

Data of Tunnel Works

Table TS-1 Summary of Construction Cost for Tunnel Works

(1,000Baht)							
Location	Quantity		Construction Cost			Unit Cost (1,000Baht/m)	Remarks
	Main Tunnel (m)	Adit (m)	F.C. (1,000Baht)	L.C. (1,000Baht)	Total (1,000Baht)		
1 Kok-Ing Tunnel							
1-1 Kok-Ing No.1 Tunnel	3,046.99	-	827,178	234,790	1,061,968	349	
1-2 Kok-Ing No.2 Tunnel	5,415.02	-	1,414,465	388,191	1,802,656	333	
Subtotal("1-1" + "1-2")	8,462.01	-	2,241,643 78%	622,981 22%	2,864,624	339	
2 Ing-Yot Tunnel							
2-1 Ing-Yot No.1 Tunnel	2,008.21	-	594,877	163,114	757,991	377	
2-2 Ing-Yot No.2 Tunnel							
(1) Division 1	4,910.00	-	1,270,858	358,392	1,629,250	332	
(2) Division 2 with Adit No.1	4,550.00	1,981.99	1,389,592	393,885	1,783,477	392	
(3) Division 3 with Adit No.2	5,435.00	1,785.19	1,599,635	438,305	2,037,940	375	
(4) Division 4 with Adit No.3	7,215.00	2,193.75	1,940,864	503,636	2,444,500	339	
(5) Division 5 with Adit No.4	6,440.00	3,171.48	1,801,914	465,103	2,267,017	352	
(6) Division 6 with Adit No.5	6,400.00	2,476.00	1,837,916	481,022	2,318,938	362	
(7) Division 7 with Adit No.6	6,060.00	3,338.60	1,704,036	441,895	2,145,931	354	
(8) Division 8 with Adit No.7	4,950.00	2,431.92	1,357,340	377,450	1,734,790	350	
(9) Division 9	4,914.60	-	1,272,688	359,035	1,631,723	332	
Subtotal ("1" + "2")	50,874.60	17,378.93	14,174,843	3,818,723	17,993,566	354	
2-3 Subtotal ("2-1" + "2-2")	52,882.81	17,378.93	14,769,720 79%	3,981,837 21%	18,751,557	355	
3 Total ("1" + "2")	61,344.82	17,378.93	17,011,363 79%	4,604,818 21%	21,616,181	352	

(Baht/m)

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Table TS-3 Unit Rate per Meter of Ground Grade at Kok-Ing Tunnel

Ground Grade of Tunnel	B		C1		C2		D1		D2		E1		E2	
	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1 Excavation														
Excavation Volume Per Meter (m3/m)	0		77,179		77,179		81,488		82,574		85,897		87,008	
1-1 Upper Half	-	-	54,079	2,143	42,255	1,943	33,422	1,729	24,067	1,546	25,271	1,637	25,708	1,712
1-2 Lower Half	-	-	4,728	696	4,069	675	3,954	619	4,752	691	4,959	698	4,959	698
1-3 Invert	-	-	2,654	506	2,654	506	3,289	627	3,289	627	3,981	759	3,981	759
1-4 Tunnel Muck Disposal	-	-	4,709	926	4,709	926	4,972	978	5,039	991	5,240	1,031	5,313	1,045
Sub-total	-	-	66,170	4,271	53,687	4,050	45,637	3,953	37,147	3,855	39,451	4,125	39,961	4,214
2 Shotcrete														
2-1 Upper Half	-	-	14,540	2,876	15,479	2,897	20,637	4,356	25,437	4,831	25,639	4,876	32,746	6,246
2-2 Lower Half	-	-	4,338	820	4,380	822	5,491	1,262	6,447	1,435	6,447	1,435	7,963	1,641
Sub-total	-	-	18,878	3,696	19,859	3,719	26,128	5,618	31,884	6,266	32,086	6,311	40,709	7,887
3 Rock Bolts														
3-1 Upper Half	-	-	12,363	3,460	15,546	4,156	32,010	9,328	32,010	9,328	32,010	9,328	9,043	3,552
3-2 Forepiling	-	-	-	-	-	-	-	-	-	-	-	-	33,414	8,448
3-3 Lower Half	-	-	3,526	1,139	4,321	1,162	6,734	1,607	6,734	1,607	6,734	1,607	6,775	1,851
Sub-total	-	-	15,889	4,599	19,867	5,318	38,744	10,935	38,744	10,935	38,744	10,935	49,232	13,851
4 Steel Support														
4-1 Upper Half	-	-	-	-	20,048	2,198	29,043	3,193	34,088	3,753	49,354	5,449	49,354	5,449
4-2 Lower Half	-	-	-	-	-	-	8,876	953	13,984	1,520	14,046	1,527	14,046	1,527
4-3 Upper Wiremesh	-	-	-	-	-	-	4,208	368	4,208	368	4,208	368	4,208	368
4-4 Lower Wiremesh	-	-	-	-	-	-	-	-	2,429	301	2,429	301	2,429	301
Sub-total	-	-	-	-	20,048	2,198	42,127	4,514	54,709	5,942	70,037	7,645	70,037	7,645
5 Concrete Lining														
5-1 Arch & Rib Concrete	-	-	8,409	7,057	8,409	7,057	10,366	8,521	11,091	9,104	13,551	10,855	13,551	10,855
5-2 Waterproofing	-	-	15,246	409	15,246	409	15,246	409	15,246	409	17,325	409	17,325	409
5-3 Formwork for Invert	-	-	22	124	22	124	28	152	28	152	34	186	34	186
5-4 Invert Concrete	-	-	4,858	3,436	4,858	3,436	6,019	4,258	6,401	4,566	7,749	5,527	7,749	5,527
5-5 Reinforcing Bar	-	-	-	-	-	-	-	-	12,436	2,231	11,547	2,072	19,897	3,569
Sub-total	-	-	28,535	11,026	28,535	11,026	31,659	13,340	45,202	16,462	50,206	19,049	58,556	20,546
6 Drain Pipe														
	-	-	287	1,338	287	1,338	287	1,338	287	1,338	304	1,451	304	1,451
Total	-	-	129,759	24,930	142,283	27,649	184,582	39,698	207,973	44,798	230,828	49,516	258,799	55,594
	-	-		154,689		169,932		224,280		252,771		280,344		314,393

Table TS-4 Unit Rate per Meter of Ground Grade at Ing-Yot Tunnel without Adit

Ground Grade of Tunnel		B		C1		C2		D1		D2		E1		E2	
		FC.	L.C.	FC.	L.C.	FC.	L.C.	FC.	L.C.	FC.	L.C.	FC.	L.C.	FC.	L.C.
1	Excavation														
	Excavation Volume Per Meter (m3/m)		0	90,131		90,131		94,786		95,952		99,542		100,734	
	1-1 Upper Half	-	-	64,760	2,579	49,093	2,121	40,027	1,876	28,814	1,781	30,092	1,865	30,529	1,870
	1-2 Lower Half	-	-	5,288	709	6,002	758	5,740	745	6,730	755	6,984	773	7,193	773
	1-3 Invert	-	-	2,885	550	2,885	550	3,635	693	3,635	693	4,328	825	4,328	825
	1-4 Tunnel Muck Disposal	-	-	5,502	1,082	5,502	1,082	5,783	1,138	5,856	1,152	6,076	1,195	6,149	1,210
	Sub-total	-	-	78,435	4,920	63,482	4,511	55,185	4,452	45,035	4,381	47,480	4,658	48,199	4,678
2	Shotcrete														
	2-1 Upper Half	-	-	15,597	3,026	16,861	3,061	22,360	4,665	29,080	5,261	29,450	5,355	35,340	6,662
	2-2 Lower Half	-	-	4,578	829	4,733	1,119	5,731	1,271	6,447	1,435	6,479	1,441	9,114	1,744
	Sub-total	-	-	20,175	3,855	21,594	4,180	28,091	5,936	35,527	6,696	35,929	6,796	44,454	8,406
3	Rock Bolts														
	3-1 Upper Half	-	-	13,615	3,707	16,985	4,431	34,385	10,205	34,385	10,205	34,385	10,205	9,043	3,552
	3-2 Forepiling	-	-	-	-	-	-	-	-	-	-	-	-	35,931	8,799
	3-3 Lower Half	-	-	3,526	1,139	4,321	1,162	6,734	1,607	6,734	1,607	6,734	1,607	6,775	1,851
	Sub-total	-	-	17,141	4,846	21,306	5,593	41,119	11,812	41,119	11,812	41,119	11,812	51,749	14,202
4	Steel Support														
	4-1 Upper Half	-	-	-	-	24,255	2,667	29,043	3,193	34,088	3,753	54,400	6,009	54,400	6,009
	4-2 Lower Half	-	-	-	-	-	-	9,101	978	14,431	1,570	14,496	1,577	14,496	1,577
	4-3 Upper Wiremesh	-	-	-	-	-	-	4,610	413	4,610	413	4,610	413	4,610	413
	4-4 Lower Wiremesh	-	-	-	-	-	-	-	-	3,166	329	3,166	329	3,166	329
	Sub-total	-	-	-	-	24,255	2,667	42,754	4,584	56,295	6,065	76,672	8,328	76,672	8,328
5	Concrete Lining														
	5-1 Arch & Rib Concrete	-	-	9,384	7,718	9,384	7,718	11,519	9,333	12,321	9,977	14,802	11,878	14,802	11,878
	5-2 Waterproofing	-	-	15,972	504	15,972	504	15,972	504	15,972	504	18,975	504	18,975	504
	5-3 Formwork for Invert	-	-	24	135	24	135	31	169	31	169	36	200	36	200
	5-4 Invert Concrete	-	-	5,280	3,735	5,280	3,735	6,653	4,706	7,075	5,046	8,423	6,008	8,423	6,008
	5-5 Reinforcing Bar	-	-	-	-	-	-	-	-	13,501	2,422	12,791	2,295	21,851	3,920
	Sub-total	-	-	30,660	12,092	30,660	12,092	34,175	14,712	48,900	18,118	55,027	20,885	64,087	22,510
6	Drain Pipe														
		-	-	304	1,649	304	1,649	304	1,649	304	1,649	320	1,778	320	1,778
	Total	-	-	146,715	27,362	161,601	30,692	201,628	43,145	227,180	48,721	256,547	54,257	285,481	59,902
		-	-	174,077		192,293		244,773		275,901		310,804		345,383	

Table TS-5 Unit Rate per Meter of Ground Grade at Ing-Yot No.2 Tunnel with Adit

Ground Grade of Tunnel	B		C1		C2		D1		D2		E1		E2	
	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1 Excavation														
Excavation Volume Per Meter (m3/m)	88,995		90,131		90,131		94,786		95,952		99,542		100,734	
1-1 Upper Half	72,283	2,850	64,760	2,579	51,415	2,352	40,027	1,876	28,814	1,781	30,092	1,865	30,529	1,870
1-2 Lower Half	5,272	927	6,753	843	6,002	758	5,740	745	7,128	776	7,438	786	7,580	789
1-3 Invert	2,885	550	2,885	550	2,885	550	3,635	693	3,635	693	4,328	825	4,328	825
1-4 Tunnel Muck Disposal	5,429	1,068	5,502	1,082	5,502	1,082	5,783	1,138	5,856	1,152	6,076	1,195	6,149	1,210
Sub-total	85,869	5,395	79,900	5,054	65,804	4,742	55,185	4,452	45,433	4,402	47,934	4,671	48,586	4,694
2 Shotcrete														
2-1 Upper Half	10,343	2,002	15,837	3,035	17,101	3,070	22,493	4,696	29,320	5,270	29,930	5,373	35,580	6,671
2-2 Lower Half	2,741	933	4,596	832	4,973	1,128	5,971	1,280	6,687	1,496	6,719	1,503	9,114	1,744
Sub-total	13,084	2,935	20,433	3,867	22,074	4,198	28,464	5,976	36,007	6,766	36,649	6,876	44,694	8,415
3 Rock Bolts														
3-1 Upper Half	13,615	3,707	13,615	3,707	16,985	4,431	34,385	10,205	34,385	10,205	34,385	10,205	9,043	3,552
3-2 Forepiling	-	-	-	-	-	-	-	-	-	-	-	-	35,931	8,799
3-3 Lower Half	-	-	3,526	1,139	4,321	1,162	6,734	1,607	6,734	1,607	6,734	1,607	6,775	1,851
Sub-total	13,615	3,707	17,141	4,846	21,306	5,593	41,119	11,812	41,119	11,812	41,119	11,812	51,749	14,202
4 Steel Support														
4-1 Upper Half	-	-	-	-	24,255	2,667	29,043	3,193	34,088	3,753	54,400	6,009	54,400	6,009
4-2 Lower Half	-	-	-	-	-	-	9,101	978	14,431	1,570	14,496	1,577	14,496	1,577
4-3 Upper Wiremesh	-	-	-	-	-	-	4,610	413	4,610	413	4,610	413	4,610	413
4-4 Lower Wiremesh	-	-	-	-	-	-	-	-	3,166	329	3,166	329	3,166	329
Sub-total	-	-	-	-	24,255	2,667	42,754	4,584	56,295	6,065	76,672	8,328	76,672	8,328
5 Concrete Lining														
5-1 Arch & Rib Concrete	9,384	7,718	9,384	7,718	9,384	7,718	11,519	9,333	12,321	9,977	14,802	11,878	14,802	11,878
5-2 Waterproofing	15,750	409	15,972	504	15,972	504	15,972	504	15,972	504	18,975	504	18,975	504
5-3 Formwork for Invert	24	135	24	135	24	135	31	169	31	169	36	200	36	200
5-4 Invert Concrete	5,280	3,735	5,280	3,735	5,280	3,735	6,653	4,706	7,075	5,046	8,423	6,008	8,423	6,008
5-5 Reinforcing Bar	-	-	-	-	-	-	-	-	13,501	2,422	12,791	2,295	21,851	3,920
Sub-total	30,438	11,997	30,660	12,092	30,660	12,092	34,175	14,712	48,900	18,118	55,027	20,885	64,087	22,510
6 Drain Pipe	304	1,451	304	1,451	304	1,451	304	1,451	304	1,451	320	1,564	320	1,564
Total	143,310	25,485	148,438	27,310	164,403	30,743	202,001	42,987	228,058	48,614	257,721	54,136	286,108	59,713
	168,795		175,748		195,146		244,988		276,672		311,857		345,821	

Table TS-6 Unit Rate per Meter of Ground Grade at Adit for Ing-Yot No.2 Tunnel

Ground Grade of Tunnel	B		C1		C2		D1		D2		E1		E2	
	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1 Excavation														
Excavation Volume Per Meter (m3/m)	46,918		47,822		47,822		57,044		57,972		60,274		60,274	
1-1 Upper Half	40,196	1,763	34,368	1,686	27,038	1,334	21,477	1,210	15,720	1,165	16,824	1,188	16,107	1,183
1-2 Lower Half	5,771	748	5,543	745	4,814	719	4,616	710	5,478	727	5,716	735	5,971	581
1-3 Invert	-	-	-	-	-	-	2,193	418	2,193	418	2,423	462	2,423	462
1-4 Tunnel Muck Disposal	2,867	564	2,922	575	2,922	575	3,483	685	3,538	696	3,678	724	3,678	724
Sub-total	48,834	3,075	42,833	3,006	34,774	2,628	31,769	3,023	26,929	3,006	28,641	3,109	28,179	2,950
2 Shotcrete														
2-1 Upper Half	7,785	1,649	11,379	1,986	12,558	2,424	16,457	3,261	19,990	3,584	20,192	3,606	24,410	4,615
2-2 Lower Half	3,144	749	4,152	927	4,237	932	5,993	1,116	8,872	1,751	8,295	1,770	9,290	1,942
Sub-total	10,929	2,398	15,531	2,913	16,795	3,356	22,450	4,377	28,862	5,335	28,487	5,376	33,700	6,557
3 Rock Bolts														
3-1 Upper Half	9,170	2,559	9,170	2,559	11,557	2,950	25,225	7,760	25,225	7,760	25,225	7,760	9,059	3,330
3-2 Forepiling	-	-	-	-	-	-	-	-	-	-	-	-	25,764	6,407
3-3 Lower Half	-	-	3,526	1,139	4,321	1,162	6,734	1,607	6,734	1,607	6,734	1,607	6,775	1,851
Sub-total	9,170	2,559	12,696	3,698	15,878	4,112	31,959	9,367	31,959	9,367	31,959	9,367	41,598	11,588
4 Steel Support														
4-1 Upper Half	-	-	-	-	15,843	1,731	23,995	2,630	29,043	3,193	39,260	4,328	39,260	4,328
4-2 Lower Half	-	-	-	-	-	-	8,377	974	13,642	1,558	13,772	1,573	13,772	1,573
4-3 Upper Wiremesh	-	-	-	-	-	-	4,040	350	4,040	350	4,040	350	4,040	350
4-4 Lower Wiremesh	-	-	-	-	-	-	-	-	2,336	291	2,336	291	2,336	291
Sub-total	-	-	-	-	15,843	1,731	36,412	3,954	49,061	5,392	59,408	6,542	59,408	6,542
5 Concrete Lining														
5-1 Arch & Rib Concrete	7,694	6,472	7,694	6,472	7,694	6,472	9,473	7,791	10,128	8,318	12,397	9,912	12,397	9,912
5-2 Waterproofing	14,175	409	14,520	409	14,520	409	14,520	409	14,520	409	16,500	409	16,500	409
5-3 Formwork for Invert	-	-	-	-	-	-	18	102	18	102	20	113	20	113
5-4 Invert Concrete	-	-	-	-	-	-	4,013	2,839	4,267	3,044	4,717	3,364	4,717	3,364
5-5 Reinforcing Bar	-	-	-	-	-	-	-	-	8,883	1,594	7,817	1,402	13,324	2,390
Sub-total	21,869	6,881	22,214	6,881	22,214	6,881	28,024	11,141	37,816	13,467	41,451	15,200	46,958	16,188
6 Drain Pipe	232	836	232	836	232	836	232	836	232	836	244	904	244	904
Total	91,034	15,749	93,506	17,334	105,736	19,544	150,846	32,698	174,859	37,403	190,190	40,498	210,087	44,729
	106,783		110,840		125,280		183,544		212,262		230,688		254,816	

Table TL. List of Unit Rate for Tunnel Works

(1/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-1	Excavation of Upper Half : Grade C1	Baht/m	54,079	2,143	56,222	Kok-Ing Tunnel
T-2	Excavation of Upper Half : Grade C2	Baht/m	42,255	1,943	44,198	Kok-Ing Tunnel
T-3	Excavation of Upper Half : Grade D1	Baht/m	33,422	1,729	35,151	Kok-Ing Tunnel
T-4	Excavation of Upper Half : Grade D2	Baht/m	24,067	1,546	25,613	Kok-Ing Tunnel
T-5	Excavation of Upper Half : Grade E1	Baht/m	25,271	1,637	26,908	Kok-Ing Tunnel
T-6	Excavation of Upper Half : Grade E2	Baht/m	25,708	1,712	27,420	Kok-Ing Tunnel
T-7	Excavation of Upper Half : Grade B	Baht/m	72,283	2,850	75,133	Ing-Yot No.2 Tunnel with Adit
T-8	Excavation of Upper Half : Grade C1	Baht/m	64,760	2,579	67,339	Ing-Yot No.2 Tunnel with Adit
T-9	Excavation of Upper Half : Grade C2	Baht/m	51,415	2,352	53,767	Ing-Yot No.2 Tunnel with Adit
T-10	Excavation of Upper Half : Grade D1	Baht/m	40,027	1,876	41,903	Ing-Yot No.2 Tunnel with Adit
T-11	Excavation of Upper Half : Grade D2	Baht/m	28,814	1,781	30,595	Ing-Yot No.2 Tunnel with Adit
T-12	Excavation of Upper Half : Grade E1	Baht/m	30,092	1,865	31,957	Ing-Yot No.2 Tunnel with Adit
T-13	Excavation of Upper Half : Grade E2	Baht/m	30,529	1,870	32,399	Ing-Yot No.2 Tunnel with Adit
T-14	Excavation of Upper Half : Grade C1	Baht/m	64,760	2,579	67,339	Ing-Yot Tunnel without Adit
T-15	Excavation of Upper Half : Grade C2	Baht/m	49,093	2,121	51,214	Ing-Yot Tunnel without Adit
T-16	Excavation of Upper Half : Grade D1	Baht/m	40,027	1,876	41,903	Ing-Yot Tunnel without Adit
T-17	Excavation of Upper Half : Grade D2	Baht/m	28,814	1,781	30,595	Ing-Yot Tunnel without Adit
T-18	Excavation of Upper Half : Grade E1	Baht/m	30,092	1,865	31,957	Ing-Yot Tunnel without Adit
T-19	Excavation of Upper Half : Grade E2	Baht/m	30,529	1,870	32,399	Ing-Yot Tunnel without Adit
T-20	Excavation of Upper Half : Grade B	Baht/m	40,196	1,763	41,959	Adit for Ing-Yot No.2 Tunnel
T-21	Excavation of Upper Half : Grade C1	Baht/m	34,368	1,686	36,054	Adit for Ing-Yot No.2 Tunnel
T-22	Excavation of Upper Half : Grade C2	Baht/m	27,038	1,334	28,372	Adit for Ing-Yot No.2 Tunnel
T-23	Excavation of Upper Half : Grade D1	Baht/m	21,477	1,210	22,687	Adit for Ing-Yot No.2 Tunnel
T-24	Excavation of Upper Half : Grade D2	Baht/m	15,720	1,165	16,885	Adit for Ing-Yot No.2 Tunnel
T-25	Excavation of Upper Half : Grade E1	Baht/m	16,824	1,188	18,012	Adit for Ing-Yot No.2 Tunnel
T-26	Excavation of Upper Half : Grade E2	Baht/m	16,107	1,183	17,290	Adit for Ing-Yot No.2 Tunnel
T-27	Excavation of Lower Half : Grade C1	Baht/m	4,728	696	5,424	Kok-Ing Tunnel
T-28	Excavation of Lower Half : Grade C2	Baht/m	4,069	675	4,744	Kok-Ing Tunnel
T-29	Excavation of Lower Half : Grade D1	Baht/m	3,954	619	4,573	Kok-Ing Tunnel
T-30	Excavation of Lower Half : Grade D2	Baht/m	4,752	691	5,443	Kok-Ing Tunnel
T-31	Excavation of Lower Half : Grade E1	Baht/m	4,959	698	5,657	Kok-Ing Tunnel
T-32	Excavation of Lower Half : Grade E2	Baht/m	4,959	698	5,657	Kok-Ing Tunnel
T-33	Excavation of Lower Half : Grade B	Baht/m	5,272	927	6,199	Ing-Yot No.2 Tunnel with Adit
T-34	Excavation of Lower Half : Grade C1	Baht/m	6,753	843	7,596	Ing-Yot No.2 Tunnel with Adit
T-35	Excavation of Lower Half : Grade C2	Baht/m	6,002	758	6,760	Ing-Yot No.2 Tunnel with Adit
T-36	Excavation of Lower Half : Grade D1	Baht/m	5,740	745	6,485	Ing-Yot No.2 Tunnel with Adit
T-37	Excavation of Lower Half : Grade D2	Baht/m	7,128	776	7,904	Ing-Yot No.2 Tunnel with Adit
T-38	Excavation of Lower Half : Grade E1	Baht/m	7,438	786	8,224	Ing-Yot No.2 Tunnel with Adit
T-39	Excavation of Lower Half : Grade E2	Baht/m	7,580	789	8,369	Ing-Yot No.2 Tunnel with Adit
T-40	Excavation of Lower Half : Grade C1	Baht/m	5,288	709	5,997	Ing-Yot Tunnel without Adit
T-41	Excavation of Lower Half : Grade C2	Baht/m	6,002	758	6,760	Ing-Yot Tunnel without Adit
T-42	Excavation of Lower Half : Grade D1	Baht/m	5,740	745	6,485	Ing-Yot Tunnel without Adit
T-43	Excavation of Lower Half : Grade D2	Baht/m	6,730	755	7,485	Ing-Yot Tunnel without Adit
T-44	Excavation of Lower Half : Grade E1	Baht/m	6,984	773	7,757	Ing-Yot Tunnel without Adit
T-45	Excavation of Lower Half : Grade E2	Baht/m	7,193	773	7,966	Ing-Yot Tunnel without Adit
T-46	Excavation of Lower Half : Grade B	Baht/m	5,771	748	6,519	Adit for Ing-Yot No.2 Tunnel
T-47	Excavation of Lower Half : Grade C1	Baht/m	5,543	745	6,288	Adit for Ing-Yot No.2 Tunnel
T-48	Excavation of Lower Half : Grade C2	Baht/m	4,814	719	5,533	Adit for Ing-Yot No.2 Tunnel
T-49	Excavation of Lower Half : Grade D1	Baht/m	4,616	710	5,326	Adit for Ing-Yot No.2 Tunnel
T-50	Excavation of Lower Half : Grade D2	Baht/m	5,478	727	6,205	Adit for Ing-Yot No.2 Tunnel
T-51	Excavation of Lower Half : Grade E1	Baht/m	5,716	735	6,451	Adit for Ing-Yot No.2 Tunnel
T-52	Excavation of Lower Half : Grade E2	Baht/m	5,971	581	6,552	Adit for Ing-Yot No.2 Tunnel

Table TL. List of Unit Rate for Tunnel Works

(2/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-53	Excavation of Invert	Baht/m3	577	110	687	Kok-Ing & Ing-Yot
T-54	Excavation of Invert per Meter					Kok-Ing & Ing-Yot
T-54-1	Grade C1	Baht/m	2,654	506	3,160	Kok-Ing Tunnel
T-54-2	Grade C2	Baht/m	2,654	506	3,160	Kok-Ing Tunnel
T-54-3	Grade D1	Baht/m	3,289	627	3,916	Kok-Ing Tunnel
T-54-4	Grade D2	Baht/m	3,289	627	3,916	Kok-Ing Tunnel
T-54-5	Grade E1	Baht/m	3,981	759	4,740	Kok-Ing Tunnel
T-54-6	Grade E2	Baht/m	3,981	759	4,740	Kok-Ing Tunnel
T-54-7	Grade C1	Baht/m	2,885	550	3,435	Ing-Yot Tunnel without Adit
T-54-8	Grade C2	Baht/m	2,885	550	3,435	Ing-Yot Tunnel without Adit
T-54-9	Grade D1	Baht/m	3,635	693	4,328	Ing-Yot Tunnel without Adit
T-54-10	Grade D2	Baht/m	3,635	693	4,328	Ing-Yot Tunnel without Adit
T-54-11	Grade E1	Baht/m	4,328	825	5,153	Ing-Yot Tunnel without Adit
T-54-12	Grade E2	Baht/m	4,328	825	5,153	Ing-Yot Tunnel without Adit
T-54-13	Grade B	Baht/m	2,885	550	3,435	Ing-Yot No.2 Tunnel with Adit
T-54-14	Grade C1	Baht/m	2,885	550	3,435	Ing-Yot No.2 Tunnel with Adit
T-54-15	Grade C2	Baht/m	2,885	550	3,435	Ing-Yot No.2 Tunnel with Adit
T-54-16	Grade D1	Baht/m	3,635	693	4,328	Ing-Yot No.2 Tunnel with Adit
T-54-17	Grade D2	Baht/m	3,635	693	4,328	Ing-Yot No.2 Tunnel with Adit
T-54-18	Grade E1	Baht/m	4,328	825	5,153	Ing-Yot No.2 Tunnel with Adit
T-54-19	Grade E2	Baht/m	4,328	825	5,153	Ing-Yot No.2 Tunnel with Adit
T-54-20	Grade D1	Baht/m	2,193	418	2,611	Adit for Ing-Yot No.2 Tunnel
T-54-21	Grade D2	Baht/m	2,193	418	2,611	Adit for Ing-Yot No.2 Tunnel
T-54-22	Grade E1	Baht/m	2,423	462	2,885	Adit for Ing-Yot No.2 Tunnel
T-54-23	Grade E2	Baht/m	2,423	462	2,885	Adit for Ing-Yot No.2 Tunnel
T-55	Tunnel Muck Disposal	Baht/m3	61	12	73	Kok-Ing & Ing-Yot
T-56	Tunnel Muck Disposal per Meter					Kok-Ing & Ing-Yot
T-56-1	Grade C1	Baht/m	4,709	926	5,635	Kok-Ing Tunnel
T-56-2	Grade C2	Baht/m	4,709	926	5,635	Kok-Ing Tunnel
T-56-3	Grade D1	Baht/m	4,972	978	5,950	Kok-Ing Tunnel
T-56-4	Grade D2	Baht/m	5,039	991	6,030	Kok-Ing Tunnel
T-56-5	Grade E1	Baht/m	5,240	1,031	6,271	Kok-Ing Tunnel
T-56-6	Grade E2	Baht/m	5,313	1,045	6,358	Kok-Ing Tunnel
T-56-7	Grade C1	Baht/m	5,502	1,082	6,584	Ing-Yot Tunnel without Adit
T-56-8	Grade C2	Baht/m	5,502	1,082	6,584	Ing-Yot Tunnel without Adit
T-56-9	Grade D1	Baht/m	5,783	1,138	6,921	Ing-Yot Tunnel without Adit
T-56-10	Grade D2	Baht/m	5,856	1,152	7,008	Ing-Yot Tunnel without Adit
T-56-11	Grade E1	Baht/m	6,076	1,195	7,271	Ing-Yot Tunnel without Adit
T-56-12	Grade E2	Baht/m	6,149	1,210	7,359	Ing-Yot Tunnel without Adit
T-56-13	Grade B	Baht/m	5,429	1,068	6,497	Ing-Yot No.2 Tunnel with Adit
T-56-14	Grade C1	Baht/m	5,502	1,082	6,584	Ing-Yot No.2 Tunnel with Adit
T-56-15	Grade C2	Baht/m	5,502	1,082	6,584	Ing-Yot No.2 Tunnel with Adit
T-56-16	Grade D1	Baht/m	5,783	1,138	6,921	Ing-Yot No.2 Tunnel with Adit
T-56-17	Grade D2	Baht/m	5,856	1,152	7,008	Ing-Yot No.2 Tunnel with Adit
T-56-18	Grade E1	Baht/m	6,076	1,195	7,271	Ing-Yot No.2 Tunnel with Adit
T-56-19	Grade E2	Baht/m	6,149	1,210	7,359	Ing-Yot No.2 Tunnel with Adit
T-56-20	Grade B	Baht/m	2,867	564	3,431	Adit for Ing-Yot No.2 Tunnel
T-56-21	Grade C1	Baht/m	2,922	575	3,497	Adit for Ing-Yot No.2 Tunnel
T-56-22	Grade C2	Baht/m	2,922	575	3,497	Adit for Ing-Yot No.2 Tunnel
T-56-23	Grade D1	Baht/m	3,483	685	4,168	Adit for Ing-Yot No.2 Tunnel
T-56-24	Grade D2	Baht/m	3,538	696	4,234	Adit for Ing-Yot No.2 Tunnel
T-56-25	Grade E1	Baht/m	3,678	724	4,402	Adit for Ing-Yot No.2 Tunnel
T-56-26	Grade E2	Baht/m	3,678	724	4,402	Adit for Ing-Yot No.2 Tunnel

Table TL. List of Unit Rate for Tunnel Works

(3/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-57	Shotcrete of Upper Half : Grade C1	Baht/m	14,540	2,876	17,416	Kok-Ing Tunnel
T-58	Shotcrete of Upper Half : Grade C2	Baht/m	15,479	2,897	18,376	Kok-Ing Tunnel
T-59	Shotcrete of Upper Half : Grade D1	Baht/m	20,637	4,356	24,993	Kok-Ing Tunnel
T-60	Shotcrete of Upper Half : Grade D2	Baht/m	25,437	4,831	30,268	Kok-Ing Tunnel
T-61	Shotcrete of Upper Half : Grade E1	Baht/m	25,639	4,876	30,515	Kok-Ing Tunnel
T-62	Shotcrete of Upper Half : Grade E2	Baht/m	32,746	6,246	38,992	Kok-Ing Tunnel
T-63	Shotcrete of Upper Half : Grade C1	Baht/m	15,597	3,026	18,623	Ing-Yot Tunnel without Adit
T-64	Shotcrete of Upper Half : Grade C2	Baht/m	16,861	3,061	19,922	Ing-Yot Tunnel without Adit
T-65	Shotcrete of Upper Half : Grade D1	Baht/m	22,360	4,665	27,025	Ing-Yot Tunnel without Adit
T-66	Shotcrete of Upper Half : Grade D2	Baht/m	29,080	5,261	34,341	Ing-Yot Tunnel without Adit
T-67	Shotcrete of Upper Half : Grade E1	Baht/m	29,450	5,355	34,805	Ing-Yot Tunnel without Adit
T-68	Shotcrete of Upper Half : Grade E2	Baht/m	35,340	6,662	42,002	Ing-Yot Tunnel without Adit
T-69	Shotcrete of Upper Half : Grade B	Baht/m	10,343	2,002	12,345	Ing-Yot No.2 Tunnel with Adit
T-70	Shotcrete of Upper Half : Grade C1	Baht/m	15,837	3,035	18,872	Ing-Yot No.2 Tunnel with Adit
T-71	Shotcrete of Upper Half : Grade C2	Baht/m	17,101	3,070	20,171	Ing-Yot No.2 Tunnel with Adit
T-72	Shotcrete of Upper Half : Grade D1	Baht/m	22,493	4,696	27,189	Ing-Yot No.2 Tunnel with Adit
T-73	Shotcrete of Upper Half : Grade D2	Baht/m	29,320	5,270	34,590	Ing-Yot No.2 Tunnel with Adit
T-74	Shotcrete of Upper Half : Grade E1	Baht/m	29,930	5,373	35,303	Ing-Yot No.2 Tunnel with Adit
T-75	Shotcrete of Upper Half : Grade E2	Baht/m	35,580	6,671	42,251	Ing-Yot No.2 Tunnel with Adit
T-76	Shotcrete of Upper Half : Grade B	Baht/m	7,785	1,649	9,434	Adit for Ing-Yot No.2 Tunnel
T-77	Shotcrete of Upper Half : Grade C1	Baht/m	11,379	1,986	13,365	Adit for Ing-Yot No.2 Tunnel
T-78	Shotcrete of Upper Half : Grade C2	Baht/m	12,558	2,424	14,982	Adit for Ing-Yot No.2 Tunnel
T-79	Shotcrete of Upper Half : Grade D1	Baht/m	16,457	3,261	19,718	Adit for Ing-Yot No.2 Tunnel
T-80	Shotcrete of Upper Half : Grade D2	Baht/m	19,990	3,584	23,574	Adit for Ing-Yot No.2 Tunnel
T-81	Shotcrete of Upper Half : Grade E1	Baht/m	20,192	3,606	23,798	Adit for Ing-Yot No.2 Tunnel
T-82	Shotcrete of Upper Half : Grade E2	Baht/m	24,410	4,615	29,025	Adit for Ing-Yot No.2 Tunnel
T-83	Shotcrete of Lower Half : Grade C1	Baht/m	4,338	820	5,158	Kok-Ing Tunnel
T-84	Shotcrete of Lower Half : Grade C2	Baht/m	4,380	822	5,202	Kok-Ing Tunnel
T-85	Shotcrete of Lower Half : Grade D1	Baht/m	5,491	1,262	6,753	Kok-Ing Tunnel
T-86	Shotcrete of Lower Half : Grade D2	Baht/m	6,447	1,435	7,882	Kok-Ing Tunnel
T-87	Shotcrete of Lower Half : Grade E1	Baht/m	6,447	1,435	7,882	Kok-Ing Tunnel
T-88	Shotcrete of Lower Half : Grade E2	Baht/m	7,963	1,641	9,604	Kok-Ing Tunnel
T-89	Shotcrete of Lower Half : Grade C1	Baht/m	4,578	829	5,407	Ing-Yot Tunnel without Adit
T-90	Shotcrete of Lower Half : Grade C2	Baht/m	4,733	1,119	5,852	Ing-Yot Tunnel without Adit
T-91	Shotcrete of Lower Half : Grade D1	Baht/m	5,731	1,271	7,002	Ing-Yot Tunnel without Adit
T-92	Shotcrete of Lower Half : Grade D2	Baht/m	6,447	1,435	7,882	Ing-Yot Tunnel without Adit
T-93	Shotcrete of Lower Half : Grade E1	Baht/m	6,479	1,441	7,920	Ing-Yot Tunnel without Adit
T-94	Shotcrete of Lower Half : Grade E2	Baht/m	9,114	1,744	10,858	Ing-Yot Tunnel without Adit
T-95	Shotcrete of Lower Half : Grade B	Baht/m	2,741	933	3,674	Ing-Yot No.2 Tunnel with Adit
T-96	Shotcrete of Lower Half : Grade C1	Baht/m	4,596	832	5,428	Ing-Yot No.2 Tunnel with Adit
T-97	Shotcrete of Lower Half : Grade C2	Baht/m	4,973	1,128	6,101	Ing-Yot No.2 Tunnel with Adit
T-98	Shotcrete of Lower Half : Grade D1	Baht/m	5,971	1,280	7,251	Ing-Yot No.2 Tunnel with Adit
T-99	Shotcrete of Lower Half : Grade D2	Baht/m	6,687	1,496	8,183	Ing-Yot No.2 Tunnel with Adit
T-100	Shotcrete of Lower Half : Grade E1	Baht/m	6,719	1,503	8,222	Ing-Yot No.2 Tunnel with Adit
T-101	Shotcrete of Lower Half : Grade E2	Baht/m	9,114	1,744	10,858	Ing-Yot No.2 Tunnel with Adit
T-102	Shotcrete of Lower Half : Grade B	Baht/m	3,144	749	3,893	Adit for Ing-Yot No.2 Tunnel
T-103	Shotcrete of Lower Half : Grade C1	Baht/m	4,152	927	5,079	Adit for Ing-Yot No.2 Tunnel
T-104	Shotcrete of Lower Half : Grade C2	Baht/m	4,237	932	5,169	Adit for Ing-Yot No.2 Tunnel
T-105	Shotcrete of Lower Half : Grade D1	Baht/m	5,993	1,116	7,109	Adit for Ing-Yot No.2 Tunnel
T-106	Shotcrete of Lower Half : Grade D2	Baht/m	8,872	1,751	10,623	Adit for Ing-Yot No.2 Tunnel
T-107	Shotcrete of Lower Half : Grade E1	Baht/m	8,295	1,770	10,065	Adit for Ing-Yot No.2 Tunnel
T-108	Shotcrete of Lower Half : Grade E2	Baht/m	9,290	1,942	11,232	Adit for Ing-Yot No.2 Tunnel

Table TL. List of Unit Rate for Tunnel Works

(4/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-109	Rock Bolts of Upper Half : Grade C1	Baht/m	12,363	3,460	15,823	Kok-Ing Tunnel
T-110	Rock Bolts of Upper Half : Grade C2	Baht/m	15,546	4,156	19,702	Kok-Ing Tunnel
T-111	Rock Bolts of Upper Half : Grade D1,D2,E1	Baht/m	32,010	9,328	41,338	Kok-Ing Tunnel
T-112	Rock Bolts of Upper Half : Grade E2	Baht/m	9,043	3,552	12,595	Kok-Ing Tunnel
T-113	Rock Bolts of Upper Half : Grade E2, Forepiling	Baht/m	33,414	8,448	41,862	Kok-Ing Tunnel
T-114	Rock Bolts of Upper Half : Grade C1	Baht/m	13,615	3,707	17,322	Ing-Yot Tunnel
T-115	Rock Bolts of Upper Half : Grade C2	Baht/m	16,985	4,431	21,416	Ing-Yot Tunnel
T-116	Rock Bolts of Upper Half : Grade D1,D2,E1	Baht/m	34,385	10,205	44,590	Ing-Yot Tunnel
T-117	Rock Bolts of Upper Half : Grade E2	Baht/m	9,043	3,552	12,595	Ing-Yot Tunnel
T-118	Rock Bolts of Upper Half : Grade E2 Forepiling	Baht/m	35,931	8,799	44,730	Ing-Yot Tunnel
T-119	Rock Bolts of Upper Half : Grade B	Baht/m	13,615	3,707	17,322	Ing-Yot No.2 Tunnel with Adit
T-120	Rock Bolts of Upper Half : Grade C1	Baht/m	9,170	2,559	11,729	Adit for Ing-Yot No.2 Tunnel
T-121	Rock Bolts of Upper Half : Grade C2	Baht/m	11,557	2,950	14,507	Adit for Ing-Yot No.2 Tunnel
T-122	Rock Bolts of Upper Half : Grade D1,D2,E1	Baht/m	25,225	7,760	32,985	Adit for Ing-Yot No.2 Tunnel
T-123	Rock Bolts of Upper Half : Grade E2	Baht/m	9,059	3,330	12,389	Adit for Ing-Yot No.2 Tunnel
T-124	Rock Bolts of Upper Half : Grade E2, Forepiling	Baht/m	25,764	6,407	32,171	Adit for Ing-Yot No.2 Tunnel
T-125	Rock Bolts of Upper Half : Grade B	Baht/m	9,170	2,559	11,729	Adit for Ing-Yot No.2 Tunnel
T-126	Rock Bolts of Lower Half : Grade C1	Baht/m	3,526	1,139	4,665	Kok-Ing, Ing-Yot & Adit
T-127	Rock Bolts of Lower Half : Grade C2	Baht/m	4,321	1,162	5,483	Kok-Ing, Ing-Yot & Adit
T-128	Rock Bolts of Lower Half : Grade D1,D2,E1	Baht/m	6,734	1,607	8,341	Kok-Ing, Ing-Yot & Adit
T-129	Rock Bolts of Lower Half : Grade E2	Baht/m	6,775	1,851	8,626	Kok-Ing, Ing-Yot & Adit
T-130	Steel Support of Upper Half : Grade C2	Baht/m	20,048	2,198	22,246	Kok-Ing Tunnel
T-131	Steel Support of Upper Half : Grade D1	Baht/m	29,043	3,193	32,236	Kok-Ing Tunnel
T-132	Steel Support of Upper Half : Grade D2	Baht/m	34,088	3,753	37,841	Kok-Ing Tunnel
T-133	Steel Support of Upper Half : Grade E1	Baht/m	49,354	5,449	54,803	Kok-Ing Tunnel
T-134	Steel Support of Upper Half : Grade E2	Baht/m	49,354	5,449	54,803	Kok-Ing Tunnel
T-135	Steel Support of Upper Half : Grade C2	Baht/m	24,255	2,667	26,922	Ing-Yot Tunnel
T-136	Steel Support of Upper Half : Grade D1	Baht/m	29,043	3,193	32,236	Ing-Yot Tunnel
T-137	Steel Support of Upper Half : Grade D2	Baht/m	34,088	3,753	37,841	Ing-Yot Tunnel
T-138	Steel Support of Upper Half : Grade E1	Baht/m	54,400	6,009	60,409	Ing-Yot Tunnel
T-139	Steel Support of Upper Half : Grade E2	Baht/m	54,400	6,009	60,409	Ing-Yot Tunnel
T-140	Steel Support of Upper Half : Grade C2	Baht/m	15,843	1,731	17,574	Adit for Ing-Yot No.2 Tunnel
T-141	Steel Support of Upper Half : Grade D1	Baht/m	23,995	2,630	26,625	Adit for Ing-Yot No.2 Tunnel
T-142	Steel Support of Upper Half : Grade D2	Baht/m	29,043	3,193	32,236	Adit for Ing-Yot No.2 Tunnel
T-143	Steel Support of Upper Half : Grade E1	Baht/m	39,260	4,328	43,588	Adit for Ing-Yot No.2 Tunnel
T-144	Steel Support of Upper Half : Grade E2	Baht/m	39,260	4,328	43,588	Adit for Ing-Yot No.2 Tunnel
T-145	Steel Support of Lower Half : Grade D1	Baht/m	8,876	953	9,829	Kok-Ing Tunnel
T-146	Steel Support of Lower Half : Grade D2	Baht/m	13,984	1,520	15,504	Kok-Ing Tunnel
T-147	Steel Support of Lower Half : Grade E1,E2	Baht/m	14,046	1,527	15,573	Kok-Ing Tunnel
T-148	Steel Support of Lower Half : Grade D1	Baht/m	9,101	978	10,079	Ing-Yot Tunnel
T-149	Steel Support of Lower Half : Grade D2	Baht/m	14,431	1,570	16,001	Ing-Yot Tunnel
T-150	Steel Support of Lower Half : Grade E1,E2	Baht/m	14,496	1,577	16,073	Ing-Yot Tunnel
T-151	Steel Support of Lower Half : Grade D1	Baht/m	8,377	974	9,351	Adit for Ing-Yot No.2 Tunnel
T-152	Steel Support of Lower Half : Grade D2	Baht/m	13,642	1,558	15,200	Adit for Ing-Yot No.2 Tunnel
T-153	Steel Support of Lower Half : Grade E1,E2	Baht/m	13,772	1,573	15,345	Adit for Ing-Yot No.2 Tunnel
T-154	Upper Wiremesh : Grade D1,D2,E1,E2	Baht/m	4,208	368	4,576	Kok-Ing Tunnel
T-155	Lower Wiremesh : Grade D2,E1,E2	Baht/m	2,429	301	2,730	Kok-Ing Tunnel
T-156	Upper Wiremesh : Grade D1,D2,E1,E2	Baht/m	4,610	413	5,023	Ing-Yot Tunnel
T-157	Lower Wiremesh : Grade D2,E1,E2	Baht/m	3,166	329	3,495	Ing-Yot Tunnel
T-158	Upper Wiremesh : Grade D1,D2,E1,E2	Baht/m	4,040	350	4,390	Adit for Ing-Yot No.2 Tunnel
T-159	Lower Wiremesh : Grade D2,E1,E2	Baht/m	2,336	291	2,627	Adit for Ing-Yot No.2 Tunnel

Table TL. List of Unit Rate for Tunnel Works

(5/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-160	Arch & Rib Concrete Lining : Grade C1,C2	Baht/m	8,409	7,057	15,466	Kok-Ing Tunnel
T-161	Arch & Rib Concrete Lining : Grade D1	Baht/m	10,366	8,521	18,887	Kok-Ing Tunnel
T-162	Arch & Rib Concrete Lining : Grade D2	Baht/m	11,091	9,104	20,195	Kok-Ing Tunnel
T-163	Arch & Rib Concrete Lining : Grade E1,E2	Baht/m	13,551	10,855	24,406	Kok-Ing Tunnel
T-164	Arch & Rib Concrete Lining : Grade B,C1,C2	Baht/m	9,384	7,718	17,102	Ing-Yot Tunnel
T-165	Arch & Rib Concrete Lining : Grade D1	Baht/m	11,519	9,333	20,852	Ing-Yot Tunnel
T-166	Arch & Rib Concrete Lining : Grade D2	Baht/m	12,321	9,977	22,298	Ing-Yot Tunnel
T-167	Arch & Rib Concrete Lining : Grade E1,E2	Baht/m	14,802	11,878	26,680	Ing-Yot Tunnel
T-168	Arch & Rib Concrete Lining : Grade B,C1,C2	Baht/m	7,694	6,472	14,166	Adit for Ing-Yot No.2 Tunnel
T-169	Arch & Rib Concrete Lining : Grade D1	Baht/m	9,473	7,791	17,264	Adit for Ing-Yot No.2 Tunnel
T-170	Arch & Rib Concrete Lining : Grade D2	Baht/m	10,128	8,318	18,446	Adit for Ing-Yot No.2 Tunnel
T-171	Arch & Rib Concrete Lining : Grade E1,E2	Baht/m	12,397	9,912	22,309	Adit for Ing-Yot No.2 Tunnel
T-172	Waterproofing : Grade C1,C2,D1,D2	Baht/m	15,246	409	15,655	Kok-Ing Tunnel
T-173	Waterproofing : Grade E1,E2	Baht/m	17,325	409	17,734	Kok-Ing Tunnel
T-174	Waterproofing : Grade B	Baht/m	15,750	409	16,159	Ing-Yot No.2 Tunnel with Adit
T-175	Waterproofing : Grade C1,C2,D1,D2	Baht/m	15,972	504	16,476	Ing-Yot Tunnel
T-176	Waterproofing : Grade E1,E2	Baht/m	18,975	504	19,479	Ing-Yot Tunnel
T-177	Waterproofing : Grade B	Baht/m	14,175	409	14,584	Adit for Ing-Yot No.2 Tunnel
T-178	Waterproofing : Grade C1,C2,D1,D2	Baht/m	14,520	409	14,929	Adit for Ing-Yot No.2 Tunnel
T-179	Waterproofing : Grade E1,E2	Baht/m	16,500	409	16,909	Adit for Ing-Yot No.2 Tunnel
T-180	Formwork for Invert	Baht/m2	51	282	333	Kok-Ing & Ing-Yot
T-181	Formwork for Invert per Meter					Kok-Ing & Ing-Yot
T-181-1	Grade C1	Baht/m	22	124	146	Kok-Ing Tunnel
T-181-2	Grade C2	Baht/m	22	124	146	Kok-Ing Tunnel
T-181-3	Grade D1	Baht/m	28	152	180	Kok-Ing Tunnel
T-181-4	Grade D2	Baht/m	28	152	180	Kok-Ing Tunnel
T-181-5	Grade E1	Baht/m	34	186	220	Kok-Ing Tunnel
T-181-6	Grade E2	Baht/m	34	186	220	Kok-Ing Tunnel
T-181-7	Grade C1	Baht/m	24	135	159	Ing-Yot Tunnel without Adit
T-181-8	Grade C2	Baht/m	24	135	159	Ing-Yot Tunnel without Adit
T-181-9	Grade D1	Baht/m	31	169	200	Ing-Yot Tunnel without Adit
T-181-10	Grade D2	Baht/m	31	169	200	Ing-Yot Tunnel without Adit
T-181-11	Grade E1	Baht/m	36	200	236	Ing-Yot Tunnel without Adit
T-181-12	Grade E2	Baht/m	36	200	236	Ing-Yot Tunnel without Adit
T-181-13	Grade B	Baht/m	24	135	159	Ing-Yot No.2 Tunnel with Adit
T-181-14	Grade C1	Baht/m	24	135	159	Ing-Yot No.2 Tunnel with Adit
T-181-15	Grade C2	Baht/m	24	135	159	Ing-Yot No.2 Tunnel with Adit
T-181-16	Grade D1	Baht/m	31	169	200	Ing-Yot No.2 Tunnel with Adit
T-181-17	Grade D2	Baht/m	31	169	200	Ing-Yot No.2 Tunnel with Adit
T-181-18	Grade E1	Baht/m	36	200	236	Ing-Yot No.2 Tunnel with Adit
T-181-19	Grade E2	Baht/m	36	200	236	Ing-Yot No.2 Tunnel with Adit
T-181-20	Grade D1	Baht/m	18	102	120	Adit for Ing-Yot No.2 Tunnel
T-181-21	Grade D2	Baht/m	18	102	120	Adit for Ing-Yot No.2 Tunnel
T-181-22	Grade E1	Baht/m	20	113	133	Adit for Ing-Yot No.2 Tunnel
T-181-23	Grade E2	Baht/m	20	113	133	Adit for Ing-Yot No.2 Tunnel
T-182	Invert Concrete Lining : Grade B,C1,C2,D1	Baht/m3	1,056	747	1,803	Kok-Ing & Ing-Yot
T-183	Invert Concrete Lining : Grade D2,E1,E2	Baht/m3	1,123	801	1,924	Kok-Ing & Ing-Yot

Table TL. List of Unit Rate for Tunnel Works

(6/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-184	Invert Concrete Lining per Meter					Kok-Ing & Ing-Yot
T-184-1	Grade C1	Baht/m	4,858	3,436	8,294	Kok-Ing Tunnel
T-184-2	Grade C2	Baht/m	4,858	3,436	8,294	Kok-Ing Tunnel
T-184-3	Grade D1	Baht/m	6,019	4,258	10,277	Kok-Ing Tunnel
T-184-4	Grade D2	Baht/m	6,401	4,566	10,967	Kok-Ing Tunnel
T-184-5	Grade E1	Baht/m	7,749	5,527	13,276	Kok-Ing Tunnel
T-184-6	Grade E2	Baht/m	7,749	5,527	13,276	Kok-Ing Tunnel
T-184-7	Grade C1	Baht/m	5,280	3,735	9,015	Ing-Yot Tunnel without Adit
T-184-8	Grade C2	Baht/m	5,280	3,735	9,015	Ing-Yot Tunnel without Adit
T-184-9	Grade D1	Baht/m	6,653	4,706	11,359	Ing-Yot Tunnel without Adit
T-184-10	Grade D2	Baht/m	7,075	5,046	12,121	Ing-Yot Tunnel without Adit
T-184-11	Grade E1	Baht/m	8,423	6,008	14,431	Ing-Yot Tunnel without Adit
T-184-12	Grade E2	Baht/m	8,423	6,008	14,431	Ing-Yot Tunnel without Adit
T-184-13	Grade B	Baht/m	5,280	3,735	9,015	Ing-Yot No.2 Tunnel with Adit
T-184-14	Grade C1	Baht/m	5,280	3,735	9,015	Ing-Yot No.2 Tunnel with Adit
T-184-15	Grade C2	Baht/m	5,280	3,735	9,015	Ing-Yot No.2 Tunnel with Adit
T-184-16	Grade D1	Baht/m	6,653	4,706	11,359	Ing-Yot No.2 Tunnel with Adit
T-184-17	Grade D2	Baht/m	7,075	5,046	12,121	Ing-Yot No.2 Tunnel with Adit
T-184-18	Grade E1	Baht/m	8,423	6,008	14,431	Ing-Yot No.2 Tunnel with Adit
T-184-19	Grade E2	Baht/m	8,423	6,008	14,431	Ing-Yot No.2 Tunnel with Adit
T-184-20	Grade D1	Baht/m	4,013	2,839	6,852	Adit for Ing-Yot No.2 Tunnel
T-184-21	Grade D2	Baht/m	4,267	3,044	7,311	Adit for Ing-Yot No.2 Tunnel
T-184-22	Grade E1	Baht/m	4,717	3,364	8,081	Adit for Ing-Yot No.2 Tunnel
T-184-23	Grade E2	Baht/m	4,717	3,364	8,081	Adit for Ing-Yot No.2 Tunnel
T-185	Reinforced Bar/ton : Grade D2,E1,E2	Baht/ton	17,765	3,187	20,952	Kok-Ing & Ing-Yot
T-186	Reinforced Bar per Meter : Grade D2,E1,E2					Kok-Ing & Ing-Yot
T-186-1	Grade D2	Baht/m	12,436	2,231	14,667	Kok-Ing Tunnel
T-186-2	Grade E1	Baht/m	11,547	2,072	13,619	Kok-Ing Tunnel
T-186-3	Grade E2	Baht/m	19,897	3,569	23,466	Kok-Ing Tunnel
T-186-4	Grade D2	Baht/m	13,501	2,422	15,923	Ing-Yot Tunnel without Adit
T-186-5	Grade E1	Baht/m	12,791	2,295	15,086	Ing-Yot Tunnel without Adit
T-186-6	Grade E2	Baht/m	21,851	3,920	25,771	Ing-Yot Tunnel without Adit
T-186-7	Grade D2	Baht/m	13,501	2,422	15,923	Ing-Yot No.2 Tunnel with Adit
T-186-8	Grade E1	Baht/m	12,791	2,295	15,086	Ing-Yot No.2 Tunnel with Adit
T-186-9	Grade E2	Baht/m	21,851	3,920	25,771	Ing-Yot No.2 Tunnel with Adit
T-186-10	Grade D2	Baht/m	8,883	1,594	10,477	Adit for Ing-Yot No.2 Tunnel
T-186-11	Grade E1	Baht/m	7,817	1,402	9,219	Adit for Ing-Yot No.2 Tunnel
T-186-12	Grade E2	Baht/m	13,324	2,390	15,714	Adit for Ing-Yot No.2 Tunnel
T-187	Drain Pipe : Grade C1,C2,D1,D2	Baht/m	287	1,338	1,625	Kok-Ing Tunnel
T-188	Drain Pipe : Grade E1,E2	Baht/m	304	1,451	1,755	Kok-Ing Tunnel
T-189	Drain Pipe : Grade C1,C2,D1,D2	Baht/m	304	1,649	1,953	Ing-Yot Tunnel without Adit
T-190	Drain Pipe : Grade E1,E2	Baht/m	320	1,778	2,098	Ing-Yot Tunnel without Adit
T-191	Drain Pipe : Grade B,C1,C2,D1,D2	Baht/m	304	1,451	1,755	Ing-Yot No.2 Tunnel with Adit
T-192	Drain Pipe : Grade E1,E2	Baht/m	320	1,564	1,884	Ing-Yot No.2 Tunnel with Adit
T-193	Drain Pipe : Grade B,C1,C2,D1,D2	Baht/m	232	836	1,068	Adit for Ing-Yot No.2 Tunnel
T-194	Drain Pipe : Grade E1,E2	Baht/m	244	904	1,148	Adit for Ing-Yot No.2 Tunnel

Table TL. List of Unit Rate for Tunnel Works

(7/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
Temporary Works of Tunnel						
T-195	Receiving & Distribution Facilities for Electric Supp	Baht/Station	10,729,000	484,000	11,213,000	Kok-Ing No.1 Tunnel
T-196	Receiving & Distribution Facilities for Electric Supp	Baht/Station	13,603,000	801,000	14,404,000	Kok-Ing No.2 Tunnel
T-197	Receiving & Distribution Facilities for Electric Supp	Baht/Station	9,412,000	342,000	9,754,000	Ing-Yot No.1 Tunnel
T-198	Receiving & Distribution Facilities for Electric Supp	Baht/Station	12,983,000	732,000	13,715,000	Ing-Yot No.2 Tunnel Div.1
T-199	Receiving & Distribution Facilities for Electric Supp	Baht/Station	17,288,000	706,000	17,994,000	Ing-Yot No.2 Tunnel Div.2
T-200	Receiving & Distribution Facilities for Electric Supp	Baht/Station	18,377,000	825,000	19,202,000	Ing-Yot No.2 Tunnel Div.3
T-201	Receiving & Distribution Facilities for Electric Supp	Baht/Station	21,551,000	1,075,000	22,626,000	Ing-Yot No.2 Tunnel Div.4
T-202	Receiving & Distribution Facilities for Electric Supp	Baht/Station	19,689,000	967,000	20,656,000	Ing-Yot No.2 Tunnel Div.5
T-203	Receiving & Distribution Facilities for Electric Supp	Baht/Station	19,628,000	961,000	20,589,000	Ing-Yot No.2 Tunnel Div.6
T-204	Receiving & Distribution Facilities for Electric Supp	Baht/Station	19,189,000	911,000	20,100,000	Ing-Yot No.2 Tunnel Div.7
T-205	Receiving & Distribution Facilities for Electric Supp	Baht/Station	16,888,000	754,000	17,642,000	Ing-Yot No.2 Tunnel Div.8
T-206	Receiving & Distribution Facilities for Electric Supp	Baht/Station	13,001,000	734,000	13,735,000	Ing-Yot No.2 Tunnel Div.9
T-207	Receiving & Distribution Facilities for Electric Supp	Baht/Station	2,747,000	303,000	3,050,000	Adit No.1
T-208	Receiving & Distribution Facilities for Electric Supp	Baht/Station	2,497,000	276,000	2,773,000	Adit No.2
T-209	Receiving & Distribution Facilities for Electric Supp	Baht/Station	2,996,000	330,000	3,326,000	Adit No.3
T-210	Receiving & Distribution Facilities for Electric Supp	Baht/Station	4,192,000	463,000	4,655,000	Adit No.4
T-211	Receiving & Distribution Facilities for Electric Supp	Baht/Station	3,351,000	370,000	3,721,000	Adit No.5
T-212	Receiving & Distribution Facilities for Electric Supp	Baht/Station	4,442,000	490,000	4,932,000	Adit No.6
T-213	Receiving & Distribution Facilities for Electric Supp	Baht/Station	3,314,000	366,000	3,680,000	Adit No.7
T-214	Electric Charge of Lighting for Tunnel					Kok-Ing & Ing-Yot Tunnel
T-214-1	Kok-Ing No.1 Tunnel	Baht/Station	0	31,788,000	31,788,000	
T-214-2	Kok-Ing No.2 Tunnel	Baht/Station	0	47,094,000	47,094,000	
T-214-3	Ing-Yot No.1 Tunnel	Baht/Station	0	21,192,000	21,192,000	
T-214-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	0	51,213,000	51,213,000	
T-214-5	Division 2	Baht/Station	0	42,237,000	42,237,000	
T-214-6	Division 3	Baht/Station	0	43,266,000	43,266,000	
T-214-7	Division 4	Baht/Station	0	43,266,000	43,266,000	
T-214-8	Division 5	Baht/Station	0	37,086,000	37,086,000	
T-214-9	Division 6	Baht/Station	0	40,176,000	40,176,000	
T-214-10	Division 7	Baht/Station	0	35,025,000	35,025,000	
T-214-11	Division 8	Baht/Station	0	41,208,000	41,208,000	
T-214-12	Division 9	Baht/Station	0	51,213,000	51,213,000	
T-214-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	17,514,000	17,514,000	
T-214-14	Adit No.2	Baht/Station	0	16,482,000	16,482,000	
T-214-15	Adit No.3	Baht/Station	0	18,543,000	18,543,000	
T-214-16	Adit No.4	Baht/Station	0	22,665,000	22,665,000	
T-214-17	Adit No.5	Baht/Station	0	19,572,000	19,572,000	
T-214-18	Adit No.6	Baht/Station	0	23,694,000	23,694,000	
T-214-19	Adit No.7	Baht/Station	0	19,572,000	19,572,000	
T-215	Electric Charge of Ventilation for Tunnel					Kok-Ing & Ing-Yot Tunnel
T-215-1	Kok-Ing No.1 Tunnel	Baht/Station	0	8,514,000	8,514,000	
T-215-2	Kok-Ing No.2 Tunnel	Baht/Station	0	12,615,000	12,615,000	
T-215-3	Ing-Yot No.1 Tunnel	Baht/Station	0	5,676,000	5,676,000	
T-215-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	0	13,719,000	13,719,000	
T-215-5	Division 2	Baht/Station	0	11,313,000	11,313,000	
T-215-6	Division 3	Baht/Station	0	11,589,000	11,589,000	
T-215-7	Division 4	Baht/Station	0	11,589,000	11,589,000	
T-215-8	Division 5	Baht/Station	0	9,933,000	9,933,000	
T-215-9	Division 6	Baht/Station	0	10,761,000	10,761,000	
T-215-10	Division 7	Baht/Station	0	9,381,000	9,381,000	
T-215-11	Division 8	Baht/Station	0	11,037,000	11,037,000	
T-215-12	Division 9	Baht/Station	0	13,719,000	13,719,000	

Table TL. List of Unit Rate for Tunnel Works

(8/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-215-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	4,692,000	4,692,000	
T-215-14	Adit No.2	Baht/Station	0	4,416,000	4,416,000	
T-215-15	Adit No.3	Baht/Station	0	4,968,000	4,968,000	
T-215-16	Adit No.4	Baht/Station	0	6,072,000	6,072,000	
T-215-17	Adit No.5	Baht/Station	0	5,244,000	5,244,000	
T-215-18	Adit No.6	Baht/Station	0	6,348,000	6,348,000	
T-215-19	Adit No.7	Baht/Station	0	5,244,000	5,244,000	
T-216	Installation & Dismantling of Air Pipe for Ventilation	Baht/m	652	99	751	Kok-Ing & Ing-Yot Tunnel
T-217	Installation & Dismantling of Air Pipe for Ventilation					Kok-Ing & Ing-Yot Tunnel
T-217-1	Kok-Ing No.1 Tunnel	Baht/Station	2,086,400	316,800	2,403,200	
T-217-2	Kok-Ing No.2 Tunnel	Baht/Station	3,651,200	554,400	4,205,600	
T-217-3	Ing-Yot No.1 Tunnel	Baht/Station	1,434,400	217,800	1,652,200	
T-217-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	3,325,200	504,900	3,830,100	
T-217-5	Division 2	Baht/Station	3,129,600	475,200	3,604,800	
T-217-6	Division 3	Baht/Station	3,651,200	554,400	4,205,600	
T-217-7	Division 4	Baht/Station	4,824,800	732,600	5,557,400	
T-217-8	Division 5	Baht/Station	4,303,200	653,400	4,956,600	
T-217-9	Division 6	Baht/Station	4,303,200	653,400	4,956,600	
T-217-10	Division 7	Baht/Station	4,107,600	623,700	4,731,300	
T-217-11	Division 8	Baht/Station	3,390,400	514,800	3,905,200	
T-217-12	Division 9	Baht/Station	3,325,200	504,900	3,830,100	
T-217-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	1,434,400	217,800	1,652,200	
T-217-14	Adit No.2	Baht/Station	1,304,000	198,000	1,502,000	
T-217-15	Adit No.3	Baht/Station	1,564,800	237,600	1,802,400	
T-217-16	Adit No.4	Baht/Station	2,216,800	336,600	2,553,400	
T-217-17	Adit No.5	Baht/Station	1,760,400	267,300	2,027,700	
T-217-18	Adit No.6	Baht/Station	2,282,000	346,500	2,628,500	
T-217-19	Adit No.7	Baht/Station	1,695,200	257,400	1,952,600	
T-218	Electric Charge of Fan for Tunnel					Kok-Ing & Ing-Yot Tunnel
T-218-1	Kok-Ing No.1 Tunnel	Baht/Station	0	12,489,000	12,489,000	
T-218-2	Kok-Ing No.2 Tunnel	Baht/Station	0	18,501,000	18,501,000	
T-218-3	Ing-Yot No.1 Tunnel	Baht/Station	0	8,325,000	8,325,000	
T-218-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	0	20,121,000	20,121,000	
T-218-5	Division 2	Baht/Station	0	16,593,000	16,593,000	
T-218-6	Division 3	Baht/Station	0	16,998,000	16,998,000	
T-218-7	Division 4	Baht/Station	0	16,998,000	16,998,000	
T-218-8	Division 5	Baht/Station	0	14,571,000	14,571,000	
T-218-9	Division 6	Baht/Station	0	15,783,000	15,783,000	
T-218-10	Division 7	Baht/Station	0	13,761,000	13,761,000	
T-218-11	Division 8	Baht/Station	0	16,188,000	16,188,000	
T-218-12	Division 9	Baht/Station	0	20,121,000	20,121,000	
T-218-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	6,879,000	6,879,000	
T-218-14	Adit No.2	Baht/Station	0	6,474,000	6,474,000	
T-218-15	Adit No.3	Baht/Station	0	7,284,000	7,284,000	
T-218-16	Adit No.4	Baht/Station	0	8,904,000	8,904,000	
T-218-17	Adit No.5	Baht/Station	0	7,689,000	7,689,000	
T-218-18	Adit No.6	Baht/Station	0	9,309,000	9,309,000	
T-218-19	Adit No.7	Baht/Station	0	7,689,000	7,689,000	
T-219	Installation & Dismantling of Air Pipe for Fan	Baht/m	1,785	33	1,818	Kok-Ing & Ing-Yot Tunnel
T-220	Installation & Dismantling of Air Pipe for Fan					Kok-Ing & Ing-Yot Tunnel
T-220-1	Kok-Ing No.1 Tunnel	Baht/Station	5,444,000	101,000	5,545,000	
T-220-2	Kok-Ing No.2 Tunnel	Baht/Station	9,675,000	179,000	9,854,000	
T-220-3	Ing-Yot No.1 Tunnel	Baht/Station	3,588,000	66,000	3,654,000	

Table TL. List of Unit Rate for Tunnel Works

(9/12)

No.	Item		Unit	Foreign Currency	Local Currency	Total	Location
T-220-4	Ing-Yot No.2 Tunnel	Division 1	Baht/Station	8,764,000	162,000	8,926,000	
T-220-5		Division 2	Baht/Station	8,122,000	150,000	8,272,000	
T-220-6		Division 3	Baht/Station	9,710,000	180,000	9,890,000	
T-220-7		Division 4	Baht/Station	12,888,000	238,000	13,126,000	
T-220-8		Division 5	Baht/Station	11,495,000	213,000	11,708,000	
T-220-9		Division 6	Baht/Station	11,424,000	211,000	11,635,000	
T-220-10		Division 7	Baht/Station	10,817,000	200,000	11,017,000	
T-220-11		Division 8	Baht/Station	8,836,000	163,000	8,999,000	
T-220-12		Division 9	Baht/Station	8,764,000	162,000	8,926,000	
T-220-13	Ing-Yot No.2 Tunnel	Adit No.1	Baht/Station	3,534,000	65,000	3,599,000	
T-220-14		Adit No.2	Baht/Station	3,195,000	59,000	3,254,000	
T-220-15		Adit No.3	Baht/Station	3,909,000	72,000	3,981,000	
T-220-16		Adit No.4	Baht/Station	5,658,000	105,000	5,763,000	
T-220-17		Adit No.5	Baht/Station	4,427,000	82,000	4,509,000	
T-220-18		Adit No.6	Baht/Station	5,962,000	110,000	6,072,000	
T-220-19		Adit No.7	Baht/Station	4,338,000	80,000	4,418,000	
T-221	Installation & Dismantling of Water Supply Pipe		Baht/m	259	55	314	Kok-Ing & Ing-Yot Tunnel
T-222	Installation & Dismantling of Water Supply Pipe						Kok-Ing & Ing-Yot Tunnel
T-222-1	Kok-Ing No.1 Tunnel		Baht/Station	868,000	184,000	1,052,000	
T-222-2	Kok-Ing No.2 Tunnel		Baht/Station	1,481,000	315,000	1,796,000	
T-222-3	Ing-Yot No.1 Tunnel		Baht/Station	598,000	127,000	725,000	
T-222-4	Ing-Yot No.2 Tunnel	Division 1	Baht/Station	1,349,000	287,000	1,636,000	
T-222-5		Division 2	Baht/Station	1,256,000	267,000	1,523,000	
T-222-6		Division 3	Baht/Station	1,487,000	316,000	1,803,000	
T-222-7		Division 4	Baht/Station	1,948,000	414,000	2,362,000	
T-222-8		Division 5	Baht/Station	1,746,000	371,000	2,117,000	
T-222-9		Division 6	Baht/Station	1,735,000	369,000	2,104,000	
T-222-10		Division 7	Baht/Station	1,647,000	350,000	1,997,000	
T-222-11		Division 8	Baht/Station	1,360,000	289,000	1,649,000	
T-222-12		Division 9	Baht/Station	1,349,000	287,000	1,636,000	
T-222-13	Ing-Yot No.2 Tunnel	Adit No.1	Baht/Station	591,000	125,000	716,000	
T-222-14		Adit No.2	Baht/Station	541,000	115,000	656,000	
T-222-15		Adit No.3	Baht/Station	645,000	137,000	782,000	
T-222-16		Adit No.4	Baht/Station	899,000	191,000	1,090,000	
T-222-17		Adit No.5	Baht/Station	720,000	153,000	873,000	
T-222-18		Adit No.6	Baht/Station	943,000	200,000	1,143,000	
T-222-19		Adit No.7	Baht/Station	707,000	150,000	857,000	
T-223	Electric Charge of Water Supply Pump						Kok-Ing & Ing-Yot Tunnel
T-223-1	Kok-Ing No.1 Tunnel		Baht/Station	0	567,000	567,000	
T-223-2	Kok-Ing No.2 Tunnel		Baht/Station	0	840,000	840,000	
T-223-3	Ing-Yot No.1 Tunnel		Baht/Station	0	378,000	378,000	
T-223-4	Ing-Yot No.2 Tunnel	Division 1	Baht/Station	0	915,000	915,000	
T-223-5		Division 2	Baht/Station	0	753,000	753,000	
T-223-6		Division 3	Baht/Station	0	774,000	774,000	
T-223-7		Division 4	Baht/Station	0	774,000	774,000	
T-223-8		Division 5	Baht/Station	0	663,000	663,000	
T-223-9		Division 6	Baht/Station	0	717,000	717,000	
T-223-10		Division 7	Baht/Station	0	624,000	624,000	
T-223-11		Division 8	Baht/Station	0	735,000	735,000	
T-223-12		Division 9	Baht/Station	0	915,000	915,000	

Table TL. List of Unit Rate for Tunnel Works

(10/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-223-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	312,000	312,000	
T-223-14	Adit No.2	Baht/Station	0	294,000	294,000	
T-223-15	Adit No.3	Baht/Station	0	330,000	330,000	
T-223-16	Adit No.4	Baht/Station	0	405,000	405,000	
T-223-17	Adit No.5	Baht/Station	0	351,000	351,000	
T-223-18	Adit No.6	Baht/Station	0	423,000	423,000	
T-223-19	Adit No.7	Baht/Station	0	351,000	351,000	
T-224	Installation & Dismantling of Drainage Pipe	Baht/m	177	46	223	Kok-Ing & Ing-Yot Tunnel
T-225	Installation & Dismantling of Drainage Pipe					Kok-Ing & Ing-Yot Tunnel
T-225-1	Kok-Ing No.1 Tunnel	Baht/Station	593,000	154,000	747,000	
T-225-2	Kok-Ing No.2 Tunnel	Baht/Station	1,012,000	263,000	1,275,000	
T-225-3	Ing-Yot No.1 Tunnel	Baht/Station	409,000	106,000	515,000	
T-225-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	922,000	240,000	1,162,000	
T-225-5	Division 2	Baht/Station	858,000	223,000	1,081,000	
T-225-6	Division 3	Baht/Station	1,016,000	264,000	1,280,000	
T-225-7	Division 4	Baht/Station	1,331,000	346,000	1,677,000	
T-225-8	Division 5	Baht/Station	1,193,000	310,000	1,503,000	
T-225-9	Division 6	Baht/Station	1,186,000	308,000	1,494,000	
T-225-10	Division 7	Baht/Station	1,126,000	293,000	1,419,000	
T-225-11	Division 8	Baht/Station	929,000	242,000	1,171,000	
T-225-12	Division 9	Baht/Station	922,000	240,000	1,162,000	
T-225-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	404,000	105,000	509,000	
T-225-14	Adit No.2	Baht/Station	370,000	96,000	466,000	
T-225-15	Adit No.3	Baht/Station	441,000	115,000	556,000	
T-225-16	Adit No.4	Baht/Station	614,000	160,000	774,000	
T-225-17	Adit No.5	Baht/Station	492,000	128,000	620,000	
T-225-18	Adit No.6	Baht/Station	644,000	167,000	811,000	
T-225-19	Adit No.7	Baht/Station	483,000	126,000	609,000	
T-226	Electric Charge of Drainage Pump for Tunnel					Kok-Ing & Ing-Yot Tunnel
T-226-1	Kok-Ing No.1 Tunnel	Baht/Station	0	2,553,000	2,553,000	
T-226-2	Kok-Ing No.2 Tunnel	Baht/Station	0	4,542,000	4,542,000	
T-226-3	Ing-Yot No.1 Tunnel	Baht/Station	0	1,704,000	1,704,000	
T-226-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	0	4,116,000	4,116,000	
T-226-5	Division 2	Baht/Station	0	3,879,000	3,879,000	
T-226-6	Division 3	Baht/Station	0	3,975,000	3,975,000	
T-226-7	Division 4	Baht/Station	0	3,975,000	3,975,000	
T-226-8	Division 5	Baht/Station	0	3,405,000	3,405,000	
T-226-9	Division 6	Baht/Station	0	3,690,000	3,690,000	
T-226-10	Division 7	Baht/Station	0	3,216,000	3,216,000	
T-226-11	Division 8	Baht/Station	0	3,783,000	3,783,000	
T-226-12	Division 9	Baht/Station	0	4,116,000	4,116,000	
T-226-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	1,608,000	1,608,000	
T-226-14	Adit No.2	Baht/Station	0	1,515,000	1,515,000	
T-226-15	Adit No.3	Baht/Station	0	1,704,000	1,704,000	
T-226-16	Adit No.4	Baht/Station	0	2,082,000	2,082,000	
T-226-17	Adit No.5	Baht/Station	0	1,797,000	1,797,000	
T-226-18	Adit No.6	Baht/Station	0	2,175,000	2,175,000	
T-226-19	Adit No.7	Baht/Station	0	1,797,000	1,797,000	
T-227	Electric Charge of Water Treatment Plant for Drainage System					Kok-Ing & Ing-Yot Tunnel
T-227-1	Kok-Ing No.1 Tunnel	Baht/Station	0	1,419,000	1,419,000	
T-227-2	Kok-Ing No.2 Tunnel	Baht/Station	0	2,523,000	2,523,000	
T-227-3	Ing-Yot No.1 Tunnel	Baht/Station	0	945,000	945,000	

Table TL. List of Unit Rate for Tunnel Works

(11/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-227-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	0	2,286,000	2,286,000	
T-227-5	Division 2	Baht/Station	0	2,154,000	2,154,000	
T-227-6	Division 3	Baht/Station	0	2,208,000	2,208,000	
T-227-7	Division 4	Baht/Station	0	2,208,000	2,208,000	
T-227-8	Division 5	Baht/Station	0	1,893,000	1,893,000	
T-227-9	Division 6	Baht/Station	0	2,049,000	2,049,000	
T-227-10	Division 7	Baht/Station	0	1,788,000	1,788,000	
T-227-11	Division 8	Baht/Station	0	2,103,000	2,103,000	
T-227-12	Division 9	Baht/Station	0	2,286,000	2,286,000	
T-227-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	0	894,000	894,000	
T-227-14	Adit No.2	Baht/Station	0	840,000	840,000	
T-227-15	Adit No.3	Baht/Station	0	945,000	945,000	
T-227-16	Adit No.4	Baht/Station	0	1,155,000	1,155,000	
T-227-17	Adit No.5	Baht/Station	0	999,000	999,000	
T-227-18	Adit No.6	Baht/Station	0	1,209,000	1,209,000	
T-227-19	Adit No.7	Baht/Station	0	999,000	999,000	
T-228	Installation & Dismantling of Water Treatment Plant for	Baht/Station	20,238,000	33,000	20,271,000	Kok-Ing & Ing-Yot Tunnel
T-229	Transportation of Sludge from Water Treatment Plant	Baht/day	3,476	850	4,326	Kok-Ing & Ing-Yot Tunnel
T-230	Transportation of Sludge from Water Treatment Plant					Kok-Ing & Ing-Yot Tunnel
T-230-1	Kok-Ing No.1 Tunnel	Baht/Station	1,144,000	280,000	1,424,000	
T-230-2	Kok-Ing No.2 Tunnel	Baht/Station	2,030,000	496,000	2,526,000	
T-230-3	Ing-Yot No.1 Tunnel	Baht/Station	761,000	186,000	947,000	
T-230-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	1,839,000	450,000	2,289,000	
T-230-5	Division 2	Baht/Station	1,300,000	318,000	1,618,000	
T-230-6	Division 3	Baht/Station	1,331,000	326,000	1,657,000	
T-230-7	Division 4	Baht/Station	1,331,000	326,000	1,657,000	
T-230-8	Division 5	Baht/Station	1,144,000	280,000	1,424,000	
T-230-9	Division 6	Baht/Station	1,237,000	303,000	1,540,000	
T-230-10	Division 7	Baht/Station	1,078,000	264,000	1,342,000	
T-230-11	Division 8	Baht/Station	1,269,000	310,000	1,579,000	
T-230-12	Division 9	Baht/Station	1,839,000	450,000	2,289,000	
T-230-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	539,000	132,000	671,000	
T-230-14	Adit No.2	Baht/Station	507,000	124,000	631,000	
T-230-15	Adit No.3	Baht/Station	570,000	139,000	709,000	
T-230-16	Adit No.4	Baht/Station	699,000	171,000	870,000	
T-230-17	Adit No.5	Baht/Station	601,000	147,000	748,000	
T-230-18	Adit No.6	Baht/Station	730,000	179,000	909,000	
T-230-19	Adit No.7	Baht/Station	601,000	147,000	748,000	
T-231	Operation Cost for Water Treatment Plant	Baht/m	725	170	895	Kok-Ing & Ing-Yot Tunnel
T-232	Operation Cost for Water Treatment Plant				0	Kok-Ing & Ing-Yot Tunnel
T-232-1	Kok-Ing No.1 Tunnel	Baht/Station	2,211,000	519,000	2,730,000	
T-232-2	Kok-Ing No.2 Tunnel	Baht/Station	3,930,000	921,000	4,851,000	
T-232-3	Ing-Yot No.1 Tunnel	Baht/Station	1,457,000	342,000	1,799,000	
T-232-4	Ing-Yot No.2 Tunnel Division 1	Baht/Station	3,560,000	835,000	4,395,000	
T-232-5	Division 2	Baht/Station	3,299,000	774,000	4,073,000	
T-232-6	Division 3	Baht/Station	3,944,000	925,000	4,869,000	
T-232-7	Division 4	Baht/Station	5,235,000	1,227,000	6,462,000	
T-232-8	Division 5	Baht/Station	4,669,000	1,095,000	5,764,000	
T-232-9	Division 6	Baht/Station	4,640,000	1,088,000	5,728,000	
T-232-10	Division 7	Baht/Station	4,394,000	1,030,000	5,424,000	
T-232-11	Division 8	Baht/Station	3,589,000	842,000	4,431,000	
T-232-12	Division 9	Baht/Station	3,567,000	836,000	4,403,000	

Table TL. List of Unit Rate for Tunnel Works

(12/12)

No.	Item	Unit	Foreign Currency	Local Currency	Total	Location
T-232-13	Ing-Yot No.2 Tunnel Adit No.1	Baht/Station	1,443,000	338,000	1,781,000	
T-232-14	Adit No.2	Baht/Station	1,298,000	304,000	1,602,000	
T-232-15	Adit No.3	Baht/Station	1,595,000	374,000	1,969,000	
T-232-16	Adit No.4	Baht/Station	2,306,000	541,000	2,847,000	
T-232-17	Adit No.5	Baht/Station	1,798,000	422,000	2,220,000	
T-232-18	Adit No.6	Baht/Station	2,422,000	568,000	2,990,000	
T-232-19	Adit No.7	Baht/Station	1,769,000	415,000	2,184,000	
T-233	Transportation Cost of Equipment	Baht/Station	377,000	58,000	435,000	Kok-Ing & Ing-Yot Tunnel
T-234	Construction Cost of Tunnel Portal	Baht/Station	898,000	671,000	1,569,000	Kok-Ing & Ing-Yot Tunnel
T-235	Extension Power Line to Each Tunnel Portal	L.S.				Refer to T-235

T-1. Unit Rate per Meter of Excavation of Upper Half : Grade C1									
Rate = 56,222 Baht/m F.C. = 54,079 Baht/m 96%									
Kok-Ing Tunnel L.C. = 2,143 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	20 Hr	8,605	172,100	155	3,100	20	Hr ×	1
Tractor Shovel 2.3m3 wheel typ	1	27 Hr	1,460	39,420	60	1,620	27	Hr ×	1
Dump Truck 11t	1	54 Hr	630	34,020	50	2,700	54	Hr ×	1
Miscellaneous		5 %		12,277		371	Baht / 10m		
Subtotal				257,817		7,791			
2. Material							per 10m		
Cross Bit RM 8-25		77 Pcs	3,500	269,500	0	0			
Miscellaneous		5 %		13,475	0	0	269,500 Baht / 10m		
Subtotal				282,975		0			
3. Labor							per 10m		
Foreman Tunnel		3 day			720	2,160	27	Hr/12Hr	2.3
Operator of Heavy		7.5 day			460	3,450	1.5	day ×	5
Driver		7.5 day			350	2,625	1.5	day ×	5
Skilled Labor		7.5 day			260	1,950	1.5	day ×	5
Common Labor		15.0 day			230	3,450	1.5	day ×	10
Subtotal						13,635			
4. Total				540,792		21,426	562,218 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 54,079 Baht/m 2,143 Baht/m = 56,222									

T-2. Unit Rate per Meter of Excavation Upper Half : Grade C2									
Rate = 44,198 Baht/m F.C. = 42,255 Baht/m 96%									
Kok-Ing Tunnel L.C. = 1,943 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	15 Hr	8,605	129,075	155	2,325	15 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	21 Hr	1,460	30,660	60	1,260	21 Hr × 1		
Dump Truck 11t	1	63 Hr	630	39,690	50	3,150	63 Hr × 1		
Miscellaneous		5 %		9,971		337	Baht / 10m		
Subtotal				209,396		7,072			
2. Material							per 10m		
Cross Bit RM 8-25		58 Pcs	3,500	203,000	0	0			
Miscellaneous		5 %		10,150	0	0	203,000 Baht / 10m		
Subtotal				213,150		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	21 Hr/12Hr 1.8		
Operator of Heavy		6.0 day			460	2,760	1.5 day × 4		
Driver		9.0 day			350	3,150	1.5 day × 6		
Skilled Labor		6.0 day			260	1,560	1.5 day × 4		
Common Labor		15.0 day			230	3,450	1.5 day × 10		
Subtotal						12,360			
4. Total				422,546		19,432	441,978 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			42,255 Baht/m 1,943 Baht/m =				44,198		

T-3. Unit Rate per Meter of Excavation Upper Half : Grade D1									
Rate = 35,151 Baht/m F.C. = 33,422 Baht/m 95%									
Kok-Ing Tunnel L.C. = 1,729 Baht/m 5%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	13 Hr	8,605	111,865	155	2,015	13 Hr × 1		
Tractor Shovel 2.3m3 wheel tyg	1	18 Hr	1,460	26,280	60	1,080	18 Hr × 1		
Dump Truck 11t	1	53 Hr	630	33,390	50	2,650	53 Hr × 1		
Miscellaneous		7 %		12,007		402	Baht / 10m		
Subtotal				183,542		6,147			
2. Material							per 10m		
Cross Bit RM 8-25		41 Pcs	3,500	143,500	0	0			
Miscellaneous		5 %		7,175	0	0	143,500 Baht / 10m		
Subtotal				150,675		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	18 Hr/12Hr 1.5		
Operator of Heavy		6.0 day			460	2,760	1.5 day × 4		
Driver		7.5 day			350	2,625	1.5 day × 5		
Skilled Labor		6.0 day			260	1,560	1.5 day × 4		
Common Labor		12.0 day			230	2,760	1.5 day × 8		
Subtotal						11,145			
4. Total				334,217		17,292	351,509 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 33,422 Baht/m 1,729 Baht/m = 35,151									

T-4. Unit Rate per Meter of Excavation Upper Half : Grade D2									
Rate = 25,613 Baht/m F.C. = 24,067 Baht/m 94%									
Kok-Ing Tunnel L.C. = 1,546 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	12 Hr	8,605	103,260	155	1,860	12	Hr ×	1
Tractor Shovel 2.3m3 wheel ty	1	16 Hr	1,460	23,360	60	960	16	Hr ×	1
Dump Truck 11t	1	47 Hr	630	29,610	50	2,350	47	Hr ×	1
Miscellaneous		7 %		10,936		362	Baht / 10m		
Subtotal				167,166		5,532			
2. Material							per 10m		
Cross Bit RM 8-25		20 Pcs	3,500	70,000	0	0			
Miscellaneous		5 %		3,500	0	0	70,000 Baht / 10m		
Subtotal				73,500		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	16	Hr/12Hr	1.3
Operator of Heavy		4.5 day			460	2,070	1.5	day ×	3
Driver		6.0 day			350	2,100	1.5	day ×	4
Skilled Labor		6.0 day			260	1,560	1.5	day ×	4
Common Labor		12.0 day			230	2,760	1.5	day ×	8
Subtotal						9,930			
4. Total				240,666		15,462	256,128 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			24,067 Baht/m		1,546 Baht/m =		25,613		

T-5. Unit Rate per Meter of Excavation Upper Half : Grade E1									
Rate = 26,908 Baht/m F.C. = 25,271 Baht/m 94%									
Kok-Ing Tunnel L.C. = 1,637 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	12 Hr	8,605	103,260	155	1,860	12 Hr × 1		
Tractor Shovel 2.3m3 wheel ty	1	17 Hr	1,460	24,820	60	1,020	17 Hr × 1		
Dump Truck 11t	1	50 Hr	630	31,500	50	2,500	50 Hr × 1		
Miscellaneous		10 %		15,958		538	Baht / 10m		
Subtotal				175,538		5,918			
2. Material							per 10m		
Cross Bit RM 8-25		21 Pcs	3,500	73,500	0	0			
Miscellaneous		5 %		3,675	0	0	73,500 Baht / 10m		
Subtotal				77,175		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	17 Hr/12Hr 1.4		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		7.5 day			350	2,625	1.5 day × 5		
Skilled Labor		6.0 day			260	1,560	1.5 day × 4		
Common Labor		12.0 day			230	2,760	1.5 day × 8		
Subtotal						10,455			
4. Total				252,713		16,373	269,086 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			25,271 Baht/m		1,637 Baht/m =		26,908		

T-6. Unit Rate per Meter of Excavation Upper Half : Grade E2								
Rate = 27,420 Baht/m F.C. = 25,708 Baht/m 94%								
Kok-Ing Tunnel L.C. = 1,712 Baht/m 6%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Soft Rock Tunnel Cutter 200kw	1	12 Hr	8,605	103,260	155	1,860	12 Hr × 1	
Tractor Shovel 2.3m3 wheel ty	1	17 Hr	1,460	24,820	60	1,020	17 Hr × 1	
Dump Truck 11t	1	51 Hr	630	32,130	50	2,550	51 Hr × 1	
Miscellaneous		10 %		16,021		543	Baht / 10m	
Subtotal				176,231		5,973		
2. Material							per 10m	
Cross Bit RM 8-25		22 Pcs	3,500	77,000	0	0		
Miscellaneous		5 %		3,850	0	0	77,000 Baht / 10m	
Subtotal				80,850		0		
3. Labor							per 10m	
Foreman Tunnel		2 day			720	1,440	17 Hr/12Hr 1.4	
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3	
Driver		7.5 day			350	2,625	1.5 day × 5	
Skilled Labor		6.0 day			260	1,560	1.5 day × 4	
Common Labor		15.0 day			230	3,450	1.5 day × 10	
Subtotal						11,145		
4. Total				257,081		17,118	274,199 Baht / 10m	
5. Output			Working Time per 1 day = 12 Hr × 2 shift			per 10 m		
Rate = Baht/m			25,708 Baht/m		1,712 Baht/m =		27,420	

T-7. Unit Rate per Meter of Excavation of Upper Half : Grade B									
Rate = 75,133 Baht/m F.C. = 72,283 Baht/m 96%									
Ing-Yot No.2 Tunnel with Adit L.C. = 2,850 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	25 Hr	8,605	215,125	155	3,875	25	Hr ×	1
Tractor Shovel 2.3m3 wheel typ	1	35 Hr	1,460	51,100	60	2,100	35	Hr ×	1
Dump Truck 11t	1	104 Hr	630	65,520	50	5,200	104	Hr ×	1
Miscellaneous		5 %		16,587		559	Baht / 10m		
Subtotal				348,332		11,734			
2. Material							per 10m		
Cross Bit RM 8-25		100 Pcs	3,500	350,000	0	0			
Miscellaneous		7 %		24,500	0	0	350,000 Baht / 10m		
Subtotal				374,500		0			
3. Labor							per 10m		
Foreman Tunnel		3 day			720	2,160	35	Hr/12Hr	2.9
Operator of Heavy		7.5 day			460	3,450	1.5	day ×	5
Driver		13.5 day			350	4,725	1.5	day ×	9
Skilled Labor		7.5 day			260	1,950	1.5	day ×	5
Common Labor		19.5 day			230	4,485	1.5	day ×	13
Subtotal						16,770			
4. Total				722,832		28,504	751,336 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m				72,283 Baht/m		2,850 Baht/m	= 75,133		

T-8. Unit Rate per Meter of Excavation of Upper Half : Grade C1							
Rate = 67,339 Baht/m				F.C. = 64,760 Baht/m 96%			
Ing-Yot No.2 Tunnel with Adit				L.C. = 2,579 Baht/m 4%			
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							per 10m
Soft Rock Tunnel Cutter 200kw	1	23 Hr	8,605	197,915	155	3,565	23 Hr × 1
Tractor Shovel 2.3m3 wheel ty	1	31 Hr	1,460	45,260	60	1,860	31 Hr × 1
Dump Truck 11t	1	93 Hr	630	58,590	50	4,650	93 Hr × 1
Miscellaneous		5 %		15,088		504	Baht / 10m
Subtotal				316,853		10,579	
2. Material							per 10m
Cross Bit RM 8-25		90 Pcs	3,500	315,000	0	0	
Miscellaneous		5 %		15,750	0	0	315,000 Baht / 10m
Subtotal				330,750		0	
3. Labor							per 10m
Foreman Tunnel		3 day			720	2,160	31 Hr/12Hr 2.6
Operator of Heavy		7.5 day			460	3,450	1.5 day × 5
Driver		12.0 day			350	4,200	1.5 day × 8
Skilled Labor		7.5 day			260	1,950	1.5 day × 5
Common Labor		15.0 day			230	3,450	1.5 day × 10
Subtotal						15,210	
4. Total				647,603		25,789	673,392 Baht / 10m
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m
Rate = Baht/m			64,760 Baht/m 2,579 Baht/m = 67,339				

T-9. Unit Rate per Meter of Excavation of Upper Half : Grade C2							
Rate = 53,767 Baht/m				F.C. = 51,415 Baht/m 96%			
Ing-Yot No.2 Tunnel with Adit				L.C. = 2,352 Baht/m 4%			
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							per 10m
Soft Rock Tunnel Cutter 200kw	1	18 Hr	8,605	154,890	155	2,790	18 Hr × 1
Tractor Shovel 2.3m3 wheel ty	1	24 Hr	1,460	35,040	60	1,440	24 Hr × 1
Dump Truck 11t	1	98 Hr	630	61,740	50	4,900	98 Hr × 1
Miscellaneous		5 %		12,584		457	Baht / 10m
Subtotal				264,254		9,587	
2. Material							per 10m
Cross Bit RM 8-25		68 Pcs	3,500	238,000	0	0	
Miscellaneous		5 %		11,900	0	0	238,000 Baht / 10m
Subtotal				249,900		0	
3. Labor							per 10m
Foreman Tunnel		2 day			720	1,440	24 Hr/12Hr 2
Operator of Heavy		6.0 day			460	2,760	1.5 day × 4
Driver		13.5 day			350	4,725	1.5 day × 9
Skilled Labor		6.0 day			260	1,560	1.5 day × 4
Common Labor		15.0 day			230	3,450	1.5 day × 10
Subtotal						13,935	
4. Total				514,154		23,522	537,676 Baht / 10m
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m
Rate = Baht/m			51,415 Baht/m 2,352 Baht/m = 53,767				

T-10. Unit Rate per Meter of Excavation of Upper Half : Grade D1									
Rate = 41,903 Baht/m F.C. = 40,027 Baht/m 96%									
Ing-Yot No.2 Tunnel with Adit L.C. = 1,876 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	15 Hr	8,605	129,075	155	2,325	15 Hr x 1		
Tractor Shovel 2.3m3 wheel typ	1	21 Hr	1,460	30,660	60	1,260	21 Hr x 1		
Dump Truck 11t	1	84 Hr	630	52,920	50	4,200	84 Hr x 1		
Miscellaneous		7 %		14,886		545	Baht / 10m		
Subtotal				227,541		8,330			
2. Material							per 10m		
Cross Bit RM 8-25		47 Pcs	3,500	164,500	0	0			
Miscellaneous		5 %		8,225	0	0	164,500 Baht / 10m		
Subtotal				172,725		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	21 Hr/12Hr 1.8		
Operator of Heavy		4.5 day			460	2,070	1.5 day x 3		
Driver		10.5 day			350	3,675	1.5 day x 7		
Skilled Labor		4.5 day			260	1,170	1.5 day x 3		
Common Labor		9.0 day			230	2,070	1.5 day x 6		
Subtotal						10,425			
4. Total							419,021 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr x 2 shift							per 10 m		
Rate = Baht/m 40,027 Baht/m 1,876 Baht/m = 41,903									

T-11. Unit Rate per Meter of Excavation of Upper Half : Grade D2									
Rate = 30,595 Baht/m F.C. = 28,814 Baht/m 94%									
Ing-Yot No.2 Tunnel with Adit L.C. = 1,781 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
Soft Rock Tunnel Cutter 200kw	1	13 Hr	8,605	111,865	155	2,015	per 10m		
Tractor Shovel 2.3m3 wheel typ	1	19 Hr	1,460	27,740	60	1,140	13 Hr x 1		
Dump Truck 11t	1	75 Hr	630	47,250	50	3,750	19 Hr x 1		
Miscellaneous		7 %		13,080		483	75 Hr x 1		
Subtotal				199,935		7,388	Baht / 10m		
2. Material									
Cross Bit RM 8-25		24 Pcs	3,500	84,000	0	0	per 10m		
Miscellaneous		5 %		4,200	0	0	84,000 Baht / 10m		
Subtotal				88,200		0			
3. Labor									
Foreman Tunnel		2 day			720	1,440	per 10m		
Operator of Heavy		4.5 day			460	2,070	19 Hr/12Hr 1.6		
Driver		10.5 day			350	3,675	1.5 day x 3		
Skilled Labor		4.5 day			260	1,170	1.5 day x 7		
Common Labor		9.0 day			230	2,070	1.5 day x 3		
Subtotal						10,425	1.5 day x 6		
4. Total				288,135		17,813	305,948 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m									
Rate = Baht/m 28,814 Baht/m 1,781 Baht/m = 30,595									

T-12. Unit Rate per Meter of Excavation of Upper Half : Grade E1									
Rate = 31,957 Baht/m F.C. = 30,092 Baht/m 94%									
Ing-Yot No.2 Tunnel with Adit L.C. = 1,865 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	14 Hr	8,605	120,470	155	2,170	14 Hr × 1		
Tractor Shovel 2.3m3 wheel ty	1	19 Hr	1,460	27,740	60	1,140	19 Hr × 1		
Dump Truck 11t	1	77 Hr	630	48,510	50	3,850	77 Hr × 1		
Miscellaneous		10 %		19,672		716	Baht / 10m		
Subtotal				216,392		7,876			
2. Material							per 10m		
Cross Bit RM 8-25		23 Pcs	3,500	80,500	0	0			
Miscellaneous		5 %		4,025	0	0	80,500 Baht / 10m		
Subtotal				84,525		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	19 Hr/12Hr 1.6		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		10.5 day			350	3,675	1.5 day × 7		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		10.5 day			230	2,415	1.5 day × 7		
Subtotal						10,770			
4. Total				300,917		18,646	319,563 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			30,092 Baht/m				1,865 Baht/m = 31,957		

T-13. Unit Rate per Meter of Excavation of Upper Half : Grade E2									
Rate = 32,399 Baht/m F.C. = 30,529 Baht/m 94%									
Ing-Yot No.2 Tunnel with Adit L.C. = 1,870 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	14 Hr	8,605	120,470	155	2,170	14 Hr × 1		
Tractor Shovel 2.3m3 wheel ty	1	19 Hr	1,460	27,740	60	1,140	19 Hr × 1		
Dump Truck 11t	1	78 Hr	630	49,140	50	3,900	78 Hr × 1		
Miscellaneous		10 %		19,735		721	Baht / 10m		
Subtotal				217,085		7,931			
2. Material							per 10m		
Cross Bit RM 8-25		24 Pcs	3,500	84,000	0	0			
Miscellaneous		5 %		4,200	0	0	84,000 Baht / 10m		
Subtotal				88,200		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	19 Hr/12Hr 1.6		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		10.5 day			350	3,675	1.5 day × 7		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		10.5 day			230	2,415	1.5 day × 7		
Subtotal						10,770			
4. Total				305,285		18,701	323,986 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			30,529 Baht/m				1,870 Baht/m = 32,399		

T-14. Unit Rate per Meter of Excavation of Upper Half : Grade C1									
Rate = 67,339 Baht/m					F.C. = 64,760 Baht/m 96%				
Ing-Yot Tunnel without Adit					L.C. = 2,579 Baht/m 4%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	23 Hr	8,605	197,915	155	3,565	23 Hr × 1		
Tractor Shovel 2.3m3 wheel tyg	1	31 Hr	1,460	45,260	60	1,860	31 Hr × 1		
Dump Truck 11t	1	93 Hr	630	58,590	50	4,650	93 Hr × 1		
Miscellaneous		5 %		15,088		504	Baht / 10m		
Subtotal				316,853		10,579			
2. Material							per 10m		
Cross Bit RM 8-25		90 Pcs	3,500	315,000	0	0			
Miscellaneous		5 %		15,750	0	0	315,000 Baht / 10m		
Subtotal				330,750		0			
3. Labor							per 10m		
Foreman Tunnel		3 day			720	2,160	31 Hr/12Hr 2.6		
Operator of Heavy		7.5 day			460	3,450	1.5 day × 5		
Driver		12.0 day			350	4,200	1.5 day × 8		
Skilled Labor		7.5 day			260	1,950	1.5 day × 5		
Common Labor		15.0 day			230	3,450	1.5 day × 10		
Subtotal						15,210			
4. Total				647,603		25,789	673,392 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			64,760 Baht/m		2,579 Baht/m =		67,339		

T-15. Unit Rate per Meter of Excavation of Upper Half : Grade C2									
Rate = 51,214 Baht/m					F.C. = 49,093 Baht/m 96%				
Ing-Yot Tunnel without Adit					L.C. = 2,121 Baht/m 4%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	18 Hr	8,605	154,890	155	2,790	18 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	24 Hr	1,460	35,040	60	1,440	24 Hr × 1		
Dump Truck 11t	1	74 Hr	630	46,620	50	3,700	74 Hr × 1		
Miscellaneous		5 %		11,828		397	Baht / 10m		
Subtotal				248,378		8,327			
2. Material							per 10m		
Cross Bit RM 8-25		66 Pcs	3,500	231,000	0	0			
Miscellaneous		5 %		11,550	0	0	231,000 Baht / 10m		
Subtotal				242,550		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	24 Hr/12Hr 2		
Operator of Heavy		6.0 day			460	2,760	1.5 day × 4		
Driver		10.5 day			350	3,675	1.5 day × 7		
Skilled Labor		6.0 day			260	1,560	1.5 day × 4		
Common Labor		15.0 day			230	3,450	1.5 day × 10		
Subtotal						12,885			
4. Total				490,928		21,212	512,140 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			49,093 Baht/m				2,121 Baht/m = 51,214		

T-16. Unit Rate per Meter of Excavation of Upper Half : Grade D1									
Rate = 41,903 Baht/m F.C. = 40,027 Baht/m 96%									
Ing-Yot Tunnel without Adit L.C. = 1,876 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	15 Hr	8,605	129,075	155	2,325	15 Hr × 1		
Tractor Shovel 2.3m3 wheel tyg	1	21 Hr	1,460	30,660	60	1,260	21 Hr × 1		
Dump Truck 11t	1	84 Hr	630	52,920	50	4,200	84 Hr × 1		
Miscellaneous		7 %		14,886		545	Baht / 10m		
Subtotal				227,541		8,330			
2. Material							per 10m		
Cross Bit RM 8-25		47 Pcs	3,500	164,500	0	0			
Miscellaneous		5 %		8,225	0	0	164,500 Baht / 10m		
Subtotal				172,725		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	21 Hr/12Hr 1.8		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		10.5 day			350	3,675	1.5 day × 7		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		9.0 day			230	2,070	1.5 day × 6		
Subtotal						10,425			
4. Total				400,266		18,755	419,021 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			40,027 Baht/m				1,876 Baht/m = 41,903		

T-17. Unit Rate per Meter of Excavation of Upper Half : Grade D2									
Rate = 30,595 Baht/m F.C. = 28,814 Baht/m 94%									
Ing-Yot Tunnel without Adit L.C. = 1,781 Baht/m 6%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	13 Hr	8,605	111,865	155	2,015	13	Hr ×	1
Tractor Shovel 2.3m3 wheel tyg	1	19 Hr	1,460	27,740	60	1,140	19	Hr ×	1
Dump Truck 11t	1	75 Hr	630	47,250	50	3,750	75	Hr ×	1
Miscellaneous		7 %		13,080		483	Baht / 10m		
Subtotal				199,935		7,388			
2. Material							per 10m		
Cross Bit RM 8-25		24 Pcs	3,500	84,000	0	0			
Miscellaneous		5 %		4,200	0	0	84,000 Baht / 10m		
Subtotal				88,200		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	19	Hr/12Hr	1.6
Operator of Heavy		4.5 day			460	2,070	1.5	day ×	3
Driver		10.5 day			350	3,675	1.5	day ×	7
Skilled Labor		4.5 day			260	1,170	1.5	day ×	3
Common Labor		9.0 day			230	2,070	1.5	day ×	6
Subtotal						10,425			
4. Total				288,135		17,813	305,948 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			28,814 Baht/m				1,781 Baht/m = 30,595		

T-18. Unit Rate per Meter of Excavation of Upper Half : Grade E1									
Rate = 31,957 Baht/m					F.C. = 30,092 Baht/m 94%				
Ing-Yot Tunnel without Adit					L.C. = 1,865 Baht/m 6%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	14 Hr	8,605	120,470	155	2,170	14 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	19 Hr	1,460	27,740	60	1,140	19 Hr × 1		
Dump Truck 11t	1	77 Hr	630	48,510	50	3,850	77 Hr × 1		
Miscellaneous		10 %		19,672		716	Baht / 10m		
Subtotal				216,392		7,876			
2. Material							per 10m		
Cross Bit RM 8-25		23 Pcs	3,500	80,500	0	0			
Miscellaneous		5 %		4,025	0	0	80,500 Baht / 10m		
Subtotal				84,525		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	19 Hr/12Hr 1.6		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		10.5 day			350	3,675	1.5 day × 7		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		10.5 day			230	2,415	1.5 day × 7		
Subtotal						10,770			
4. Total				300,917		18,646	319,563 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m				30,092 Baht/m		1,865 Baht/m =	31,957		

T-19. Unit Rate per Meter of Excavation of Upper Half : Grade E2									
Rate = 32,399 Baht/m					F.C. = 30,529 Baht/m 94%				
Ing-Yot Tunnel without Adit					L.C. = 1,870 Baht/m 6%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	14 Hr	8,605	120,470	155	2,170	14 Hr x	1	
Tractor Shovel 2.3m3 wheel typ	1	19 Hr	1,460	27,740	60	1,140	19 Hr x	1	
Dump Truck 11t	1	78 Hr	630	49,140	50	3,900	78 Hr x	1	
Miscellaneous		10 %		19,735		721	Baht / 10m		
Subtotal				217,085		7,931			
2. Material							per 10m		
Cross Bit RM 8-25		24 Pcs	3,500	84,000	0	0			
Miscellaneous		5 %		4,200	0	0	84,000 Baht / 10m		
Subtotal				88,200		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	19 Hr/12Hr	1.6	
Operator of Heavy		4.5 day			460	2,070	1.5 day x	3	
Driver		10.5 day			350	3,675	1.5 day x	7	
Skilled Labor		4.5 day			260	1,170	1.5 day x	3	
Common Labor		10.5 day			230	2,415	1.5 day x	7	
Subtotal						10,770			
4. Total				305,285		18,701	323,986 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr x 2 shift				per 10 m		
Rate = Baht/m			30,529 Baht/m		1,870 Baht/m =		32,399		

T-20. Unit Rate per Meter of Excavation of Upper Half : Grade B									
Rate = 41,959 Baht/m F.C. = 40,196 Baht/m 96%									
Adit for Ing-Yot No.2 Tunnel L.C. = 1,763 Baht/m 4%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	14 Hr	8,605	120,470	155	2,170	14 Hr × 1		
Tractor Shovel 2.3m3 wheel ty	1	18 Hr	1,460	26,280	60	1,080	18 Hr × 1		
Dump Truck 11t	1	69 Hr	630	43,470	50	3,450	69 Hr × 1		
Miscellaneous		5 %		9,511		335	Baht / 10m		
Subtotal				199,731		7,035			
2. Material							per 10m		
Cross Bit RM 8-25		54 Pcs	3,500	189,000	0	0			
Miscellaneous		7 %		13,230	0	0	189,000 Baht / 10m		
Subtotal				202,230		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	18 Hr/12Hr 1.5		
Operator of Heavy		4.5 day			460	2,070	1.5 day × 3		
Driver		9.0 day			350	3,150	1.5 day × 6		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		12.0 day			230	2,760	1.5 day × 8		
Subtotal						10,590			
4. Total				401,961		17,625	419,586 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			40,196 Baht/m				1,763 Baht/m = 41,959		

T-21. Unit Rate per Meter of Excavation of Upper Half : Grade C1									
Rate = 36,054 Baht/m					F.C. = 34,368 Baht/m 95%				
Adit for Ing-Yot No.2 Tunnel					L.C. = 1,686 Baht/m 5%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	12 Hr	8,605	103,260	155	1,860	12 Hr ×	1	
Tractor Shovel 2.3m3 wheel tyg	1	16 Hr	1,460	23,360	60	960	16 Hr ×	1	
Dump Truck 11t	1	63 Hr	630	39,690	50	3,150	63 Hr ×	1	
Miscellaneous		5 %		8,316		299	Baht / 10m		
Subtotal				174,626		6,269			
2. Material							per 10m		
Cross Bit RM 8-25		46 Pcs	3,500	161,000	0	0	161,000 Baht / 10m		
Miscellaneous		5 %		8,050	0	0			
Subtotal				169,050		0			
3. Labor							per 10m		
Foreman Tunnel		2 day			720	1,440	16 Hr/12Hr	1.3	
Operator of Heavy		4.5 day			460	2,070	1.5 day ×	3	
Driver		9.0 day			350	3,150	1.5 day ×	6	
Skilled Labor		4.5 day			260	1,170	1.5 day ×	3	
Common Labor		12.0 day			230	2,760	1.5 day ×	8	
Subtotal						10,590			
4. Total				343,676		16,859	360,535 Baht / 10m		
5. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		34,368 Baht/m					1,686 Baht/m =		36,054

T-22. Unit Rate per Meter of Excavation of Upper Half : Grade C2									
Rate = 28,372 Baht/m F.C. = 27,038 Baht/m 95%									
Adit for Ing-Yot No.2 Tunnel L.C. = 1,334 Baht/m 5%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	10 Hr	8,605	86,050	155	1,550	10 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	12 Hr	1,460	17,520	60	720	12 Hr × 1		
Dump Truck 11t	1	61 Hr	630	38,430	50	3,050	61 Hr × 1		
Miscellaneous		5 %		7,100		266	Baht / 10m		
Subtotal				149,100		5,586			
2. Material							per 10m		
Cross Bit RM 8-25		33 Pcs	3,500	115,500	0	0			
Miscellaneous		5 %		5,775	0	0	115,500 Baht / 10m		
Subtotal				121,275		0			
3. Labor							per 10m		
Foreman Tunnel		1 day			720	720	12 Hr/12Hr 1		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		9.0 day			350	3,150	1.5 day × 6		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		7.5 day			230	1,725	1.5 day × 5		
Subtotal						7,755			
4. Total				270,375		13,341	283,716 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 27,038 Baht/m 1,334 Baht/m = 28,372									

T-23. Unit Rate per Meter of Excavation of Upper Half : Grade D1								
Rate = 22,687 Baht/m F.C. = 21,477 Baht/m 95%								
Adit for Ing-Yot No.2 Tunnel L.C. = 1,210 Baht/m 5%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Soft Rock Tunnel Cutter 200kw	1	8 Hr	8,605	68,840	155	1,240	8 Hr x 1	
Tractor Shovel 2.3m3 wheel ty	1	11 Hr	1,460	16,060	60	660	11 Hr x 1	
Dump Truck 11t	1	53 Hr	630	33,390	50	2,650	53 Hr x 1	
Miscellaneous		7 %		8,280		319	Baht / 10m	
Subtotal				126,570		4,869		
2. Material							per 10m	
Cross Bit RM 8-25		24 Pcs	3,500	84,000	0	0		
Miscellaneous		5 %		4,200	0	0	84,000 Baht / 10m	
Subtotal				88,200		0		
3. Labor							per 10m	
Foreman Tunnel		1 day			720	720	11 Hr/12Hr 0.9	
Operator of Heavy		3.0 day			460	1,380	1.5 day x 2	
Driver		7.5 day			350	2,625	1.5 day x 5	
Skilled Labor		3.0 day			260	780	1.5 day x 2	
Common Labor		7.5 day			230	1,725	1.5 day x 5	
Subtotal						7,230		
4. Total				214,770		12,099	226,869 Baht / 10m	
5. Output			Working Time per 1 day = 12 Hr x 2 shift				per 10 m	
Rate = Baht/m			21,477 Baht/m		1,210 Baht/m =		22,687	

T-24. Unit Rate per Meter of Excavation of Upper Half : Grade D2									
Rate = 16,885 Baht/m F.C. = 15,720 Baht/m 93%									
Adit for Ing-Yot No.2 Tunnel L.C. = 1,165 Baht/m 7%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	7 Hr	8,605	60,235	155	1,085	7 Hr × 1		
Tractor Shovel 2.3m3 wheel ty	1	10 Hr	1,460	14,600	60	600	10 Hr × 1		
Dump Truck 11t	1	49 Hr	630	30,870	50	2,450	49 Hr × 1		
Miscellaneous		7 %		7,399		289	Baht / 10m		
Subtotal				113,104		4,424			
2. Material							per 10m		
Cross Bit RM 8-25		12 Pcs	3,500	42,000	0	0			
Miscellaneous		5 %		2,100	0	0	42,000 Baht / 10m		
Subtotal				44,100		0			
3. Labor							per 10m		
Foreman Tunnel		1 day			720	720	10 Hr/12Hr 0.8		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		7.5 day			350	2,625	1.5 day × 5		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		7.5 day			230	1,725	1.5 day × 5		
Subtotal						7,230			
4. Total				157,204		11,654	168,858 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			15,720 Baht/m		1,165 Baht/m =		16,885		

T-25. Unit Rate per Meter of Excavation of Upper Half : Grade E1									
Rate = 18,012 Baht/m F.C. = 16,824 Baht/m 93%									
Adit for Ing-Yot No.2 Tunnel L.C. = 1,188 Baht/m 7%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	8 Hr	8,605	68,840	155	1,240	8 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	9 Hr	1,460	13,140	60	540	9 Hr × 1		
Dump Truck 11t	1	49 Hr	630	30,870	50	2,450	49 Hr × 1		
Miscellaneous		10 %		11,285		423	Baht / 10m		
Subtotal					124,135	4,653			
2. Material							per 10m		
Cross Bit RM 8-25		12 Pcs	3,500	42,000	0	0			
Miscellaneous		5 %		2,100	0	0	42,000 Baht / 10m		
Subtotal					44,100	0			
3. Labor							per 10m		
Foreman Tunnel		1 day			720	720	9 Hr/12Hr 0.8		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		7.5 day			350	2,625	1.5 day × 5		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		7.5 day			230	1,725	1.5 day × 5		
Subtotal						7,230			
4. Total					168,235	11,883	180,118 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 16,824 Baht/m 1,188 Baht/m = 18,012									

T-26. Unit Rate per Meter of Excavation of Upper Half : Grade E2									
Rate = 17,290 Baht/m F.C. = 16,107 Baht/m 93%									
Adit for Ing-Yot No.2 Tunnel L.C. = 1,183 Baht/m 7%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Soft Rock Tunnel Cutter 200kw	1	7 Hr	8,605	60,235	155	1,085	7 Hr × 1		
Tractor Shovel 2.3m3 wheel typ	1	10 Hr	1,460	14,600	60	600	10 Hr × 1		
Dump Truck 11t	1	50 Hr	630	31,500	50	2,500	50 Hr × 1		
Miscellaneous		10 %		10,634		419	Baht / 10m		
Subtotal				116,969		4,604			
2. Material							per 10m		
Cross Bit RM 8-25		12 Pcs	3,500	42,000	0	0			
Miscellaneous		5 %		2,100	0	0	42,000 Baht / 10m		
Subtotal				44,100		0			
3. Labor							per 10m		
Foreman Tunnel		1 day			720	720	10 Hr/12Hr 0.8		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		7.5 day			350	2,625	1.5 day × 5		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		7.5 day			230	1,725	1.5 day × 5		
Subtotal						7,230			
4. Total				161,069		11,834	172,903 Baht / 10m		
5. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		16,107 Baht/m					1,183 Baht/m = 17,290		

T-27. Unit Rate per Meter of Excavation Lower Half : Grade C1									
Rate = 5,424 Baht/m F.C. = 4,728 Baht/m 87%									
Kok-Ing Tunnel L.C. = 696 Baht/m 13%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	8.0 Hr	3,945	31,560	75	600	8.0 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	15 Hr	630	9,450	50	750	15 Hr ×	1	
Miscellaneous		10 %		4,298		150	Baht / 10 m		
Subtotal				47,278		1,650			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	8 Hr/12Hr	0.7	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				47,278		6,960	54,238 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			4,728 Baht/m				696 Baht/m = 5,424		

T-28. Unit Rate per Meter of Excavation Lower Half : Grade C2									
Rate = 4,744 Baht/m F.C. = 4,069 Baht/m 86%									
Kok-Ing Tunnel L.C. = 675 Baht/m 14%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	6.8 Hr	3,945	26,826	75	510	6.8 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	13 Hr	630	8,190	50	650	13 Hr ×	1	
Miscellaneous		10 %		3,699		131	Baht / 10 m		
Subtotal				40,685		1,441			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	7 Hr/12Hr	0.6	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				40,685		6,751	47,436 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			4,069 Baht/m				675 Baht/m = 4,744		

T-29. Unit Rate per Meter of Excavation Lower Half : Grade D1								
Rate = 4,573 Baht/m F.C. = 3,954 Baht/m 86%								
Kok-Ing Tunnel L.C. = 619 Baht/m 14%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	6.3 Hr	3,945	24,854	75	473	6.3 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	12 Hr	630	7,560	50	600	12 Hr × 1	
Miscellaneous		15 %		5,158		183	Baht / 10 m	
Subtotal				39,542		1,406		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	6 Hr/12Hr 0.5	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		1.5 day			350	525	1.5 day × 1	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						4,785		
3. Total				39,542		6,191	45,732 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			3,954 Baht/m				619 Baht/m = 4,573	

T-30. Unit Rate per Meter of Excavation Lower Half : Grade D2								
Rate = 5,443 Baht/m F.C. = 4,752 Baht/m 87%								
Kok-Ing Tunnel L.C. = 691 Baht/m 13%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	7.9 Hr	3,945	31,166	75	593	7.9 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	13 Hr	630	8,190	50	650	13 Hr × 1	
Miscellaneous		15 %		6,199		209	Baht / 10 m	
Subtotal				47,525		1,602		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	8 Hr/12Hr 0.7	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		3.0 day			350	1,050	1.5 day × 2	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,310		
3. Total				47,525		6,912	54,436 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			4,752 Baht/m				691 Baht/m = 5,443	

T-31. Unit Rate per Meter of Excavation Lower Half : Grade E1									
Rate = 5,657 Baht/m F.C. = 4,959 Baht/m 88%									
Kok-Ing Tunnel L.C. = 698 Baht/m 12%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	7.9 Hr	3,945	31,166	75	593	7.9 Hr × 1		
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1		
Dump Truck 11t	1	13 Hr	630	8,190	50	650	13 Hr × 1		
Miscellaneous		20 %		8,265		279	Baht / 10 m		
Subtotal				49,591		1,672			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	8 Hr/12Hr 0.7		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		3.0 day			350	1,050	1.5 day × 2		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		6.0 day			230	1,380	1.5 day × 4		
Subtotal						5,310			
3. Total				49,591		6,982	56,572 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			4,959 Baht/m				698 Baht/m = 5,657		

T-32. Unit Rate per Meter of Excavation Lower Half : Grade E2									
Rate = 5,657 Baht/m F.C. = 4,959 Baht/m 88%									
Kok-Ing Tunnel L.C. = 698 Baht/m 12%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	7.9 Hr	3,945	31,166	75	593	7.9 Hr × 1		
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1		
Dump Truck 11t	1	13 Hr	630	8,190	50	650	13 Hr × 1		
Miscellaneous		20 %		8,265		279	Baht / 10 m		
Subtotal				49,591		1,672			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	8 Hr/12Hr 0.7		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		3.0 day			350	1,050	1.5 day × 2		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		6.0 day			230	1,380	1.5 day × 4		
Subtotal						5,310			
3. Total				49,591		6,982	56,572 Baht / 10m		
4. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		4,959 Baht/m				698 Baht/m =	5,657		

T-33. Unit Rate per Meter of Excavation of Lower Half : Grade B								
Rate = 6,199 Baht/m F.C. = 5,272 Baht/m 85%								
Ing-Yot No.2 Tunnel with Adit L.C. = 927 Baht/m 15%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	5.0 Hr	3,945	19,725	75	375	5.0 Hr × 1	
Backhoe Shovel 0.6 m3	1	6 Hr	985	5,910	75	450	6 Hr × 1	
Dump Truck 11t	1	39 Hr	630	24,570	50	1,950	39 Hr × 1	
Miscellaneous		5 %		2,510		139	Baht / 10 m	
Subtotal				52,715		2,914		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	5 Hr/12Hr 0.4	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		6.0 day			350	2,100	1.5 day × 4	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						6,360		
3. Total				52,715		9,274	61,989 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			5,272 Baht/m				927 Baht/m = 6,199	

T-34. Unit Rate per Meter of Excavation of Lower Half : Grade C1								
Rate = 7,596 Baht/m F.C. = 6,753 Baht/m 89%								
Ing Ing-Yot No.2 Tunnel with Adit L.C. = 843 Baht/m 11%								
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	10.5 Hr	3,945	41,423	75	788	10.5 Hr × 1	
Backhoe Shovel 0.6 m3	1	3 Hr	985	2,955	75	225	3 Hr × 1	
Dump Truck 11t	1	27 Hr	630	17,010	50	1,350	27 Hr × 1	
Miscellaneous		10 %		6,139		236	Baht / 10 m	
Subtotal				67,527		2,599		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	11 Hr/12Hr 0.9	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		4.5 day			350	1,575	1.5 day × 3	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,835		
3. Total				67,527		8,434	75,960 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift			per 10 m		
Rate = Baht/m			6,753 Baht/m			843 Baht/m = 7,596		

T-35. Unit Rate per Meter of Excavation of Lower Half : Grade C2							
Rate = 6,760 Baht/m				F.C. = 6,002 Baht/m		89%	
Ing-Yot No.2 Tunnel with Adit				L.C. = 758 Baht/m		11%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							per 10m
Rock Breaker 1300kg	1	9.5 Hr	3,945	37,478	75	713	9.5 Hr × 1
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1
Dump Truck 11t	1	24 Hr	630	15,120	50	1,200	24 Hr × 1
Miscellaneous		10 %		5,457		206	Baht / 10 m
Subtotal				60,025		2,269	
2. Labor							per 10m
Foreman Tunnel		1 day			720	720	10 Hr/12Hr 0.8
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2
Driver		3.0 day			350	1,050	1.5 day × 2
Skilled Labor		3.0 day			260	780	1.5 day × 2
Common Labor		6.0 day			230	1,380	1.5 day × 4
Subtotal						5,310	
3. Total				60,025		7,579	67,603 Baht / 10m
4. Output		Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m		6,002 Baht/m				758 Baht/m = 6,760	

T-36. Unit Rate per Meter of Excavation of Lower Half : Grade D1									
Rate = 6,485 Baht/m F.C. = 5,740 Baht/m 89%									
Ing-Yot No.2 Tunnel with Adit L.C. = 745 Baht/m 11%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	8.8 Hr	3,945	34,716	75	660	8.8 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	21 Hr	630	13,230	50	1,050	21 Hr ×	1	
Miscellaneous		15 %		7,487		279	Baht / 10 m		
Subtotal				57,403		2,139			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	9 Hr/12Hr	0.7	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				57,403		7,449	64,852 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			5,740 Baht/m				745 Baht/m = 6,485		

T-37. Unit Rate per Meter of Excavation of Lower Half : Grade D2									
Rate = 7,904 Baht/m F.C. = 7,128 Baht/m 90%									
Ing-Yot No.2 Tunnel with Adit L.C. = 776 Baht/m 10%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	11.7 Hr	3,945	46,157	75	878	11.7 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	22 Hr	630	13,860	50	1,100	22 Hr ×	1	
Miscellaneous		15 %		9,298		319	Baht / 10 m		
Subtotal				71,285		2,447			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	12 Hr/12Hr	1	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				71,285		7,757	79,041 Baht / 10m		
4. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		7,128 Baht/m				776 Baht/m =		7,904	

T-38. Unit Rate per Meter of Excavation Lower Half : Grade E1									
				Rate = 8,224 Baht/m		F.C. = 7,438 Baht/m		90%	
Ing-Yot No.2 Tunnel with Adit						L.C. = 786 Baht/m		10%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	11.7 Hr	3,945	46,157	75	878	11.7 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	22 Hr	630	13,860	50	1,100	22 Hr ×	1	
Miscellaneous		20 %		12,397		426	Baht / 10 m		
Subtotal				74,384		2,554			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	12 Hr/12Hr	1	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				74,384		7,864	82,247 Baht / 10m		
4. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		7,438 Baht/m				786 Baht/m =		8,224	

T-39. Unit Rate per Meter of Excavation of Lower Half : Grade E2									
Rate = 8,369 Baht/m F.C. = 7,580 Baht/m 91%									
Ing-Yot No.2 Tunnel with Adit L.C. = 789 Baht/m 9%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	12.0 Hr	3,945	47,340	75	900	12.0 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	22 Hr	630	13,860	50	1,100	22 Hr ×	1	
Miscellaneous		20 %		12,634		430	Baht / 10 m		
Subtotal				75,804		2,580			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	12 Hr/12Hr	1	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				75,804		7,890	83,694 Baht / 10m		
4. Output		Working Time per 1 day = 12 Hr × 2 shift					per 10 m		
Rate = Baht/m		7,580 Baht/m				789 Baht/m =		8,369	

T-40. Unit Rate per Meter of Excavation of Lower Half : Grade C1									
Rate = 5,997 Baht/m					F.C. = 5,288 Baht/m		88%		
Ing-Yot Tunnel without Adit					L.C. = 709 Baht/m		12%		
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
Rock Breaker 1300kg	1	9.2 Hr	3,945	36,294	75	690	per 10m		
Backhoe Shovel 0.6 m3	1	3 Hr	985	2,955	75	225	9.2 Hr × 1		
Dump Truck 11t	1	14 Hr	630	8,820	50	700	3 Hr × 1		
Miscellaneous		10 %		4,807		162	14 Hr × 1		
Subtotal					52,876		1,777	Baht / 10 m	
2. Labor									
Foreman Tunnel		1 day			720	720	per 10m		
Operator of Heavy		3.0 day			460	1,380	9 Hr/12Hr 0.8		
Driver		3.0 day			350	1,050	1.5 day × 2		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		6.0 day			230	1,380	1.5 day × 4		
Subtotal							5,310		
3. Total									
					52,876		7,087	59,963 Baht / 10m	
4. Output									
Working Time per 1 day = 12 Hr × 2 shift					per 10 m				
Rate = Baht/m					5,288 Baht/m		709 Baht/m =		5,997

T-41. Unit Rate per Meter of Excavation of Lower Half : Grade C2									
Rate = 6,760 Baht/m					F.C. = 6,002 Baht/m		89%		
Ing-Yot Tunnel without Adit					L.C. = 758 Baht/m		11%		
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	9.5 Hr	3,945	37,478	75	713	9.5 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	24 Hr	630	15,120	50	1,200	24 Hr ×	1	
Miscellaneous		10 %		5,457		206	Baht / 10 m		
Subtotal				60,025		2,269			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	10 Hr/12Hr	0.8	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total				60,025		7,579	67,603 Baht / 10m		
4. Output									
Working Time per 1 day = 12 Hr × 2 shift					per 10 m				
Rate = Baht/m					6,002 Baht/m		758 Baht/m = 6,760		

T-42. Unit Rate per Meter of Excavation of Lower Half : Grade D1								
			Rate = 6,485 Baht/m		F.C. = 5,740 Baht/m		89%	
Ing-Yot Tunnel without Adit					L.C. = 745 Baht/m		11%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	8.8 Hr	3,945	34,716	75	660	8.8 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	21 Hr	630	13,230	50	1,050	21 Hr × 1	
Miscellaneous		15 %		7,487		279	Baht / 10 m	
Subtotal				57,403		2,139		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	9 Hr/12Hr 0.7	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		3.0 day			350	1,050	1.5 day × 2	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,310		
3. Total				57,403		7,449	64,852 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			5,740 Baht/m		745 Baht/m =		6,485	

T-43. Unit Rate per Meter of Excavation of Lower Half : Grade D2									
				Rate = 7,485 Baht/m		F.C. = 6,730 Baht/m		90%	
Ing-Yot Tunnel without Adit						L.C. = 755 Baht/m		10%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
per 10m									
Rock Breaker 1300kg	1	11.3 Hr	3,945	44,579	75	848	11.3 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	19 Hr	630	11,970	50	950	19 Hr ×	1	
Miscellaneous		15 %		8,778		292	Baht / 10 m		
Subtotal				67,297		2,240			
2. Labor									
per 10m									
Foreman Tunnel		1 day			720	720	11 Hr/12Hr	0.9	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total									
74,846 Baht / 10m									
4. Output									
Working Time per 1 day = 12 Hr × 2 shift									
per 10 m									
Rate = Baht/m									
6,730 Baht/m									
755 Baht/m =									
7,485									

T-44. Unit Rate per Meter of Excavation of Lower Half : Grade E1									
Rate = 7,757 Baht/m					F.C. = 6,984 Baht/m 90%				
Ing-Yot Tunnel without Adit					L.C. = 773 Baht/m 10%				
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	10.9 Hr	3,945	43,001	75	818	10.9 Hr × 1		
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1		
Dump Truck 11t	1	21 Hr	630	13,230	50	1,050	21 Hr × 1		
Miscellaneous		20 %		11,640		404	Baht / 10 m		
Subtotal				69,841		2,422			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	11 Hr/12Hr 0.9		
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2		
Driver		3.0 day			350	1,050	1.5 day × 2		
Skilled Labor		3.0 day			260	780	1.5 day × 2		
Common Labor		6.0 day			230	1,380	1.5 day × 4		
Subtotal						5,310			
3. Total				69,841		7,732	77,572 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			6,984 Baht/m				773 Baht/m = 7,757		

T-45. Unit Rate per Meter of Excavation of Lower Half : Grade E2									
Rate = 7,966 Baht/m					F.C. = 7,193 Baht/m		90%		
Ing-Yot Tunnel without Adit					L.C. = 773 Baht/m		10%		
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
Rock Breaker 1300kg	1	11.5 Hr	3,945	45,368	75	863	11.5 Hr ×	1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1	
Dump Truck 11t	1	20 Hr	630	12,600	50	1,000	20 Hr ×	1	
Miscellaneous		20 %		11,988		403	Baht / 10 m		
Subtotal				71,926		2,416			
2. Labor									
Foreman Tunnel		1 day			720	720	12 Hr/12Hr	1	
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2	
Driver		3.0 day			350	1,050	1.5 day ×	2	
Skilled Labor		3.0 day			260	780	1.5 day ×	2	
Common Labor		6.0 day			230	1,380	1.5 day ×	4	
Subtotal						5,310			
3. Total									
				71,926		7,726	79,651 Baht / 10m		
4. Output									
Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 7,193 Baht/m 773 Baht/m = 7,966									

T-46. Unit Rate per Meter of Excavation of Lower Half : Grade B							
Rate = 6,519 Baht/m				F.C. = 5,771 Baht/m		89%	
Adit for Ing-Yot No.2 Tunnel				L.C. = 748 Baht/m		11%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							per 10m
Rock Breaker 1300kg	1	9.6 Hr	3,945	37,872	75	720	9.6 Hr × 1
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1
Dump Truck 11t	1	24 Hr	630	15,120	50	1,200	24 Hr × 1
Miscellaneous		5 %		2,748		104	Baht / 10 m
Subtotal				57,710		2,174	
2. Labor							per 10m
Foreman Tunnel		1 day			720	720	10 Hr/12Hr 0.8
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2
Driver		3.0 day			350	1,050	1.5 day × 2
Skilled Labor		3.0 day			260	780	1.5 day × 2
Common Labor		6.0 day			230	1,380	1.5 day × 4
Subtotal						5,310	
3. Total				57,710		7,484	65,194 Baht / 10m
4. Output		Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m				5,771 Baht/m	748 Baht/m =		6,519

T-47. Unit Rate per Meter of Excavation of Lower Half : Grade C1								
			Rate = 6,288 Baht/m		F.C. = 5,543 Baht/m		88%	
Adit for Ing-Yot No.2 Tunnel					L.C. = 745 Baht/m		12%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	8.6 Hr	3,945	33,927	75	645	8.6 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	23 Hr	630	14,490	50	1,150	23 Hr × 1	
Miscellaneous		10 %		5,039		195	Baht / 10 m	
Subtotal				55,426		2,140		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	8.6 Hr/12Hr 0.7	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		3.0 day			350	1,050	1.5 day × 2	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,310		
3. Total				55,426		7,450	62,876 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift			per 10 m		
Rate = Baht/m			5,543 Baht/m		745 Baht/m =		6,288	

T-48. Unit Rate per Meter of Excavation of Lower Half : Grade C2								
			Rate = 5,533 Baht/m		F.C. = 4,814 Baht/m		87%	
Adit for Ing-Yot No.2 Tunnel					L.C. = 719 Baht/m		13%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	7.4 Hr	3,945	29,193	75	555	7.4 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	20 Hr	630	12,600	50	1,000	20 Hr × 1	
Miscellaneous		10 %		4,376		171	Baht / 10 m	
Subtotal				48,139		1,876		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	7.4 Hr/12Hr 0.6	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		3.0 day			350	1,050	1.5 day × 2	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,310		
3. Total				48,139		7,186	55,325 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift			per 10 m		
Rate = Baht/m			4,814 Baht/m			719 Baht/m = 5,533		

T-49. Unit Rate per Meter of Excavation of Lower Half : Grade D1								
			Rate = 5,326 Baht/m		F.C. = 4,616 Baht/m		87%	
Adit for Ing-Yot No.2 Tunnel					L.C. = 710 Baht/m		13%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	6.8 Hr	3,945	26,826	75	510	6.8 Hr × 1	
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1	
Dump Truck 11t	1	18 Hr	630	11,340	50	900	18 Hr × 1	
Miscellaneous		15 %		6,020		234	Baht / 10 m	
Subtotal				46,156		1,794		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	7 Hr/12Hr 0.6	
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2	
Driver		3.0 day			350	1,050	1.5 day × 2	
Skilled Labor		3.0 day			260	780	1.5 day × 2	
Common Labor		6.0 day			230	1,380	1.5 day × 4	
Subtotal						5,310		
3. Total				46,156		7,104	53,260 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			4,616 Baht/m				710 Baht/m = 5,326	

T-50. Unit Rate per Meter of Excavation of Lower Half : Grade D2							
Rate = 6,205 Baht/m				F.C. = 5,478 Baht/m		88%	
Adit for Ing-Yot No.2 Tunnel				L.C. = 727 Baht/m		12%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							per 10m
Rock Breaker 1300kg	1	8.7 Hr	3,945	34,322	75	653	8.7 Hr × 1
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr × 1
Dump Truck 11t	1	18 Hr	630	11,340	50	900	18 Hr × 1
Miscellaneous		15 %		7,145		255	Baht / 10 m
Subtotal				54,777		1,958	
2. Labor							per 10m
Foreman Tunnel		1 day			720	720	9 Hr/12Hr 0.7
Operator of Heavy		3.0 day			460	1,380	1.5 day × 2
Driver		3.0 day			350	1,050	1.5 day × 2
Skilled Labor		3.0 day			260	780	1.5 day × 2
Common Labor		6.0 day			230	1,380	1.5 day × 4
Subtotal						5,310	
3. Total				54,777		7,268	62,044 Baht / 10m
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m
Rate = Baht/m			5,478 Baht/m		727 Baht/m =		6,205

T-51. Unit Rate per Meter of Excavation of Lower Half : Grade E1								
			Rate = 6,451 Baht/m		F.C. = 5,716 Baht/m		89%	
Adit for Ing-Yot No.2 Tunnel					L.C. = 735 Baht/m		11%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)							per 10m	
Rock Breaker 1300kg	1	8.7 Hr	3,945	34,322	75	653	8.7 Hr ×	1
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2 Hr ×	1
Dump Truck 11t	1	18 Hr	630	11,340	50	900	18 Hr ×	1
Miscellaneous		20 %		9,526		341	Baht / 10 m	
Subtotal				57,158		2,044		
2. Labor							per 10m	
Foreman Tunnel		1 day			720	720	8.7 Hr/12Hr	0.7
Operator of Heavy		3.0 day			460	1,380	1.5 day ×	2
Driver		3.0 day			350	1,050	1.5 day ×	2
Skilled Labor		3.0 day			260	780	1.5 day ×	2
Common Labor		6.0 day			230	1,380	1.5 day ×	4
Subtotal						5,310		
3. Total				57,158		7,354	64,511 Baht / 10m	
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m	
Rate = Baht/m			5,716 Baht/m		735 Baht/m =		6,451	

T-52. Unit Rate per Meter of Excavation of Lower Half : Grade E2									
				Rate = 6,552 Baht/m		F.C. = 5,971 Baht/m		91%	
Adit for Ing-Yot No.2 Tunnel						L.C. = 581 Baht/m		9%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Rock Breaker 1300kg	1	8.6 Hr	3,945	33,927	75	645	8.6	Hr ×	1
Backhoe Shovel 0.6 m3	1	2 Hr	985	1,970	75	150	2	Hr ×	1
Dump Truck 11t	1	22 Hr	630	13,860	50	1,100	22	Hr ×	1
Miscellaneous		20 %		9,951		379	Baht / 10 m		
Subtotal				59,708		2,274			
2. Labor							per 10m		
Foreman Tunnel		1 day			720	720	9	Hr/12Hr	0.7
Operator of Heavy		1.5 day			460	690	1.5	day ×	1
Driver		3.0 day			350	1,050	1.5	day ×	2
Skilled Labor		1.5 day			260	390	1.5	day ×	1
Common Labor		3.0 day			230	690	1.5	day ×	2
Subtotal						3,540			
3. Total				59,708		5,814	65,522 Baht / 10m		
4. Output			Working Time per 1 day = 12 Hr × 2 shift				per 10 m		
Rate = Baht/m			5,971 Baht/m				581 Baht/m = 6,552		

T-53. Unit Rate of Excavation of Invert									
				Rate = 687 Baht/m3		F.C. = 577 Baht/m3		84%	
Kok-Ing & Ing-Yot						L.C. = 110 Baht/m3		16%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m3		
Rock Breaker 800kg	1	2.0 Hr	2,455	4,910	75	150	2.0 Hr ×	1	
Backhoe Shovel 0.35 m3	1	0.4 Hr	575	230	45	18	0.4 Hr ×	1	
Dump Truck 11t	1	1.0 Hr	630	630	50	50	1.0 Hr ×	1	
Subtotal				5,770		218			
2. Labor							per 10m3		
Foreman Tunnel		0.3 day			720	216	2.0 Hr/7Hr=	0.3	
Operator of Heavy		0.6 day			460	276	1 day ×	(0.3+0.3)	
Driver		0.3 day			350	105	1 day ×	0.3	
Skilled Labor		0.3 day			260	78	1 day ×	0.3	
Common Labor		0.9 day			230	207	1 day ×	(0.3*3)	
Subtotal						882			
3. Total				5,770		1,100	6,870 Baht / 10m3		
4. Output		Working Time = Day Time					per 10 m3		
Rate = Baht/m3		577 Baht/m3				110 Baht/m3 =		687	

T-54. Unit Rate per Meter of Excavation of Invert							Baht/m
Kok-Ing & Ing-Yot		Quantity per m (Excavation Volume)	Foreign Currency		Local Currency		Total (Baht/m)
Items (Grade of Ground)	Rate		Cost	Rate	Cost		
1. Kok-Ing Tunnel							
B	0 m3/m	577	0	110	0	0	
C1	4.6 m3/m	577	2,654	110	506	3,160	
C2	4.6 m3/m	577	2,654	110	506	3,160	
D1	5.7 m3/m	577	3,289	110	627	3,916	
D2	5.7 m3/m	577	3,289	110	627	3,916	
E1	6.9 m3/m	577	3,981	110	759	4,740	
E2	6.9 m3/m	577	3,981	110	759	4,740	
2. Ing-Yot Tunnel without Adit							
B	0 m3/m	577	0	110	0	0	
C1	5.0 m3/m	577	2,885	110	550	3,435	
C2	5.0 m3/m	577	2,885	110	550	3,435	
D1	6.3 m3/m	577	3,635	110	693	4,328	
D2	6.3 m3/m	577	3,635	110	693	4,328	
E1	7.5 m3/m	577	4,328	110	825	5,153	
E2	7.5 m3/m	577	4,328	110	825	5,153	
3. Ing-Yot No.2 Tunnel with Adit							
B	5.0 m3/m	577	2,885	110	550	3,435	
C1	5.0 m3/m	577	2,885	110	550	3,435	
C2	5.0 m3/m	577	2,885	110	550	3,435	
D1	6.3 m3/m	577	3,635	110	693	4,328	
D2	6.3 m3/m	577	3,635	110	693	4,328	
E1	7.5 m3/m	577	4,328	110	825	5,153	
E2	7.5 m3/m	577	4,328	110	825	5,153	
4. Adit for Ing-Yot No.2 Tunnel							
B	0 m3/m	577	0	110	0	0	
C1	0 m3/m	577	0	110	0	0	
C2	0 m3/m	577	0	110	0	0	
D1	3.8 m3/m	577	2,193	110	418	2,611	
D2	3.8 m3/m	577	2,193	110	418	2,611	
E1	4.2 m3/m	577	2,423	110	462	2,885	
E2	4.2 m3/m	577	2,423	110	462	2,885	

T-55. Unit Rate of Tunnel Muck Disposal								
Kok-Ing & Ing-Yot			Rate = 73 Baht/m ³		F.C. = 61 Baht/m ³		84%	
Outside Tunnel, Weathered Rock			L= 1-2 km		L.C. = 12 Baht/m ³		16%	
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark	
			Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								
Wheel Loader 1.2 m ³	1	10 Hr	520	5,200	40	400	10 Hr ×	1
Bulldozer 15t	1	10 Hr	1,370	13,700	70	700	10 Hr ×	1
Dump Truck 11 t	3	30 Hr	580	17,400	50	1,500	10 Hr ×	3
Subtotal				36,300		2,600		
2. Labor								
Foreman		2 day			350	700	2 sites	
Operator of Heavy		3 day			350	1,050	1.5 day ×	2
Driver		5 day			270	1,215	1.5 day ×	3
Common Labor		9 day			180	1,620	1.5 day ×	6
Subtotal						4,585		
3. Total				36,300		7,185	43,485 Baht/day	
4. Output = m ³ /day 60 m ³ /Hr × 10 Hr × 1 Units = 600 m ³ /day								
Rate = Baht/m ³				61 Baht/m ³ + 12 Baht/m ³ = 73				

T-56. Unit Rate per Meter of Tunnel Muck Disposal						
Kok-Ing & Ing-Yot		Outside Tunnel, Weathered Rock				Baht/m
Items (Grade of Ground)	Quantity per m (Muck Volume)	Foreign Currency		Local Currency		Total (Baht/m)
		Rate	Cost	Rate	Cost	
1. Kok-Ing Tunnel						
B	0 m3/m	61	0	12	0	0
C1	77.2 m3/m	61	4,709	12	926	5,635
C2	77.2 m3/m	61	4,709	12	926	5,635
D1	81.5 m3/m	61	4,972	12	978	5,950
D2	82.6 m3/m	61	5,039	12	991	6,030
E1	85.9 m3/m	61	5,240	12	1031	6,271
E2	87.1 m3/m	61	5,313	12	1045	6,358
2. Ing-Yot Tunnel without Adit						
B	0 m3/m	61	0	12	0	0
C1	90.2 m3/m	61	5,502	12	1,082	6,584
C2	90.2 m3/m	61	5,502	12	1,082	6,584
D1	94.8 m3/m	61	5,783	12	1,138	6,921
D2	96.0 m3/m	61	5,856	12	1,152	7,008
E1	99.6 m3/m	61	6,076	12	1,195	7,271
E2	100.8 m3/m	61	6,149	12	1,210	7,359
3. Ing-Yot No.2 Tunnel with Adit						
B	89.0 m3/m	61	5,429	12	1,068	6,497
C1	90.2 m3/m	61	5,502	12	1,082	6,584
C2	90.2 m3/m	61	5,502	12	1,082	6,584
D1	94.8 m3/m	61	5,783	12	1,138	6,921
D2	96.0 m3/m	61	5,856	12	1,152	7,008
E1	99.6 m3/m	61	6,076	12	1,195	7,271
E2	100.8 m3/m	61	6,149	12	1,210	7,359
4. Adit for Ing-Yot No.2 Tunnel						
B	47.0 m3/m	61	2,867	12	564	3,431
C1	47.9 m3/m	61	2,922	12	575	3,497
C2	47.9 m3/m	61	2,922	12	575	3,497
D1	57.1 m3/m	61	3,483	12	685	4,168
D2	58.0 m3/m	61	3,538	12	696	4,234
E1	60.3 m3/m	61	3,678	12	724	4,402
E2	60.3 m3/m	61	3,678	12	724	4,402

T-57. Unit Rate per Meter of Shotcrete of Upper Half : Grade C1									
Rate = 17,416 Baht/m F.C. = 14,540 Baht/m 83%									
Kok-Ing Tunnel L.C. = 2,876 Baht/m 17%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Shotcrete Robot Shot Radius 8m	1	4 Hr	2,170	8,680	10	40	4 Hr x	1	
Shotcrete Shooter Wt 10-15m3/hr	1	4 Hr	3,105	12,420	25	100	4 Hr x	1	
Truck with Crane 4t x 2.9t lift	1	24 Hr	425	10,200	25	600	24 Hr x	1	
Accelerator Supplier 5.5kw	1	2 day	1,130	2,260	54	108	2 day x	1	
Dust Collector 300m3/hr, 30kw	1	4 Hr	1,290	5,160	63	252	4 Hr x	1	
Truck Mixer 4.5 m3	1	7 Hr	620	4,340	70	490	7 Hr x	1	
Concrete Plant 1.0*2 m3(25-30m3)	1	7 Hr	1,780	12,460	20	140	7 Hr x	1	
Subtotal				55,520		1,730	Baht / 10m		
2. Material							per 10m		
Portland Cement Type II		12 ton	1,666	19,992	714	8,568			
Fine Sand for Aggregate		28 m3	0	0	220	6,160			
Coarse Sand for Aggregate(Gravel)		16 m3	0	0	220	3,520			
Accelerator for Shotcrete		690 kg	100	69,000	0	0			
Miscellaneous		1 %		890		182			
Subtotal				89,882		18,430	Baht / 10m		
3. Labor							per 10m		
Foreman Tunnel		1.0 day			720	720	2.0 days50% =	1	
Operator of Heavy		9.0 day			460	4,140	1.5 day x	6	
Driver		4.5 day			350	1,575	1.5 day x	3	
Skilled Labor		3.0 day			260	780	1.5 day x	2	
Common Labor		6.0 day			230	1,380	1.5 day x	4	
Subtotal						8,595			
4. Total				145,402		28,755	174,157 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr x 2 shift				per 10 m		
Rate = Baht/m			14,540 Baht/m				2,876 Baht/m =		17,416

T-58. Unit Rate per Meter of Shotcrete of Upper Half : Grade C2									
Rate = 18,376 Baht/m F.C. = 15,479 Baht/m 84%									
Kok-Ing Tunnel L.C. = 2,897 Baht/m 16%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Shotcrete Robot Shot Radius 8m	1	5 Hr	2,170	10,850	10	50	5 Hr x	1	
Shotcrete Shooter Wt 10-15m3/hr	1	5 Hr	3,105	15,525	25	125	5 Hr x	1	
Truck with Crane 4t x 2.9t lift	1	25 Hr	425	10,625	25	625	25 Hr x	1	
Accelerator Supplier 5.5kw	1	2 day	1,130	2,260	54	108	2 day x	1	
Dust Collector 300m3/hr, 30kw	1	5 Hr	1,290	6,450	63	315	5 Hr x	1	
Truck Mixer 4.5 m3	1	8 Hr	620	4,960	70	560	8 Hr x	1	
Concrete Plant 1.0*2 m3(25-30m3)	1	8 Hr	1,780	14,240	20	160	8 Hr x	1	
Subtotal				64,910		1,943	Baht / 10m		
2. Material							per 10m		
Portland Cement Type II		12 ton	1,666	19,992	714	8,568			
Fine Sand for Aggregate		28 m3	0	0	220	6,160			
Coarse Sand for Aggregate(Gravel)		16 m3	0	0	220	3,520			
Accelerator for Shotcrete		690 kg	100	69,000	0	0			
Miscellaneous		1 %		890		182			
Subtotal				89,882		18,430	Baht / 10m		
3. Labor							per 10m		
Foreman Tunnel		1.0 day			720	720	2.0 days50% =	1	
Operator of Heavy		9.0 day			460	4,140	1.5 day x	6	
Driver		4.5 day			350	1,575	1.5 day x	3	
Skilled Labor		3.0 day			260	780	1.5 day x	2	
Common Labor		6.0 day			230	1,380	1.5 day x	4	
Subtotal						8,595			
4. Total				154,792		28,968	183,760 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m									
Rate = Baht/m 15,479 Baht/m 2,897 Baht/m = 18,376									

T-59. Unit Rate per Meter of Shotcrete of Upper Half : Grade D1									
Rate = 24,993 Baht/m F.C. = 20,637 Baht/m 83%									
Kok-Ing Tunnel L.C. = 4,356 Baht/m 17%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Shotcrete Robot Shot Radius 8m	1	6 Hr	2,170	13,020	10	60	6 Hr × 1		
Shotcrete Shooter Wei 10-15m3/h	1	6 Hr	3,105	18,630	25	150	6 Hr × 1		
Truck with Crane 4t x 2.9t lift	1	33 Hr	425	14,025	25	825	33 Hr × 1		
Accelerator Supplier 5.5kw	1	3 day	1,130	3,390	54	162	3 day × 1		
Dust Collector 300m3/hr, 30kw	1	6 Hr	1,290	7,740	63	378	6 Hr × 1		
Truck Mixer 4.5 m3	1	10 Hr	620	6,200	70	700	10 Hr × 1		
Concrete Plant 1.0*2 m3(25-30m3)	1	10 Hr	1,780	17,800	20	200	10 Hr × 1		
Subtotal				80,805		2,475	Baht / 10m		
2. Material							per 10m		
Portland Cement Type II		17 ton	1,666	28,322	714	12,138			
Fine Sand for Aggregate		38 m3	0	0	220	8,360			
Coarse Sand for Aggregate(Gravel)		38 m3	0	0	220	8,360			
Accelerator for Shotcrete		960 kg	100	96,000	0	0			
Miscellaneous		1 %		1,243		289			
Subtotal				125,565		29,147	Baht / 10m		
3. Labor							per 10m		
Foreman Tunnel		1.5 day			720	1,080	3.0 day×50%= 1.5		
Operator of Heavy		12.0 day			460	5,520	1.5 day × 8		
Driver		6.0 day			350	2,100	1.5 day × 4		
Skilled Labor		4.5 day			260	1,170	1.5 day × 3		
Common Labor		9.0 day			230	2,070	1.5 day × 6		
Subtotal						11,940			
4. Total				206,370		43,562	249,932 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr × 2 shift per 10 m									
Rate = Baht/m 20,637 Baht/m 4,356 Baht/m = 24,993									

T-60. Unit Rate per Meter of Shotcrete of Upper Half : Grade D2									
Rate = 30,268 Baht/m F.C. = 25,437 Baht/m 84%									
Kok-Ing Tunnel L.C. = 4,831 Baht/m 16%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)							per 10m		
Shotcrete Robot Shot Radius 8m	1	7 Hr	2,170	15,190	10	70	7 Hr x	1	
Shotcrete Shooter Wei 10-15m3/h	1	7 Hr	3,105	21,735	25	175	7 Hr x	1	
Truck with Crane 4t x 2.9t lift	1	40 Hr	425	17,000	25	1,000	40 Hr x	1	
Accelerator Supplier 5.5kw	1	3 day	1,130	3,390	54	162	3 day x	1	
Dust Collector 300m3/hr, 30kw	1	7 Hr	1,290	9,030	63	441	7 Hr x	1	
Truck Mixer 4.5 m3	1	12 Hr	620	7,440	70	840	12 Hr x	1	
Concrete Plant 1.0*2 m3(25-30m3)	1	12 Hr	1,780	21,360	20	240	12 Hr x	1	
Subtotal				95,145		2,928	Baht / 10m		
2. Material							per 10m		
Portland Cement Type II		22 ton	1,666	36,652	714	15,708			
Fine Sand for Aggregate		48 m3	0	0	220	10,560			
Coarse Sand for Aggregate(Gravel)		28 m3	0	0	220	6,160			
Accelerator for Shotcrete		1,210 kg	100	121,000	0	0			
Miscellaneous		1 %		1,577		324			
Subtotal				159,229		32,752	Baht / 10m		
3. Labor							per 10m		
Foreman Tunnel		1.5 day			720	1,080	3.0 day x 50% =	1.5	
Operator of Heavy		13.5 day			460	6,210	1.5 day x	9	
Driver		6.0 day			350	2,100	1.5 day x	4	
Skilled Labor		4.5 day			260	1,170	1.5 day x	3	
Common Labor		9.0 day			230	2,070	1.5 day x	6	
Subtotal						12,630			
4. Total				254,374		48,310	302,684 Baht / 10m		
5. Output			Working Time per 1 day = 12 Hr x 2 shift				per 10 m		
Rate = Baht/m			25,437 Baht/m				4,831 Baht/m = 30,268		

T-61. Unit Rate per Meter of Shotcrete of Upper Half : Grade E1									
Rate = 30,515 Baht/m F.C. = 25,639 Baht/m 84%									
Kok-Ing Tunnel L.C. = 4,876 Baht/m 16%									
Items		Unit	Quantity	Foreign Currency		Local Currency		Remark	
				Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								per 10m	
Shotcrete Robot Shot Radius 8m		1	7 Hr	2,170	15,190	10	70	7 Hr x	1
Shotcrete Shooter Wt 10-15m3/hr		1	7 Hr	3,105	21,735	25	175	7 Hr x	1
Truck with Crane 4t x 2.9t lift		1	40 Hr	425	17,000	25	1,000	40 Hr x	1
Accelerator Supplier 5.5kw		1	3 day	1,130	3,390	54	162	3 day x	1
Dust Collector 300m3/hr, 30kw		1	7 Hr	1,290	9,030	63	441	7 Hr x	1
Truck Mixer 4.5 m3		1	12 Hr	620	7,440	70	840	12 Hr x	1
Concrete Plant 1.0*2 m3(25-30m3)		1	12 Hr	1,780	21,360	20	240	12 Hr x	1
Subtotal					95,145		2,928	Baht / 10m	
2. Material								per 10m	
Portland Cement Type II			22 ton	1,666	36,652	714	15,708		
Fine Sand for Aggregate			49 m3	0	0	220	10,780		
Coarse Sand for Aggregate(Gravel)			29 m3	0	0	220	6,380		
Accelerator for Shotcrete			1,230 kg	100	123,000	0	0		
Miscellaneous			1 %		1,597		329		
Subtotal					161,249		33,197	Baht / 10m	
3. Labor								per 10m	
Foreman Tunnel			1.5 day			720	1,080	3.0 dayx50% =	1.5
Operator of Heavy			13.5 day			460	6,210	1.5 day x	9
Driver			6.0 day			350	2,100	1.5 day x	4
Skilled Labor			4.5 day			260	1,170	1.5 day x	3
Common Labor			9.0 day			230	2,070	1.5 day x	6
Subtotal							12,630		
4. Total					256,394		48,755	305,149 Baht / 10m	
5. Output				Working Time per 1 day = 12 Hr x 2 shift				per 10 m	
Rate = Baht/m				25,639 Baht/m				4,876 Baht/m = 30,515	

T-62. Unit Rate per Meter of Shotcrete of Upper Half : Grade E2									
Rate = 38,992 Baht/m F.C. = 32,746 Baht/m 84%									
Kok-Ing Tunnel L.C. = 6,246 Baht/m 16%									
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
Shotcrete Robot Shot Radius 8m	1	9 Hr	2,170	19,530	10	90	per 10m		
Shotcrete Shooter Wt 10-15m3/hr	1	9 Hr	3,105	27,945	25	225	9 Hr x 1		
Truck with Crane 4t x 2.9t lift	1	48 Hr	425	20,400	25	1,200	48 Hr x 1		
Accelerator Supplier 5.5kw	1	4 day	1,130	4,520	54	216	4 day x 1		
Dust Collector 300m3/hr, 30kw	1	9 Hr	1,290	11,610	63	567	9 Hr x 1		
Truck Mixer 4.5 m3	1	17 Hr	620	10,540	70	1,190	17 Hr x 1		
Concrete Plant 1.0*2 m3(25-30m3)	1	17 Hr	1,780	30,260	20	340	17 Hr x 1		
Subtotal				124,805		3,828	Baht / 10m		
2. Material									
Portland Cement Type II		28 ton	1,666	46,648	714	19,992	per 10m		
Fine Sand for Aggregate		62 m3	0	0	220	13,640			
Coarse Sand for Aggregate(Gravel)		36 m3	0	0	220	7,920			
Accelerator for Shotcrete		1,540 kg	100	154,000	0	0			
Miscellaneous		1 %		2,006		416			
Subtotal				202,654		41,968	Baht / 10m		
3. Labor									
Foreman Tunnel		2.0 day			720	1,440	per 10m		
Operator of Heavy		18.0 day			460	8,280	4.0 days 50% = 2		
Driver		7.5 day			350	2,625	1.5 day x 12		
Skilled Labor		6.0 day			260	1,560	1.5 day x 5		
Common Labor		12.0 day			230	2,760	1.5 day x 4		
Subtotal						16,665	1.5 day x 8		
Total				327,459		62,461	389,920 Baht / 10m		
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m									
Rate = Baht/m 32,746 Baht/m 6,246 Baht/m = 38,992									

T-63. Unit Rate per Meter of Shotcrete of Upper Half : Grade C1							
Rate = 18,623 Baht/m				F.C. = 15,597 Baht/m 84%			
Ing-Yot Tunnel without Adit				L.C. = 3,026 Baht/m 16%			
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							
per 10m							
Shotcrete Robot Shot Radius 8m	1	4 Hr	2,170	8,680	10	40	4 Hr x 1
Shotcrete Shooter Wei 10-15m3/h	1	4 Hr	3,105	12,420	25	100	4 Hr x 1
Truck with Crane 4t x 2.9t lift	1	25 Hr	425	10,625	25	625	25 Hr x 1
Accelerator Supplier 5.5kw	1	2 day	1,130	2,260	54	108	2 day x 1
Dust Collector 300m3/hr, 30kw	1	4 Hr	1,290	5,160	63	252	4 Hr x 1
Truck Mixer 4.5 m3	1	8 Hr	620	4,960	70	560	8 Hr x 1
Concrete Plant 1.0*2 m3(25-30m3)	1	8 Hr	1,780	14,240	20	160	8 Hr x 1
Subtotal				58,345		1,845	Baht / 10m
2. Material							
per 10m							
Portland Cement Type II	13	ton	1,666	21,658	714	9,282	
Fine Sand for Aggregate	30	m3	0	0	220	6,600	
Coarse Sand for Aggregate(Gravel)	17	m3	0	0	220	3,740	
Accelerator for Shotcrete	750	kg	100	75,000	0	0	
Miscellaneous	1	%		967		196	
Subtotal				97,625		19,818	Baht / 10m
3. Labor							
per 10m							
Foreman Tunnel	1.0	day			720	720	2.0 dayx50%= 1
Operator of Heavy	9.0	day			460	4,140	1.5 day x 6
Driver	4.5	day			350	1,575	1.5 day x 3
Skilled Labor	3.0	day			260	780	1.5 day x 2
Common Labor	6.0	day			230	1,380	1.5 day x 4
Subtotal						8,595	
4. Total				155,970		30,258	186,228 Baht / 10m
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m							
Rate = Baht/m				15,597 Baht/m 3,026 Baht/m = 18,623			

T-64. Unit Rate per Meter of Shotcrete of Upper Half : Grade C2							
Rate = 19,922 Baht/m				F.C. = 16,861 Baht/m 85%			
Ing-Yot Tunnel without Adit				L.C. = 3,061 Baht/m 15%			
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark
			Rate	Cost	Rate	Cost	
1. Operation Cost (Equipment & Fuel)							
per 10m							
Shotcrete Robot Shot Radius 8m	1	5 Hr	2,170	10,850	10	50	5 Hr x 1
Shotcrete Shooter Wei 10-15m3/h	1	5 Hr	3,105	15,525	25	125	5 Hr x 1
Truck with Crane 4t x 2.9t lift	1	28 Hr	425	11,900	25	700	28 Hr x 1
Accelerator Supplier 5.5kw	1	2 day	1,130	2,260	54	108	2 day x 1
Dust Collector 300m3/hr, 30kw	1	5 Hr	1,290	6,450	63	315	5 Hr x 1
Truck Mixer 4.5 m3	1	10 Hr	620	6,200	70	700	10 Hr x 1
Concrete Plant 1.0*2 m3(25-30m3)	1	10 Hr	1,780	17,800	20	200	10 Hr x 1
Subtotal				70,985		2,198	Baht / 10m
2. Material							
per 10m							
Portland Cement Type II	13	ton	1,666	21,658	714	9,282	
Fine Sand for Aggregate	30	m3	0	0	220	6,600	
Coarse Sand for Aggregate(Gravel)	17	m3	0	0	220	3,740	
Accelerator for Shotcrete	750	kg	100	75,000	0	0	
Miscellaneous	1	%		967		196	
Subtotal				97,625		19,818	Baht / 10m
3. Labor							
per 10m							
Foreman Tunnel	1.0	day			720	720	2.0 dayx50%= 1
Operator of Heavy	9.0	day			460	4,140	1.5 day x 6
Driver	4.5	day			350	1,575	1.5 day x 3
Skilled Labor	3.0	day			260	780	1.5 day x 2
Common Labor	6.0	day			230	1,380	1.5 day x 4
Subtotal						8,595	
4. Total				168,610		30,611	199,221 Baht / 10m
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m							
Rate = Baht/m				16,861 Baht/m 3,061 Baht/m = 19,922			

T-65. Unit Rate per Meter of Shotcrete of Upper Half : Grade D1									
Rate = 27,025 Baht/m F.C. = 22,360 Baht/m 83%									
Ing-Yot Tunnel without Adit L.C. = 4,665 Baht/m 17%									
Items		Unit	Quantity	Foreign Currency		Local Currency		Remark	
				Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								per 10m	
Shotcrete Robot Shot Radius 8m	1	6 Hr	2,170	13,020	10	60	6 Hr x	1	
Shotcrete Shooter Wei 10-15m3/hr	1	6 Hr	3,105	18,630	25	150	6 Hr x	1	
Truck with Crane 4t x 2.9t lift	1	36 Hr	425	15,300	25	900	36 Hr x	1	
Accelerator Supplier 5.5kw	1	3 day	1,130	3,390	54	162	3 day x	1	
Dust Collector 300m3/hr, 30kw	1	6 Hr	1,290	7,740	63	378	6 Hr x	1	
Truck Mixer 4.5 m3	1	13 Hr	620	8,060	70	910	13 Hr x	1	
Concrete Plant 1.0*2 m3(25-30m3)	1	13 Hr	1,780	23,140	20	260	13 Hr x	1	
Subtotal					89,280		2,820	Baht / 10m	
2. Material								per 10m	
Portland Cement Type II		18 ton	1,666	29,988	714	12,852			
Fine Sand for Aggregate		41 m3	0	0	220	9,020			
Coarse Sand for Aggregate(Gravel)		41 m3	0	0	220	9,020			
Accelerator for Shotcrete		1030 kg	100	103,000	0	0			
Miscellaneous		1 %		1,330		309			
Subtotal					134,318		31,201	Baht / 10m	
3. Labor								per 10m	
Foreman Tunnel		1.5 day			720	1,080	3.0 dayx50%=	1.5	
Operator of Heavy		13.5 day			460	6,210	1.5 day x	9	
Driver		6.0 day			350	2,100	1.5 day x	4	
Skilled Labor		4.5 day			260	1,170	1.5 day x	3	
Common Labor		9.0 day			230	2,070	1.5 day x	6	
Subtotal						12,630			
4. Total					223,598		46,651	270,249 Baht / 10m	
5. Output				Working Time per 1 day = 12 Hr x 2 shift				per 10 m	
Rate = Baht/m				22,360 Baht/m				4,665 Baht/m = 27,025	

T-66. Unit Rate per Meter of Shotcrete of Upper Half : Grade D2									
Rate = 34,341 Baht/m F.C. = 29,080 Baht/m 85%									
Ing-Yot Tunnel without Adit L.C. = 5,261 Baht/m 15%									
Items		Unit	Quantity	Foreign Currency		Local Currency		Remark	
				Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								per 10m	
Shotcrete Robot Shot Radius 8m		1	8 Hr	2,170	17,360	10	80	8 Hr x	1
Shotcrete Shooter Wet 10-15m3/hr		1	8 Hr	3,105	24,840	25	200	8 Hr x	1
Truck with Crane 4t x 2.9t lift		1	43 Hr	425	18,275	25	1,075	43 Hr x	1
Accelerator Supplier 5.5kw		1	3 day	1,130	3,390	54	162	3 day x	1
Dust Collector 300m3/hr, 30kw		1	8 Hr	1,290	10,320	63	504	8 Hr x	1
Truck Mixer 4.5 m3		1	19 Hr	620	11,780	70	1,330	19 Hr x	1
Concrete Plant 1.0*2 m3(25-30m3)		1	19 Hr	1,780	33,820	20	380	19 Hr x	1
Subtotal					119,785		3,731	Baht / 10m	
2. Material								per 10m	
Portland Cement Type II		23	ton	1,666	38,318	714	16,422		
Fine Sand for Aggregate		52	m3	0	0	220	11,440		
Coarse Sand for Aggregate(Gravel)		31	m3	0	0	220	6,820		
Accelerator for Shotcrete		1,310	kg	100	131,000	0	0		
Miscellaneous		1	%		1,693		347		
Subtotal					171,011		35,029	Baht / 10m	
3. Labor								per 10m	
Foreman Tunnel		1.5	day			720	1,080	3.0 dayx50% =	1.5
Operator of Heavy		15.0	day			460	6,900	1.5 day x	10
Driver		7.5	day			350	2,625	1.5 day x	5
Skilled Labor		4.5	day			260	1,170	1.5 day x	3
Common Labor		9.0	day			230	2,070	1.5 day x	6
Subtotal							13,845		
4. Total					290,796		52,605	343,401 Baht / 10m	
5. Output				Working Time per 1 day = 12 Hr x 2 shift				per 10 m	
Rate = Baht/m				29,080 Baht/m				5,261 Baht/m = 34,341	

T-67. Unit Rate per Meter of Shotcrete of Upper Half : Grade E1									
Rate = 34,805 Baht/m F.C. = 29,450 Baht/m 85%									
Ing-Yot Tunnel without Adit L.C. = 5,355 Baht/m 15%									
Items		Unit	Quantity	Foreign Currency		Local Currency		Remark	
				Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								per 10m	
Shotcrete Robot Shot Radius 8m		1	8 Hr	2,170	17,360	10	80	8 Hr x	1
Shotcrete Shooter Wet 10-15m ³ /h		1	8 Hr	3,105	24,840	25	200	8 Hr x	1
Truck with Crane 4t x 2.9t lift		1	43 Hr	425	18,275	25	1,075	43 Hr x	1
Accelerator Supplier 5.5kw		1	3 day	1,130	3,390	54	162	3 day x	1
Dust Collector 300m ³ /hr, 30kw		1	8 Hr	1,290	10,320	63	504	8 Hr x	1
Truck Mixer 4.5 m ³		1	19 Hr	620	11,780	70	1,330	19 Hr x	1
Concrete Plant 1.0*2 m ³ (25-30m ³)		1	19 Hr	1,780	33,820	20	380	19 Hr x	1
Subtotal					119,785		3,731	Baht / 10m	
2. Material								per 10m	
Portland Cement Type II			24 ton	1,666	39,984	714	17,136		
Fine Sand for Aggregate			53 m ³	0	0	220	11,660		
Coarse Sand for Aggregate(Gravel)			31 m ³	0	0	220	6,820		
Accelerator for Shotcrete			1,330 kg	100	133,000	0	0		
Miscellaneous			1 %		1,730		356		
Subtotal					174,714		35,972	Baht / 10m	
3. Labor								per 10m	
Foreman Tunnel			1.5 day			720	1,080	3.0 days 50% =	1.5
Operator of Heavy			15.0 day			460	6,900	1.5 day x	10
Driver			7.5 day			350	2,625	1.5 day x	5
Skilled Labor			4.5 day			260	1,170	1.5 day x	3
Common Labor			9.0 day			230	2,070	1.5 day x	6
Subtotal							13,845		
4. Total					294,499		53,548	348,047 Baht / 10m	
5. Output				Working Time per 1 day = 12 Hr x 2 shift				per 10 m	
Rate = Baht/m				29,450 Baht/m 5,355 Baht/m =				34,805	

T-68. Unit Rate per Meter of Shotcrete of Upper Half : Grade E2									
Rate = 42,002 Baht/m F.C. = 35,340 Baht/m 84%									
Ing-Yot Tunnel without Adit L.C. = 6,662 Baht/m 16%									
Items		Unit	Quantity	Foreign Currency		Local Currency		Remark	
				Rate	Cost	Rate	Cost		
1. Operation Cost (Equipment & Fuel)								per 10m	
Shotcrete Robot Shot Radius 8m	1	9 Hr	2,170	19,530	10	90	9 Hr x	1	
Shotcrete Shooter Wet 10-15m ³ /hr	1	9 Hr	3,105	27,945	25	225	9 Hr x	1	
Truck with Crane 4t x 2.9t lift	1	50 Hr	425	21,250	25	1,250	50 Hr x	1	
Accelerator Supplier 5.5kw	1	4 day	1,130	4,520	54	216	4 day x	1	
Dust Collector 300m ³ /hr, 30kw	1	9 Hr	1,290	11,610	63	567	9 Hr x	1	
Truck Mixer 4.5 m ³	1	21 Hr	620	13,020	70	1,470	21 Hr x	1	
Concrete Plant 1.0*2 m ³ (25-30m ³)	1	21 Hr	1,780	37,380	20	420	21 Hr x	1	
Subtotal					135,255		4,238	Baht / 10m	
2. Material								per 10m	
Portland Cement Type II		30 ton	1,666	49,980	714	21,420			
Fine Sand for Aggregate		67 m ³	0	0	220	14,740			
Coarse Sand for Aggregate(Gravel)		39 m ³	0	0	220	8,580			
Accelerator for Shotcrete		1,660 kg	100	166,000	0	0			
Miscellaneous		1 %		2,160		447			
Subtotal					218,140		45,187	Baht / 10m	
3. Labor								per 10m	
Foreman Tunnel		2.0 day			720	1,440	4.0 days 50% =	2	
Operator of Heavy		18.0 day			460	8,280	1.5 day x	12	
Driver		9.0 day			350	3,150	1.5 day x	6	
Skilled Labor		6.0 day			260	1,560	1.5 day x	4	
Common Labor		12.0 day			230	2,760	1.5 day x	8	
Subtotal						17,190			
4. Total					353,395		66,615	420,010 Baht / 10m	
5. Output Working Time per 1 day = 12 Hr x 2 shift per 10 m									
Rate = Baht/m 35,340 Baht/m 6,662 Baht/m = 42,002									

T-69. Unit Rate per Meter of Shotcrete of Upper Half : Grade B									
			Rate = 12,345 Baht/m		F.C. = 10,343 Baht/m		84%		
Ing-Yot No.2 Tunnel with Adit					L.C. = 2,002 Baht/m		16%		
Items	Unit	Quantity	Foreign Currency		Local Currency		Remark		
			Rate	Cost	Rate	Cost			
1. Operation Cost (Equipment & Fuel)									
Shotcrete Robot Shot Radius 8m	1	3 Hr	2,170	6,510	10	30	per 10m		
Shotcrete Shooter Wet 10-15m ³ /h	1	3 Hr	3,105	9,315	25	75	3 Hr x 1		
Truck with Crane 4t x 2.9t lift	1	19 Hr	425	8,075	25	475	19 Hr x 1		
Accelerator Supplier 5.5kw	1	2 day	1,130	2,260	54	108	2 day x 1		
Dust Collector 300m ³ /hr, 30kw	1	3 Hr	1,290	3,870	63	189	3 Hr x 1		
Truck Mixer 4.5 m ³	1	8 Hr	620	4,960	70	560	8 Hr x 1		
Concrete Plant 1.0*2 m ³ (25-30m ³)	1	8 Hr	1,780	14,240	20	160	8 Hr x 1		
Subtotal				49,230		1,597	Baht / 10m		
2. Material									
Portland Cement Type II		7 ton	1,666	11,662	714	4,998	per 10m		
Fine Sand for Aggregate		17 m ³	0	0	220	3,740			
Coarse Sand for Aggregate(Gravel)		10 m ³	0	0	220	2,200			
Accelerator for Shotcrete		420 kg	100	42,000	0	0			
Miscellaneous		1 %		537		109			
Subtotal				54,199		11,047	Baht / 10m		
3. Labor									
Foreman Tunnel		1.0 day			720	720	per 10m		
Operator of Heavy		7.5 day			460	3,450	2.0 days*50% = 1		
Driver		3.0 day			350	1,050	1.5 day x 5		
Skilled Labor		3.0 day			260	780	1.5 day x 2		
Common Labor		6.0 day			230	1,380	1.5 day x 2		
Subtotal						7,380	1.5 day x 4		
4. Total				103,429		20,024	123,453 Baht / 10m		
5. Output									
Working Time per 1 day = 12 Hr x 2 shift					per 10 m				
Rate = Baht/m					10,343 Baht/m 2,002 Baht/m = 12,345				