

BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. Dari hasil analisa dengan network planning waktu proyek dapat lebih efektif selama 26,4 hari dengan nilai standard deviasi sebesar 0,5341 dan nilai probability sebesar 0,8665, yang berarti bahwa peluang sebesar 86,65%. Biaya tenaga kerja sebesar Rp.6.024.000. dengan menggunakan PERT. Sedangkan tanpa menggunakan PERT biaya tenaga kerja Rp 7.344.000. dan waktu penyelesaian selama 31 hari. sehingga biaya dapat dihemat sebesar Rp.1.320.000. (Lihat lampiran 3).
2. Penerapan dengan Network Planning dengan menggunakan PERT lebih meningkatkan efisiensi waktu dan biaya Sumber daya, material dan peralatan diusahakan jangan sampai terlambat karena akan mengakibatkan keterlambatnya waktu hasil pekerjaan proyek .

5.2 Saran

1. Bagi peneliti selanjutnya yang tertarik untuk mengetahui *network planning* lebih lanjut, sebaiknya melakukan pengambilan data mengenai sumberdaya misalnya tenaga kerja, mesin, peralatan ataupun yang lainnya. Sehingga tidak hanya mengetahui penghematan waktu saja, tetapi dapat mengetahui penghematan dari segi sumberdaya dan biaya keseluruhan.

2. Perencana Proyek sebaiknya menggunakan metode *Network Planning* dengan metode PERT yang dapat mempersingkat waktu dan biaya sehingga proyek dapat dilaksanakan dengan lebih efisien dan dapat mencapai hasil yang optimal.

LAMPIRAN

Lampiran 1. Tenaga kerja ,Bahan Dan Alat.

NO	Uraian	Satuan	Harga Satuan
1	TENAGA KERJA		
2	Tukang	HOK	Rp39,000.00
3	Pekerja	HOK	Rp28,000.00
4	Kepala Tukang	HOK	Rp45,000.00
5	BAHAN/MATERIAL		
6	Semen	ZAK	Rp43,000.00
7	Pasir	M	Rp130,000.00
8	Batu belah	M	Rp110,000.00
9	Split	M	Rp150,000.00
10	paku	Kg	Rp13,000.00
11	Besi	Kg	Rp13,000.00
12	Kawat	Kg	Rp13,000.00
13	paving	M2	Rp66,500.00
14	pasir urug	M2	Rp71,500.00
15	ALAT-ALAT		
16	Bbm utk pompa air	ltr	Rp4,500.00
17	Drum bor	Bh	Rp200,000.00
18	grobag sorong	Bh	Rp375,000.00
19	linggis	Bh	Rp50,000.00
20	palu besar	Bh	Rp75,000.00
21	sekop	Bh	Rp30,000.00
22	ember tukang	Bh	Rp7,000.00
23	bambu	btng	Rp7,000.00
24	pipa pvc	btng	Rp50,000.00
25	paku	Kg	Rp12,000.00
26	selang air	M	Rp4,000.00
27	kranjang	Bh	Rp5,000.00
28	sewa pompa air	Hari	Rp25,000.00

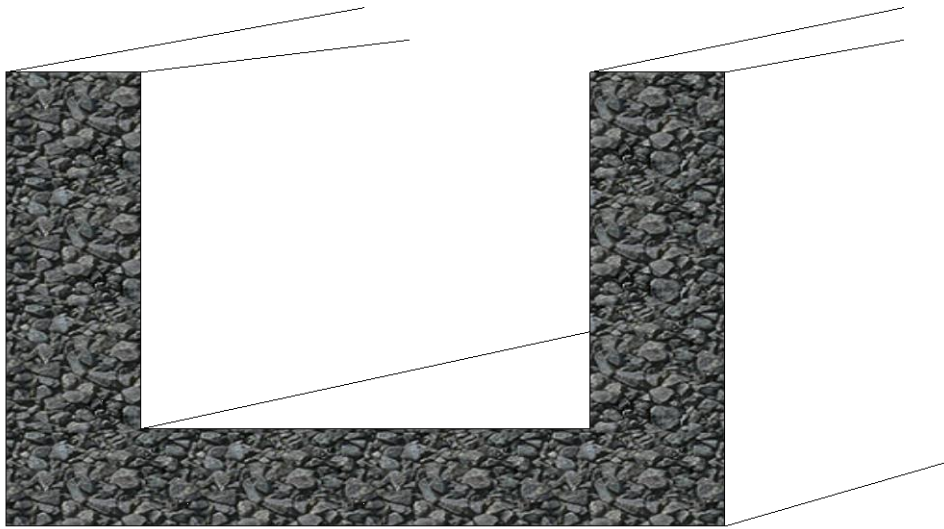
Lampiran 2. Uraian Pekerjaan.

Uraian Pekerjaan	Satuan	Panjang	Lebar	Tinggi	Volume
Pembongkaran					
Dinding Utara	M3	100	0.3	1.3	39
Dinding Selatan	M3	100	0.3	1.3	39
Lantai Dasar	M3	100	0.6	0.3	18
Pembuangan	M3				
Pas batukali dinding utara	M3	100	0.3	1.3	39
Pas batu kali dinding	M3	100	0.3	1.3	39
Pas batu kali lantai dasar	M3	100	0.6	0.3	18
Pekerjaan plat penutup	M3	100	1.2	0.08	9.6
Total					201.6

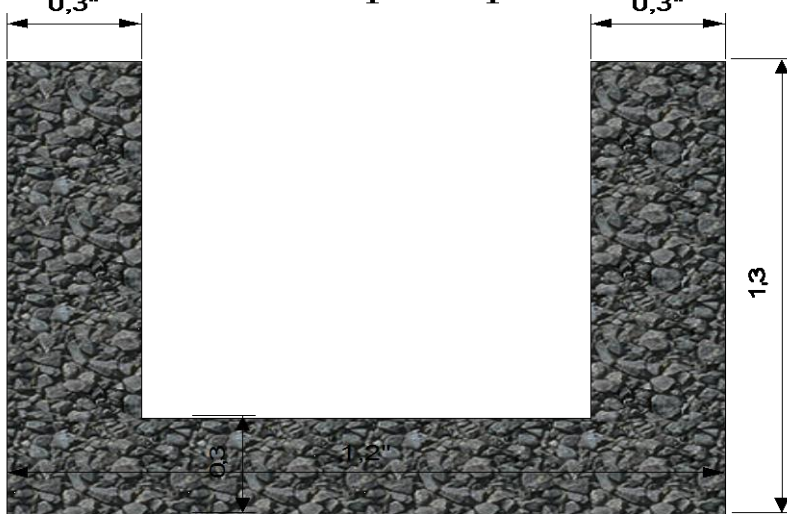
Lampiran 3. Biaya Tenaga Kerja selama 31 hari.

Kegiatan	Keterangan	waktu (hari)	tkg 2	tng 2	Kep tkg	Biaya	Wkt sewa (hari)	Jumlah
			org	org		Rp		
A	Pembongkaran Tutup	5	Rp 78,000	Rp 28,000	Rp 45,000	Rp 25,000	5	Rp 1,020,000
B	pembongkaran Dinding Selatan	3	Rp 234,000	Rp 168,000	Rp 135,000	Rp 75,000	3	Rp 612,000
C	Pembuatan Besi Cor	3	Rp 234,000	Rp 168,000	Rp 135,000	Rp 75,000	3	Rp 612,000
D	Pembongkaran Lantai Saluran Air	8	Rp 624,000	Rp 448,000	Rp 360,000	Rp 200,000	8	Rp 1,632,000
E	Pemasangan Batu Kali Dasar	5	Rp 390,000	Rp 280,000	Rp 225,000	Rp 125,000	5	Rp 1,020,000
F	Pasang Batu kali Dinding Selatan	5	Rp 390,000	Rp 280,000	Rp 225,000	Rp 125,000	5	Rp 1,020,000
G	Pasang Batu kali Dinding Utara	3	Rp 234,000	Rp 168,000	Rp 135,000	Rp 75,000	3	Rp 612,000
H	Pembuatan Plat Penutup	2	Rp 156,000	Rp 112,000	Rp 90,000	Rp 50,000	2	Rp 408,000
I	Pemasangan Plat penutup	2	Rp 156,000	Rp 112,000	Rp 90,000	Rp 50,000	2	Rp 408,000
Jumlah seluruh biaya tenaga kerja								Rp 7,344,000

Lampiran 4. Gambar Profil proyek.



Gambar 4.1 tampak depan



Gambar 4.2 potongan

Lampiran 5. Permasalahan dengan Win QSB.

Problem Specification ✕

Problem Title

Number of Activities:

Time Unit:

Problem Type

Deterministic CPM

Probabilistic PERT

Data Entry Format

Spreadsheet

Graphic Model

Select CPM Data Field

Normal Time

Crash Time

Normal Cost

Crash Cost

Actual Cost

Percent Complete

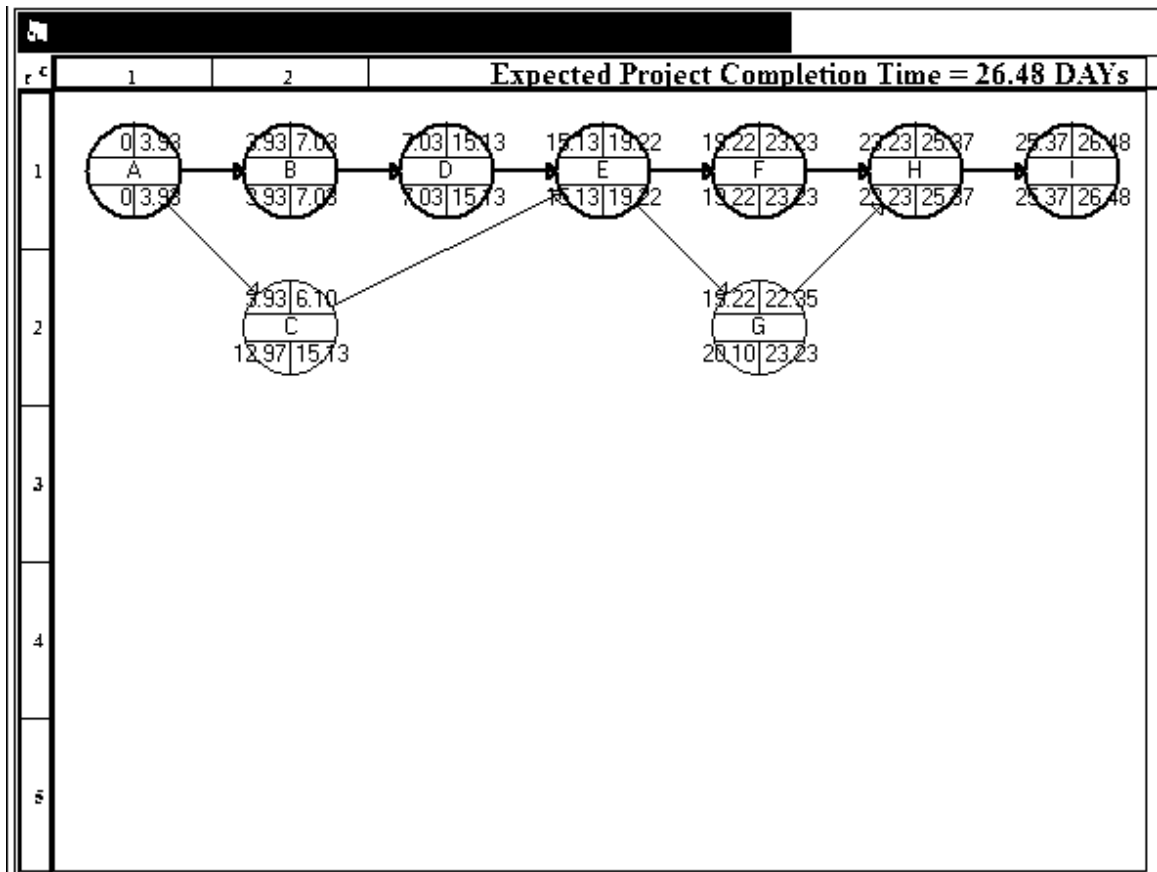
Activity Time Distribution:
3-Time estimate

Choose Activity Time Distribution

Lampiran 6. Optimis, Pesimis dan Most likely time.

Activity Number	Activity Name	Immediate Predecessor (list number/name, separated by ',')	Optimistic time (a)	Most likely time (m)	Pessimistic time (b)
1	A		3,6	4	4
2	B	A	2,6	3	4
3	C	A	2	2	3
4	D	B	7,6	8	9
5	E	C,D	3,5	4	5
6	F	E	3,6	4	4,5
7	G	E	2,8	3	4
8	H	G,F	1,8	2	3
9	I	H	0,7	1	

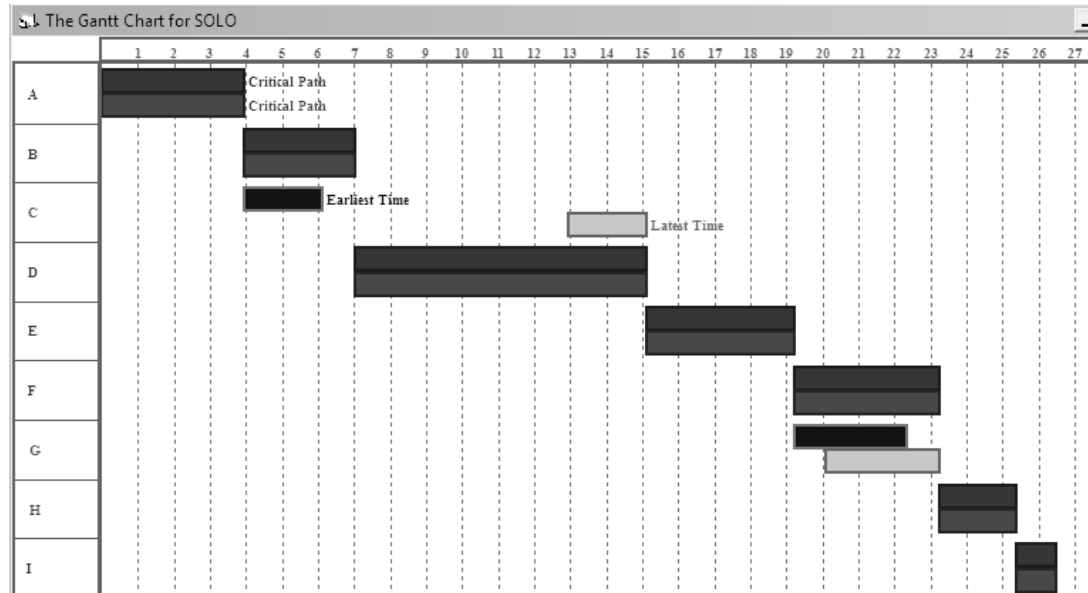
Lampiran 7. Hasil Diagram dengan WIN QSB.



Lampiran 8. Hasil analisa dengan Win QSB.

08-16-2013 20:46:47	Activity Name	On Critical Path	Activity Mean Time	Earliest Start	Earliest Finish	Latest Start	Latest Finish	Slack (LS-ES)	Activity Time Distribution	Standard Deviation
1	A	Yes	3.9333	0	3.9333	0	3.9333	0	3-Time estimate	0.0667
2	B	Yes	3.1	3.9333	7.0333	3.9333	7.0333	0	3-Time estimate	0.2333
3	C	no	2.1667	3.9333	6.1	12.9667	15.1333	9.0333	3-Time estimate	0.1667
4	D	Yes	8.1	7.0333	15.1333	7.0333	15.1333	0	3-Time estimate	0.2333
5	E	Yes	4.0833	15.1333	19.2167	15.1333	19.2167	0	3-Time estimate	0.25
6	F	Yes	4.0167	19.2167	23.2333	19.2167	23.2333	0	3-Time estimate	0.15
7	G	no	3.1333	19.2167	22.35	20.1	23.2333	0.8833	3-Time estimate	0.2
8	H	Yes	2.1333	23.2333	25.3667	23.2333	25.3667	0	3-Time estimate	0.2
9	I	Yes	1.1167	25.3667	26.4833	25.3667	26.4833	0	3-Time estimate	0.2167
	Project	Completion	Time	=	26.48	DAYs				
	Number of	Critical	Path(s)	=	1					

Lampiran 9. Tabel dengan Win QSB.



Lampiran 10. Analisa Probabilitas.

Probability Analysis ✕

The following probability calculation assumes that activities are independent and so are paths. It also assumes that the project has a large enough number of activities to assume the normal distribution, which is used to estimate the probability of finishing a critical path in the desired time. Therefore, when the activities are not independent or the number of activities is not large, the analysis may be biased.

Completion time based on mean/expected time: 26.48 DAYs

Number of critical paths: 1

Desired completion time in DAY: 27

Critical Path:	Standard Dev.:	Probability:
A --> B --> D --> E --> F --> H --> I	0.5341	0.8333

Lampiran 12. Tabel Standard Normal Probabilitas (-).

Table entry for z is the area under the standard normal curve to the left of z .

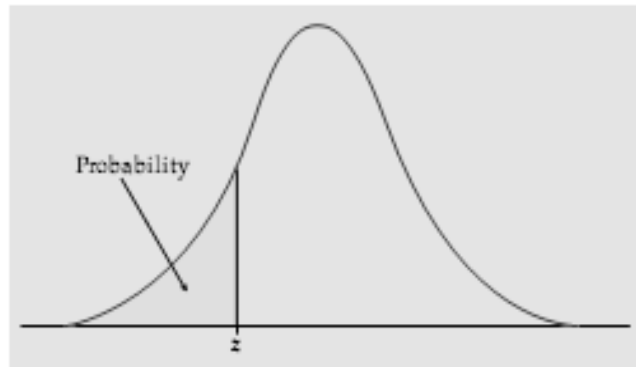


TABLE A Standard normal probabilities

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

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