097.13 DPWH
4-17-91

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
MANILA

11 March 1991

DEPARTMENT ORDER)
No. 95)
Series of 1991)

SUBJECT : USE OF WEATHERED LIMESTONE (ANAPOG) AS BLENDING MATERIALS FOR BASE COURSE (ITEM 201)

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In order to maximize the use of locally available and good quality weathered limestone and to avoid delays in road construction arising from scarcity/non-availability of conventional base course materials in some areas, the use of 40% weathered limestone blended with 60% crushed stones or gravel is allowed; provided that, the blended materials meet the requirements of Item 201, Aggregate Base Course, of the 1988 DPWH Standard Specifications for Highways, Bridges and Airports, Volume II.

This order takes effect immediately.

JOSE P. DE JESUS
Secretary

B-189 4/17

ANNEX I - SUMMMARY OF TEST RESULTS ON BLENDED ANAPOG AND GRANULAR MATERIALS

MATERIALS	SIEVE ANALYSIS, % Passing										LIQUID LIMIT (LL)	PLASTICITY INDEX (PI)	MOISTURE-DENSITY RELATION		SOAKED CBR VALUES %			CBR at MDD (%)
	SIEVE SIZE, mm												MDD (kg/m3)	OMC (%)	10 Blows	30 Blows	65 Blows	
	50	37.5	25	19	12.5	9.5	4.75	2.0	0.425	0.075								
60% Ubujan Tubigon(G) & 40% San Isidro(A)	100	92	65	51	42	38	27	21	17	12			1959	9.1	23	74	174	108
40% Ubujan Tubigon(G) & 60% San Isidro(A)	100	89	74	64	54	50	39	32	26	19	22	3	1944	9.3	12.7	58	106	137.3
30% Ubujan Tubigon(G) & 70% San Isidro(A)	100	97	78	67	55	50	40	34	27	14			1951	8.0	8	58	163	135
60% Tayong(G) & 40% San Isidro(A)	100	99	71	54	41	35	28	23	17	12			1926	10.8	21.4	66.3	958	87
40% Tayong(G) & 60% San Isidro(A)	100	99	75	69	67	66	54	45	36	24	22	3	1897	10.0	6.8	41.7	92.1	110
30% Tayong(G) & 70% San Isidro(A)		100	75	68	63	61	48	40	32	18			1908	10.2	7.1	51.6	136	100
60% Ubujan Tubigon(G) & 40% Lapacan(A)	100	76	56	48	43	39	30	22	13	8			2028	8.4	24	38	50.5	36.3
40% Ubujan Tubigon(G) & 60% Lapacan(A)	100	83	70	66	60	57	46	34	19	11	26	7	2070	7.3	8.6	46.5	73.4	60
30% Ubujan Tubigon(G) & 70% Lapacan(A)	100	99	77	61	54	50	38	28	17	10			2032	8.0	6.9	35.5	52.6	51.1
60% Tayong(G) & 40% Lapacan(A)	100	98	67	54	43	40	38	24	13	7			2067	9.2	3.0	45	57	56
40% Tayong(G) & 60% Lapacan(A)		100	71	62	55	53	43	33	19	11	26	7	2060	7.9	17	54.3	82.3	73.2
30% Tayong(G) & 70% Lapacan(A)	100	99	80	73	68	65	52	37	21	12			2039	7.6	14.4	56.5	70.3	67.0
60% Cortez(G) & 40% Tayong(A)	100	93	69	56	51	45	32	24	14	8			2085	7.3	26.6	82.1	275.8	210
40% Cortez(G) & 60% Tayong(A)	100	86	67	61	58	55	42	31	19	11	NP	NP	2037	8.6	32.1	78	135.7	126.3
30% Cortez(G) & 70% Tayong(A)	100	85	71	68	66	62	48	36	22	13			2029	8.4	27.3	138	163	139
DPWH Standard Specification Requirements for Item 201 (Aggregate Base Course) Grading A	100	-	60-85	-	35-65		20-50		15-20	10-12	25 (max.)	6 (max.)	-	-	-	-	-	60 (min.)
Grading B	-	100	-	60-85	-	-	30-55	-	8-25	2-14								

Legend: G - Granular
A - Anapog

ANNEX II - SUMMARY OF TEST RESULTS ON ANAPOG

MATERIALS	TRIALS	TESTS																	
		SIEVE ANALYSIS, % Passing									HYDROMETER			ATTERBERG LIMIT		ABRASION (%)	ORGANIC CONTENT (%)	CALCIUM OXIDE (CaO), %
		SIEVE SIZE, mm									SMALLER THAN (mm)							
		37.5	25.0	19.0	12.5	9.5	4.75	2.00	0.425	0.075	0.02	0.002	0.001	L.L. (%)	P.I (%)			
Lapacan Quarry	1		100	96	89	85	74	62	40	23	11	4	4	27	7	44	5.5	
	2			100	98	94	83	70	46	29	9	2	2	26	8	42	5.9	2.42
	3		100	98	94	90	79	66	43	26	11	3	2	26	7	43	5.7	
San Isidro Quarry	1			100	99	90	65	51	40	27	24	3	2	22	2	49	1.3	
	2			100	100	96	82	67	58	42	27	3	2	23	4	46	1.4	48.48
	3			100	99	93	74	59	49	35	25	3	0	22	3	48	1.3	
Tayong Quarry	1	100	93	84	68	59	41	30	20	12	11	2	1	NP	NP	56	0.9	
	2	100	95	89	80	74	57	43	27	17	10	2	2	NP	NP	61	0.9	52.32
	3	100	95	94	84	74	61	48	30	11	11	1	0	NP	NP	47	0.8	