		
3.	WT. OF PYCNNOMETER + SAMPLE + WATER GR.	977.40		
4.	WT. OF WATER GR. (3-2)	296.70		
5.	WT. OF OVEN-DRY SAMPLE GR.	480.60		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500\text{-}4}$	2.36		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500\text{-}4}$	2.46		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500\text{-}4)\text{-}(1\text{-}5)}$	2.61		
9.	ABSORPTION % $\frac{(1\text{-}5)}{5} \times 100$	4.04		

TESTED BY: M.C. Mirasol
DATE REPORTED 6-01-94
CHECKED AND NOTED BY: G.L. Zervoulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAM-2
LOCATION : 3 Km south of Bamban Town	DATE : 4-25-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Bamban River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	98.90	98.78	100
12.5 mm	93.54	93.08	95.78
9.5 mm	90.77	87.57	90.70
4.75 mm	75.66	68.65	70.88
2.36 mm	58.06	50.56	54.09
1.18 mm	43.28	37.88	37.80
0.60 mm	24.05	26.95	17.64
0.30 mm	5.02	9.56	5.62
0.150 mm	0.51	1.79	0.93
0.075 mm	0.47	0.39	0.83
SPECIFIC GRAVITY	1.78	1.85	1.82
ABSORPTION (%)	13.48	11.16	13.51
UNIT WEIGHT (kg/m3)			
Rodded	1219.23	1101.54	1030.93
Loose	912.30	939.13	870.88

WORKSHEET FOR SPECIFIC GRAVITY TEST

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. BAN-2
LOCATION : 3km south of Bamban town	DATE : 4-27-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : BAMBAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), 7/(3-6)			
9. Bulk specific gravity (SSD), 3/(3-6)			
10. Apparent specific gravity, 7/{(3-6)-(3-7)}			
11. Absorption, %, (3-7)/7 x 100			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water , gr	1230.20	1230.60	1230.50
3. WT. of pycnometer + sample + water, gr	1423.50	1437.00	1429.20
4. WT. of water, gr, (3-2)	193.30	204.40	198.70
5. WT. of oven-dry sample, gr	440.60	449.80	440.50
6. Bulk specific gravity (dry), 5/(500-4)	1.44	1.53	1.46
7. Bulk specific gravity (SSD), 1/(500-4)	1.63	1.70	1.66
8. Apparent specific gravity, 5/{(500-4)-(1-5)}	1.78	1.85	1.82
9. Absorption, %, (1-5)/5 x 100	13.48	11.16	13.51

R.D. POLICARPIO & CO., INC.

ENGINEERS • CONTRACTORS • BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0025-94

PROJECT: LAHAR MATERIAL SURVEY	DATE OF REPORT: 06-01-94
SPECIFICATION:	PURPOSE OF MATERIAL:
SAMPLED BY AND DATE: RDPCI/04-18-94	
SAMPLED AT (stockpile, batch plant, place, etc.): BAMBAN # 2, SAMPLE # 1	SOURCE: River, quarry, etc.: BAMBAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAX. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	487.40		2.59		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	5.30	1.10	98.90	99		
1/2"	12.7	25.90	5.36	93.54	94		
3/8"	0.52	13.40	2.77	90.77	91		
No. 4	4.75	73.00	15.11	75.66	76		
No. 8	2.38	85.00	17.60	58.06	58		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	71.40	14.78	43.28	43		
No. 20	0.84						
No. 30	.59	92.90	19.23	24.05	24		
No. 40	.42						
No. 50	297	91.90	19.03	5.02	5		
No. 60	280						
No. 80	177						
No. 100	149	21.80	4.51	0.51	1		
No. 200	074	0.20	0.04	0.47	0		
PAN		2.20					
WASH							
TOTAL		483.00					

FINENESS MODULUS:

UNIT WEIGHT PCF.

TESTED BY: HC MIRASOL — DATE: 04-25-94

DRY LOOSE: 912.30

CHECKED BY: GL ZERVOULAKOS — DATE: 05-20-94

DRY RODDED: 1219.23